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In data-limited situations, stakeholder advice can help shore-up your conservation solutions

In areas without robust surveys of species distributions, proxies are often used to estimate where marine flora and fauna reside. The authors tested a number of environmental proxies to see how well they could be used to predict both the distribution and abundance of species, using the Solitary Islands Marine Park in south-eastern Australia as a case study.

Marxan was used to compare spatial planning scenarios that used only species distribution models vs scenarios that used only a habitat classification system, as conservation layers. Using species distribution models and habitat classification schemes on their own did not provide ideal solutions. Relying just on species distribution models resulted in conservation solutions in Marxan that were rather inflexible, spatially-speaking. On the other hand, relying on habitat classification schemes alone required protecting three times as much area to achieve the same conservation targets that species distribution-modeled solutions did.

Importantly, the authors found that in data-limited situations, the best spatial planning scenario can be found by spatially overlapping both Marxan solutions (looking for areas that were identified as important for conservation by both scenarios), and using the resulting map to discuss spatial planning with expert stakeholders. Locally/traditionally known biodiversity hotspots that aren't reflected in the data fed into Marxan will be ignored in the outputs from the planning algorithm. Integrating stakeholder knowledge into your spatial conservation analysis can help overcome this obstacle.

Merging the outputs from both species- and habitat-oriented models with stakeholder advice is likely the best bet for planning conservation actions in data-limited situations.

This is a summary of:
Integrating distribution models and habitat classification maps into marine protected area planning

Accessible at:
<https://marxiv.org/txd95>

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