PRELIMINARY ASSESSMENT OF THE IMPACT OF AN EXTREME STORM ON CATALAN MEDITERRANEAN **BENTHIC COMMUNITIES**

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MAIN FEATURES OF THE SEVERE STORM OF DECEMBER 2008



A severe easterly storm took place in the Catalan coast (NW Mediterranean) the 26th December 2008 with winds surpassing 85 Km/hour and waves over 7m of significant height and up to 14.4m of maximum height. No such virulent storm events have been recorded during the last 50 years. The Centre d'Estudis Avançats de Blanes (CSIC), is undertaken a broad study of the impact of this storm on various key Mediterranean coastal benthic communities. Ongoing longterm monitoring programmes are allowing to compare the state of those communities before and after the storm. We here present some preliminary results of some of the sites studied (Montgrí-Medes, NE Catalonia).



26 % cover loss



FIRST EVIDENCES

1. Thousands of littoral marine fish, along with hundreds of freshwater fish and crayfish, were found dead on the beach of l'Estartit (1)

2.Big stone blocks (> 3m diameter) were found displaced or turned upside down up to 10m depth

- 3. Substantial loss of benthic cover due to abrasion and/or erosion (2)
- 4. Mass mortality of date mussel Lithophaga lithophaga (2)
- 5. The effects on benthic littoral communities were well evident down to about 20 m depth (4).

FIRST QUANTITATIVE RESULTS







3. Effects on the purple gorgonian (Paramuricea clavata) population (estimated in % of lost colonies)



the same locality in the percentage of lost colonies (ranging from 0 up to 72%; mean 20,6% of loss)





5,0

Inere are no dimensions between the Medes Islandis and the neighboring coast. On average, the estimated decrease of 13.4% due to the storm, is equivalent to 8 times the annual mortality (-1.6% / year 2005-2008).

CONCLUSIONS

N=3

highest impact

Carall Bernat (Medes Is. \approx 20m deep), an extreme example..

Before: 23/06/2008

After:10/02/2008

essile species cover: $97\% \pm 0.7$ Denuded surface: $3\% \pm 1.0$ Denuded surface:

Sessile species cover: $13\% \pm 5,5$ Denuded surface: $86\% \pm 5,5$

usually outside from wave action and therefore are very sensitive to any kind of physical

1. Monitoring the succession (steps and tempo) of benthic communities and the recovery of the most affected populations.









PIEC-CSIC: "Análisis y seguimiento del impacto ecológico del temporal extremo de San Este 08) sobre los ecosistemas litorales del norte del levante español". PIEC 200430E599. Consejo de Investiguarines Científicas