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19th December, 2018

Submission: Proposed review of the CRA2 rock lobster fishery

1. The Royal Forest & Bird Protection Society of New Zealand Ltd. (Forest & Bird) appreciates the opportunity to comment on the proposed review of the CRA2 rock lobster fishery.
2. Forest & Bird is New Zealand's largest independent conservation organization, numbering around 80,000 members and supporters. Our members are people that work to preserve our natural heritage and native species. Forest & Bird is the New Zealand partner of the global BirdLife International network of NGOs with partners in 120 countries.

Key recommendations:

3. **Forest & Bird recommends the Minister adopts a three year moratorium for CRA2** given; how severely overfished and critically low the crayfish populations is¹, the low recruitment rate, the presence of tail fan necrosis, the vital ecological role of crayfish and the lack of transparency and ability of the National Rock Lobster Management Group to halt the CRA2 stock collapse. Fisheries New Zealand state in the consultation document that if "*other information suggests management action is required sooner than 2021 [the scheduled review], this will be considered by Fisheries New Zealand*". Forest & Bird has provided evidence in this submission that CRA2 warrants more immediate management action. We recommend the Minister instructs Fisheries New Zealand to prepare a briefing document, independent of the National Rock Lobster Management Group, for a three year moratorium which includes the best available science on crayfish biomass, legal obligations, public opinion² and views of local hapū and iwi throughout CRA2 area.

¹ Latest monitoring of crayfish populations in the Hauraki Gulf and Coromandel area indicates that the population have declined below 10% of unfished levels (Shears, 2018 pers.comms. based on latest data).

² Including the LegaSea online survey carried out in early 2018 which received over 4000 people. This was unprecedented and represents the largest survey of recreational crayfish interests in New Zealand. The survey showed there was strong public support for a closure of CRA 2 to all commercial and recreational fishing for a set time period.

4. Fisheries New Zealand needs to take an integrated approach to fisheries management and look at wider ecosystem impacts especially as crayfish are a keystone species when setting or adjusting totally allowable catch and distributing quota. Fisheries New Zealand also needs a strong commitment to increase independent fisheries data by rolling out electronic monitoring alongside at sea monitoring to ensure best practice, good behaviour and accurate reporting is occurring within the CRA2 fishery. Fisheries New Zealand needs to work with independent researchers like University scientists, alongside the fishing industry and other stakeholders to ensure the best available information is used to inform management decisions.
5. Forest & Bird recommends the Minister withdraws his support immediately for the National Rock Lobster Management Group being the Ministers “primary source of advice” while Fisheries New Zealand undertakes an independent and robust review of the purpose, membership and authority of the National Rock Lobster Management Group.
6. Forest & Bird supports an interim reduction in the daily recreational allowance from six to three crayfish to fulfil the Ministers statutory obligation from the 1st April 2018 decision. Forest & Bird’s support for this reduction is based on the Minister being accurately advised by Fisheries New Zealand that the National Rock Lobster Management Group’s rebuild measures do not go far enough to rebuild this collapse fishery or meet the Harvest Strategy Standard.
7. Forest & Bird recommends the Minister rejects the proposal to make telson clipping mandatory for all recreationally caught crayfish within CRA2.
8. Forest & Bird recommends the Minister invests in more fisheries compliance officers to ensure that only legal commercially caught crayfish are sold within and outside New Zealand. Electronic monitoring of commercial catch, along with other measures, can support traceability and identification of catch which is destined for the domestic market. We also recommend the Ministry for Primary Industries compliance team focusses efforts on understanding and accurately estimating the amount of illegal crayfish catch occurring within CRA2 to better inform management decisions and actions.
9. Forest & Bird recommends the Minister requests evidence from Fisheries New Zealand to demonstrate that telson clipping applied in the Kaikoura region has resulted in a measurable and significant reduction in the amount of crayfish being sold illegally through black markets before it is applied anywhere else in New Zealand.

10. The Rock Lobster Industry Council undertakes all Government funded research including stock assessments³. Forest & Bird recommends the Minister reviews this contract due to the conflict of interest by the commercial fishing industry.
11. Forest & Bird supports the proposal in the joint recreational submission by LegaSea and the NZ Sports Fishing Council (and others) to review section 111 provisions for commercial fishers.

FNZ Discussion Questions:

12. Do you agree with how we have defined the problem?

No, see detailed submission below

13. Do you agree that these are the correct options to consider? If not, why not?

No, see detailed submission below

14. Do you support a proposed daily bag limit of three spiny rock lobsters?

As an interim measure, see detailed submission below

15. Are there any other benefits and impacts of the proposed bag limit reduction in addition to those discussed here?

Yes, see detailed submission below

Submission:

16. Red or spiny rock lobster (*Jasus edwardsii*), commonly known as crayfish is relatively slow-growing and long-lived and by far the most important New Zealand lobster species, not only economically but ecologically.
17. Crayfish are taonga to Māori and have been fished for centuries. Crayfish have been fished commercially for over 100 years (State of the Gulf Report, 2017) and is one of New Zealand's most valuable inshore fisheries. Crayfish is iconic and also one of New Zealand's most important recreational fisheries. Crayfish are not only important to fishers, but they are important to recreational divers and tourism operators.
18. Crayfish are vital because they play an important role in rocky reef ecosystem functioning (Babcock et al. 1999; Shears & Babcock, 2002; MacDiarmid, Freeman & Kelly, 2013). Kina (sea urchins) eat kelp and kina grazing creates and maintains urchin barrens and prevents kelp re-establishing. Research has found that crayfish and snapper, when in high enough densities, have positive effects on kelp forests and primary productivity as they consume kina (Shears & Babcock, 2002). Consequently, when crayfish densities are low, urchin barrens (kelp free areas) tend to be more prevalent, these are generally in areas where fishing is allowed (Shears &

³Information based on verbal communication with Alicia McKinnon

Babcock, 2002). In contrast urchin barrens are less prevalent in protected areas such as marine reserves, where there are higher densities of crayfish and other important species (Babcock et al. 1999; Shears & Babcock 2002; State of the Gulf Report, 2017).

Stock status and decline

19. The CRA2 area includes the wider Hauraki Gulf to Bay of Plenty and extends from Te Arai Point north of Auckland to the East Cape lighthouse.
20. The crayfish population in CRA2 has been severely overfished and is at a critically low level. The 2017 stock assessment estimates that the female spawning stock has been fished down to just 18.5% of the unfished level. CRA2 is below the level required by the Fisheries Act 1996 to maintain the biomass of the stock at or above a level that can produce the maximum sustainable yield. This means under the Harvest Strategy Standard⁴, which is Fisheries New Zealand policy⁵, CRA2 was below the soft limit and a formal, time-constrained rebuilding plan is required (Harvest Strategy Standard, 2008). The Harvest Strategy Standard has a soft limit of 20% of the unfished biomass and a hard limit of 10% of the unfished biomass. Based on recommendations from the National Rock Lobster Management Group (NRLMG) the Minister reduced the Total Allowable Catch (TAC) which included reducing the Total Allowable Commercial Catch (TACC) and recreational allowance as part of this rebuild plan required, which came into effect from the 1st April, 2018. FNZ has not provided the best available information, nor defined the stock status or 'problem' of CRA2 accurately.
21. Independent scientists have been monitoring crayfish and other species biomass inside and outside multiple marine reserves within the CRA2 area for over 20 years (Babcock et al. 1999; Shears & Babcock 2002; Haggitt & Kelly, 2004; Shears, Babcock & Salomon, 2008; MacDiarmid, Freeman & Kelly, 2013; Haggitt & Freeman, 2014; MacDiarmid, McKenzie & Abraham, 2016; LaScala-Gruenewald et al., 2018). These long-term monitoring surveys not only highlight the on-going crayfish decline, but a change in population demographics such as a decline and loss of larger older individuals within CRA2 (Haggitt & Kelly, 2004; MacDiarmid, Freeman & Kelly, 2013; State of the Gulf Report, 2017; LaScala-Gruenewald et al. 2018 being written up to publish). Comparisons like these are useful as they are fisheries-independent and monitoring data from inside marine reserves provide an indication of what the unfished biomass could have been. This is an important reference point used by fisheries management when setting quotas.
22. **Current monitoring inside and outside Cape Rodney to Okakari Point (Leigh), Tawharanui and Hahei marine reserves indicates that crayfish densities outside the**

⁴ The Harvest Strategy Standard consists of three core elements:

1. A specified target about which a fishery or stock should fluctuate;
2. A soft limit that triggers a requirement for a formal, time-constrained rebuilding plan;
3. A hard limit below which fisheries should be considered for closure.

⁵ The Government signed off the Harvest Strategy Standard in 2008

reserves have declined below 10% of the unfished level (LaScala-Gruenewald et al. being written up for publication).

23. Results from Leigh are highly concerning; crayfish densities outside the reserve are approximately 3% of levels inside the reserve (LaScala-Gruenewald et al. being written up for publication). At Tawharanui and Hahei crayfish densities outside of the reserve are approximately 6% and 7% respectively of levels within the reserve (LaScala-Gruenewald et al. being written up for publication).
24. Densities are not always the best fisheries comparisons so Shears (2018 pers. comms.) converted this latest monitoring data to compare the biomass of legal sized crayfish inside and outside the three marine reserves. The estimates are alarming and should be a warning for the Minister that at some locations within CRA2 crayfish are fully collapsed. The biomass of legal sized individuals outside the Leigh and Tawharanui reserves are estimated at 2-3% of levels within the reserve, and 7% for Hahei (Shears, 2018 pers. comms.). It's worth noting that these biomass comparisons are conservative and if these were recalculated and compared to historic reserve biomass⁶ which better reflects pre-fishing conditions (better proxy for unfished biomass) then the values would be much lower, **< 2% for Leigh and Tawharanui** (Shears, 2018 pers. comms.). Critically low crayfish biomasses have led expert scientists to describe crayfish in some areas within CRA2 as being ecologically or functionally extinct⁷ (MacDiarmid, Freeman & Kelly, 2013; Haggitt, 2016). Forest & Bird recommends the Final Advise Paper to the Minister of Fisheries includes the best available information on stock status and includes this independent science⁸.

Cumulative impacts and threats

25. The collapse of the CRA2 crayfish fishery is highly likely the result of two interacting factors – overfishing and low recruitment.
26. It is well documented through settlement experiments at the Leigh marine reserve that crayfish within CRA2 area experience very low levels of recruitment (MacDiarmid, Freeman & Kelly, 2013). The size structure data recorded over the last 20 years at these three marine reserves also indicate continued low recruitment. The stock assessment likely over estimated CRA2 recruitment rate and therefore it is unlikely CRA2 will 'rebuild' as required under the Harvest Strategy Standard within the proposed four to eight years.
27. It is also possible that other factors like climate change and other anthropogenic impacts could also be contributing to the CRA2 fishery collapse.

⁶ As noted by Shears, "it is important to note that crayfish populations inside these marine reserves have been declining over the last 10 years due to intense fishing on the offshore boundaries of these relatively small reserves. So comparing to historic levels in these reserves provides a better proxy for unfished biomass than current levels".

⁷ The term 'functionally extinct' means the population of a species is reduced so greatly, it is no longer able to perform its ecological role.

⁸ FNZ should contact Dr Nick Shears at the University of Auckland for more information

28. Crayfish larvae have a long planktonic larval phase and can spend between 12 – 24 months at sea before swimming inshore to settle on coastal reefs (Jeffs et al., 2005; MacDiarmid, Freeman & Kelly, 2013). Jeffs et al., (2005) described possible mechanisms for post-larvae to find and orientate towards the coast as underwater sound, water chemistry, magnetic fields, celestial cues, hydrodynamic cues or electrosense. Some of these mechanisms could be affected by anthropogenic impacts. For example it is possible anthropogenic noise could be impacting on coastal settlement by masking important reef sound in the inshore area.
29. It is possible that as coastal and or oceanic sea surface temperatures warm currents could be altered, or circulation changed due to climate change impacts and it is possibly this could impact on recruitment rates. However, to date there is little evidence of this. More research is needed. Shears & Bowen (2017) looked at long-term sea surface temperatures to understand climate change impacts in coastal waters around New Zealand. The study found that there is no evidence of long-term increases in annual temperatures at the Leigh study site, within CRA2 area, an area which is influenced by the East Auckland Current (Shears & Bowen, 2017). Shear & Bowen (2017) conclude there was no indication of large-scale warming in coastal waters around the North Island of New Zealand. FNZ needs to invest in more research to better understand the risk climate change poses to New Zealand fisheries.
30. Tail fan necrosis (TFN) is a bacterial infection of the tail fan of crayfish which leads to melanosis and erosion of the tail fan tissues (Zha et al., 2018). The condition is found in aquaculture and commercially fished crayfish overseas. TFN can compromise crayfish health and greatly impact on their market value according to international studies cited by Zha et al. (2018).
31. TFN is present in New Zealand crayfish. Freeman & MacDiarmid (2009) found individuals inside and outside the Te Tapuwae o Rongokako marine reserve with TFN, but until recently it was not thought to have existed within the CRA2 area. This disease is linked to physical damage associated with fishing. Around Gisborne crayfish outside of the marine reserve exposed to fishing pressure were more likely to get TFN compared to crayfish found inside the marine reserve due to the handling effect by fishers (Freeman & MacDiarmid, 2009).
32. There is now evidence that TFN is present within CRA2 (Zha et al., 2018; Department of Conservation unpublished 2018 monitoring report; LaScala-Gruenewald et al. being written up for publication; Shears, 2018 pers.comms.).
33. Crayfish in CRA2 have a critically low population status, less than 10% of unfished levels, and given that TFN can compromise crayfish health, it is unknown what impact this bacterial infection could have on recruitment and the population rebuild. Forest & Bird strongly support the conclusion by Zha et al. (2018) that the causes of internal organ pathology associated with TFN in crayfish warrants more detailed research and we would recommend FNZ prioritise funding for 2019 to support this

work to better understand the impact TFN poses. FNZ needs to ensure the Minister is aware of TFN.

34. The critically low biomass of crayfish likely means they have low resilience to these threats described above and more research is needed to understand how these and other cumulative impacts could affect recruitment rates and the crayfish rebuild within CRA2. FNZ needs to take an ecosystem based fisheries management view for any future management decisions around CRA2.

Minister's obligations

35. The purpose of the Fisheries Act requires the Minister to avoid, remedy, or mitigate any adverse effects of fishing on the aquatic environment. Given the significant ecological role crayfish perform it's important to understand what impact overfishing is having. A recent study by Pinkerton et al. (2015) looking at crayfish biomass and trophic importance within the Hauraki Gulf region found that crayfish have gone from being the sixth-most trophically important (of the 12 benthic invertebrate groups) to the least important (State of the Gulf Report, 2017). Further published research supports that fishing has had major effects on crayfish populations and the broader ecosystem within the CRA2 area (Shears & Babcock, 2002; Shears, Babcock & Salomon, 2006; MacDiarmid, Freeman & Kelly, 2013; Pinkerton et al. 2015; MacDiarmid et al. 2016). **This research should highlight to management** the importance of ecosystem based fisheries management and the risks of single stock focus that has been adopted for crayfish. FNZ has not defined the trophic importance of crayfish and broader ecosystem impacts.

The National Rock Lobster Management Group (NRLMG)

36. The NRLMG states they are the "primary source of advice" to FNZ and the Fisheries Minister. The NRLMG produced the Final Advice Paper (FAP) on the recent CRA2 sustainability measures which resulted in the 1st April TAC reductions.
37. The NRLMG lacks adequate reporting and transparency. Forest & Bird has attempted to find records of the NRLMG meetings and annual reports, which have not been made available and are currently being treated as an OIA. Even the basic membership of this group has been treated as an OIA. None of this information has been provided before the statutory consultation deadline for this submission. It is unacceptable that this group isn't transparent given it has apparently⁹ been given authority¹⁰ by the Minister in 2011 to develop management options including quotas, reviews public submissions and decide what is and what isn't relevant in the FAPs that go to the Minister.

⁹ Forest & Bird asked FNZ if the NRLMG had any statutory authority or recognition as the "primary source.." Forest & Bird was told over the phone by Alicia McKinnon that the NRLMG did not and that FNZ did not see them as the "primary source". When Forest & Bird clarified this in writing our email has been treated as an OIA which has not been fulfilled before the closing of this statutory consultation.

¹⁰ Forest & Bird has obtained a copy of a 2001 letter from the Office of the Hon. Phil Heatley, the Minister of Fisheries at the time to the NRLMG stating that "the NRLMG will act as my primary advisor on catch limit, regulatory and other management interventions that apply specifically to rock lobster fisheries".

38. Forest & Bird has little faith that the NRLMG can effectively manage CRA2 given its history of mismanagement. The NRLMG has continuously failed to maintain or increase the abundance of crayfish in CRA2 as required under the Fisheries Act 1996 and fisheries policy, even with significant voluntary shelving of quota by commercial fishers over the last 3 years.
39. The NRLMG does not represent stakeholders, from our understanding there are no independent scientists, there are no environmental representatives, the Department of Conservation doesn't participate, and the recreational fisher membership doesn't represent the NZ recreational fishing public (Legasea or the New Zealand Sports Fishing Council). In addition other stakeholders like the tourism and dive sector have never been asked to participate or receive updates.
40. Forest & Bird recommends the Minister withdraws his support immediately for the National Rock Lobster Management Group being his "primary source of advice" while FNZ undertakes an independent and robust review of the purpose, membership and authority of the National Rock Lobster Management Group.

Illegal fishing and telson clipping

41. Fisheries New Zealand provided the stock assessment information that other sources of fishing-related mortality (e.g. illegal take and handling mortality) should be set at 42.5tonnes (from 60 tonnes). Forest & Bird is concerned with the lack of meaningful data to inform this and the large uncertainties around illegal poaching. It is likely some poaching occurs within CRA2, and Forest & Bird supports efforts to reduce this.
42. To combat the estimated large scale poaching occurring within CRA2 area FNZ is proposing introducing telson clipping of recreational crayfish catch. Recreational fishers would be required to clip the last third of the middle part of the tail fan (the "telson") of every legal sized crayfish that was kept. This clip would mark the crayfish as being recreationally caught, and so is not permitted to be sold, bought, bartered or traded.
43. There is no evidence in the consultation document that telson clipping reduces illegal poaching. Forest & Bird questions the effectiveness of telson clipping as a deterrent for large-scale poaching. As Forest & Bird cannot get access to the annual report or meetings notes, we do not know what information has been presented to the NRLMG which would support recommending this option. FNZ has failed to provide information to support the proposed Option 2A.
44. This measure is focusing on recreational fishers. Given the stock status of crayfish within CRA2 is so low and how difficult it is for the average recreational fisher to even find a single crayfish, let alone three (acknowledged by FNZ in the consultation document) it seems this is the wrong group to focus efforts on. Those responsible for this large scale illegal poaching will likely be taking more than three crayfish and will simply not cut the telson and will avoid detection. A whole tail would not prove that the crayfish was landed legally and permitted to be sold.

45. Enforcing telson clipping and the increase in monitoring and education that would be needed requires a significant investment by FNZ and MPI compliance team. The consultation fails to explain the estimated cost of this measure.
46. Forest & Bird recommends a more appropriate use of Government funds is for the Minister to invest in more fisheries compliance officers. These officers can ensure that only legal commercially caught crayfish are sold in New Zealand. Electronic monitoring of commercial catch, alongside other measures, can support tractability and identification of catch which is destined for the domestic market. A better use of resources would also be spent educating recreational fishers by increasing awareness of the legalities and consequences of selling crayfish caught recreationally.
47. We also recommend the Ministry for Primary Industries compliance team focusses efforts on understanding and accurately estimating the amount of illegal crayfish take occurring within CRA2 to better inform management decisions and actions.
48. Forest & Bird recommends the Minister requests evidence from FNZ to demonstrate that telson clipping applied in the Kaikoura region has resulted in a measurable and significant reduction in the amount of crayfish being sold illegally through black markets before it is applied anywhere else in New Zealand.
49. **Forest & Bird does not support Option 2A, we support Option 2B.**

Proposed recreational daily bag reduction

50. There is little evidence the proposed daily bag reduction from six to three will have any influence on the current levels of recreational catch within CRA2. Forest & Bird has been talking with its members (some of which are recreational fishers) and the recreational fishing sector (via Legasea and the NZ Sports Fishing Council) and based on this information it is clear that it is a rare event to collect three crayfish let alone the current six. This anecdotal evidence is supported by FNZ views in the consultation document that “fishers are not catching a bag limit of six spiny rock lobsters given the low abundance”. Forest & Bird wanted to review the updated Recreational National Panel Survey but wasn’t able to be provided with a copy of the report. FNZ planned this consultation date and should have ensured that the National Panel report was available during the consultation period.
51. Given, crayfish have been severely overfished and have a critically low population in CRA2 Forest & Bird supports an interim reduction in the daily recreational allowance from six to three crayfish to fulfil the Ministers statutory obligation from the 1st April 2018 decision. However, Forest & Bird’s support for this reduction is based on the Minister being advised that the proposed rebuild measures by the NRLMG do not go far enough to rebuild this collapse fishery¹¹ or meet the Harvest Strategy Standard. FNZ has continuously failed to define the problem and make it clear to the Minister

¹¹ Refer to stock status comments and the recent monitoring data provided by Dr. Nick Shears

that the proposed NRLMG are unlikely to rebuild CRA2 within the four to eight 8 years.

52. The Quota Management System and allocations of maximum allowable catch do not apply to either Maori customary or recreational interests. Section 21 of the Fisheries Act 1996 explicitly refers to the Minister setting aside ‘allowances’ for non-commercial, Maori customary and recreational fishing. Forest & Bird supports Legasea and co. that the expectation is that public interests will be restored when CRA2 stock has been rebuilt before any consideration is given to increasing the total allowable commercial catch.

Alternative option: Three year moratorium

53. Fisheries New Zealand states the CRA2 management settings will be reconsidered at the time of the next stock assessment, scheduled for 2021 (FNZ, 2018). But, FNZ also states in the statutory consultation document that “if the 2017/18 National Panel Survey results **or other information suggest management action is required sooner than 2021, this will be considered by Fisheries New Zealand and the National Rock Lobster Management Group**” (FNZ, 2018).

54. Despite the National Panel Survey results not being available¹² Forest & Bird has presented evidence (refer to sections above) based on research carried out by independent scientist that highlights that **management action is required sooner than 2021. Within the CRA2 area there is evidence that the biomass of legal sized crayfish is below 10% unfished levels** (Shears, 2018 pers.comms.), and therefore below the hard limit reference point in the Harvest Strategy Standard. There is clear evidence of localised depletions across three locations ranging in distributions and this should warrant a review of management action and aids support for Forest & Birds alternative option. Forest & Bird recommends FNZ carries out this review not the NRLMG given its lack of transparency, bias stakeholder representation and mismanagement.

55. Crayfish play an important role in the ecosystem (Shears & Babcock, 2002). The current management measures, including the proposed reduction in daily recreational catch, and rebuild plan for the CRA2 do not explicitly consider the ecological role of lobsters, nor do they consider values other than those related to fishing, such as the values of larger crayfish (MacDiarmid 2003), or the impact of tail fan necrosis (Zha et al., 2018) or low recruitment rates (MacDiarmid, Freeman & Kelly, 2013).

¹² Forest & Bird would like to highlight that despite requesting a copy of the finalised National Panel Survey we were not provided with this before this consultation closed. We are therefore unable to fully participate in this consultation using the best available recreational catch data. We understand from email correspondence with FNZ that the Rock Lobster Working Group – which is made up of fishing industry representatives were able to receive a copy of this report.

56. The Purpose and Principles of the Fisheries Act 1996 include “maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations...” [s8(2)(a) Fisheries Act 1996]. Based on the evidence presented in this submission it seems unlikely that the current fisheries management plan will rebuild CRA2 to provide for future generations needs, nor restore those important ecosystem processes.
- 57. Management action is required and Forest & Bird recommends an alternative option** based on; the latest biomass of legally-sized crayfish estimates being below 10% of unfished levels, the recent 2017 stock assessment, the low recruitment rate, the presence of tail fan necrosis, the vital ecological role of crayfish and the lack of transparency and ability of the National Rock Lobster Management Group to halt the CRA2 stock collapse.
- 58. Forest & Bird recommends the Minister adopts a three year moratorium for CRA2.**
59. Forest & Bird recommends the Minister instructs FNZ to prepare a briefing document, independent of the National Rock Lobster Management Group, for a three year moratorium which includes all legal obligations, public opinion¹³ and feedback from local hapū and iwi throughout CRA2 area.
60. The three year period would allow crayfish to start to rebuild and would be assessed during the planned to 2021 updated stock assessment. The updated stock assessment using the best available information would then inform what the TAC should be set at to continue the rebuild.
61. FNZ needs to work with independent researchers like University scientists and the Department of Conservation who monitor biodiversity within marine reserves, including crayfish to ensure the best available information is used to inform management decisions.
62. Forest & Bird are available to discuss this submission in more detail if required. Thank you for the opportunity to comment. For any questions please contact Katrina Goddard.

Sincerely,

Katrina Goddard
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Royal Forest & Bird Protection Society of New Zealand
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¹³ LegaSea carried out an online survey in early 2018 which received over 4000 people. This was unprecedented and represents the largest survey of recreational crayfish interests in New Zealand. The survey showed there was strong public support for a closure of CRA 2 to all commercial and recreational fishing for a set time period.

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