



Co-funded by
the European Union

COURSE CURRICULUM

The logo for ENVIRONAUT is a circular emblem with a blue and green gradient. Inside the circle, there is a green seaweed-like plant at the top and a blue anchor at the bottom. The word "ENVIRONAUT" is written in white, bold, uppercase letters across the center of the circle. The background of the entire page features a large, circular image of a boat's wake on the ocean, with a teal and blue color scheme.

ENVIRONAUT

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

This course curriculum was developed as part of the project EnviroNaut by the European Commission's Erasmus+ Programme and implemented through a collaboration with the following organisations:



SEA TEACH



This work is marked with CC0 1.0. To view a copy of this license, visit <http://creativecommons.org/publicdomain/zero/1.0>



Co-funded by
the European Union

Course Objective

To provide a holistic approach of Environmental Officer in Nautical Tourism to the learning capacities of workers currently employed by nautical tourism companies. Thus, providing learners with an environmental literacy that can be taken forward into any further education or work that is related or connected to seas, oceans, coasts, and inland waterways. Contents are focused on the knowledge about legislation, pollution control, waste management, environmental best practices, resource savings and energy consumption.

Framework

The Course is framed around the 2 main modules: a general module about the ocean influence on humans and vice-versa followed by the industry-specific module which is composed by 4 thematic sub-modules for the marinas, sea Schools and Water Sport Clubs, skippers and maintenance companies.

In order to obtain the certification the student has to complete the general module, one specific module and the final test. However, each student is free to follow more than one specific module.

The modules, sub-contents, and subjects/topics have been presented using a matrix system that provides an overview of the course flow and learning objectives



Summary Table



Co-funded by the European Union



	General Module (compulsory)	You are free to choose one of these 4 specific modules				Final test
	Ocean Literacy	Marinas	Sea Schools and Water Sports Clubs	Skippers	Environmental impact of the Maintenance Companies	Final test
Contents	Explanation of the entire course	Environmental impact of marinas	Maintenance Methods, products and their effects which could be noise chemical, air quality	Waste disposal	General - Responsible consumption	Final test
	Importance of the ocean	Introduction of marina operations and identification of their impact	Waste disposal	Information to customers	Cleaning	
	The ocean	Anchoring / Docking	Information to customers	Cleaning procedures and products	Repair & Services	
	Summary of the module	Cleaning and cleaning impact	Cleaning procedures and products	Maintenance methods, products and their effects which could be (noise, chemical, air quality)	Painting	
	Different kind of threats	Rental of commercial property	Infrastructure	Responsible consumption	Polishing	
	Threats related to the nautical sector	Commercial Impact	Energy management	Consideration when navigating waterways	Dry storage	
	General concept of Citizens Science	Boat Maintenance	Building materials	Rules to avoid Marine Litter	Outlook into the future	
	Some Citizens Science apps/websites	Premises Maintenance	Winterisation			
	Collective Actions	Wrap-up	End of life considerations for replacement products, equipment or systems			
	Summary		Consideration when navigating waterways			
		Rules to avoid Marine Litter				
		Responsible consumption				

Content	Subject/topics	Learning Objectives
Importance of the ocean	General Introduction	The user knows the main role of the ocean
The ocean	Releases Oxygen / Air to breathe	The user is aware of the fundamental role of the ocean, ecosystem services and the marine resources.
	Regulates Climate	
	Provides Food	
	Provides Medicine and healthcare products	
	Is a Resource of Biodiversity	
	Is a Resource of energy	
	Is a Resource of Raw Materials	
	Provides Jobs	
	Protects the coasts	
	Make us enjoy life (recreation)	
Different kind of threats	Global warming and its consequences: sea level rise, ocean acidification	The user knows which are the main anthropogenic ocean threats in general and should retain some details about the specific threats analyzed during the course.
	Chemical pollutants	
	Oil spills	
	Plastic and microplastics	
	Fishing-overfishing (bycatch), entanglement (ghost nets), destructive fishing	
	Seabed mining	
	Acoustic pollution (maritime traffic)	
	Alien species (ballast waters)	
	Whale and shark commerce	
Threats related to the nautical sector	Introduction to the threats linked to the Nautical Sector	The user can extrapolate the learned knowledge and think about specific problems linked to his/her sector.



provides for us

Content	Subject/topics	Learning Objectives
General concept of Citizens Science	Intro to Citizens Science	The user knows what Citizens Science is, how it started, and state of the art now
Some Citizens Science apps/websites	Interantional apps	The user is familiar with some Citizens Science apps, and learn how to use them
	Greek apps/websites	
	German apps/websites	
	Spanish apps/websites	
	Belgian apps/websites	
	Cypriot apps/websites	
Collective Actions	Beach dean up, photo-id cetaceans and underwater surveys.	The user can organize an event for the protection/knowledge of the ocean.
Summary of the ocean literacy module	Take home messages	The user understands the importance of the ocean and recognize the value of marine resources. He/she is also aware of the main anthropogenic impacts and marine threats. He/she has the tools to find citizen science initiatives and knows which are the procedures to organise collective action for ocean protection.

Content	Subject/topics	Learning Objectives	
A) Environmental impact of marinas	Environmental sustainability of Marinas	Raising awareness about the importance of the coastal environment and how it can be affected. Specification of the environmental elements affected mostly by the marina infrastructure and marina operations.	
	Environmental impact of marinas on Air		
	Environmental impact of marinas on Land/ Soil		
	Environmental impact of marinas on Water		
	Environmental impact of marinas on Anchoring / Docking impact	Noise	The user understands that the anchoring/ docking operation can have low to zero impact on the environment. This can be successes by raising environmental awareness of customers.
		Emissions	
		Waste management	
		Fuel provision	
		Grey & Black water pollution	
		Oil pollution	
Cleaning impact	Emissions	The user understands that any cleaning operation can be harmful to the environment. It is necessary to give the customers initiatives to follow good practices while cleaning.	
	Water management		
	Water pollution		
	Seaweed		
Rental of commercial property impact	Noise	The user understands that people occupied on the marina's commercial area are responsible for enviromental sustainability of the marina. Thus, the user should provide customised guidelines on each business unit for pollutants and supervise regularly its compliance.	
	Emissions		
	Light pollution		
	Waste management		
	Run-off rainwater		
B)Introduction of marina operations and identification of their impact	Noise	The user knows that it is necessary to provide boat maintenance services that are not harmful for the environment. Therefore, the facilities location should include noise/dust barriers, eco-friendly chemicals and proper waste disposal.	
	Dust (painting, antifouling, etc.)		
	Oil pollution		
	Waste (batteries, spares parts, etc.)		
	Grey & Black water pollution		
	Oil pollution		
	Run-off rainwater		
	Invasive species		
Premises Maintenance impact	Energy management	The user understands that it is necessary to advise marina's personnel and external service providers (workshops) about environmental issues when perfuming their tasks. All personnel is essential to be environmentally aware and conscious.	
	Water management		



Content	Subject/topics	Learning Objectives
Maintenance Methods, products and their effects which could be noise chemical, air quality	Boat repair and washing areas	The user knows the advantages of such a station and the types of disposal for cleaning water.
	Regular maintenance of the motor engine	The user knows that most of the disturbance underwater comes from the vibration of the motor engine. Thus the user makes sure that the engine is regularly maintained. So small defects are quickly spotted and so they won't lead to big vibrations underwater.
	Insulation of machine rooms	The user knows that most of the disturbance underwater comes from the vibration of the motor engine. Thus the user makes sure that the engine room is properly damped.
	Sail repair	The user knows how to repair sails himself and how they can possibly be recycled.
	Antifoul	The user knows about the toxic effects of Antifoul. He/she can distinguish between less toxic and more toxic Antifoul. For the renewal of these, the user ensures that the removed Antifoul is not released into the surrounding waters.
	Bilge care	The user knows the procedures and actions to prevent petroleum products from mixing with bilge water
Waste disposal	Grey and black water	The user can distinguish between grey and black water and knows the respective risks for the waters of the two. The user knows the common methods for collecting and getting rid of blackwater. The user practices greywater-reducing methods
	Waste materials	The user knows about the important different waste materials. So the user understands why it's important to separate waste from each other in order for them to be properly recycled. The user can explain this importance to customers.
	General waste/ marine debris /(Fishing nets and lines)	
	Oil and fuel	The user knows that it is important to provide sufficient separation facilities for the waste and to ensure proper disposal. The user understands the effect of eutrophication and why biological waste should not go overboard. The user can explain this importance to customers.
	Chemicals, batteries, paintings	
	Flares	The user knows the challenge of disposing of flares and knows how to dispose of them responsibly.
	Antifreeze	The user knows the challenge of disposing of antifreeze and knows how to dispose of them responsibly.
	Waste disposal facilities	The user knows that it is particularly important to maintain the facilities so that no harmful substances are released into the environment. For this reason, the areas are always in the best condition and are regularly checked and the pollutants are professionally disposed of.
	Nutrient input and eutrophication	The user understands how nutrient inputs can cause eutrophication of water bodies. The user is aware of this and ensures that no waste enters the water.
Waste management rules and the R's	The user has a basic knowledge of the recycling system of the respective country and the R's	
Information to customers	Waste management in different languages and/ or pictures	The user knows that he/she cannot simply pass on the responsibility for proper waste separation to the customers. For this reason, he/she can offer a well guided disposal service, for example through pictures and text in different languages.
	Club Rules	The user knows that club rules are a good means of obtaining assurances from members that, for example, no waste and chemicals are disposed of in the waters and/or along the coast. The user adapts the club rules accordingly.
	Noise pollution	The user is aware and can demonstrate (through real videos or animations) the negative impacts of noise pollution on wildlife and ecosystems.
	Running a sustainable event	The user knows the impact of large events on the environment. The user knows general tips for a sustainable event and where he/she can get more information.
	Youth work	The user knows that youth work can be used to increase environmental awareness within the organisation.
	Instruction and information for the use of the equipment to prevent environmental pollution	The user is aware of the common methods for preventing oil pollution etc. Therefore, the user shall provide the necessary equipment, if not already available, and display the relevant information. The user instructs customers in the use of the equipment.

Content	Subject/topics	Learning Objectives
Cleaning procedures and products	environmentally harmful cleaning agents	The user is aware of the effects of non-biodegradable cleaning agents.
	Alternative biodegradable cleaning agents	The user understands the term biodegradable and the advantages of biodegradable cleaning agents.
	Cleaning the waterline and below	The user makes use of in cargo stations or dry storage to clean the hull under the waterline
	Cleaning tools and its maintenance	The user takes care of the cleaning tools in a responsible way
Infrastructure	Green spaces instead of sealed surfaces	The user knows about the importance of green spaces and avoids developing new sealed areas. In this way, biodiversity can be strengthened locally. The user also avoids the use of herbicides, pesticides, etc.
	Water use	Where possible, the user checks the water consumption of the sanitary facilities and optimises the water consumption.
	Bicycle parking	the importance of reaching the site without a car.
	public transport connection	
Energy management	energy efficient lightning	The user understands the importance of energy-efficient light sources and replaces inefficient light sources where possible. Attention is paid to proper disposal.
	alternative energy supply	The user knows alternative energy supply. The user knows the advantages and disadvantages for his/her area. For further ideas, the user consults a professional.
Building materials	Environmentally friendly materials for construction	The user knows about sustainable building materials and is motivated to look into them further.
Winterisation	outdoor storage	The user knows the advantages and disadvantages of the different storage options. The user knows how to avoid waste during storage.
	indoor storage	
End of life considerations for replacement products, equipment or systems	Boats	The user knows about the problem of end of life booting and current challenges .
	Equipment or systems	The user knows more sustainable alternatives for equipment of boats and propulsion systems.



Content	Subject/topics	Learning Objectives
Consideration when navigating waterways	Norms and restrictions of MPAs and Restricted Natural Areas (ecological).	Is aware and respect the MPAs norms. Make appropriate actions to keep the protection of MPAs. Supports Communication and Awareness around MPAs. The user can explain the environmental rules to protect nature reserves and MPAs to their customers before departure
	Minimum water levels (ground contact)	The user knows the consequences of ground contact in relation to the organisms of the water body. For this reason, it is ensured that the waters are only navigated when the water has a certain depth.
	Entry and exit points	The user is aware that when navigating waterways, it is only permitted to leave the water at certain marked locations. The user can create a map that clearly shows the entry and exit points. He/she shall ensure that customers comply with this.
	Distance from breeding sites	The user knows the typical breeding places of birds near water. In order not to disturb the birds, sufficient distance is kept from the sites. During the breeding season customers are informed about the behaviour towards the birds.
	Wave impact	The user understands why wave action must be avoided as far as possible, especially in inland waters. This also goes hand in hand with the protection of breeding sites and the protection of the shore from erosion.
	Sediment swirling	The user knows about sediment swirling and the resulting danger to water bodies. Thus the user avoids sediment swirling as far as possible.
	Respect for wildlife (attraction with food ...)	The user does not feed wildlife since he/she understands the consequences of feeding wildlife. The user makes sure that all persons included know being on the water is about being a guest in the waters and respecting the organisms living in them.
	Anchoring	The user practices responsible anchoring. This means for example the user does not anchor above Posidonia since he/she is familiarised with seagrass and its important function for the whole system.
Rules to avoid Marine Litter	The effects of using single-use plastic	The user is aware of the negative effects and many harmful chemicals plastics leach into the ecosystem
	Environmental etiquette for customers on board	The user is aware of the disruption caused by sun cream on wildlife: coral reefs, mussels, fish and dolphins. The user is aware of the reduction of oxygen in the sea caused by plastic pollution and its negative effects on marine life
	Involvement of Customers in keeping our oceans clean	Activities and techniques to attract customer attention
Responsible consumption - 30 minutes	Power consumption pattern	The user knows how to effectively charge the vessel and makes use of energy only when needed
	Fuels & optimise driving	The user makes use of Bio-fuels when possible & knows the driving techniques to reduce the amount of fuel
	Use of products & Consumables	The user optimise the use of certain products needed. The user purchases and make use of alternative consumables: bio-products and no single use plastic
	Use of water	The user makes an appropriate use of water.

Content	Subject/topics	Learning Objectives
Waste disposal	Gray and black water	The user can distinguish between gray and black water and knows the respective risks for the waters. The user knows the common methods for collecting and getting rid of blackwater. The user practices greywater-reducing methods
	Waste materials	The user has a general knowledge about the important different waste materials. So the user understands why it's important to separate waste from each other in order for them to be properly recycled.
	General waste/ marine debris /Fishing nets and lines	
	Oil and fuel	The user knows that it is important to provide sufficient separation facilities for the waste and to ensure proper disposal. The user understands the effect of eutrophication and why biological waste should not go overboard. The user can explain this importance to customers.
	Chemicals, batteries, paintings	
	Flares	The user knows the challenge of disposing of antifreeze/flares and knows how to dispose them responsibly.
	Antifreeze	
	Nutrient input and eutrophication	The user understands how nutrient inputs can cause eutrophication of water bodies. The user is aware of this and ensures that no waste enters the water
	Waste disposal facilities	The user knows that it is particularly important to maintain the facilities so that no harmful substances are released into the environment. For this reason, the areas are always in the best condition and are regularly checked and the pollutants are professionally disposed of.
	Waste management rules	The user has a basic knowledge of the recycling system of the respective country and the R's
Information to customers	Waste management in different languages and/ or pictures	The user knows that he/she cannot simply pass on the responsibility for proper waste separation to the customers. For this reason, he/she offers a well guided disposal service, for example through pictures and text in different languages.
	Running a sustainable event	The user knows the impact of large events on the environment. The user knows general tips for a sustainable event and where he/she can get more information.
	Noise pollution	The user is aware and can demonstrate (through real videos or animations) the negative impacts of noise pollution on wildlife and ecosystems.

Content	Subject/topics	Learning Objectives
Cleaning procedures and products	environmentally harmful cleaning agents	The user is aware of the effects of non-biodegradable cleaning agents.
	Alternative biodegradable cleaning agents	The user understands the term biodegradable and the advantages of biodegradable cleaning agents.
	Cleaning the waterline and below	The user makes use of in cargo stations or dry storage to clean the hull under the waterline
	Cleaning tools and its maintenance	The user takes care of the cleaning tools in a responsible way
Maintenance methods, products and their effects which could be (noise, chemical, air quality)	Insulation of machine rooms	The user knows that most of the disturbance underwater comes from the vibration of the motor engine. Thus the user makes sure that the engine room is properly damped.
	Regular maintenance of the motor engine	The user knows that most of the disturbance underwater comes from the vibration of the motor engine. Thus the user makes sure that the engine is regularly maintained. So small defects are quickly spotted and so they won't lead to big vibrations underwater.
	Bilge Care	The user knows the procedures and actions to prevent petroleum products from mixing with bilge water
	Power consumption pattern	The user knows how to effectively charge the vessel and makes use of energy only when needed
	Fuels & optimise driving	The user makes use of Bio-fuels when possible & knows the driving techniques to reduce the amount of fuel
Responsible consumption - 30 minutes	Use of products & Consumables	The user optimise the use of certain products needed. The user purchases and make use of alternative consumables: bio-products and no single use plastic
	Use of water	The user makes an appropriate use of water.

Content	Subject/topics	Learning Objectives
<p>Consideration when navigating waterways (45 minutes)</p>	<p>Norms and restrictions of MPAs and Restricted Natural Areas (ecological).</p>	<p>Is aware and respect the MPAs norms. Make appropriate actions to keep the protection of MPAs. Supports Communication and Awareness around MPAs. The user can explain the environmental rules to protect nature reserves and MPAs to their customers before departure</p>
	<p>Distance from breeding sites</p>	<p>Clarify the special protection of breeding sites and explain the rules for passing through them.</p>
	<p>Wave impact</p>	<p>The user understands why wave action must be avoided as far as possible, especially in inland waters. This also goes hand in hand with the protection of breeding sites and the protection of the shore from erosion.</p>
	<p>Sediment swirling</p>	<p>The user knows about sediment swirling and the resulting danger to water bodies. Thus the user avoids sediment swirling as far as possible.</p>
	<p>Anchoring</p>	<p>The user practices responsible anchoring. This means for example the user does not anchor above <i>possedonia</i> since he/she is familiarised with seagrass and its important function for the whole system.</p>
<p>Rules to avoid Marine Litter - 30 minutes</p>	<p>The effects of using single-use plastic</p>	<p>The user is aware of the negative effects and many harmful chemicals plastics leach into the ecosystem</p>
	<p>Environmental etiquette for customers on board</p>	<p>The user is aware of the disruption caused by sunscreen on wildlife: coral reefs, mussels, fish and dolphins. The user is aware of the reduction of oxygen in the sea caused by plastic pollution and its negative effects on marine life</p>
	<p>Involvement of Customers in keeping our oceans clean</p>	<p>Activities and techniques to attract customer attention</p>

Content	Subject/topics	Learning Objectives
General - Responsible consumption	Water	The user is aware of the procedures to make a responsible use of water, electricity, products and fuel. The user respects the norms to meet with the noise and air quality regulations.
	Electricity	
	Products / Packaging / tools	
	Fuel	
	Noise	
	Air Quality	
Cleaning	Cleaning Products and tools	The user can differentiate between eco and non-eco friendly products.
	Practices (dos and don'ts, including hull cleaning and teak treatment)	The user can demonstrate environmental friendly practices in their day to day work
	Waste disposal	The user is aware of and respect the waste disposal policies (national/EU)
	Cleaning and storage of tools an the workplace	The user knows how to clean and storage the tools in a green way

TG4 – MAINTENANCE COMPANIES



Co-funded by the
European Union



Content	Subject/topics	Learning Objectives
Repair & Services	Winterization	The user can implement a full strategy to follow environmental procedures in the low season
	Spring preparation	
	Engine maintenance	The user can deliver a green engine maintenance process
	Batteries	The user is aware of the environmental procedures to be followed and the dangers of the batteries.
	Bilge pump	The user is aware of the dangers of discharging of oil for the ocean as it is toxic to marine plants and animals. The user is aware of the environmental practices to maintain a healthy bilge pump
Painting	Materials, products and tools	The user is aware of the environmental friendly paints
	Antifouling	The user is aware of the eco-friendly options
	Environmental procedures	The user is aware of the environmental procedures to be followed when applying paint.
Polishing	Materials, products and tools (gelcoat)	The user knows and can deliver an environmental friendly polishing process
	Waste disposal	
Dry storage	Lifting & Transport	The user knows how to keep a green dry storage
	Securing for leaks and spillages	
	Wrapping	
Outlook into the future	Biofuels	The user knows the last developments on sustainability of the nautical sector.
	End of life boats	
	Alternative propulsion/drive	
	Alternative materials	