

SUBSTANTIAL KELP CARBON EXPORTED BEYOND THE CONTINENTAL SHELF

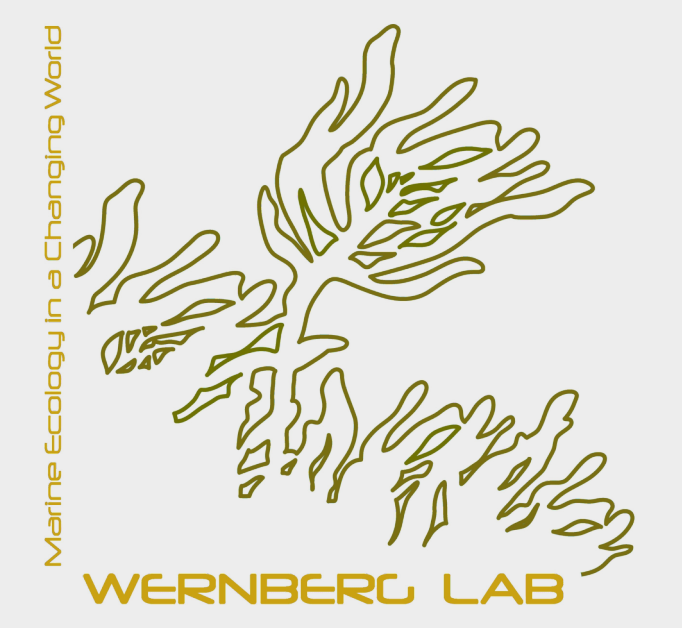
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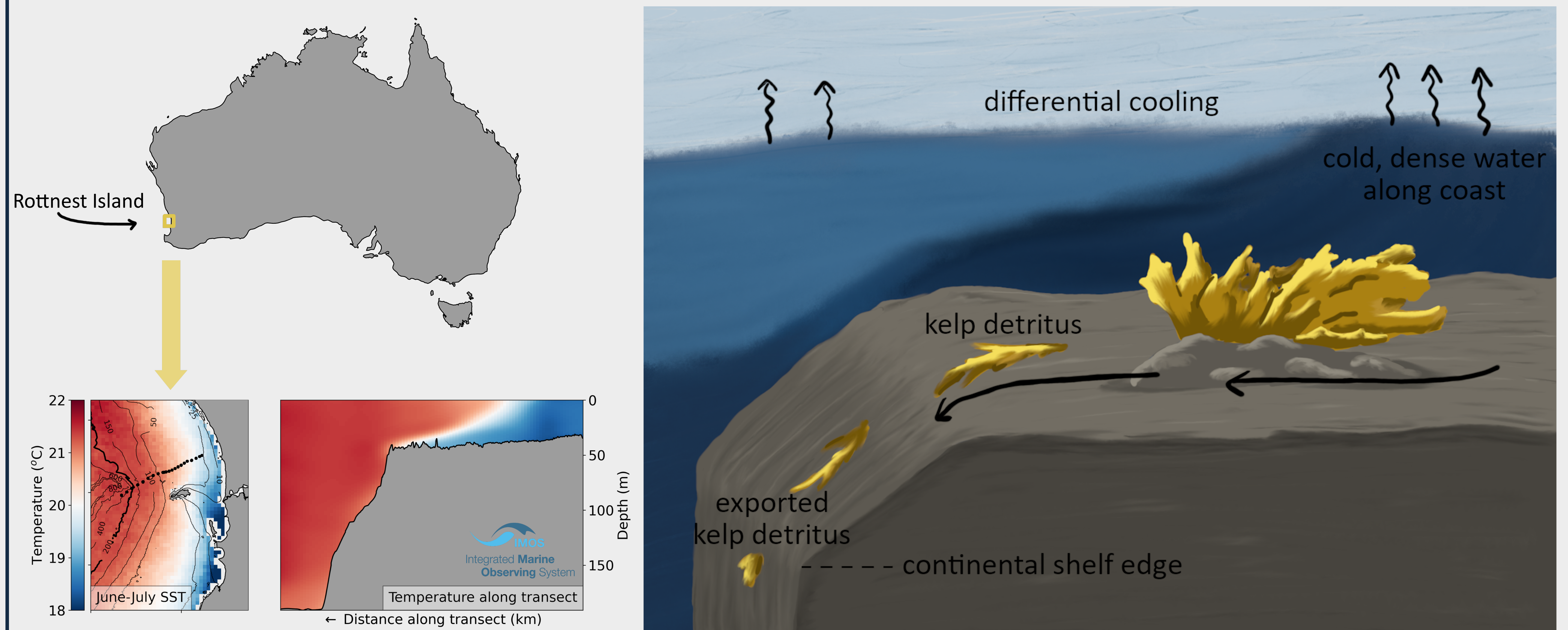
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DENSE SHELF WATER TRANSPORT

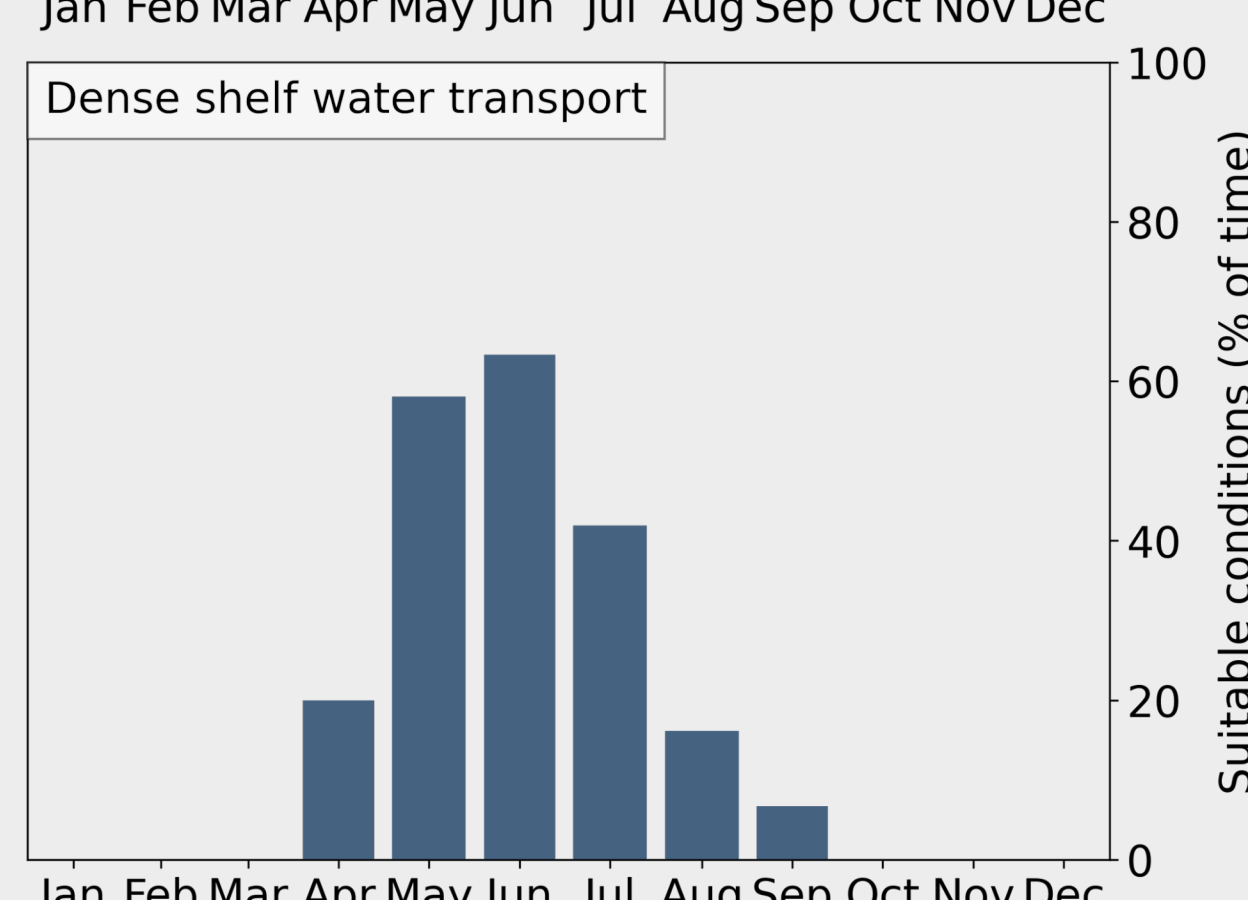
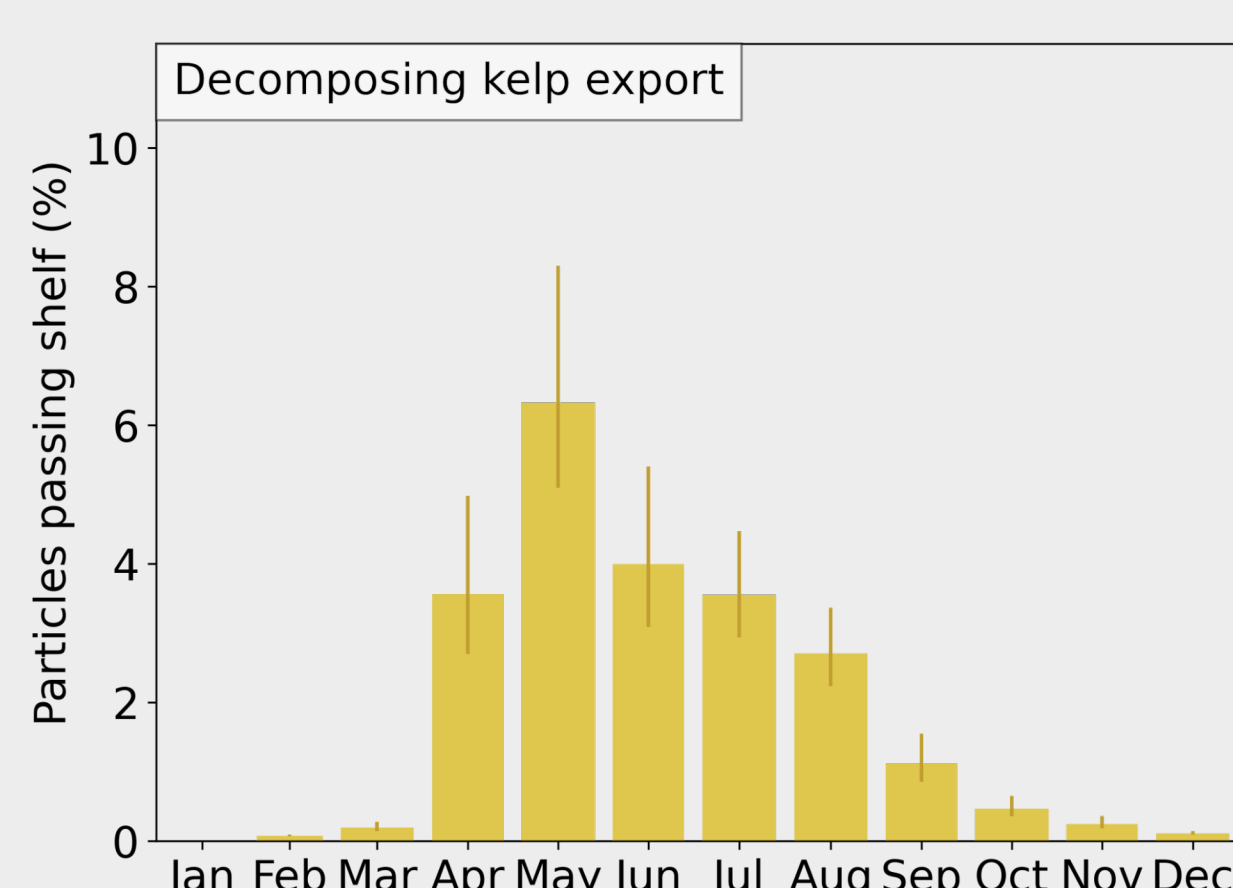


Dense, cold water forms along the Australian coast in the colder months. This water sinks and flows across the continental shelf, resulting in rapid cross-shelf transport along the sea floor.

51% KELP CARBON EXPORTED

On the Rottneest continental shelf up to 51% of kelp detritus per year is exported past the continental shelf, or 17-29% when accounting for decomposition.

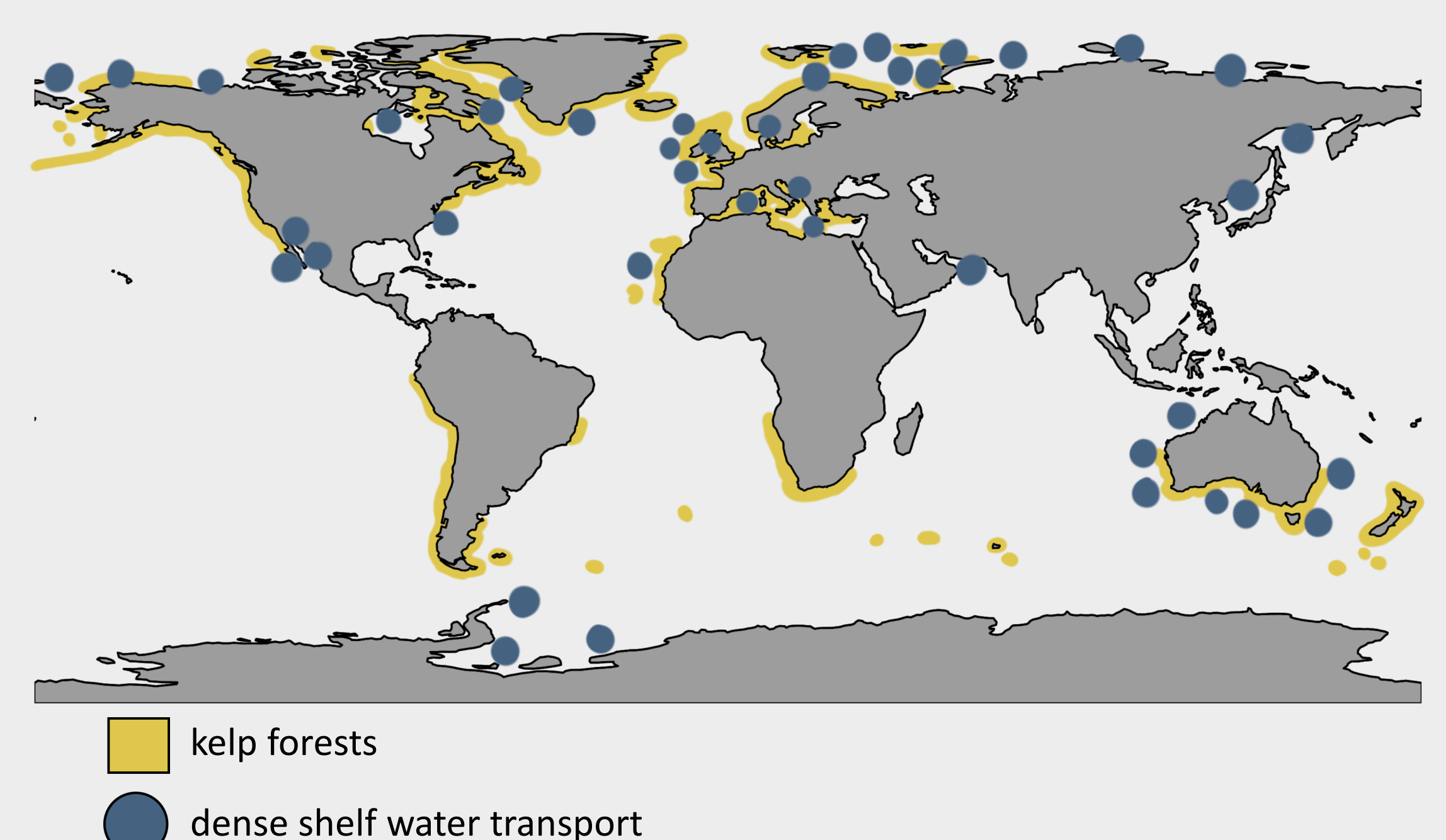
Substantial export only occurs during times when there is dense shelf water transport.



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van der Mheen, M., Wernberg, T., Pattiaratchi, C. *et al.* Substantial kelp detritus exported beyond the continental shelf by dense shelf water transport. *Sci Rep* 14, 839 (2024). <https://doi.org/10.1038/s41598-023-51003-5>

COULD COASTAL CARBON BE GLOBALLY SIGNIFICANT?



Kelp forests are among the most productive coastal ecosystems and produce 1.3 Pg C per year. They occur in many mid-latitude and polar regions, which is also where dense shelf water transport happens.

This co-occurrence raises the question if coastal carbon input and potential sequestration in the deep sea could be much larger than currently believed.

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