

Short Abstract.

The European Union (EU) is committed to a transition towards renewable energies and economy decarbonization. The development of clean energy sources such as offshore wind farms (OWF) plays a key role towards the achievement of 2030 targets and therefore, the amount of OWFs will be drastically increased during next years.

Despite the clear benefits in terms of CO₂ emissions reduction, some environmental impacts associated to OWF installations have been described. Those impacts may affect local ecosystems and fauna and include the generation of magnetic fields or underwater noises among others. However, the chemical emissions from OWFs have been largely disregarded and just a few research projects have investigated the inputs of inorganic chemicals (i.e. metals) to the surrounding ecosystems.

The Interreg North Sea project Anemoui aims to comprehensively study chemical emissions from OWFs, including organic and inorganic chemicals as well as particles and flakes. Additionally, the Anemoui project includes studies on their (potential) effects on the surrounding ecosystems and proposals for the improvement and harmonization of the legal framework in Europe and technical tools for the minimization of chemical emissions.

The Chemical Contamination of Marine Ecosystems unit of Ifremer is involved in the Anemoui project and have developed and validated multiresidue analytical methods for the determination of organic chemicals used in polyurethane and epoxy coatings widely applied to protect offshore structures from the highly corrosive oceanic media. Studied chemicals included (co)monomers, chain terminators and/or crosslinkers such as (bis)phenols or diamines and additives such as organophosphate esters (OPEs) plastisizers or benzotriazole ultraviolet stabilizers (BUVs). Developed methods has been used to investigate the occurrence of target compounds in seawater and sediment samples from the German and Belgian parts of the North Sea. The sampling strategy included locations inside and nearby 4 OWFs and different reference areas to account for other onshore and offshore sources in a highly anthropized sea basin such as the North Sea.

Short Biography

Pablo Zapata Corella graduated in Chemical Sciences from the Complutense University of Madrid in 2016. He holds an MSc and a PhD in Analytical Chemistry and Environmental Science from the University of Barcelona. He is currently a postdoctoral researcher at the French Institute for the Exploitation of the Sea (IFREMER).

His research has focused on the development, validation, and application of multi-residue analytical methods based on chromatography coupled with mass spectrometry for the detection and quantification of legacy persistent organic pollutants (POPs) and contaminants of emerging concern (CECs) in environmental samples.

These methods have been applied to investigate various environmental pollution issues, including informal electronic waste recycling in China, the impact of human activities in protected natural areas in Spain and China, and, more recently, chemical emissions from offshore wind farms in the North Sea through his participation in the Interreg North Sea project Anemoui.