Output O.5.4. – DEEP-SEA Card for the end-users

WP5. Guideline for the energy efficiency mobility of Adriatic Marinas and Transferability

Document: Public / Confidential			
Responsible partner: ARIES **Involved partners: All**			
Version	**Status**	**Date**	**Author**
1.0	Final	11/05/2022	ARIES
1.1	Reviewed	15/05/2023	ARIES
1.2	Review	13/06/2023	ARIES
Notes:			

Table of Contents

0. Executive Summary

This document presents the picture of the Services cards produced by DEEP-SEA partnership within WP5 and the data collected from the monitoring phase conducted by the Pilots.

The DEEP-SEA cards enable the user to easy access all mobility services and will represent a promotional tool for Adriatic marinas. The cards are distributed by pilot marinas to the users of the mobility services provided by DEEP-SEA technical installations. The Table below summarizes the number of cards received by each partner during the 5th Partner & Steering Group meeting held in Krk (Croatia) on 30th September 2021:

PP	Number of CARD received
LP ARIES	40
PP01 University of Trieste	7
PP02 Chamber of Commerce Foggia	10
PP04 University of Rijeka	10
PP06 Municipality of Malisnka	40
PP07 University of Split	10
PP08 PI Rera SD	10
PP10 H.L. DVORAC DOO	40
PP11 Province of Foggia	40
PP012 Ponikve Krk	40

Figure 1: DEEP-SEA card distribution

DEEP-SEA APP download links:
ANDROID: https://play.google.com/store/apps/details?id=com.ethoslab.deepsea
iOS: https://apps.apple.com/it/app/deepseaapp/id1536396039

1. App and Card Monitoring

The pictures below represent some data (2023) that have been collecting monitoring the use of the DEEP-SEA App and the DEEP-SEA Card by end-users, that have been distributed to the partners during the 5th Project Partner Meeting in Krk, Croatia (30th September 2021).

Figure 2: DEEP-SEA card

1.1. Number of users by gender

Data show that 40 users have been registered to the DEEP-SEA APP: 13 male, 4 female, 23 unknown.

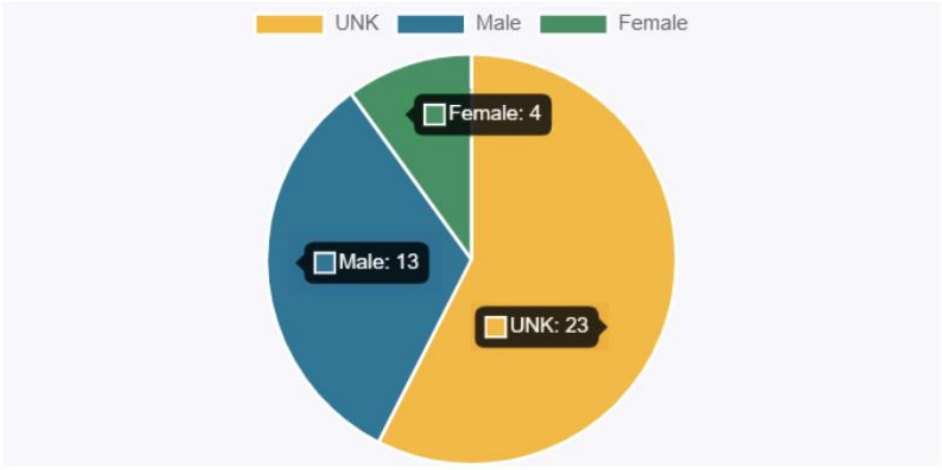

Figure 3: Number of users

1.2. Most used services

Data show that the most used service is POI (more than 200), followed by PUSHNOT (around 100), BOOKING (more than 50), and NEWS (less than 25).

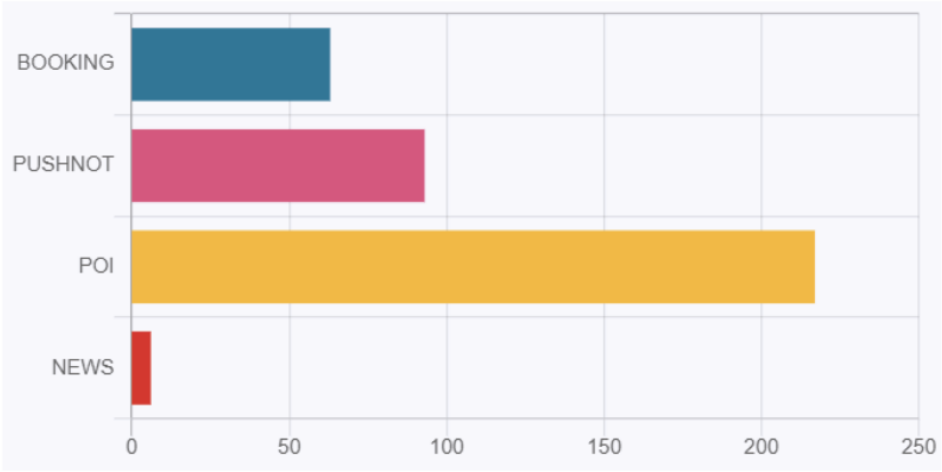

Figure 4: most used services

1.3. Activities per countries

Data show that, other than unknown users, the most relevant activities have been registered in Italy (almost 10) and Croatia (less than 10), the 2 countries directly involved in the DEEP-SEA project.

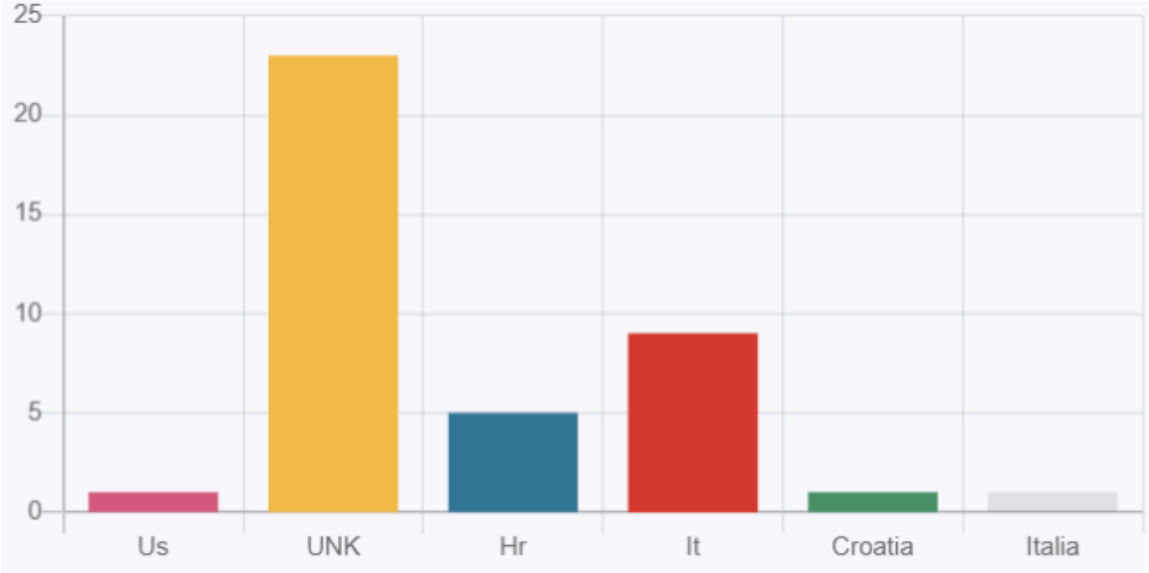

Figure 5: activities per country

1.4. Traffic per devices

Data show that the most used device monitored is Android mobile (200), followed by the Web (10) and IoS mobile (5).

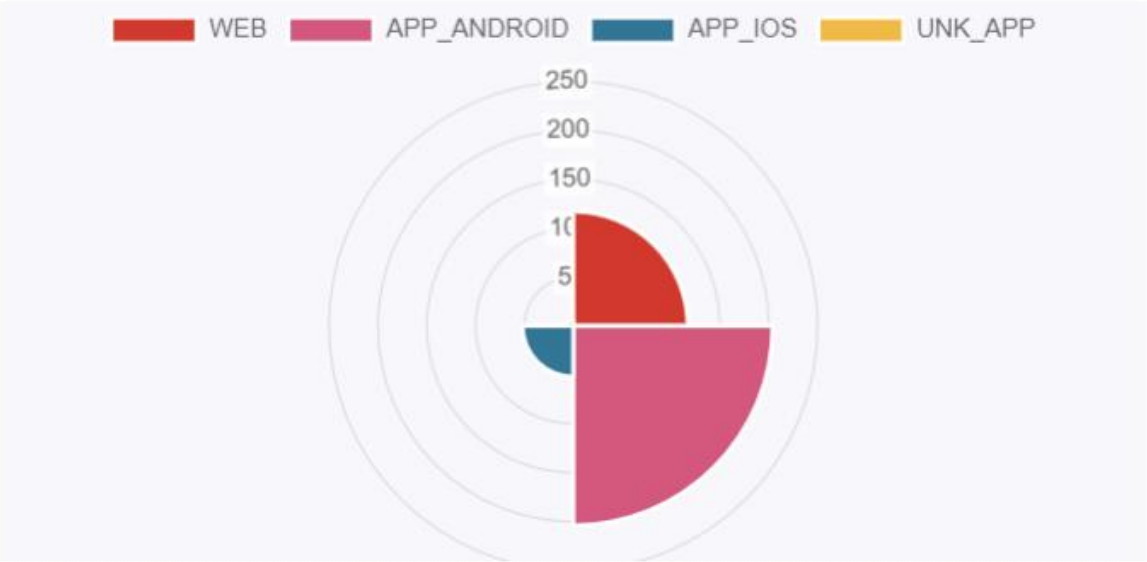

Figure 6: traffic per devices

2. Pilot installations Monitoring

The tables below represent key data (2023) that have been collecting from the Pilots responsible during the monitoring of the mobility services that have been installed in the pilot areas: they describe the use of the mobility services activated through the project (how many end-users used e-car sharing services and where; how many end-users used e-bike and e-scooters sharing services and where; how many end-users used charging-station services and where) in the pilot areas of:

- Province of Foggia, Italy;
- Ponikve Eco Island of Krk, Croatia;
- Malinska Municipality, Croatia;
- Maslinica – Solta, Croatia.

2.1. Summary of the DEEP-SEA monitoring phase

KPIs have been defined by DEEP-SEA project for the evaluation of pilot impacts in terms of accessibility, quality of mobility services eco-social sustainability, environmental impacts and energy efficiency. They guarantee to marinas operators as pilot sites providers and PAs to keep the installations and continue e-shared mobility services after the services start-up and installation phase.

2.1.1. Micro grid KPI

KPI description			Baseline value	Target values		
#	KPI	Unit		PP06 Malinska	PP10 DVORAC	PP12 Ponikve Krk
1	Energy produced using the photovoltaic system. This can be achieved using a meter at the DC MPPT output	kWh (per month)	0	0	1076,45	11882
2	Energy used for charging the e-cars should be logged. This can be achieved using a meter inside the CS.	kWh (per month)	0	0	219,52	1397,13
3	Energy from the grid used to fuel the car. When the car is charging, the difference between the CS energy and the ugrid energy (storage + PV).	kWh (per month)	0	0	219,52	720
4	Charging station occupancy: the amount of time when e-cars are charging at the station should be logged.	hr (per month)	0	0	71	117,526
5	CO2 emissions reduction due to the use of an e car instead of a conventional car. This value should be calculated by multiplying the e-car travelled distance per month by the average CO2 emission of a conventional vehicle (123.4 g CO2/km Source: www.eea.europa.eu)	CO2 kg./month	0	0	79,31	1019,87
6	Number of users using the CS	# People	0	0	25	113
7	Stakeholders / users satisfaction / benefits from DEEPSEA pilot(s) through interviews / questionnaires	%	0	0	0	92
8	Number of e-car monitored	# Car	0	0	22	3
9	Number of e-cars involved in the project	# Car	0	0	1	

10	Number of E-CS monitored	# E-CS	0	0	1	11
11	Number of implemented E-CS by DEEPSEA	# E-CS	0	0	1	3
12	Number of stakeholders involved (municipalities, regional authorities, investors, companies…)	# SH	0	0	0	6
13	Photovoltaic self-consumption energy, i.e. the percentage of energy locally consumed compared to that produced	%	0	0	33%	0
14	Number of e-car charging profiles collected (e car charging power vs. time)	# profiles/ year	0	0	0	0
15	Number of e-car discharging profiles collected (e-car discharging power vs. time)	# profiles/ year	0	0	0	0
16	Number of main battery charging profiles collected (charging power vs. time)	# profiles/ year	0	0	0	0
17	Number of main battery discharging profiles collected (discharging power vs. time)	# profiles/ year	0	0	0	0

2.1.2. E-sharing services KPI

KPI description			**Baseline value**	**Target values**		
#	**KPI**	**Unit**		**PP06 Malinska**	**PP10 DVORAC**	**PP12 Ponikve Krk**
1	Number of e-vehicles monitored	# Car	0	0	1	3
2	Number of e-vehicles involved in the project	# Car	0	0	1	0
3	Number of users using the e-sharing services	# People	0	0	51	0
4	Number of charging hours	#Hours/ year	0	0	380,33	0
5	Number of charging calls	#calls	0	0	0	0
6	Stakeholders / users satisfaction / benefits from DEEPSEA pilot(s) through interviews / questionnaires	%	0	0	0	0

2.1.3. ECS for e-vehicles KPI

KPI description			Baseline value	Target values			
#	KPI	Unit		PP06 Malinska	PP10 DVORAC	PP11 Province of Foggia	PP12 Ponikve Krk
1	Number of e-car monitored	# Car	0	0	22		0
2	Number of e-cars involved in the project	# Car	0	0	1		0
3	Number of E-CS monitored	# E-CS	0	0	1		3
4	Number of implemented E-CS by DEEPSEA	# E-CS	0	0	1		3
5	Number of stakeholders involved (municipalities, regional authorities, investors, companies…)	SH	0	0	0		0
6	Number of users using the CS	# People	0	0	25		113
7	Number of charging hours	#Hours/ year	0	0	639		385,85
8	Number of charging calls	#calls	0	0	15		184

2.1.4. ECS for e-boats KPI

KPI description			Baseline value	Target values			
#	KPI	Unit		PP06 Malinska	PP10 DVORAC	PP11 Province of Foggia	PP12 Ponikve Krk
1	Stakeholders / users satisfaction / benefits from DEEPSEA pilot(s) through interviews / questionnaires	%	0	0	0	20	0
2	Number of e-boats monitored	# boats	0	0	3	3	0
3	Number of e-boats involved in the project	# boats	0	0	0	0	0
4	Number of E-CS monitored	# E-CS	0	0	1	0	1
5	Number of implemented E-CS by DEEPSEA	# E-CS	0	0	1	2	1

6	Number of stakeholders involved (municipalities, regional authorities, investors, companies…)	SH	0	0	0	4	5
7	Number of users using the CS	# People	0	0	3	3	0

2.1.5. Racks for bicycles and e-bikes

KPI description			Baseline value	Target values			
#	KPI	Unit		PP06 Malinska	PP10 DVORAC	PP11 Province of Foggia	PP12 Ponikve Krk
1	Number of e-bikes monitored	# bike	0	0	6	12	88
2	Number of e-bikes involved in the project	# bike	0	0	6	12	8
3	Number of E-CS monitored	# E-CS	0	0	6	3	11
4	Number of implemented E-CS by DEEPSEA	# E-CS	0	0	6	3	1
5	Number of users using the CS	# People	0	0	161	51	667
6	Number of bicycles monitored	# bike	0	0	0	0	4
7	Number of bicycles involved in the project	# bike	0	0	0	0	4
8	Number of implemented E-CS by DEEPSEA	# E-CS	0	0	0	0	1
9	Number of users using the CS	# People	0	0	0	0	76
10	Stakeholders / users satisfaction / benefits from DEEPSEA pilot(s) through interviews / questionnaires	%	0	0	0	0	6

3. Pilot installations technical information

3.1. Province of Foggia Pilot Area

3.1.1. ECS for e-vehicles and e-boats

ECS	
PP	11 Province of Foggia
Description	Marina di Manfredonia
GPS coordinates	41.62146424638477, 15.908573372407137
Type of service	Charging station for e-cars
Active	Yes
(for e-CS) type of connectors, number and kWh	type 2
Service operator	

ECS	
PP	11 Province of Foggia
Description	Marina di Manfredonia
GPS coordinates	41.62046162971036, 15.908991823367597
Type of service	Electric Charging station for e-boats
Active	active
(for e-CS) type of connectors, number and kWh	type 2
Service operator	

ECS	
PP	11 Province of Foggia
Description	Marina di Mattinata
GPS coordinates	41.712699045842214, 16.079031682080057
Type of service	Electric Charging station for e-cars
Active	active
(for e-CS) type of connectors, number and kWh	type 2
Service operator	

ECS	
PP	11 Province of Foggia
Description	Marina di Vieste
GPS coordinates	41.886118941222314, 16.172872252737534

Type of service	Electric Charging station for e-cars
Active	active
(for e-CS) type of connectors, number and kWh	type 2
Service operator	

ECS	
PP	11 Province of Foggia
Description	Marina di Rodi
GPS coordinates	41.93006704089107, 15.887715585887591
Type of service	Electric Charging station for e-cars
Active	active
(for e-CS) type of connectors, number and kWh	type 2
Service operator	

ECS	
PP	11 Province of Foggia
Description	Marina di Rodi
GPS coordinates	41.931012, 15.888137
Type of service	Electric Charging station for e-boats
Active	active
(for e-CS) type of connectors, number and kWh	type 2
Service operator	

3.1.2 Bike racks

bike racks	
PP	11 Province of Foggia
Description	Marina di Manfredonia
GPS coordinates	41.62146424638477, 15.908573372407137
Type of service	Bikesharing system
Active	active
(for e-CS) type of connectors, number and kWh	
Service operator	

bike racks	
PP	11 Province of Foggia
Description	Marina di Rodi
GPS coordinates	41.93006704089107, 15.887715585887591
Type of service	Bikesharing system
Active	active
(for e-CS) type of connectors, number and kWh	
Service operator	

3.2. Ponike Eco Island of Krk Pilot Area

3.2.1. Micro grid

micro grid	
PP	Ponikve eko otok Krk, PP12
Description	Micro Grid photovoltaic plant 45.22 kW with battery system of 10 kWh
GPS coordinates HTRS 96	45°1'57,87" N 14°34'11,65" E
GPS coordinates WGS 84	45°1'57,89" N 14°34'11,68" E
GPS coordinates Google Maps	45.032715, 14.569322
Type of service	electricity production
Active	Active
(for e-CS) type of connectors, number and kWh	/
Service operator	Ponikve

3.2.2. Bike sharing

bike sharing	
PP	Ponikve eko otok Krk, PP12
Description	Bike sharing 4 e-bikes, 4 mechanical bike and 4e-scooters
GPS coordinates HTRS 96	45°1'57,87" N 14°34'11,65" E
GPS coordinates WGS 84	45°1'57,89" N 14°34'11,68" E
GPS coordinates Google Maps	45.032715, 14.569322
Type of service	Bike sharing
Active	Active
(for e-CS) type of connectors, number and kWh	/
Service operator	Go2Bike

3.2.3. ECS for vehicles

ECS	
PP	Ponikve eko otok Krk, PP12
Description	Electric vehicle charging station
GPS coordinates HTRS 96	45°1'57,87" N 14°34'11,65" E
GPS coordinates WGS 84	45°1'57,89" N 14°34'11,68" E
GPS coordinates Google Maps	45.032715, 14.569322
Type of service	Electric vehicle charging station
Active	Active
(for e-CS) type of connectors, number and kWh	2x22 kW
Service operator	Go2Charge

ECS	
PP	Ponikve eko otok Krk, PP12
Description	Electric vehicle charging station
GPS coordinates HTRS 96	45°4'31,74" N 14°40'27,82" E
GPS coordinates WGS 84	45°4'31,76" N 14°40'27,85" E
GPS coordinates Google Maps	45.075699, 14.674296
Type of service	Electric vehicle charging station
Active	Active
(for e-CS) type of connectors, number and kWh	2x22 kW
Service operator	Go2Charge

ECS	
PP	Ponikve eko otok Krk, PP12
Description	Electric vehicle charging station
GPS coordinates HTRS 96	45°9'53,24" N 14°32'31,41" E
GPS coordinates WGS 84	45°9'53,26" N 14°32'31,44" E
GPS coordinates Google Maps	45.164994, 14.541343
Type of service	Electric vehicle charging station
Active	Active
(for e-CS) type of connectors, number and kWh	2x22 kW
Service operator	Go2Charge

3.2.4. ECS for e-boats

ECS	
PP	Ponikve eko otok Krk, PP12
Description	Electric boat charging station
GPS coordinates HTRS 96	45°9'53,32" N 14°32'32,81" E
GPS coordinates WGS 84	45°9'53,34" N 14°32'32,84" E
GPS coordinates Google Maps	45.16565968294799, 14.542081490455272
Type of service	Electric boat charging station
Active	Active
(for e-CS) type of connectors, number and kWh	2x22 kW
Service operator	Županijska lučka uprava Krk

3.3. Malinska Municipality Pilot Area

3.3.1. ECS for e-vehicles

ECS	
PP	PP06 Municipality of Malinska-Dubašnica
Description	1 ECS for e-vehicles (2 plug)
GPS coordinates	45°07'16.3"N 14°31'36.4"E
Type of service	1 ECS for e-vehicles (2 plugs)
Active	Installed, but not active
(for e-CS) type of connectors, number and kWh	Type2 EU standard, 2x22 kWh
Service operator	

3.3.2. ECS for e-boats

ECS	
PP	PP06 Municipality of Malinska-Dubašnica
Description	1 ECS for e-boats (2 plug)
GPS coordinates	45°07'16.9"N 14°29'40.1"E
Type of service	1 ECS for e-boats (2 plugs)
Active	Installed, but not active
(for e-CS) type of connectors, number and kWh	Type2 EU standard, 2x22 kWh
Service operator	

3.3.3. Bikes racks

car sharing	
PP	PP06 Municipality of Malinska-Dubašnica
Description	Charging station for electric cars: UTE electric vehicle charging station (Go2Charge)
GPS coordinates	45°07'17"N 14°31'36"E
Type of service	free of charge
Active	Installed, but not active
(for e-CS) type of connectors, number and kWh	
Service operator	UTE d.o.o.

3.3.4. Micro-grid

micro-grid	
PP	PP06 Municipality of Malinska-Dubašnica
Description	Micro grid system consisting of: - PV system 30 kW - Battery storage 15.6 kWh Data managment system of: - 1 ECS for e-cars (1 plug) - 1 ECS for e-boats
GPS coordinates	45°07'15.3"N 14°31'36.2"E
Type of service	
Active/planed	installed but not active
(for e-CS) type of connectors, number and kWh	X
Service operator	

3.4. Maslinica – Solta Pilot Area

3.4.1. ECS for e-vehicles

ECS	
PP	H.L. Dvorac d.o.o.
Description	Electric Charging station for e-cars
GPS coordinates	N 43°23'50.29 / E 16°12'17.42
Type of service	Charging station for e-cars
Active	active
(for e-CS) type of connectors, number and kWh	2 x 22kW
Service operator	H.L. Dvorac d.o.o.

3.4.2. ECS for e-boats

ECS	
PP	H.L. Dvorac d.o.o.
Description	Electric Charging station for e-boats
GPS coordinates	N 43°23'50.29 / E 16°12'17.42
Type of service	Charging station for e-boats
Active	active

(for e-CS) type of connectors, number and kWh	2 x 32A
Service operator	H.L. Dvorac d.o.o.

3.4.3. Rack for electric bikes

Bike racks	
PP	H.L.Dvorac d.o.o.
Description	1 rack with 6 electric bikes for sharing system including charging system and software for rental
GPS coordinates	N 43°23'50.29 / E 16°12'17.42
Type of service	Bikesharing system
Active	Active
(for e-CS) type of connectors, number and kWh	
Service operator	H.L. Dvorac d.o.o.

3.4.4. E-car sharing system

car sharing	
PP	H.L.Dvorac d.o.o.
Description	e-car mobility service
GPS coordinates	N 43°23'50.29 / E 16°12'17.42
Type of service	e-car mobility service
Active	active
(for e-CS) type of connectors, number and kWh	
Service operator	H.L. Dvorac d.o.o.

3.4.5. Microgrid system

microgrid	
PP	H.L. Dvorac d.o.o.
Description	Solar (PV) power plant connected to energy storage system, ECS and eBike system
GPS coordinates	N 43°23'50.29 / E 16°12'17.42
Type of service	Micro-grid
Active	active
(for e-CS) type of connectors, number and kWh	-
Service operator	H.L. Dvorac d.o.o.

Index of figures