

Feedback on the proposed recreational daily limits for kina and centros: Fisheries Management Area 1

STET Limited



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

Kina (*Evechinus Chloroticus*) are an endemic species and an integral part of rocky reef ecosystems in Aotearoa New Zealand. Centros (*Centrostephanus rodgersii*) are a native species with an expanding range due to warming ocean temperatures. There is a social perception that both urchin species are a pest that cause barrens. However it is humans that create barrens by removing Kina predators (mostly tāmure / snapper and kōura / lobster¹ for kina and just kōura for centros). Urchin barrens are the symptom of a sick reef. Urchin barrens are a Major socioecological concern. The proposed increase in the TAC for urchin is unlikely to reduce urchin barrens as:

- Fishers avoid barrens, as the urchins are in poor condition

¹ 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.

- Recovery of macroalgal beds requires reducing grazers to well below the initial threshold of overgrazing² In the Hauraki Gulf it's about 1 per square meter³ for kina and likely similar for centros.
- Removing urchins to this threshold requires massive effort (more than 50 scuba hours per hectare to cull kina and double that to collect⁴)

However the increase in TAC will suppress the symptoms of overfishing on rocky reefs that are near the tipping point of becoming barrens. New markets for urchin (urchin ranching) mean the TAC is likely to be used. 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. Fisheries New Zealand should take a precautionary approach to the population management of urchin predators. We do not support the increase in TAC without proposals to reduce the TAC of key predators. Until Fisheries New Zealand has a plan to restore urchin predators the status quo is the only sensible option.

Thank you for considering our recommendations.

Shaun Lee
Director
Stet Limited
shaun@stet.co.nz

² Ling SD et al. 2015 Global regime shift dynamics of catastrophic sea urchin overgrazing. *Phil. Trans. R. Soc. B* 370: 20130269. <http://dx.doi.org/10.1098/rstb.2013.0269>

³ Shears, N. T., & Babcock, R. C. (2003). Continuing trophic cascade effects after 25 years of no-take marine reserve protection. *Marine Ecology Progress Series*, 246, 1-16. <https://doi.org/10.3354/meps246001>

⁴ 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.