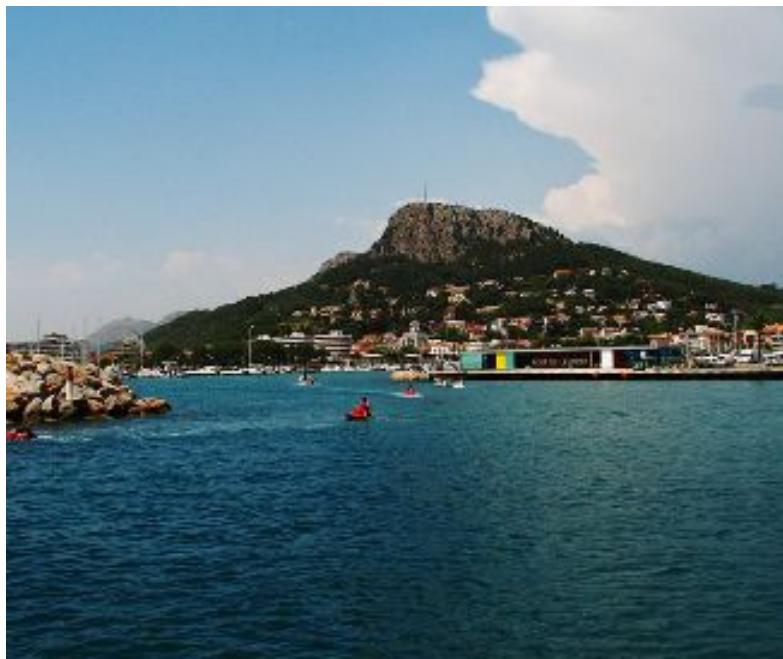


01/2014

Vulnerability to climate change in the Aiguamolls de l'Empordà



The Aiguamolls de l'Empordà area is the second largest wetland in Catalonia, and was the first to be declared a protected area in the Costa Brava. A participatory study on vulnerability and adaptation to climate change reveals the concern of the people interviewed for the effects of climate change on the observed area, such as increasing air temperatures, changes in precipitation and an increasing sea level. In addition, more than half of those interviewed consider adaptation to climate change necessary.

The Aiguamolls de l'Empordà was the first natural protected area to be created in the Costa Brava and is the secondmost important wetland area in Catalonia, after the Ebre Delta. This study researched how local key stakeholders experience, perceive, and respond to changing climate, together with an analysis of the climate variability in the last forty years inone of the most economically dynamic coastal areas in Spain. This has been done by carrying out a number of

fieldworks and conducting interviews over an eighteen-month period. Our approach supports a position that vulnerability analysis must be participatory and must include social, cultural, environmental, economic and political dimensions. The fieldwork has provided the possibility of engaging with stakeholders across the observed area and we have fostered a better understanding of vulnerability and adaptation to the changing climate with the aim of reducing vulnerability and maintaining or increasing the opportunities for sustainable development in the natural protected area of the Aiguamolls de l'Empordà.

This study firstly shows that large majorities of stakeholders already believe that climate change is a very serious problem and that concern about this issue is growing. Most of them said that human activities are a significant cause of climate change especially over recent decades. Furthermore, stakeholders considered that the increase in air temperature over the past few decades, precipitation changes, the increase in the severity of droughts, and the decrease in biodiversity and ecosystem productivity and services are the most pressing climate change effects and pose serious threats to the observed area.

For the most part, stakeholders' perception of the increase in air temperature, drought and biodiversity and ecosystem loss appears to be in line with present meteorological data and previous studies. In particular, air temperature data at the meteorological station in l'Estartit shows that temperature increased by 2.3°C over the period from 1971 to 2012.

In addition to this, the location of the coastal municipalities (their exposure) also makes them directly vulnerable to coastal erosion, saltwater intrusion and rises in sea level. However, stakeholders' perception of sea level rise appears to reflect present sea level data at the l'Estartit station, which shows an increase of 8.2 cm in sea level between 1990 and 2012. Furthermore, a clear majority of the stakeholders strongly believed that a future 50 cm rise in sea level may occur in this part of the Mediterranean Sea and trigger further flooding, coastal erosion and saltwater intrusion.

In terms of the tourism sector, coastal erosion is likely to affect the potential exploitation of the area because of a change in surface area of beaches and coastal tourism in particular can be adversely affected to a significant extent since it is considered that most tourists (95% in 2010) in Catalonia choose to stay in coastal areas. When asked about the influence of climate change effects on stakeholders' work activity, significant proportions of them indicated that climate change is already or may further continue to affect their work activity.

Interestingly, almost half of them stated that climate change may positively affect their work activity over coming decades, stating that climate change may create new areas of work or expand the tasks of their existing jobs. Finally, over half of the stakeholders found that climate change adaptation is needed; but only a few of them expressed a high level of familiarity with mitigation.

This finding may suggest that even if costs of adaptation are high, further losses to the economy, ecosystems and properties in Aiguamolls de l'Empordà might be even higher. From the study it was also noted that the option of abandoning the area (i.e. migrating elsewhere) was clearly believed to be acceptable by some stakeholders, especially men, older residents and foreigners. It has to be taken into account that there has been a population increase of 161% between 1981 and 2012 in the Aiguamolls de l'Empordà area and that, in 2012, 37% of the total registered

population was made up of foreign residents (mainly from other European countries and, to a lesser extent, North Africa and Latin America).

Sandra Fatoric

Sandra.Fatoric@uab.cat

References

Fatoric, Sandra; Morén-Alegret, Ricard. Integrating local knowledge and perception for assessing vulnerability to climate change in economically dynamic coastal areas: The case of natural protected area Aiguamolls de l'Empordà, Spain. *Ocean & Coastal Management* 85(A): 90-102. 2013.

[View low-bandwidth version](#)