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Submission on Proposed review of the CRA2 rock lobster fishery

This submission is made on behalf of the membership of the New Zealand Marine Sciences Society (NZMSS). It is made in good faith in my role as President of the NZMSS and in accordance with the Code of Ethics and Rules of the Royal Society of New Zealand.

NZMSS commends Fisheries New Zealand for initiating this review of the management of the CRA2 fishery and taking action with quota cuts earlier in the year. The plight of crayfish in this region has been well publicised for a number of years now and there is no doubt that urgent management action is needed. However, given the ecological importance of crayfish in coastal ecosystems in this region and the current state of the CRA2 stock, NZMSS believes a more substantial and wide-reaching approach to managing this stock is needed to allow populations in this region to rebuild and be sustained in the future.

In our submission below we provide comment on the two proposed regulation changes for the recreational fishery, and also present fishery-independent information that highlights the poor state of crayfish populations in the Hauraki Gulf/Coromandel region and the need for wider management action.

Please contact me at the email address provided below for any further information regarding this submission.

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NZMSS Submission on Proposed review of the CRA2 rock lobster fishery

The New Zealand Marine Sciences Society (NZMSS) is a professional society affiliated to the Royal Society of New Zealand with a membership of approximately 250 marine scientists. We are a non-profit organisation that provides access to, and within, the marine science community, and we identify emerging issues through annual conferences, a list serve and a website www.nzmss.org.nz. NZMSS membership covers all aspects of scientific interest in the marine environment and extends to the uptake of science in marine policy, resource management, conservation and the marine business sector. We speak for members of the society and we engage with other scientific societies as appropriate.

Below we provide comment on the two proposed regulation changes for the recreational fishery in CRA2.

1. A reduction to the recreational daily bag limit from 6 to 3 spiny rock lobsters to help ensure recreational catch does not exceed the new 34-tonne recreational allowance.

NZMSS strongly supports a reduction in the recreational bag limit as an ***interim measure***.

While this reduction is long-overdue and much-needed, we believe a reduction from 6 to 3 will have little influence on the current levels of recreational catch in CRA2. Based on anecdotal reports, observations and boat ramp surveys in the Hauraki Gulf/Coromandel area, it is evident that recreational fishermen very rarely collect more than 3 crayfish a day.

We recognise that reducing the recreational bag limit will help keep recreational catch at lower levels in the future, should the fishery recover. However, as the human population of increases in this region, so will the number of people recreationally fishing. We encourage Fisheries NZ to gain a better understanding of the effect of reducing the daily bag limit on recovery of the crayfish population in CRA2.

A reduction in bag limit to 1 or 2 crayfish would provide a longer-term and more precautionary approach to managing this recreational fishery in a region where there is a rapidly growing human population and increasing demands on inshore fish stocks.

Current monitoring of crayfish populations in the Hauraki Gulf/Coromandel area indicates that ***populations have declined below 10% of unfished levels*****.** Monitoring of crayfish using diver surveys has been carried out for the Department of Conservation inside and outside marine reserves at Leigh, Tawharanui and Hahei since 1995. This provides fishery-independent information with the populations inside marine reserves providing an "un-fished" reference point to compare fished populations in the surrounding areas. The latest surveys from 2017 and 2018 indicate that the biomass of legal-sized lobster in the Leigh and Tawharanui area is 2-3% of that found in the marine reserves[1]. At Hahei the biomass of legal-sized lobster is ~7% of that found in the reserve[2]. It is important to note however, that populations inside these reserves have been declining over the last 10 years due to intense

[1] Haggitt and Freeman (2014) Cape Rodney to Okakari Point Marine Reserve and Tawharanui Marine Reserve Lobster (*Jasus edwardsii*) Monitoring Programme: 2014 Survey. Report to the Department of Conservation 41p; Shears NT and Hanns B (2018) Leigh and Tawharanui Marine Reserve crayfish monitoring 2018. Summary report to the Department of Conservation 3p.

[2] Haggitt T (2017) Te Whanganui-a-Hei Marine Reserve Benthic and Lobster Monitoring Programme - 2017 Survey. Report to the Department of Conservation. 73p

fishing on the offshore boundaries of these relatively small reserves. Therefore, when compared to historic levels in these three reserves, which provide a better proxy for unfished biomass than current levels, the biomass of fished populations in these areas is currently <2%. These estimates show serious localised depletions of crayfish populations in coastal areas around the Hauraki Gulf. Furthermore, size structure data collected at these locations indicate continued low recruitment into the populations. His suggests that the recent reductions in TACC and proposed changes in recreational limits are unlikely to allow populations to rebuild in these areas in the estimated 4-8 year time frame.

Recent scientific potting inside and outside the Leigh and Tawharanui Marine Reserves has also identified the presence of tail fan necrosis in these crayfish populations[3]. This disease is linked to physical damage associated with fishing and is of concern for the viability and value of local stocks. The presence of this disease provides further impetus for implementation of more drastic management measures.

The ecological effects of removing crayfish from reef ecosystems have been unequivocally demonstrated in the CRA2 region, where crayfish are considered to be ecologically or functionally extinct[4]. The removal of reef predators (including crayfish and snapper) through fishing has led to large increases in sea urchins, which have grazed down kelp forests and formed urchin barrens on many shallow reefs in northeastern NZ. The high prevalence and extent of urchin barrens in the CRA2 region has been clearly linked to fishing through research in the three marine reserves listed above. In each of these reserves research has shown that following a recovery of crayfish and snapper populations, the urchin barrens slowly revert back to kelp forests[5]. Consequently, this research also highlights the potential value of marine protected areas as management tools for promoting the recovery of fished populations and allowing ecosystems to recover from the ecological effects of fishing.

NZMSS believes that ***Fisheries NZ should consider wider more integrated management measures*** rather than simply adjusting catch limits that then apply to an entire fishery area. We encourage Fisheries NZ to explore the use of finer-scale spatial measures as well as catch limits to manage the CRA2 fishery. A major challenge to managing CRA2 is it includes some highly populated areas such as the Hauraki Gulf. There is consequently intense overlap and competition between commercial and recreational interests, and this likely explains the severely depleted stocks in parts of the region. This problem should be addressed through a variety of spatial measures that apply to strategically located areas within CRA2 that restrict the types of fishing allowed. Such areas could include replenishment zones (no fishing allowed), recreational only zones (highly accessible inshore waters, e.g. the Hauraki Gulf and Mercury Bay), and multi-use zones that are more remote and allow both recreational and commercial fishing.

Currently, crayfish in the CRA2 area are afforded very little protection from fishing, with only four relatively small marine reserves that include open coast rocky habitat suitable for crayfish. Increasing the amount of area protected from fishing, and the proportion of the stock within protected areas, should be a key management consideration for the future sustainability and resilience of crayfish populations within CRA2 and around NZ more generally.

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[3] Hanns B and Shears NT (2018) Cape Rodney to Okarari Point and Tawharanui Marine Reserve rock lobster potting survey – March 2018. Summary report to the Department of Conservation 8p.

[4] MacDiarmid, A., Freeman, D. & Kelly, S. (2013). Rock lobster biology and ecology: contributions to understanding through the Leigh Marine Laboratory 1962–2012. New Zealand Journal of Marine and Freshwater Research, 47, 313-333.

[5] Shears NT, Babcock RC, Salomon AK (2008) Context-dependent effects of fishing: Variation in the kelp forest trophic cascades across environmental gradients. Ecological Applications 18: 1860-1873.

2. The introduction of recreational telson (tail fan) clipping for spiny rock lobster to assist with minimising illegal take.

NZMSS does not support the introduction of recreational telson clipping.

From the information provided it is unclear how telson clipping will prevent poaching on a meaningful scale and therefore minimise illegal take. If a non-commercial operator wishes to illegally catch and sell crayfish, they will simply not clip the telson of the crayfish to be sold.

The measure seems to focus on recreational fishermen, rather than larger illegal operations which are presumably of greater concern for the fishery. Furthermore, it is important to note that the scope for small-scale illegal selling of recreationally caught crayfish will be reduced through the proposed reductions in the recreational bag limit.

More evidence is needed to support telson clipping as an effective means of reducing illegal take. While MPI Fisheries officers suggest this has successfully reduced the illegal sale of recreationally caught rock lobsters by commercial operators in Kaikoura more evidence is needed.

NZMSS believes that resources would be better spent on compliance, increasing awareness of the legalities and consequence of selling recreationally caught crayfish, and gaining a better understanding of “the apparent level of illegal fishing for rock lobster in CRA2” to better inform future management of the fishery.