

# Designing the geoinformation system for sea pollution management in EPSs

Final Version of June/2022

Deliverable Number D.4.2.1., D.4.2.2





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Project Acronym Project ID Number Project Title	PEPSEA 10047424 Protecting the Enclosed Parts of the Sea in Adriatic from pollution
Priority Axis	2 – Safety and Resilience
Specific objective	2.2 - Increase the safety of the Programme area from natural and man-made disaster
Work Package Number	4
Work Package Title	Improving the equipment for efficient and timely response to a sudden sea pollution in EPSs
Activity Number	4.2
Activity Title	Designing the geoinformation system for sea pollution in EPSs
Partner in Charge	CONSORZIO FUTURO IN RICERCA (CFR)
Partners involved	LP, PP1, PP3, PP4 and PP6
Status	Final
Distribution	Public



# LP Zadra Nova

## Introduction

In order to ensure a valid system that will prevent pollution, remediate it and act in a timely manner if it occurs, it was necessary to develop an entire geoinformation system that will signal pollution. In addition, it was necessary to procure the equipment that will monitor the real situation on the ground and then connect that equipment to GIS system. The equipment was handed over for use to the Zadar - public fire brigade, which will monitor the situation at the pilot location Sali and the river Zrmanja, which flows into the Novigrad Sea.

# D.4.2.1. External service for designing and installation of geoinformation system for sea pollution management for five pilot EPSs contracted

The Zadar County Development Agency conducted a simple procurement procedure and the company Promet i prostor d.o.o. was selected as part of it. Supplier Promet i prostor d.o.o., Dubrovačka 38, 10000 Zagreb, OIB: 70482234704, based on the Design / Design Service Agreement geoinformation system for the management of marine pollution in closed parts of the sea, registration number: IT-HR PEPSEA 2, concluded with the Client Zadar County Development Agency Zadar County ZADRA NOVA.

# D.4.2.2. Interactive geoinformation system for sea pollution management in EPSs designed and installed in five response centres in charge of pilot EPSs

LP Zadar County Development Agency external experts have designed geoinformation system with the aim to develop new system for early warning detection of sea pollution risk. The GIS system has put into

operation and all the information reach the main system interface in response centre in real time and if required alarm the response team members for necessary actions.

Surveillance equipment was procured - cameras, sensors, non-contact water level meter and oil detection sensor, which were installed at two locations, Sali and Zrmanja. On December 22, 2021,



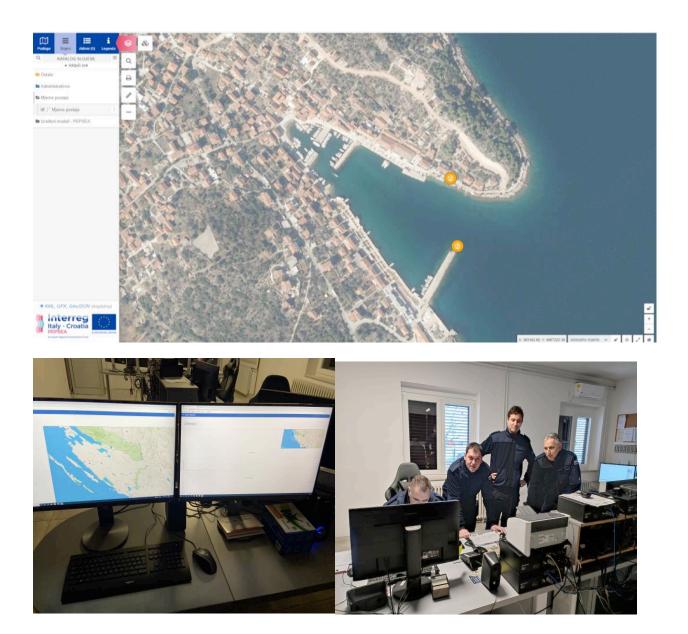
training of users for optimal and safe management and handling of goods was held online, thus concluding the entire procedure.

Project website: <u>https://pepsea.zadra.hr/gis</u>









## Conclusions

The monitoring equipment is connected to the GIS system and shows the situation on the ground in real time. Thanks to this equipment, Zadar - public fire brigade will monitor the real situation on the ground and be able to react in the case of sudden marine pollution



# **PP3 Split-Dalmatia county**

## Introduction

In order to ensure a valid system that will prevent pollution, rehabilitate it and act in a timely manner if it occurs, it was necessary to develop a complete geoinformation system that will signal pollution. In addition, it was necessary to procure equipment that would monitor the real situation on the ground and then connect that equipment to the GIS system. The equipment was handed over for use to the Fire Brigade of the Split-Dalmatia County, which will monitor the situation at the pilot location in the Eastern part of the Kastela Bay.

# D.4.2.1. External service for designing and installation of geoinformation system for sea pollution management for five pilot EPSs contracted.

The Split-Dalmatia County carried out a simple procedure for the procurement of services and the company Promet i prostor d.o.o. was selected as part of it. Supplier Promet i prostor d.o.o., Dubrovačka 38, 10000 Zagreb, OIB: 70482234704, based on the Geoinformation System Design / Contract for the procurement of services for the design and development of an interactive geoinformatics system for marine pollution management within the PEPSEA project, registration number: E-BAG-73 / 21, CLASS: 406-09 / 21-01 / 0028, REGISTRATION NUMBER: 2181 / 1-09 / 36-21-0015, Annex I to the Contract for the procurement of services for the design and development of an interactive geoinformatics system for marine pollution management within the PEPSEA project, CLASS: 406-01/21-01/0485, REGISTRATION NUMBER: 2181 / 1-09 / 36-21-0015, Annex I to the Contract for the procurement of services for the design and development of an interactive geoinformatics system for marine pollution management within the PEPSEA project, CLASS: 406-01/21-01/0485, REGISTRATION NUMBER: 2181 / 1-06-02-01 / 01-21-0007 and Annex II. Contract for the procurement of services for the design and development for marine pollution management within the PEPSEA project system for marine pollution management within the PEPSEA project CLASS: 406-01 / 21-01 / 0485, REGISTRATION NUMBER 2181 / 1-06-02-01 / 01-21-0007 and Annex II. Contract for the procurement of services for the design and development of an interactive geoinformatics system for marine pollution management within the PEPSEA project CLASS: 406-01 / 21-01 / 0485, REGISTRATION NUMBER 2181 / 1-06-02-01 / 01-21-0009 all concluded with the Client Split-Dalmatia County.

# D.4.2.2. Interactive geoinformation system for sea pollution management in EPSs designed and installed in five response centres in charge of pilot EPSs

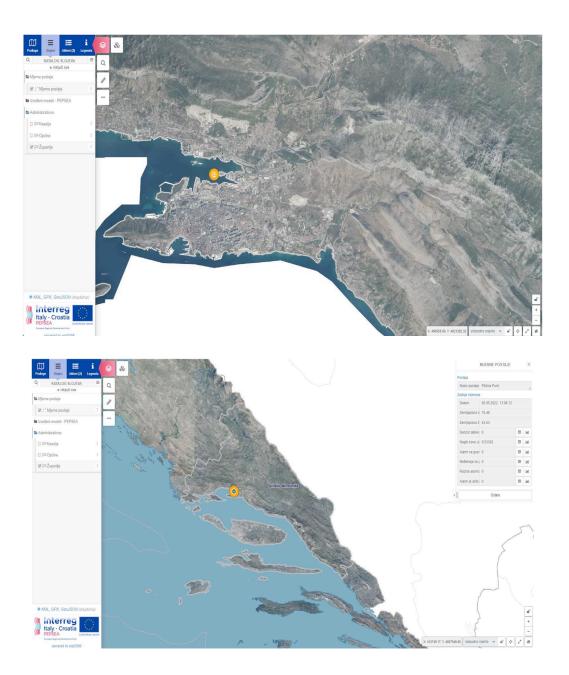


External experts from the Split-Dalmatia County have designed a geoinformation system with the aim of developing a new system for early warning of the danger of marinelaunched and all real-time information reaches the main interface of the system in the response center and, if necessary, alerts team members to respond to necessary actions. Surveillance equipment was procured - cameras and an oil detection sensor, which were set up in a pilot location in the Eastern part of Kaštela Bay. On February 9, 2021, an online training of users for optimal and safe management and handling of goods was held, thus concluding the entire procedure. pollution. The GIS system has been launched and all real-time information reaches the main interface of the system in the response center and, if necessary, alerts team members to respond to necessary actions. Surveillance equipment was procured - cameras and an oil detection sensor, which were set up in a pilot location in the Eastern part of Kaštela Bay. On February 9, 2021, an online training of users for optimal and safe management and handling of goods was held, thus concluding the entire procedure. Pollution. The GIS system has been launched and all real-time information reaches the main interface of the system in the response center and, if necessary, alerts team members to respond to necessary actions. Surveillance equipment was procured - cameras and an oil detection sensor, which were set up in a pilot location in the Eastern part of Kaštela Bay. On February 9, 2021, an online training of users for optimal and safe management and handling of goods was held, thus concluding the entire procedure.

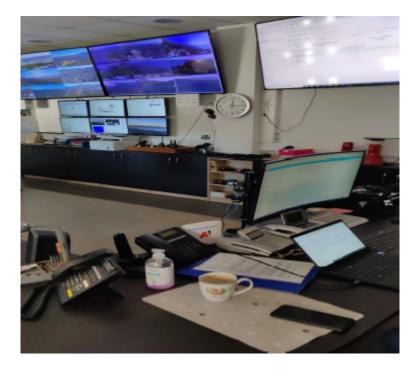
Project website: https://pepsea.dalmacija.hr/gis

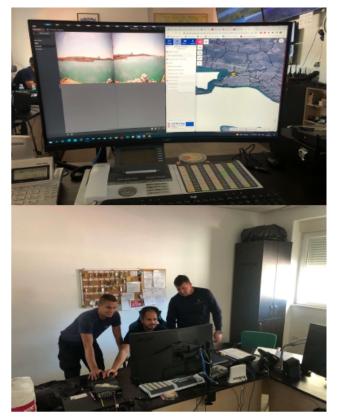
















REPUBLIKA HRVATSKA SPLITSKO-DALMATINSKA ŽUPANIJA UPRAVNI ODJEL ZA TURIZAM I POMORSTVO

KLASA: 020-01/17-02/0024 URBROJ: 2181/1-06-02-02/01-22-0111 Split, 09.02.2022, godine

#### ZAPISNIK O PRIMOPREDAJI

Ovim patem se konstatira kako je Izvržitelj Promet i prostor d.o.o., Duhrovačka 38, 10000 Zagreb, OIB: 70482234704, isporačlo te pustio u rad interaktivni geoinformatijaki sustav (Web GIS Gregorita) koji je predmet Ugovena o nabavi usluga dizajna i izrade interaktivnog goinformatifskog sustava za upravljanje onečitkome mos u aklogu projekta Pepsea (KLASA: 406-6921-010028; UR.BROJ: 2181/1-6976-621-6015) kojej e sklopio sa Naračiteljem Splitako-dalmatinakom alpunajom, 27. srupije 2021: godine, nakon žto je proveden postpala jedanostava mlave uslagat evidencijski brej E-BAG-73/21 i Odlake o odahiru (KLASA: 406-6092-1-010028, URBROJ: 2181/1-0936-621-6013) od 12.07.2021. godine. Izvršitelj je dizginiran i instatirno poslatomeniški sustav, unio postojeće podatuk koji sa pokazani kao GIS slojevi, integrirano podatko mjerne oprene Naručitelju u sustav, omogaćio komunikaciju putem web servisa te prikaznju ochedni i ograničeni podati iz onnovne ("interne") GIS baze podataka. Isporničinji je Naračitelju tukder i izniti i telnikka i teknišku dokumentaciju za iponačani geninformacijski sustav. Svi prethodno navedeni dokumenta sastavni su dio ovoga Zapisnika te se nalaze u pellogu.



NARUČITELJ Splitsko-dalmatinska žup oaniia TOHISLAU VIAL



met i prostor d.o.o. vrda broj: 22-0201 veb, <u>1. 2. \_</u>2022

SPLITSKO-DALMATINSKA ŽUPANIJA Domovinskoga rata 2 21.000 Split 018: 40781519492

Potvrda o osposobljenosti za rad i rukovanje s geoinformacijskim sustavom ("pipGiS") Temeljem provedne edukacije korisniko za rad s interaklanim providjomatičkim sustavam (OSI) or upravljanje onetštornjem mora o sklopu projekta PEPEA Datum odkacije <u>Car</u>alacia Edukacija proveo: Luka Rudelić, struć, spec. orec, turka Promet i prostor d.o.o.



nit Tpendie, disilike s spenitizerum adposeruntida en situpi i Tablero a Rubbi septen ked Topendoop sata a Zagebo (HB, 6007952) BAAK HETTI ADDOOR 00554001 direktiosementezi e den at ut. Nover Tenepia konst ZEMIDDOD et. Landoo a ryanza Bartar a susta Trans den arrange han arrange han bartar a susta.

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## PROMETIPROSTOR

### BR: 1-21-202 Zagreb, 9. veljače 2022.

Splitsko - dalmatinska županija Domovinskog rata 2 21.000 Split OI8: 40781519402 tredwetz Projekt PEPSEA - \_Protecting the enclosed parts of the sea is Adviatic from pollution' INTERNEG V-A Italia-Investiga 2014. 2020. microscol in Adapte metalaska auto, Adaba (Byoor e in Radio anges deligite) i unité intervetátilinseg gasinformatilálogi sustava za garostárne oraditálospem mora sztoky jorgosta P1958A - vezes Valda RAZA-460/021-01/0008, URIBIOL:2281/2-05/96-21-0515 od 22. szepis 2021, godine Zadrána AL (gorova) - veze Valda RAZA-606-021/21-01/Ad85, URIBIOL:2181/2-06/02-01/02-32. proteine 2022, godine

#### Izvješće o obavljenim uslugama (Faza 2)

Ovim Izvješćem utvrđujemo da je tvrtka Promet i prostar d.o.o. u svojstvu Izvršitelje uredno odradile udlugu izrada gasinformacijskog sustsva provedenu kraz Fazu 2. u silada s odredbama čanka 3. Ugostva iz raskova predmeta u vrjednošti da 84.830,00 kn incens be pPOV-aj sukalno sozefikaciji:

n 2: Puštarje sustava u rad, odnozno uspostava potrebnih projektnih sadržaja, povazi dataka s mjerne opreme te osigurarje prikaza podataka putem GIS sustava, održa 

a i uvjetima Ugovora da. KLASA: 405-09/2:

nas invitenje ligavora: mag. ing. geod. et geoinf.

NARUČITELI 194 Dilo - dalmatinska bup reizovrte sta u za izvitegi Ugovo narbij Dodi, Sviz, izv. po dvalkanj jelevnja odnika izvitran i jenosti dala dalja dalja izvitran i jenosti



 Orič na kortitenje gesinformatičkog sestene u sklopu projekta PIPSKA
 INTERNICI (TALY -Seld Links, dulines symbols in algorithmic (2010) and a contract of the set of the se



#### 4 a/a 202100189814

SPLITEKO-DALMATINNKA ŽUPANIJA, Domovinskog nitz 2, 21020 Split, OB-40781519492, koju zastopa župan Blažesko Boban (u doljnjem šakatu: Naraslitelj) s jedne strate i PROMET I PROSTOR d.o.e., Dabovečka 38, 10000 Zegreb OIB: 704823 disektor Franc Glasinović (u doljnjem tekatu: Izvrššiedj) s druge strane, sklovili so sljedeći

## UCOVOR O NABAVI USLUGA DIZAJNA I UZRADE INTERAKTIVNOG GEOINFORMATIČKOG SUSTAVA ZA UPRAVLJANJE ONEČIŠČENJEM MORA U SKLOPU PROJEKTA PEPŠEA

Oraj Ugover je aklopijen teneljem povodenog pozupka jednostavaz znbave usloga, evidencijski Rej E-LARA-/ SZL 1 LARUEZ S odažen KL-ASA- 400-08/21-01/0218, URBROJ. 2181/1-08/36-21-0013 od 12.07.2021. notime

#### Članak 1.

errors sugitors similarity da je prednet ovog Ugorom rakvas slugg-dadataga gasolnengikog susvers s tepestigije coefficiente organization i surversiti i nosa u kakup najsina PESEA (. Pretecting the enclosed parts of the sea in Adretis ingena intensitivog gasolfanostijskog astrono (964). GS 65, soperati, Projeku Errors (1997) versiti i substance i substance (964). GS 65, soperati, Projeku Errors (1997) versiti i substance i substance (964). GS 65, soperati, Projeku Errors (1997) versiti i substance i substance (964). GS 65, soperati, Projeku Errors (1997) versiti i substance i substance (964). GS 65, soperati, Projeku Errors (1997) versiti i substance i substance (964). GS 65, soperati, Projeku Errors (1997) versiti i substance (964). Substance (964). GS 65, soperati, Projeku Errors (1997) versiti i substance (964). Substance (9 da je pres utava za upes Članak 2.

Ervritutij sa obveziaja dizajnirati i instalitati geninformacijski statav, unijeti postujeće podatka koji ča se primori kao Cito skojevi, instatiti podalos mjeras oprama Maražiteja u natavi i osnojači Diskojame (i konzije). zvršitelj se obvezuje da će navedene usluge obavljati stražno, savjesno i kvali

Izvelitelj se obvezuje izzačiti geoinformecijski sustav tehničkih karakteristika kako je Tohničkim spocifikacijama interaktivnog geoinformecijskog sustava (Web GES Geoporal Izvetinajį so obvezuje redovito kamanicimti a Naražitaljom tijekom izvetenja usluga, uki period održavanja ta komanicimti s dolevijačem operme u svetro povezivanja matava.

urali dovoljen zname (CPU, RAM, diskryni prestor, Internet pres-etano fieskeluzianje groinformalijskog nutava koji te ispencini. bvišiej za obvezje dkojnisti 4 se prisasti kao OSI platati cituajinini i instaljani grainživenejski sustav, orijati postojele pažaše koji 20 slojevi, intaglivaj podaža rojeme oprava Norstitulja u restav i assogniji audo sevita si odožna logičenemista i jenej ESE proglednik posterati as kojan žo se prikazivat određeni Logimečeri pažasi je erazurata i osnovat Subje galidersetjakog setres non insti topritori older pikas re esplotori i

veđu svih prežistalovih sistivanski podrazavljena svalavenje pravlje vedijivani koja su intera na statel Programa te roga Rozed Manuel projekta. Čisnak 3. retili agovor lever tri faca.

fazi Izvelitelji se obvezuja izvadili strukturu i nadrbij govinifernac davritet prema gorograznaki u potellera i u degovoru u Naraditeljari letji ove faze ja najkanaje de 31.01.2021. godine. indj sa obvezuje pusiti zastav a rad od dolile o njeme oprana to oslgovat prica dolile je njeme odcikalji predstavelka otlovni tiznda talačile i koriosilke dola a Tehriškim spadiškacijem intenktiva koldzeja 40 preze 212 (Net jo najkaan je de 31.10.2021. godina.

nvlikulj so obvenje omogažki održavajo u raslobiju 5 godina od završeću drage ježajo osljemni prator za uzijeltaj govinformacjalog sustava i polatiku na krvljelji ir enigazna fizikcionitost sustava u tem rasložiju. Chevelorit lvezuje oniganti deuljet specifikaciju vab savisa za pribvet politika sa oprze Wski polsej Newčielja valižna na do 301 GR.

Člansk 5.

### ontoine inton

Odgovarna osoba za izvršenje ovog Ugovova su: - za Izvršinija: Frant Gladnavić, direkter - za Naružiniju: Matea Dovčić, diplikat, po ovlahnatju roznovatno

Cheerk 7

Člamaik 6

vrđejs da vrijedaost podrastne usbage izrovi: 136.000.00 kma <u>FDV izrovi: 34.225.00 kma</u> Odrosna okupna izrosi 171.125.00 kma (s FDV-omi

Clanak 8.

itij se obversje plačati uslago nakou upjažno učjanog alakiroričkog račana, u roku od 50 dana Narskirdj se obvenje plašiti ukaja nakat zaplatka izrdina: uzbagi i m ten inpomeljanog ukteretičnog refera, s redu od 50 dalas od dasa zaplatanja izag odveljena Zakasa skalastačkam takatogivačnos u jevog slavel (hirekta svisto) Svali klasti rekos nora sufikriva šjokoš izitičnanja (hirekta stranova slaveni slaveni prosta slaveni nekolisti fisma politikos" INTERREG VA Italja-Hronska 2014. - 2020. izeriana uzłage i na temelju uredao od dana zaprimanja iztog - zukladno rezi relaci (Narodna acciar br. 96/18.).

Platanje de se izvršiti na djedeli način: - Foza 1 – 50% ugovorenog iznosa - Fuza 2 – 50 % ugovorenog iznosa

Pladanja voznana na predmet nabavu će 50 obavljati isključivo n HRK, batkovnom transakcijom n IBAN račun lavršitelja HR 772420061193994883 temeljem ispositevljenog elektroniškog računa. Produjant je isključen, kao i trađenje sredstava osigaranja platetja od strano Izvešitelja.

Claugh 2 Church 3. Church 4. Church 5. Church Jimatro na undao lopajteje ugoven nele na datavili je posiciom ugovorenog reku. Jimatro na undao lopajteje ugoven nele na datavili je polagajeno deposita (novčani poleg u Mikrieni innenoj na žiro nakunita/Ni, IBAN: 12020706010001700, nodel 68, posto na broj dožnaraja 7404-001 (u dostavu dožana o izvritenom pologu i podacima o nelesu (IBAN na keiz do na nalo veniti).

## narea harve a fanora of 1% vejecherel agovers, ake agoversa ebugat as 1 s rightfica lapacjujere El alto je minostere trend, odira dan je de na naro 20 stretti i de la serie de la serie de la serie de la phron brazilitat i ante antique el la serie de la constructional i trend antique alta de la serie parte de la serie de la Članak 11

Na obsymmetri anaroniki atawa na isposijenje obsesti in prog ugovani na obsovnjači mila ne prinjekcjan obsetbe Zakana u obvasne odrezima (Naradan morte, br. 3505, 4108, 12911, 1 2008.) Člavak 12. Sne sventanine aporarso koji sosterat u izvelnoju avoga Ugovora stranku do rjetavati spe prefetana agovora se našležnost avano sodiežnog sola u Splan. Oraj Ugovor je sklapljan u 6 (fero) teorejenih prinjanka, od kojih Naračitella prinala



Unimplati u oluir ultjelutorni excinent da joi raja inslab mijerja se stavak 3. članka 3. Ugovora i suda glasi: tenja ova faze je najkaznije do 15.02.2022. godine.

dradbe concrossy. Upprover holy size a sar

Članak 4. Ovaj Dodazak ise 2. Ugovoru je sklopijen u česiri (4) ist strana zadržava po dva (2) primjerka. Clanak 5. Ugovorne strane su pročitale Dodatak br.2. Ugovoru i u znak suglast

SPLITSKO-DALMATINSKA ŽUPANIJA, Domovinskog min 2, 21060 Split, OD 40781319492, koja zastapa žegen Blaženko Bohan (a dalinjem tekstu: Naralitali), a jedna otnost

DODATAK IL

Članak 1.

Stitute in ingleme de su na iemelju provodnog postupka jednostnome nabavo, evidescejski bog: m BAG-73/21, sklapsile Ugover o nabavi usluga dizajens i iemelj intradizivnog geoinformentjskog natura za upmarljuje osetščenjem mozu a uškapu povjekk Pepers KLASA: 406-0921-01/0228, URBROJ: 2181/1-08/26-21-0015 (u duljujem tekatu: Ugovor) dana 21. orpnja 2021. godine. Činnak 2.

Članak 3.

Examples

ru o nabuvi usługa dizajna i izvade intersktivnog geoinformacijskog sustava za upravljanje onečilćenjem mora u sklopu projekta PEPSEA

ROSTOR d.o.o., Dubovačka 38, 10 000 Zagreb, OIB: 70482234704, koje zastapa Glasisović, mag. ing. good. et groinf. (u daljujem takara "lavsšitelj"), s druge strane valitalj zajedno u nastrvku takrat. "Danovarse strener")

### 202100244408

SPLITSKO-DALMATINSKA ŽUPANIJA, Donovinskog nm 2, 21000 Split, O 40781319402, koja nastana Baran Blažanko Bohan (u daljajem tekmu: Navalbell), r jedne strme PROMET I PROSTOR down, Dobovalka 38, 10 605 Zagreb, Olik 70482234704, koja zastop direktor Peace Olasitoriki, reng. irag. gread. et gassiref. (a deliyiere teksis "Severitedj") Olarudited i Investiet antista u nastretu to teksis. Maxwere teksis "Severitedj")

Clarack 1 Strange au taggi anne da su na terreljia prevenderag prosingha jednostavne radiove, er disensi jaki BAAV-72-72 h. shlorghe E. Egyres e sensitiveri soltaga disegne disegne strande instruktiveng geninfluren 1998 (2014) - 2014 disegne prosinger prosinger and the sensitive strands in the solution of the sensitive 1998 (2014) - 2014 disegne disegne disegne and the sensitive strands in the solution of the sensitive week and the sensitive sensitive strands and the sensitive sensitive strands and the sensitive sensitiv Classach 3. nora da jon nijar intea tera i sada glasti:

Clamak 3.

Čhanak 4. Ovuj Dodavsk 1e. 1. Ugovoru je sklopije u četiri (š) istovjema primjedna od knjih svalo strana malzňova po dva (2) primjedka.

Čiamak 5. e su prožinie Dodanic br.1. Upoveru i u znak suglasnosti sa istim vis Upovorne

202100297589



### IZVEŘITELJ Promet i prostor d.o.o. Direktor: NARUČITELJ m-dalmatinska ža toole 120 KLANA 406-01/21-01/0485 URINCJI 2181/1-06-02-01/01-21-092 5440, 22.12.2021, andres PROMET I PROST 04

European Regional Development Fund

11



# Conclusions

The monitoring equipment is connected to the GIS system and displays the situation in the field in real time. Thanks to this equipment, the Fire Brigade of the Split-Dalmatia County will monitor the real situation on the ground and be able to inform the competent services for marine pollution as well as react in case of sudden marine pollution.



# PP4 Šibenik-Knin County

## Introduction

According to application form in order to maximize the effectiveness and timeliness of the response system it has been planned that geoinformation system (GIS) for pilot location in Šibenik-Knin County will be developed. Geoinformation system will pose as a base for further networking with detection and early warning system, seawater quality monitoring and communication system of the response center. This activity has been carried out through the contracted external service.

# D.4.2.1. External service for designing and installation of geoinformation system for sea pollution management for five pilot EPSs contracted

In order to realize planned activity Šibenik-Knin County external service has been contracted through simple procurement procedure:

- Contractor: "Geodetski zavod Rijeka d.o.o.", Dr. Frana Kresnika 33, 51000 Rijeka, OIB: 42177896849
  - 1. Contract: "Ugovor za uslugu izrade geoinformacijskog sustava za upravljanje onečišćenjem mora projekt PEPSEA"; CLASS: 406/09/21-01/27; No: 2182/1-06-21-60
  - 2. Addendum to the Contract, CLASS: 406-09/21-01/27, No: 2182/1-06-21-35



Šibensko-kninska županija, Trg Pavla Šubića I. br. 2, 22000 Šibenik, OIB: 99395814920, koju zastupa župan dr. sc. Marko Jelić (u daljnjem nastavku Naručitelj)

i.

Geodetski zavod Rijeka d.o.o., Dr. Frana Kresnika 33, 51000 Rijeka, OIB: 42177896849, kojeg zastupa direktor Damir Delač (u daljnjem nastavku izvršitelj)

zaključili su dana 28. srpnja 2021. godine:

## UGOVOR ZA USLUGU IZRADE GEOINFORMACIJSKOG SUSTAVA ZA UPRAVLJANJE ONEČIŠĆENJEM MORA – PROJEKT PEPSEA

#### Članak 1.

- (1) Predmet ovog Ugovora je usluga izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA za potrebe Naručitelja sukladno odluci o odabiru ponuditelja Geodetskog zavoda Rijeka d.o.o. od 09. srpnja 2021. godine (KLASA: 406-09/21-01/27, URBROJ: 2182/1-06-21-33), a prema pozivu za dostavu ponude i tehničkim specifikacijama jednostavne nabave evidencijskog broja: 25/2021. Usluga se provodi kao aktivnost projekta PEPSEA u okviru Programa prekogranične suradnje INTERREG V-A Italija-Hrvatska 2014-2020.
- (2) Izvršitelj se obvezuje ugovorenu obvezu izvršiti u skladu s pravilima struke te jamči za funkcionalnost isporučenih rješenja.
- (3) Naručitelj se obvezuje staviti na raspolaganje korištenje svih svojih podataka potrebnih za izradu usluge iz stavka 1. ovog članka kako bi se mogla izvršiti usluga izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA.

#### Članak 2.

- Za poslove iz članka 1. stavka 1. ovog Ugovora, Naručitelj će isplatiti Izvršitelju neto iznos od 100.000,00 kn uvećano za važeći iznos PDV-a.
- (2) Naručitelj prihvaća e-račun. Obračun i naplata izvršenih usluga će se obaviti nakon potpisom prihvaćenih računa od strane Naručitelja. Naručitelj se obvezuje ovjereni neprijeporni dio računa platiti u roku 30 (trideset) dana od dana primitka računa. Računu je potrebno priložiti dokaz da je usluga izvršena.
- (3) Naručitelj se obvezuje izvršiti plaćanje za izvršenu uslugu u korist žiro računa izvršitelja IBAN: HR6024020061100387900 koji je otvoren u Erste&Steiermärkische Bank d.d.

#### Članak 3.

- Izvršitelj se obvezuje da će za uslugu izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA osigurati probno razdoblje do 11. listopada 2021. godine.
- (2) Izvršitelj se obvezuje da će za uslugu izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA osigurati funkcionalan rad do 15. studenog 2021. godine.
- (3) Rokovi iz Članka 3. se mogu produžiti u slučaju da Naručitelj ne bude u mogućnosti na vrijeme osigurati dostupnost podataka s mjernih uređaja zbog postupka nabave i eventualnog kašnjenja instalacije mjerne opreme koja treba osigurati ulazne podatke za geoinformacijski sustav. Rokovi

14



se mogu produžiti i u slučaju da Izvršitelj bude spriječen u obavljanju poslova, a zbog događaja koji se nisu mogli predvidjeti.

(4) Izvršitelj se obvezuje sve informacije dobivene od Naručitelja trajno čuvati kao poslovnu tajnu.

#### Članak 4.

Za izvršenje ovog Ugovora, ugovorne strane imenuju svoje odgovorne stručne predstavnike:

- za Naručitelja dr.sc. Sanja Slavica Matešić,
- za Izvršitelja Flavio Mendiković, dipl. ing. stroj.

#### Članak 5.

Ugovorne strane su suglasne da će sve sporove iz ovog Ugovora rješavati sporazumno, a ukoliko to nije moguće, nadležan je sud u Šibeniku.

#### Članak 6.

2

Ovaj Ugovor je sastavljen u šest (6) istovjetnih primjeraka, od kojih svaka strana zadržava po tri (3) primjerka.

KLASA: 406-09/21-01/27 URBROJ: 2182/1-06-21-34 U Šibeniku, 28. srpnja 2021.

## Za Naručitelja:



Prilozi:

- Odluka o odabiru
- Ponuda Geodetski zavod Rijeka d.o.o.





Šibensko-kninska županija, Trg Pavla Šubića I. br. 2, 22000 Šibenik, OIB: 99395814920, koju zastupa župan dr. sc. Marko Jelić (u daljnjem nastavku Naručitelj)

Geodetski zavod Rijeka d.o.o., Dr. Frana Kresnika 33, 51000 Rijeka, OIB: 42177896849, kojeg zastupa direktor Damir Delač (u daljnjem nastavku Izvršitelj)

zaključili su dana 01. listopada 2021. godine:

## 1. DODATAK UGOVORU za

## USLUGU IZRADE GEOINFORMACIJSKOG SUSTAVA ZA UPRAVLJANJE ONEČIŠĆENJEM MORA – PROJEKT PEPSEA

#### Članak 1.

- (1) Predmet dodatka Ugovoru usluge izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA od 28. srpnja 2021. godine (KLASA: 406-09/21-01/27, URBROJ: 2182/1-06-21-34) je izmjena članka 3., stavka 1 i 2, a sve sukladno stavku 3. gdje se rokovi mogu produžiti u slučaju da Naručitelj ne bude u mogućnosti na vrijeme osigurati dostupnost podataka s mjernih uređaja zbog postupka nabave i eventualnog kašnjenja instalacije mjerne opreme koja treba osigurati ulazne podatke za geoinformacijski sustav.
- (2) Članak 3., stavak 1. Ugovora se mijenja i glasi: Izvršitelj se obvezuje da će uslugu izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA osigurati probno razdoblje do 11. studenog 2021. godine.
- (3) Članak 3., stavak 2. Ugovora se mijenja i glasi: Izvršitelj se obvezuje da će za uslugu izrade geoinformacijskog sustava za upravljanje onečišćenjem mora – projekt PEPSEA osigurati funkcionalan rad u roku od četrdeset pet (45) dana od dana kad se osigura potpuna funkcionalnost dostave podataka s mjernih uređaja.

#### Članak 2.

1

Ovaj Dodatak Ugovoru je sastavljen u šest (6) istovjetnih primjeraka, od kojih svaka strana zadržava po tri (3) primjerka.

KLASA: 406-09/21-01/27 URBROJ: 2182/1-06-21-35 U Šibeniku, 01. listopada 2021.

Za Naručitelja:



Za Izvršitelja:

GEODETSKI ZAVOD RIJEKA d.o.o. Direktor Damir Delač, dipl. ing. GEODETSK ZAVOD RIJEKA o.o. | MBS 040013072



# D.4.2.2. Interactive geoinformation system for sea pollution management in EPSs designed and installed in five response centres in charge of pilot EPSs

External experts designed geoinformation system with integrated models and data that were developed and gathered within work package 3. Geoinformation system established network of sensors and other monitoring equipment that is being used as early warning system which is capable to communicate with other response centers and monitor quality of seawater in real time.

We had to install equipment at four (4) locations in order to have functional early warning system for pilot location of St Anthony's Channel in Šibenik.

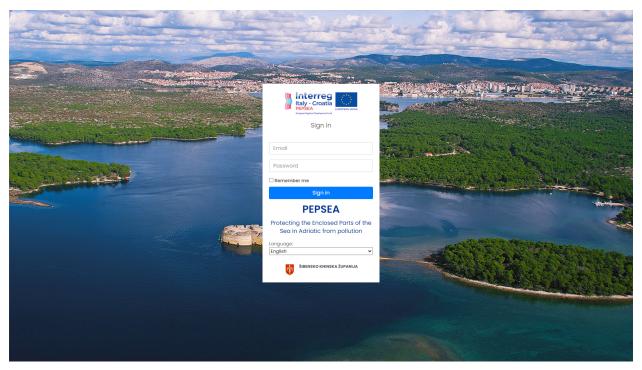
As project partners we provided for our response center a work station which has been used to monitor geoinformation system.

Developed system together with procured equipment helped us to increase our capabilities to prevent pollution and to respond with action when it actually happens. All locations are also covered with video surveillance.

As final activity external experts conducted an online education on how to use the geoinformation system. Geoinformation system PEPSEA for Šibenik-Knin County is at following link:

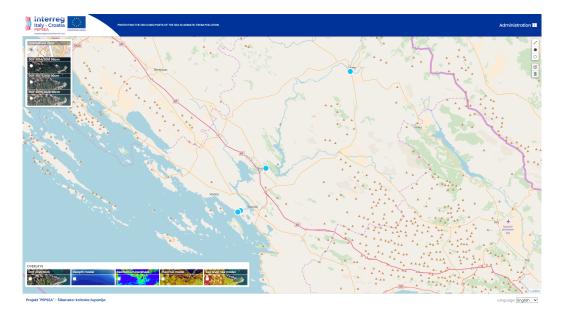
https://pepsea.atlas14.com





Picture 1: Geoinformation system PEPSEA for Šibenik-Knin County





Picture 2: Geoinformation system PEPSEA for Šibenik-Knin County

Sen	sor attributes								
Sens	or attributes								
#	Location \sensor name	Order	CSS Icon	Unit	Last data received	Minutes to detect alert	Alert triger value	Visible	
#1	Atlagića most Oli Spili Detection	1	fa-water		29.04.2022 11:45:48	20	2		🖋 Edi
#2	Atlagića most Water level (m)	2	fa-water	m	29.04.2022 11:45:48				🖋 Edi
#3	Atlagića most Surface water velocity (m/s)	3	fa-water	m/s	29.04.2022 11:45:48				🖋 Edi
#4	Atlagića most Surface water temperature (°C)	4	fa-water	°C	29.04.2022 11:45:48				🖋 Edi
#5	Skradinski most Oil Spill Detection	1	fa-water		29.04.2022 11:45:38	20	2		🖋 Edi
#6	Skradinski most Water level (m)	2	fa-ruler-vertical	m	29.04.2022 11:45:38				🖋 Edi
#7	Skradinski most Surface water temperature (°C)	3	fa-temperature-high	°C	29.04.2022 11:45:38				🥒 Edi
#8	Minerska Water level (m)	1	fa-ruler-vertical	m	29.04.2022 11:46:02				🥒 Edi
#9	Minerska Average surface velocity (m/s) – Sjever	2	fa-ruler-vertical	m/s	29.04.2022 11:46:02				🖋 Edi
#10	Minerska Average surface velocity (m/s) – South	3	fa-ruler-vertical	m/s	29.04.2022 11:46:02				🥒 Edi
#11	Minerska Water Temperature – 1 m depth (°C)	4	fa-temperature-high	°C	19.04.2022 07:46:03				🖋 Edi
#12	Minerska Water Temperature − 2 m depth (℃)	6	fa-temperature-high	°C	28.04.2022 11:46:02				🖋 Edit
#13	Minerska	6	fa-temperature-high	°C	29.04.2022 11:46:02				# Edit

Picture 3: Geoinformation system PEPSEA for Šibenik-Knin County



Interreg	BACK T	O MAP					Log	gout
PEPSEA torspean Regional Development Fund     ("A") Locations	Date	a Cat	alog					
''Å' Sensor attributes 은 Users	No.	Туре	Description	Collection method	Scale/resolution	Download	Application	
🞛 Data Catalog	1	Vector	Bathimetric survey area	Aerial imagery vectorization		@ Download	Marking the boundary of the research area	
	2	Vector	Digital depth model (DMD)	Bathymetry		Ø Download	Making of bathymetric map for the Sv. Ante channel	
	3	Vector	Point cloud data	Bathymetry		Ø Download	Making of deapth model for the Sv. Ante channel	
	4	Raster	Integral model of Sv. Ante channel	Bathymetry	50 cm	Ø Download	Making of bathymetric map for the Sv. Ante channel	
	5	Raster	Bottom hardness model	Bathymetry	4 cm	Ø Download	Making of hardness model map for the Sv. Ante channel	
	6	Raster	Sediment model	Bathymetry	3 m	Ø Download	Making of sediment model map for the Sv. Ante channel	
	7	Vector	Coastline	Aerial photography	1:200 ( 5 cm)	Ø Download	Coastline length	
	8	Vector	Sea surface	Aerial photography	1:200 ( 5 cm)	Ø Download	Sea surface area within the Sv. Ante channel	
	9	Raster	DOF of the wider area of the Sv. Ante channel - planimetrically correct image from the air, which by metric properties, fully corresponds to the map of the same scale	Aerial photography	(0.05 m)	Ø Download	Detection of various anthropogenic and natural elements in the area of the Sv. Ante channel (eg. mapping and making a database of residentia buildings, agricultural plots, roads, etc.)	
	9A	Raster	DOF of the wider area of the Sv. Ante channel - planimetrically correct image from the air, which by metric properties, fully corresponds to the map of the same scale (image correction)	Aerial photography	(0.1 m)	Ø Download	Detection of various anthropogenic and natural elements in the area of the Sv. Ante channel (eg. mapping and making a database of residentia buildings, agricultural plots, roads, etc.)	1
	10	Raster	DMR of the wider area of the Sv. Ante channel - bare relief surface without anthropogenic and natural elements	Aerial photography	(0.05 m)	Ø Download	Detection of various anthropogenic and natural elements in the area of the Sv. Ante channel (eg. mapping and making a database of residentia buildings, agricultural plots, roads, etc.)	I
	n	Raster	DMR of the wider area of the Sv. Ante channel - bare relief surface without anthropogenic and natural elements	Aerial photography	(0.05 m)	Ø Download	Performing hydrological and morphometric analyzes as part of modeling soil erosion and flood potential within the wider area of the Sv. Ante	9

Picture 4: Geoinformation system PEPSEA for Šibenik-Knin County



Picture 5: Operator at response center source: screenshot of HRT – tv show "More" (https://magazin.hrt.hr/price-iz-hrvatske/kako-sprijeciti-oneciscenjemora-6953560)

European Regional Development Fund



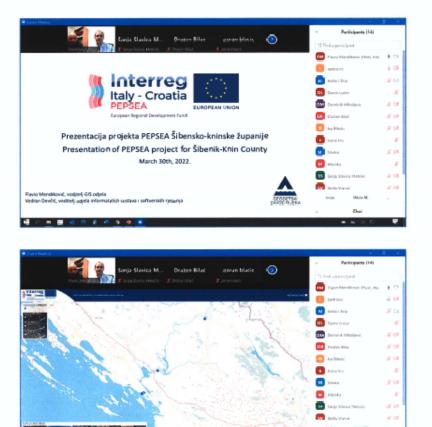


Dr. Frana Kresnika 33 S1000 RIJEKA

Tel.: 385 51 551 344 Fax.: 385 51 551 355

email: gzr@gzr.hr www.gzr.hr

Početna edukacija predstavnika Naručitelja o načinu korištenja geoinformacijskog sustava je izvršena u ožujku 2022. godine.



Picture 6: Screenshot from online education

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1.00



# Conclusion

External experts in cooperation with Šibenik-Knin County and other involved project partners fullfield their task and delivered geoinformation system.

System itself allows possible future upgrades and that is very important to Šibenik-Knin County as institution because we constantly work on increasing environmental protection.



## **PP6 – PO DELTA VENETO REGIONAL PARK**

## Introduction

In order to ensure a valid system that will prevent pollution, remediate it and act in a timely manner if it occurs, it was necessary to develop an entire geoinformation system that will signal pollution. In addition, it was necessary to procure the equipment that will monitor the real situation on the ground and then connect that equipment to GIS system. The equipment was handed over for use to the ARPAV - public body for environmental protection, which will monitor the situation at the pilot location of Po Delta.

# D.4.2.1. External service for designing and installation of geoinformation system for sea pollution management for five pilot EPSs contracted

The Po Delta Park conducted a simple procurement procedure and the company ABITAT S.I.T. SRL was selected as part of it. Supplier ABITAT S.I.T. SRL., Pojana Maggiore (VI), P. IVA 02616950248, developed a geoinformation system integrated with the technologies already developed by the Delta Po Veneto Park and with the portals managed by the project partners who will have to make specific information available. The WebMap Server to be used is the one already implemented by the contractor, specifically the technologies on which the contractor will have to work to implement the new maps are Geonode https://geonode.org/ and https://mapstore.readthedocs.io / en / latest /

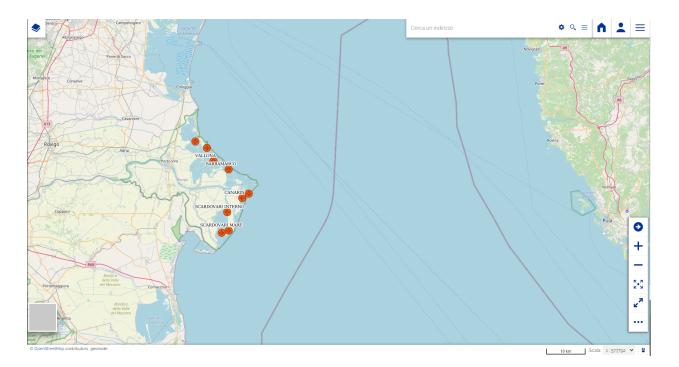
# D.4.2.2. Interactive geoinformation system for sea pollution management in EPSs designed and installed in five response centres in charge of pilot EPSs

Po Delta Park external experts have designed geoinformation system with the aim to develop new system for early warning detection of sea pollution risk. The GIS system has put into operation and all the information reach the main system interface in response centre in real time and if required alarm the response team members for necessary actions.

Surveillance equipment was procured n. 2 stations for automatic measurement of the parameters: level, temperature, pH, conductivity and dissolved oxygen to be placed in the lagoons of Scardovari and Caleri and to the supply on site of n. 3 chlorophyll sensors to be placed in the existing stations of: Marinetta, Canarin and Basson in the Municipality of Porto Tolle.



Project website: <u>https://webgis.parcodeltapo.org:446/mapguide/deltadata/pepsea.html</u>



Surveillance equipments Map



Seleziona Documents		120 Documents found					
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			Pepsea - Bollettino delle Lagune del Delta del Po 2021-08-31	+			
			Pepsea - Bollettino delle Lagune del Delta del Po 2021-09-30	+			

Online Documentation avaliable in GIS Geoportal

25



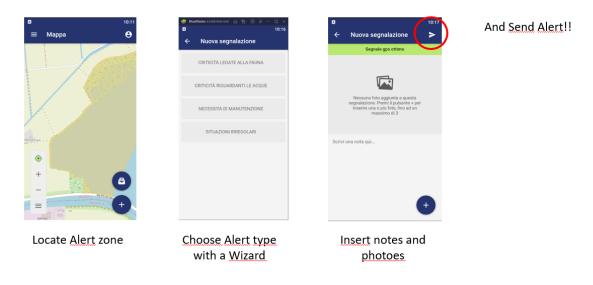
Po Delta Park also developed and put into operation an App.

App called "ProtezioneCivilePepsea" is available in Google Play Store.

All Partners will recive an account and will insert position and infromation about pollution incident.

When a partner insert an incident, App send an e-mail to the identified addresses.

How users send an Alert



App Workflow

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# Conclusions

The monitoring equipment data collected from ARPA Veneto are connected to the Po Delta Park's GIS system and shows the situation on the ground in real time.

With the App public and civil protection officials can send geolocated signals of critical issues directly from ground, Users can send more information or photos of Alert.

With these equipment Po Delta Park collect and manage in real time the monitoring equipment data and can manage geolocated alert in real time directly from the ground.

Po Delta Park GIS Portal and App will be used to collect All the partners GIS information.