Improvements in wastewater treatment produce cleaner coastal waters in Catalonia

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The seagrass Posidonia oceanica are useful bioindicators for environmental monitoring programmes. Credit: Matteo Ciani

A study, published in the journal *Ecological Indicators* proves that Catalan coastal waters are in a good ecological status. In order to make

such a positive statement, the study analysed the evolution of the seagrass Posidonia oceanica, a species that shows an extraordinary sensitivity to changes in water quality. Water quality improvement is largely due to the implementation of better wastewater treatment systems.

Water quality improvement has occurred along the Catalan coast (Spain), but it has been particularly important in the most affected and damaged areas. For the period 2003 to 2010, improvements in several plant physiological and biochemical parameters have been detected; they indicate not only a nutrient and organic matter reduction, but also an increase of water transparency.

Biological indicators, like the seagrass Posidonia oceanica, are useful tools for environmental monitoring programmes because they allow obtaining an integrated response to marine ecosystem alterations. For the last fifteen years, universities, CSIC research centres and the Catalan Water Agency have worked together and their research on water quality bioindicators has become pioneer in Spain and Europe. To date, bioindicators were particularly used to detect degradation. Sensitive indicators are required to detect ecosystem improvement and the present study is pioneer in this sense.

From 1990 to 2010, wastewater treatment plants were ameliorated and three hundred new ones were built in Catalonia. These actions reduced nutrient and organic matter discharges into the sea.

Considering public investments made in improving coastal water quality, authors highlight that it is necessary to have a powerful tool to evaluate the effectiveness of interventions and guide environmental policies. Therefore, monitoring programmes, like the one in which this study is based, must continue to receive institutional and economic support.

More information: "Detecting water quality improvement along the Catalan coast (Spain) using stress-specific biochemical seagrass indicators." *Ecological Indicators* Volume 54, July 2015, Pages 161–170
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