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Preliminary assessment of the impact of an extreme storm on Catalan Mediterranean shallow benthic communities

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On 26-27th December 2008 the Catalan coast was hit by a heavy easterly storm. During 20 hours, the easterly wind speed reached 85 km / h and significant wave height attained around 6m, including a record wave of 14.4 m height. Although not uncommon in the area, it was clear that this storm was the most violent recorded from, at least, 1948. In fact, besides the loss of several ships and the deaths of three people, the damage caused on coastal facilities was evaluated in tens of millions of Euros. In addition, some independent observations (divers, scientists, fishermen...), put in evidence that benthic communities, particularly in shallow environments (down to ca. 30m) could have experienced from moderate to dramatic effects, especially in the northern Catalan coast (Costa Brava), where the first observations were certainly alarming (hundreds of dead fish on the beach of L'Estartit, massive removal of large blocks with considerable denuded areas due to abrasion, partial burying of the meadows of P. oceanica, ...). Given the apparent severity of the storm effects, the Centre d'Estudis Avançats de Blanes (CEAB-CSIC) is undertaking a project aimed at assessing the overall extent of the damage in some of the most representative coastal benthic communities and populations. To this end, an unprecedented multidisciplinary team has been formed including most of the staff of the CEAB-CSIC, along with specialists from the ICM-CSIC, the University of Barcelona and the University of Cantabria. This working group covers both benthic ecology and hydrodynamics coastal modelling expertises. Although the study has begun recently, the first results show that the effects of the storm have been very heterogeneous depending on the type of substrate and the orientation of the areas studied. The greatest impact has undoubtedly occurred in bottoms of large rocky blocks in which all algal cover and almost all the population of sea urchins have nearly disappeared by abrasion. Significant losses of colonies of gorgonians from certain areas have been also found (up to 85%), although the population has managed to resist quite well in other places. In all, it seems that the annual mortality has reached the 13% (that means a 10% more than the "normal" annual mortality). More information will be available in the coming months between this submission and the celebration of the conference.