

Identification of a spatially efficient portfolio of priority conservation sites in marine and estuarine areas of Florida

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Abstract

1. A systematic conservation planning approach using benthic habitat and imperilled species data along with the site prioritization algorithm, MARXAN, was used to identify a spatially efficient portfolio of marine and estuarine sites around Florida with high biodiversity value.
2. Ensuring the persistence of an adequate geographic representation of conservation targets in a particular area is a key goal of conservation. In this context, development and testing of different approaches to spatially-explicit marine conservation planning remains an important priority.
3. This detailed case study serves as a test of existing approaches while also demonstrating some novel ways in which current methods can be tailored to fit the complexities of marine planning.
4. The paper reports on investigations of the influence of varying several algorithm inputs on resulting portfolio scenarios including the conservation targets (species observations, habitat distribution, etc.) included, conservation target goals, and socio-economic factors.
5. This study concluded that engaging stakeholders in the development of a site prioritization framework is a valuable strategy for identifying broadly accepted selection criteria; universal target representation approaches are more expedient to use as algorithm inputs, but may fall short in capturing the impact of historic exploitation patterns for some conservation targets; socio-economic factors are best considered subsequent to the identification of priority conservation sites when biodiversity value is the primary driver of site selection; and the influence of surrogate targets on portfolio selection should be thoroughly investigated to ensure unintended effects are avoided.
6. The priority sites identified in this analysis can be used to guide allocation of limited conservation and management resources.

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