

Equipment for waste and waste water management in marinas and beach under management of LP, PP1, PP3, PP5 and PP6

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Project Acronym	ECOMAP
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Work Package Number	4
Work Package Title	Conversion of touristic and marine ports into ecological poles
Activity Number	4.1.
Activity Title	Development and implementation of environmentally-friendly solutions for marinas and nearby area
Partner in Charge	CFR (Consortium Future in Research)
Partner Involved	Bibione Mare SpA, Municipality of Podstrana, Sports Fishing Society Strožanac, Maritime Sports Society Špinut, Municipality of Ancona
Status	Final
Distribution	Public

MUNICIPALITY OF PODSTRANA (LP)

The Municipality of Podstrana acquired the mobile recycling yards (2 pieces) and recycle bins (3 pieces).

The mobile recycling yards are portable units, container type with the possibility of opening the pages, in which the space is equipped with equipment for receiving and storing various types of pre-sorted waste. In mobile recycling yards, waste separated by the citizens is temporarily stored, so waste management activities do not end in a mobile recycling yard, but involve more frequent emptying and removal of classified waste.

The mobile recycling yards are free of charge for all local inhabitants as well as tourists and visitors of Podstrana.

The photographs of the mobile recycling yard and recycle bins acquired by Municipality of Podstrana (LP) for the project ECOMAP purposes and located at the coastal area of Podstrana



The Mobile recycling yard



The recycle bins

BIBIONE MARE (PP6)

In the present report are illustrated the equipment purchased for the marina of Portobaseleghe and those installed under the 4 beach showers to achieve what is indicated in WP4.

For the marina, some equipment were purchased to allow the treatment of oily water from the activities that take place in the area.

Fig. 1 shows a reusable fiber ribbon with contemporary oil-absorbing and water-repellent properties.

Regeneration takes place through the passage of the ribbon in the mechanical oil separator, which allows the collection of hydrocarbons to be then correctly disposed (Fig. 2).



Fig. 1 – Oil-absorbing and hydrophobic fiber

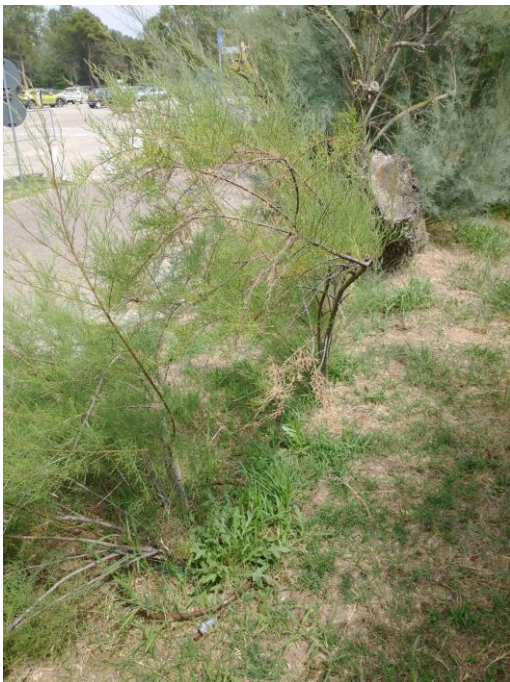


Fig. 2 – Mechanical oil separator

In the beach, four showers have been equipped to reuse the water, after a brief treatment, for the irrigation of the nearby plants.

In the Figures below there are the different steps of the work necessary for the realization of the installation.





MUNICIPALITY OF ANCONA (PP5)

Following internal and external meetings with main stakeholder La Marina Dorica, at the beginning of 2021 the Municipality of Ancona started the purchase procedure to acquire a mobile pump for boat black water. Due to shortage of raw materials at international level, the delivery of the equipment was delayed but successfully given to La Marina Dorica in December 2021.

Later in September we started the procedure to purchase a KIT to prevent oil spilling from boats, which was concluded in December. The Municipality of Ancona acquired 117 units of FOAMFLEX200 – an innovative oil absorbent technology for hydrocarbons and their derivatives that were planned to be given to authorities, institutions and boat owners of La Marina Dorica with the aim to reduce pollution in the Conero area.

The 12th of May 2022 the second Educational activity was organised at Marina Dorica with the aim to present both the mobile pump and KIT to boat owners. The event achieved excellent success among participants who showed great interest on the equipment and its benefits for the marine environment.

Photographs of the Mobile pump for boat black waters



The photographs of presentation of the mobile pump and KIT to boat owners at Marina Dorica





Educational activity at Marina Dorica



KIT to prevent oil spilling from boats

PP1 (PŠD ŠPINUT)

The equipment for collection and treatment of wastewater from moles, as well as system for collection and management of polluted rain waters from repair and maintenance area.

PP1 has acquired the following equipment under activity 4.1.:

- 1) **Physical-chemical purifier of wastewater generated during ship washing** - three pieces.

The device purifies wastewater generated by washing ships (contaminated water with anti-fouling paint residues.)

Water is collected through canals and shafts where it is mechanically purified, then pumped to the tank of the device. Then the device automatically adds three types of chemicals, the water comes to the third tank where the last sedimentation takes place. At the end of the process the worker manually opens the valve and discharges the sediment into bags to separate the solid waste particles from the water. Waste collected in bags is handled in accordance with the regulations of the Republic of Croatia on hazardous waste.

Photographs of the Physical-chemical purifier of wastewater installed in marina Špinut





2) Mobile device for receiving and pumping fecal water from ships - 1 piece

The device is used for receiving and pumping fecal water from ships' tanks.

The device consists of:

- galvanized trailer dimensions D = 1700 / 2000mm, W = 800 / 1000mm, H = 1400mm, equipped with a protective tarpaulin
- suction hose coil
- 1 ½" diameter suction hose, 40 meters long, equipped with a quick coupling
- a set of special connections for the wastewater tank on the boat
- peristaltic pump equipped with 2 pcs. vibration damper
- electric motor 2.2 kW
- el. control cabinet
- pipe couplings
- HDPE tank capacity 300 lit.

Photographs of the Mobile device for receiving and pumping fecal water from ships installed in marina Špinut



3) Rubber non-return valves, used for proper operation of rainwater separators - 4 pieces

The valve starts to release water at an overpressure of 25 mm. If the sea level behind the valve is higher than the overpressure in front of the valve, the valve is completely closed and prevents the sea from penetrating the separator pipe.

Photographs of the Rubber non-return valves installed in marina Špinut



- 4) Small bins for separating and sorting waste (plastic, paper) from piers – 20 pieces
Aluminium bins painted yellow (for plastic collection) and blue (for paper collection)

Photographs of the small bins installed in marina Špinut



DŠR STROŽANAC (PP6)

The equipment for collection and treatment of waste water, as well as system for collection and management of polluted rainwater from repair and maintenance area.

PP 3 has acquired equipment under activity 4.1;

1. Mobile device for receiving and pumping fecal water from ships- 1 piece
2. Physical-chemical purifier of wastewater generated during ship washing- 1 piece

Mobile device

This device is used for receiving and pumping fecal water from ship tanks

This device contains:

- Galvanized tailor dimensions D = 1700/2000mm, W = 800/1000mm, H = 1400mm, equipped with protective tarpaulin
- Suction hose coil
- 1.5 diameter suction hose, 40m long, equipped with a quick coupling
- A set of special connection for water waste tank on the boat
- Pump equipped with 2 pics. Vibration damper
- Electric motor 2.2 kW
- Electric control cabinet
- Pipe couplings
- HDPE tank capacity 300l



Mobile device for receiving and pumping fecal water from ships installed in marina Strožanac

The device to purify the wastewater generated by washing the ships

Water is collected through canals and shafts where is automatically purified, then pumped to the tank of device. Then device adds three types of chemicals, the water comes to the third tank where the last sedimentation takes place. At end of the process, staff comes and manually opens the valve and discharges the sediments into bags to separate the solid waste particles from the water. Waste is handled according to the regulations of the Republic of Croatia on hazardous waste.

Photographs of the Physical-chemical purifier of wastewater generated during ship washing installed in Marina Strožanac

