

Forecasting jellyfish blooms in the Mediterranean Sea: The Med-JellyRisk Project

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Different approaches have been developed with the aim of mitigate the impact of jellyfish blooms in coastal areas. These include warning flags, specialized anti-jellyfish nets and, to a much lower extent, risk maps for jellyfish blooms. The Medjellyrisk Project (www.jellyrisk.eu) aimed to create a western and central Mediterranean Basin forecasting platform. An integrated Collaborative Citizen Science approach has combined abundance data on stranded individuals of jellyfish and those recorded in coastal waters from four different Mediterranean countries (Spain, Italy, Tunisia and Malta) in a single database. The aim of this work is to create a forecasting platform where the probability of a jellyfish bloom arising can be foreseen. Stranded and near-to-coast jellyfish presence data was processed using a Species Distribution Model (SDM) approach, where different correlative and classification models were fitted on the abundance data so as to create an ensemble of predictions. Different water environmental variables were used as explanatory variables, depending of the spatial location and jellyfish species of concern. Those spatially-explicit predictions were then projected in time using data from the MyOcean program (<http://www.myocean.eu/>). Jellyfish presence data as well as the forecasted probability of a jellyfish bloom arising was communicated to the general public through the free-download mobile App (iMedjelly) and from the project's webpage (<http://jellyrisk.eu/en/jellyfish-presence-forecasting-selector>), providing citizens with up-to-date and validated information. In this way, this project reacted to the large demand by different beach users, stakeholders and institutions for such management tools within bathing areas.

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