



(HR)

Nove tehnologije za detekciju i analizu mikro i makro plastike u jadranskom bazenu – **NET4mPlastic**

### **Pojedinosti projekta:**

Poziv: INTERREG Italija Hrvatska – Standard projekt

Prioritetna os 3: Okoliš i kulturna baština

Trajanje: 01.01.2019 - 30.06.2021.

ERDF: 2.106.844,00,00 €

UKUPAN BUDŽET: 2.478.640,00 €

### **Sažetak:**

Mikroplastika (MP) je globalni problem i njena akumulacija na plažama, morskim sedimentima i morskim staništima danas je dobro poznata pojava u svijetu. Ipak, postoje vrlo ograničeni podaci o mikrootpadu i MP u Jadranskom moru, a nedostaju kako standardni operativni protokoli za uzorkovanje, otkrivanje i kvantifikaciju MP tako i pouzdani podaci o koncentracijama MP i sastavu polimera u morskom okolišu. Slijedom toga, postoji potreba za poboljšanjem i razvojem metoda za smanjenje vremena i napora u identifikaciji i otkrivanju MP.

Cilj projekta NET4mPLASTIC je prikupiti podatke o rasprostranjenosti i sastavu MP uz hrvatsko i talijansko priobalno i morsko područje.

Za stjecanje znanja o akumulaciji MP-a u različitim okolišnim kontekstima vršit će usklađeni postupak uzorkovanja i ekstrakcije s četiri pilot područja u Jadranskom moru (po dva u hrvatskim i talijanskim vodama) koji će omogućiti sustavnu usporedbu razine MP na plažama, morskom okolišu, flori i fauni. Za potrebe simulacije morskih transportnih procesa MP u Jadranskom moru i identifikacije mogućih zona koncentracije MP u pilot područjima modificirat će se numerički model koji već koristi regija Marche. Za validaciju numeričke simulacije i mapiranje raspodjele MP provest će se terenska istraživanja pri čemu će se za identifikaciju prisutnosti plastike koristiti dronovi, dok će se drugi parametri mjeriti u realnom vremenu instaliranjem posebnih platformi na brodovima. Kemijskom i biološkom analizom uzoraka identificirat će se MP, njeno moguće podrijetlo i učinci na zdravlje. Rezultati analiza i prikupljeni podaci pohranit će se u integriranoj internetskoj platformi i koristiti za razvoj alata za predviđanje akumulacije MP i uspostavu sustava ranog upozoravanja korisnog lokalnim vlastima i marikulturi.

## Projektni partneri:

- Odjel za fiziku i znanosti o Zemlji Sveučilišta u Ferrari (IT)
- Fakultet građevinarstva i arhitekture Sveučilišta u Trstu (IT)
- Regija Marche (IT)
- Veterinarski zavod za javno zdravstvo Abruzzo Molise Regije (IT)
- Hydra Solutions SRL (IT)  
Nastavni zavod za javno zdravstvo PGŽ (HR)
- Javna ustanova RERA S.D. za koordinaciju i razvoj Splitsko-dalmatinske županije (HR)
- Fakultet građevinarstva, arhitekture i geodezije Sveučilišta u Splitu (HR)
- Prosoft d.o.o. iz Rijeke (HR)

(EN)

New Technologies for macro and Microplastic Detection and Analysis in the Adriatic Basin – **NET4mPlastic**

## Project details:

Call: INTERREG Italy-Croatia – Standard projects

Priority Axis 3: Environment and cultural heritage

Start date 01/01/2019 - end date 30/06/2021

ERDF: 2.106.844,00,00 €

TOTAL BUDGET: 2.478.640,00 €

## Abstract:

Microplastic (MP) is a global concern and their accumulation on beaches, marine sediments and marine habitats is now well recognized worldwide. However, there is very limited data related to microlitter and MP in the Adriatic Sea. Furthermore, even if knowledge of the occurrence, composition, size and distribution of MP is paramount to understanding their risk, there is still a lack of standard operation protocols for MP sampling, detection and quantification and as a consequence there is a lack of reliable data on concentrations of MP and composition of polymers within the marine environment. Consequently, there is a need to improve and develop methods to reduce the identification time and effort and to detect MP.

The NET4mPLASTIC project, based on a partnership composed by Ferrara University – UNIFE, Trieste University – UNITS, Marche Region, Hydra Solutions SRL, Prosoft LTD, Veterinary Public Health Institute of Abruzzo and Molise Regions – IZSAM, Teaching Institute for Public Health –TIPH, Public Institution RERA SD for coordination and development of Split Dalmatia County – RERA SD and Split University – UNIST-FGAG, aims to collect data on the distribution and composition of the MP along the Croatian and Italian coastal and marine areas. A harmonized sampling and extraction procedure will be

used to gain knowledge on MP accumulation in different environmental contexts in four macro-pilot areas (identified according to their geomorphological characteristics), providing a systematic comparison on levels of MP on beaches, marine environment and biota at both a regional/local scale. A numerical model, already used by the Marche region, will simulate the marine transport processes of the MP in the Adriatic Sea to identify possible MP concentration zones in the pilot areas according to fluvial discharge and marine conditions. Field surveys (using innovative and traditional approach) will be performed to validate the numerical simulations and map the MP distribution. The drone images will be used to identify the presence of plastic, while some other parameters will be measured in real time by installing a specific platform on boats or on marine drones. Sampling will be done at the river mouth, in marine environment, on the beach and collecting biota samples. Chemical and biological analysis will identify the MP, possible origin of the MP and possible health impacts. Correlation between the presence of PCBs/Dioxins and MPs in bivalves will be also investigated as well as the origin of the MP.

All the results and data of the project, stored in an integrated online platform, will be used to develop a useful tool for forecasting MP accumulation and provide early warning system, useful for the local authorities and shellfish farmers. Finally, the possibility of recycling micro and macroplastics will also be analysed and a defined methodology for its recycle will be tested, using an existing International Patent.

### **Participants:**

- University of Ferrara, Italy
- University of Trieste, Italy
- Marche Region, Italy
- Hydra Solutions Srl, Italy
- PROSOFT Ltd, Croatia
- Veterinary Public Health Institute of Abruzzo and Molise Regions, Italy
- Teaching Institute for Public Health, Primorje-Gorski Kotar County, Croatia
- Public Institution Rera SD for Coordination and Development of Split Dalmatia County, Croatia
- University of Split, Croatia