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Status, trends and drivers of kelp forests in Europe: an expert assessment

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Abstract

A comprehensive expert consultation was conducted in order to assess the status, trends and the most important drivers of change in the abundance and geographical distribution of kelp forests in European waters. This consultation included an on-line questionnaire, results from a workshop and data provided by a selected group of experts working on kelp forest mapping and eco-evolutionary research. Differences in status and trends according to geographical areas, species identity and small-scale variations within the same habitat were shown by assembling and mapping kelp distribution and trend data. Significant data gaps for some geographical regions, like the Mediterranean and the southern Iberian

Peninsula, were also identified. The data used for this study confirmed a general trend with decreasing abundance of some native kelp species at their southern distributional range limits and increasing abundance in other parts of their distribution (*Saccharina latissima* and *Saccorhiza polyschides*). The expansion of the introduced species *Undaria pinnatifida* was also registered. Drivers of observed changes in kelp forests distribution and abundance were assessed using experts' opinions. Multiple possible drivers were identified, including global warming, sea urchin grazing, harvesting, pollution and fishing pressure, and their impact varied between geographical areas. Overall, the results highlight major threats for these ecosystems but also opportunities for conservation. Major requirements to ensure adequate protection of coastal kelp ecosystems along European coastlines are discussed, based on the local to regional gaps detected in the study.

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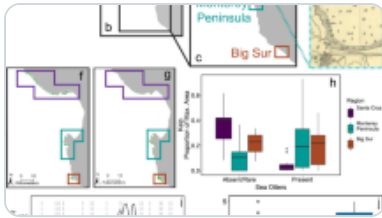
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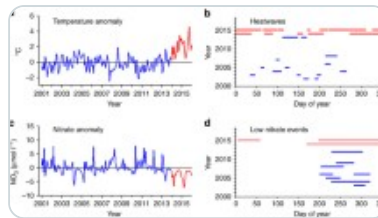
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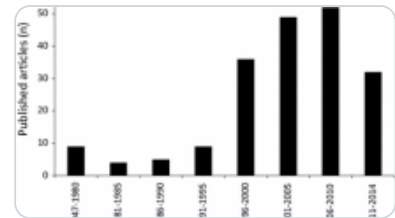
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