

## Effect of climate change on macroalgae

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Climate change can be associated with variations in the frequency and intensity of extreme temperatures and precipitation events on the local and regional scales. Along coastal areas, flooding associated with increased occupation has seriously impacted products and services generated by marine life, in particular the biotechnological potential that macroalgae hold. Therefore, this paper analyzes the available information on the taxonomy, ecology and physiology of macroalgae and discusses the impacts of climate change and local stress on the biotechnological potential of Brazilian macroalgae. Based on data compiled from a series of floristic and ecological works, we note the disappearance in some Brazilian regions of major groups of biotechnological interest. In some cases, the introduction of exotic species has been documented, as well as expansion of the distribution range of economically important species. We also verify an increase in the similarities between the Brazilian phycogeographic provinces, although they still remain different. It is possible that these changes have resulted from the warming of South Atlantic water, as observed for its surface in southeastern Brazilian, mainly during the winter. However, unplanned urbanization of coastal areas can also produce similar biodiversity losses, which requires efforts to generate long-term temporal data on the composition, community structure and physiology of macroalgae.

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