

## Feedback on enabling the removal of sea urchins for the management or prevention of urchin barrens

Stet Limited

Barrens caused by kina / New Zealand sea urchin (*Evechinus chloroticus*) are due to fisheries managers allowing the populations of their predators like kōura / crayfish and large tāmure / snapper to be fished to low levels.

Barrens caused by centros / long-spined sea urchin (*Centrostephanus rodgersii*) are a new phenomenon in Aotearoa. They are developing due to increasing ocean temperatures caused by anthropogenic climate change and overfishing of koura which are their only native predator.



Kina barren in Tryphena, Aotea / Great Barrier Island. Photo by Shaun Lee.

### Kina

We are opposed to the proposed permitting process for kina removal. Active kina removal should not be permitted where the underlying causes have not been addressed.

“Kelp restoration must first address the cause of kelp loss” – Dr Kelsey Miller<sup>1</sup>

Kina (*Evechinus Chloroticus*) are an endemic species and an integral part of rocky reef ecosystems in Aotearoa New Zealand. There is a social perception that they are a pest that causes Kina barrens. However it is humans that create barrens by removing Kina predators (mostly Tāmure / Snapper and Kōura / Crayfish<sup>2</sup>). Kina barrens are the symptom of a sick reef. Kina barrens are a Major socioecological concern.

The proposed permitting regime to facilitate kelp restoration requires the removal of urchins down to densities of less than one urchin per square metre. Removing kina to this threshold requires massive effort (more than 50 scuba hours per hectare to cull and double that to collect<sup>3</sup>). The cost of doing this is prohibitive, costs should be shared by those who have prospered from overfishing.

A precautionary approach to barren management is cheaper and does not offset costs to the public or future generations.

Permitting kina removal without restoring natural predators suppress the symptoms of overfishing on rocky reefs that are near the tipping point of becoming barrens. New markets for urchins (urchin ranching) will also mask the symptoms of overfishing. Fisheries New Zealand has no plan to restore damage caused by overfishing and is continuing to take an ‘eating down the food chain’ approach to fisheries management. The agency has not quantified the scale of barrens it has created, the impact the barrens have on fisheries productivity or the cost to remedy them.

## Preventive vs remedial approaches to resource management



<sup>1</sup> <https://gulfiournal.org.nz/2024/04/removing-kina-from-barrens-helps-kelp-recover-but-is-not-a-solution-on-its-own/>

<sup>2</sup> Babcock, R. C., Kelly, S., Shears, N. T., Walker, J. W., & Willis, T. J. (1999). Changes in community structure in a temperate marine reserves. *Marine ecology progress series*, 189, 125-134.

<sup>3</sup> Miller, Kelsey & Shears, Nick. (2022). The efficiency and effectiveness of different sea urchin removal methods for kelp forest restoration. *Restoration Ecology*. 31. 10.1111/rec.13754.

## Centros

Large koura / lobster are the only known predator of centros in Aotearoa New Zealand. Some predators that control this species overseas like blue groper (*Achoerodus viridis*) are not (yet) present here. We support this proposed permitting process to manage centros barrens as a short term measure. Please review the permitting process after the outcomes from the \$55 m AUD project on centros barrens<sup>4</sup> are known (c2029).

Thank you for considering our recommendations.

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<sup>4</sup> <https://www.abc.net.au/news/2023-11-03/long-spined-sea-urchin-senate-inquiry-report-findings-55-million/103034136>