Fisheries New Zealand
By email: FMsubmissions@mpi.govt.nz

12 September 2025

Draft fisheries plans and proposed management targets for the Hauraki Gulf/Bay of Plenty (CRA 2) and Wellington/Wairarapa (CRA 4) rock lobster fisheries

SUBMITTER DETAILS

FULL NAME:	Environmental Defence Society Incorporated
ADDRESS:	PO Box 91736, Victoria Street West, Auckland 1142
CONTACT:	Raewyn Peart / John Commissaris
EMAIL:	raewyn@eds.org.nz / john@eds.org.nz

Introduction

1. This is a submission on proposed management measures for the Hauraki Gulf/Bay of Plenty (**CRA 2**) and Wellington/Wairarapa (**CRA 4**) rock lobster fisheries as set out in the Fisheries New Zealand (**FNZ**) Discussion Paper No: 2025/25 (**Discussion Paper**).[1]

2. The Environmental Defence Society (**EDS**) is an independent not-for-profit organisation conducting interdisciplinary policy research and litigation. It was established in 1971 with the purpose of improving environmental outcomes in Aotearoa New Zealand.

3. EDS submitted on consultation related to proposed management measures for CRA 2 in January this year. That submission is enclosed as **Attachment A**. The concerns and issues raised in it remain valid, and should be read in conjunction with this submission.

Context

Rock lobster management

4. FNZ is consulting on draft fisheries plans to manage CRA 2 and CRA 4 stocks at a higher level of abundance than current settings. The plans would contain a 'management target' for each stock.

5. A management target is the amount of rock lobster FNZ aims to maintain in a fishery. For most finfish fisheries, management targets are based on a measure of the part of a stock that is sexually mature (i.e. 'spawning stock biomass' of male and female fish (**SSB**)). However, for rock lobster stocks, management targets are expressed in terms of 'exploitable biomass', which

[1] FNZ (2025) *Management target fisheries plans for spiny rock lobster (CRA 2 and CRA 4)* (Fisheries New Zealand Discussion Paper No:2025/25, August 2025), [**Discussion Paper**], available here.

excludes reproductively mature female rock lobsters which are carrying fertilised eggs under their tail, as they cannot be legally harvested. Apart from egg-carrying females, it is not possible to externally identify when a rock lobster is reproductively mature, so a proxy of estimated size at maturity is used.

6. The exploitable biomass is calculated as the combined biomass of males that are larger than the maximum legal size (**MLS**) and females that are larger than the MLS but not egg bearing at the beginning of the fishing year (Figure 1).

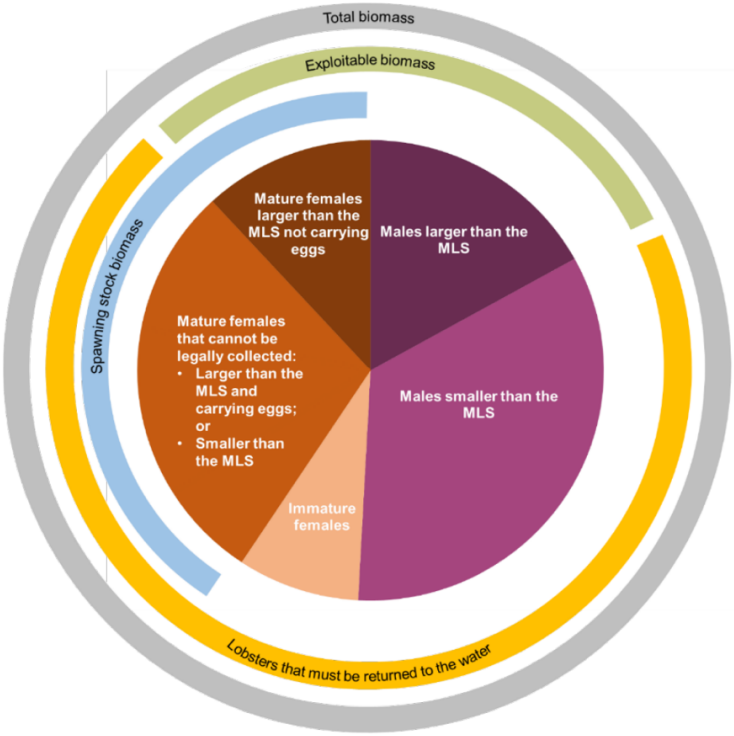

Figure 1. Portions of rock lobster populations that are included in estimates of exploitable biomass, spawning stock biomass, and total biomass

7. The Harvest Strategy Standard (**HSS**) calls for the specification of 'soft' and 'hard' limits in addition to management targets. A limit is the minimum biomass that should be retained to avoid the sustainability of the stock being at unacceptable risk. When the stock falls below the soft limit a rebuild plan is required, and if it falls below the hard limit closure is to be considered. There are currently two limits for rock lobster fisheries, which reflect the default values provided in the HSS for all stocks:

    (a) The soft limit: which is 20% of unfished female SSB; and
    (b) The hard limit: which is 10% of unfished female SSB.

8. Unfished SSB is an indicator of what the spawning stock biomass would be without fishing, but it is not entirely accurate because it fails to reflect utilisation by Māori over centuries and early non-customary fishing for which there are not reliable records.

9. The current soft and hard limits are defined in relation to SSB and are therefore not directly relatable to the exploitable biomass management targets. Rather than redefining the limits, FNZ is proposing to introduce an additional 'threshold' which will be defined in terms of exploitable

biomass, making it directly relatable to the management target for rock lobster as described above. The threshold will indicate when biomass has fallen to the extent that "management action may be required to prevent the stock from declining further".[2] In practice, it would trigger a stock review.[3] This is a lesser requirement than a rebuild plan or closure for falling below soft and hard limits respectively. Specifying thresholds is a new approach which has not been used in New Zealand fisheries management before.

Key characteristics of the CRA 2 fishery

10. CRA 2 encompasses coastal waters on the east coast of the North Island from Te Arai Point to East Cape in the Bay of Plenty as shown in Figure 2, and is divided into four statistical areas for reporting purposes.

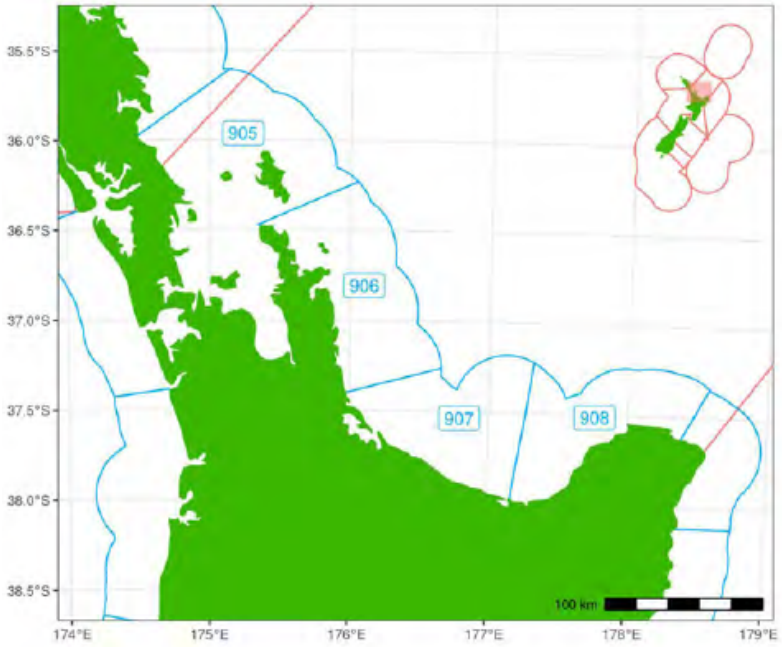

Figure 2. Map reproduced from the Fisheries Assessment Plenary (2024) showing the boundaries of the statistical reporting units within CRA 2.[4]

11. The default management target for CRA 2 is the biomass that supports maximum sustainable yield (B_{MSY}) and has been estimated at 335 tonnes. This is approximately 13% of the unfished harvestable biomass reference level (the estimated harvestable biomass of the stock without any fishing pressure).[5]

12. Rock lobster in CRA 2 have been heavily fished for many decades. While the Discussion Paper states that CRA 2 is currently above its management target,[6] this does not paint an accurate picture of the stock's historical long-term decline, current status, or likely future trajectory.

13. In particular, EDS highlights that:

---

[2] Discussion Paper, above n 1, at [24].
[3] Ibid, at [45].
[4] FNZ (2024) *Fisheries Assessment Plenary: November 2024, Stock assessment and stock status Volume 1 Introductory sections and Albacore to Yellowfin Tuna* (Wellington, November 2024) [**Plenary Report**], available here, at 318.
[5] Ibid, at 341 Table 11.
[6] Discussion Paper, above n 1, at [39]

(a) Stock abundance has declined significantly since the 1980s, and long-term studies indicate CRA 2 abundance had already experienced significant declines (~76%) by 1950.[7]

(b) SSB has also declined significantly since the 1980s. Although it has increased slightly since 2016, it remains well below 1980 levels.[8]

(c) The number of operational commercial vessels operating within CRA 2 has decreased significantly alongside declines in commercial catch. Recreational landings in CRA 2 have also decreased over the past decade,[9] with recreational fishers shifting away from the inner Hauraki Gulf (which has now been closed to harvest) due to localised depletion of rock lobster.[10]

(d) There is significant uncertainty about settlement and recruitment of larvae in CRA 2, particularly given that the eastern portion of the northern stock (CRA 1), which is thought to be a major larvae source for CRA 2, has likely collapsed.[11]

14. Overall, the evidence confirms rock lobster populations are critically depleted in parts of the CRA 2 fishery, that a key source of larvae is likely depressed, and the stock is vulnerable to fluctuations in settlement. A cautious approach must be adopted to management of the CRA 2 fishery in light of this context.

15. EDS's submission on previous CRA 2 sustainability measures (refer Attachment A) discusses past management approaches that have resulted in CRA 2 depletion. In particular, EDS highlights how reliance on fisher-dependent catch-per-unit-effort (**CPUE**) data[12] has proved to be inadequate and led to significant depletion of rock lobster biomass over the span of several years, despite voluntary quota reductions over that period.[13]

16. The latest stock assessments for CRA 2 were undertaken in 2022 (full assessment), 2023 (rapid assessment) and 2024 (rapid assessment). Again, we refer to Attachment A for a more comprehensive analysis of the data. However, it is important to highlight our concerns regarding the reliability of the latest stock assessments, which we think should be approached with caution:

(a) The model used by FNZ to assess the status of the CRA 2 stock is heavily reliant on fishery-dependent data as an indicator of stock abundance. CPUE data has known limitations because it can be influenced by a range of factors such as gear selectivity, changes in fishing location and practices, fleet efficiency or fleet dynamics over time.[14] Past reliance on CPUE-based management procedures led to rapid depletion of the CRA

---

[7] A B MacDiarmid et al (2016) *Taking Stock the changes to New Zealand marine ecosystems since first human settlement: synthesis of major findings, and policy and management implications* (NZAEBR No 170, MPI, June 2016), available here, at 27.
[8] Plenary Report, above n 4, at 332 Figure 6.
[9] Ibid, at 274.
[10] FNZ (2024) *Review of sustainability measures for spiny rock lobster (CRA 2) for 2024/25* (Fisheries New Zealand Discussion Paper No:2024/33, December 2024), available here at [52].
[11] See EDS (12 December 2024) "*Submission on proposed measures for the Northland spiny rock lobster fishery (CRA 1)*", available here. Previous submissions by EDS on proposals applying to CRA 1 and CRA 2 are available here.
[12] D N Webber et al (2018) *The 2017 stock assessment and management procedure evaluation for rock lobsters (Jasus edwardsii) in CRA 2* (NZ Fisheries Assessment Report 2018/17, MPI, May 2018), available here, at 11-12.
[13] Ibid.
[14] Mark N Maunder et al (2006) "Interpreting catch per unit effort data to assess the status of individual stocks and communities" *ICES Journal of Marine Science*, 63(8) 1373-1385, available here.

2 stock. Recent scientific studies using fisheries-independent data in the Hauraki Gulf[15] suggest the latest FNZ stock assessments have significantly overestimated the biomass of rock lobster populations within the CRA 2 fishery.

(b) The Plenary Report acknowledges that there is no robust puerulus settlement series to inform the stock assessment model for CRA 2.[16] This means the assessment model is not responsive to changes in settlement levels, which can have significant implications for future recruitment into the fishery.

(c) Recent modelling has identified a potential negative correlation between sea surface temperature and annual recruitment in CRA 2.[17] Specifically, model results show that high temperatures may impair the survival of rock lobster in CRA 2 around the size of recruitment.[18] This means ongoing ocean warming, and more frequent marine heatwaves, will likely negatively affect stock productivity in future years on the north-east coast. The stock assessment model does not account for this.

(d) Finally, recent evidence suggests FNZ's stock assessment approach lacks the nuance needed to ensure sustainability of the CRA 2 stock. MacDiarmid (2025) suggests a finer 'reef-scale' assessment approach is required to properly assess CRA 2 abundance which likely differs throughout the CRA2 area.

Effect of rock lobster fishing on shallow kelp forests within CRA 2

17. The effects of rock lobster fishing on shallow kelp forests and the proliferation of urchin barrens in CRA 2 are well documented.[19] The evidence is discussed in detail in Attachment A.

18. Importantly, the best available information demonstrates that rock lobster fishing has contributed to a trophic cascade in CRA 2, where the depletion of rock lobster (and other key predators) has allowed kina to flourish and overgraze kelp on shallow reefs.[20]

19. New research commissioned by FNZ provides a detailed illustration of the distribution of urchin barrens in shallow coastal waters from Cape Reinga to East Cape (Figure 3). The evidence suggests urchin barrens are not isolated to the inner Hauraki Gulf, but in fact that there are much larger areas of barren in the mid and outer Hauraki Gulf areas, and other parts of the CRA 2 fishery.[21]

20. In addition, Figure 4 demonstrates the stark difference in urchin barren extent in fished areas compared to marine reserves.

---

[15] Nessia et al (2024) "Using marine protected areas to assess the status and recovery of the spiny lobster Jasus edwardsii fishery in the Hauraki Gulf, Aotearoa New Zealand" *Front Mar Sci* 11, available here. Benn J Hanns, Tim Haggitt and Nick T Shears (2022) "Marine protected areas provide unfished reference information to empirically assess fishery status" *Biol Conserv* 276, available here.

[16] Plenary Report, above n 4, at 326 and 336.

[17] Ibid, at 336.

[18] Ibid.

[19] Vince C Kerr, Roger V Grace and Nick T Shears (2024) "Estimating the extent of urchin barrens and kelp forest loss in northeastern Aotearoa, New Zealand" *Journal of Marine and Freshwater Research*, available here.

[20] Nick T Shears and Russell C Babcock (2002) "Marine reserves demonstrate top-down control of community structure on temperate reefs" *Oecologia* 132 (131):142, available here; Nick T Shears and Russell C Babcock (2003) "Continuing trophic cascade effects after 25 years of no-take marine reserve protection" *Marine Ecological Progress Series* 246:1-16, available here.

[21] Kerr et al, above n 19, at 12.

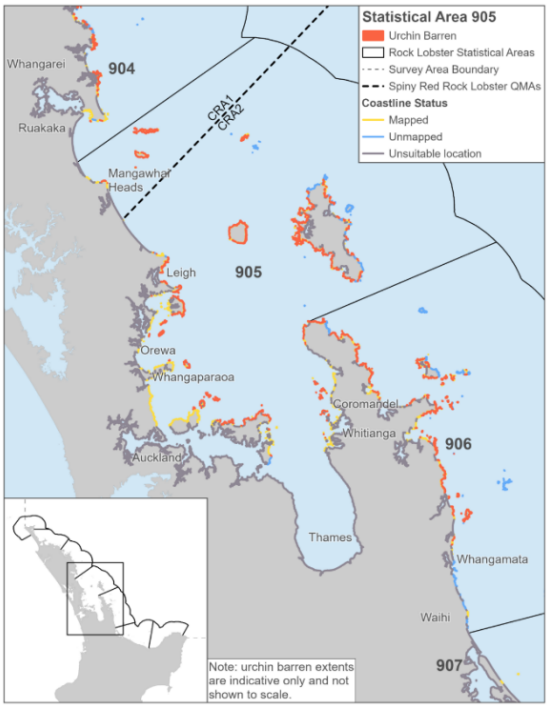

Figure 3. Urchin barrens (shown in orange) mapped in shallow coastal waters in statistical area 905 as detected through aerial and satellite imagery

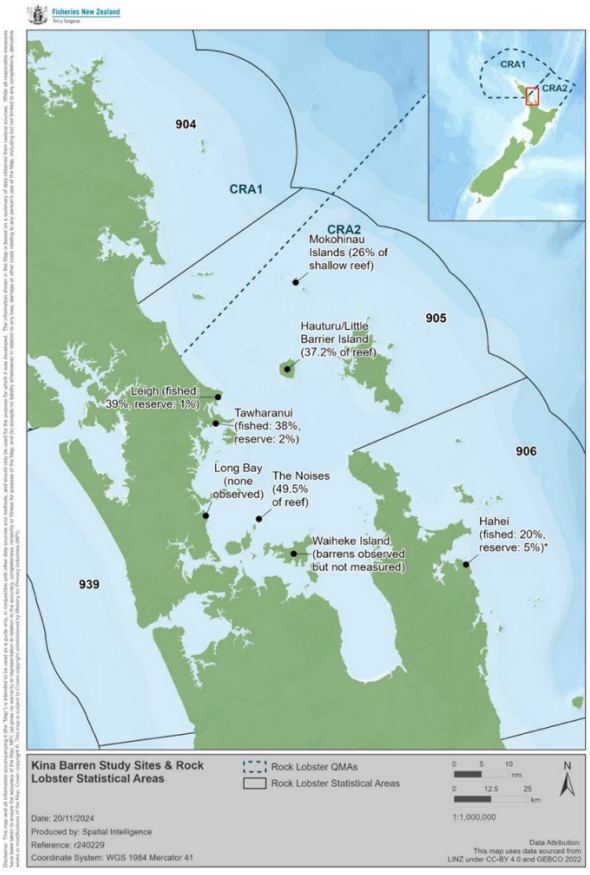

Figure 4. Map of coastal reef locations within the northern portion of CRA 2 where known urchin barrens occur, that have been compiled by a FNZ literature review

21. The long-spined urchin (*Centrostephanus rodgersii*) is an "emerging threat" having increased in abundance and spatial extent over the past two decades.[22] Available information suggests long-spined urchin barrens are more challenging to manage than those caused by excess kina.[23] This is for two key reasons. First, long-spined urchins graze to much greater depths, and can therefore remove entire kelp forests, whereas kina leave kelp forests in deeper water intact. Secondly, the only known predator of long-spined urchins in New Zealand is rock lobster (spiny and packhorse) whereas kina (which have smaller spines) also has finfish predators.

22. While Figure 3 shows shallow (<10m) urchin barrens in north-eastern New Zealand, long-spined urchin barrens pose a greater threat to kelp forests across a wider depth range. Therefore, it is essential that wider mapping is undertaken to identify incipient long-spined urchin barrens so measures can be deployed to avoid their expansion into more persistent networks which will be exceedingly difficult to reverse.

Key characteristics of the CRA 4 fishery

23. CRA 4 encompasses coastal waters from Wairoa River in northern Hawke's Bay down to Wellington and then north to the Manawatu River on the Kapiti Coast, as shown in Figure 5.

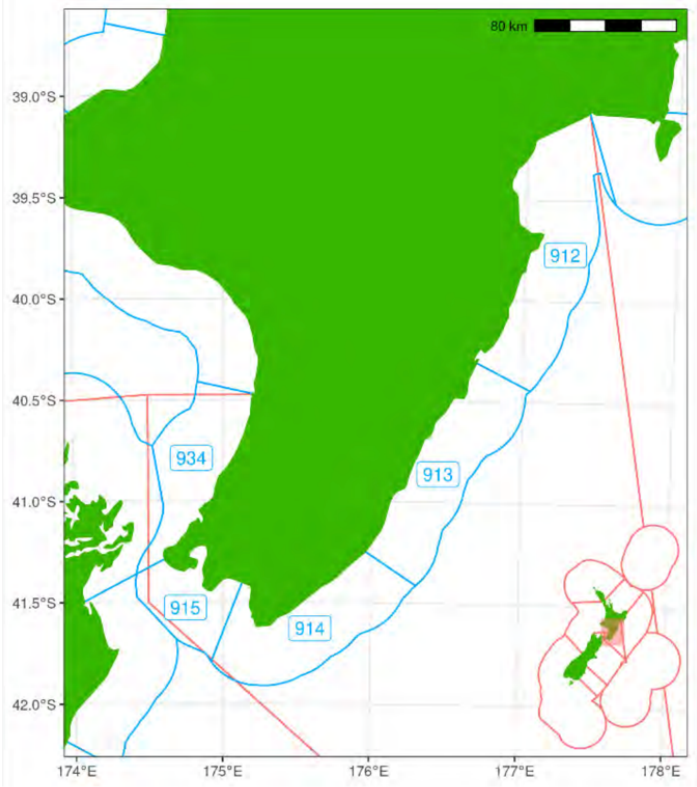

Figure 5. Map reproduced from the Fisheries Assessment Plenary (2024) showing the boundaries of the statistical reporting units within CRA 4.[24]

[22] Celia A Balemi and Nick T Shears (2023) "Emergence of the subtropical sea urchin Centrostephanus rodgersii as a threat to kelp forest ecosystems in northern New Zealand" *Frontiers in Marine Science* 10, available here, at 1.
[23] Scott Ling and John Keane (2021) "Decadal resurvey of long-term lobster experimental sites to inform Centrostephanus control" (Final contracted report for the Abalone Industry Reinvestment Fund, AIRF Project 2019_08), available here.
[24] Plenary Report, above n 4, at p 318.

24. The latest stock status for CRA 4 is from the 2024 stock assessment. At that time, the exploitable biomass in CRA 4 was estimated to be at 33% of unfished exploitable biomass, above the default target. The Plenary says biomass is projected to increase over the next five years under current catch settings, but the figure relied upon appears to suggests that biomass is expected to plateau or decrease.[25] The available information indicates recruitment has also plateaued.[26]

25. Commercial catch and fishing effort has reduced since 2013 alongside reductions in TACC. Only 26 vessels operated in CRA 4 in 2022–23, a large drop from the 35 vessels operating in 2020–21 and 2021–22 and an even larger drop from over 40 to 60 vessels which operated in the two decades following 2000–01 (Starr 2024).[27] The best available information indicates that recreational catch in CRA 4 has also reduced.[28]

26. Overall, similar concerns regarding the adequacy of the stock assessment as expressed above in relation to CRA 2 apply to CRA 4. Again, the modelling used by FNZ is heavily reliant on fishery-dependent data, including in relation to recreational fishing, and there has been no puerulus settlement series. Together, this uncertainty warrants a cautious approach.

27. Kina barrens have been found at numerous locations throughout New Zealand including on exposed coasts as well as in wave-protected coastal embayments. The presence of kina has been positively correlated with water clarity.[29] There is significant uncertainty about the extent of urchin barrens in CRA 4. As noted in the Discussion Document, anecdotal diver-reports indicate the presence of urchin barrens in Wellington Harbour, and a citizen science project is investigating this further.[30] Given what is currently known about the link between overfishing of key urchin predators (including rock lobster) and the prevalence of urchin barrens,[31] it would seem likely that kina barrens are present within CRA 4.

28. What is also clear is that once urchin barrens have formed they can be challenging to reverse.[32] Direct intervention (e.g. kina removal) is often required, alongside sharp reductions in fishing effort of key urchin predators. This type of reactive approach can be costly, difficult to achieve at scale, and may disproportionately affect stakeholders including iwi Māori. Where at all possible, a proactive preventative approach that reduces the risk should be taken, rather than waiting for symptoms to arise. This aligns with the precautionary principle in the Act (under section 10(d)), which states that the absence of, or uncertainty in information should not be used as a reason for postponing action.

---

[25] Plenary Report, above n 4, at p 396.
[26] Ibid, at p 387.
[27] Ibid, at p 271.
[28] Ibid, at p 376.
[29] Doheny B, J P Davis and B Miller (2023) *Fishery-induced trophic cascades and sea urchin barrens in New Zealand: A review and discussion for management*, New Zealand Aquatic Environment and Biodiversity Report No 324, at 59
[30] Discussion Paper, above n 1, at [146].
[31] Doheny et al, above n 29.
[32] Kelsey I Miller, Caitlin O Blain and Nick T Shears (2022) "Sea Urchin Removal as a Tool for Macroalgal Restoration: A Review on Removing "the Spiny Enemies" *Frontiers in Marine Science*, available here, at 2; and Kelsey I Miller and Nick T Shears (2023) "The efficiency and effectiveness of different sea urchin removal methods for kelp forest restoration" *Restoration Ecology* 31(1), available here.

EDS's comments on proposals in the Discussion Paper

29. FNZ is consulting on the following management options to increase spiny rock lobster populations in CRA 2 and CRA 4:[33]

    (a) Higher management targets and new management thresholds to improve ecological outcomes; and
    (b) Draft fisheries plans to implement management targets and thresholds, and to define management actions to help manage the stocks to the new targets.

Proposal 1: Setting management targets and thresholds

30. Three options are presented for a new management target and threshold in CRA 2:

Table 1. Options for a new management target in CRA 2

Target	Relative to B_{MSY}	Approx. % of unfished exploitable biomass	Approx. % of unfished spawning stock biomass	Approx. % of total biomass
Default B_{MSY}	1 x B_{MSY}	13%	39%	27%
Option 1	1.75 x B_{MSY}	21%	49%	35%
Option 2	2.5x B_{MSY}	30%	58%	44%
Option 3	3.5x B_{MSY}	42%	71%	55%

Table 2. Proposed threshold for CRA 2

Threshold	Approx. % of unfished exploitable biomass
Option A (50% of target Option 1)	10.5%
Option B (50% of target Option 2)	15%
Option C (50% of target Option 3)	21%
Option D (B_{MSY})	13%

31. For the reasons set out in our January 2025 submission (Attachment A), EDS supports Options 3 and C (i.e. 3.5 times B_{MSY} target with a 50% threshold). However, EDS maintains that a higher biomass target of 3.5 times B_{MSY} is not sufficiently cautious (on its own) to ensure sustainability of rock lobster populations in CRA 2 or to address urchin barrens as required by the Act.

32. Rather, fisheries-independent studies of rock lobster populations in marine reserves indicate total biomass levels are about 12.9 times higher in the Hauraki Gulf (statistical area 905) and about 42.5 times higher in the Eastern Coromandel (statistical area 906) compared to fished

[33] Discussion Paper, above n 1, at pp 1-2.

areas.[34] Figure 4 demonstrates the stark difference in urchin barren extent in marine reserves compared to fished areas, suggesting a higher biomass management target (of at least *10 times*) may be required to restore the functional role of rock lobster on shallow reef habitats in CRA 2.

33. Figure 4 also suggests fisheries closures are the most effective tool to prevent and reverse urchin barrens and improve long-term biodiversity outcomes. EDS strongly supported closures to the inner Hauraki Gulf rock lobster fishery, but new evidence (Figure 3) demonstrates the greater prevalence of urchin barrens in the outer Gulf including Te Hauturu-o-Toi (Little Barrier) and Aotea (Great Barrier) islands. Based on this evidence, EDS considers wider closures within the CRA 2 fishery are justified and required.

34. The Discussion Paper also presents three options for a new management target and threshold in CRA 4:[35]

Table 3. Options for a new management target in CRA 4

Target	Relative to B_{MSY}	% of unfished exploitable biomass	% of unfished spawning stock biomass (SSB)	% of total biomass
Default B_{MSY}	1.0x B_{MSY}	16.6%	62%	52%
Option 1	2.05x B_{MSY}	33%	70%	61%
Option 2	2.5x B_{MSY}	41%	72%	64%
Option 3	3.0x B_{MSY}	50%	75%	69%

Table 4. Proposed threshold for CRA 4

Threshold	% of unfished exploitable biomass
Option A (50% of target Option 1)	16.5%
Option B (50% of target Option 2)	20.5%
Option C (50% of target Option 3)	25%
Option D (B_{MSY})	16.6%

35. EDS strongly supports the need for a higher biomass management target of 3x B_{MSY} with a 50% target for the CRA 4 stock. Such a precautionary approach is justified and required because:

    (a) There is significant uncertainty as to the adequacy of the CRA 4 stock assessment, which is heavily reliant on fishery-dependent data that has proven to be deficient elsewhere.

    (b) There is also significant uncertainty about the extent of urchin barrens in CRA 4, although the best available information indicates they are already present in some parts of the management area. Even if evidence comes to light indicating urchin barrens are not as widespread in CRA 4 as in CRA 2, there are strong environmental, social and

[34] Nessia et al, above n 15, at 6.
[35] Discussion Paper, above n 1, at p 16.

economic reasons for adopting a proactive preventative approach (as opposed to the heavy-handed reactive approach now required in CRA 1 and CRA 2).

(c) There is a clear link between rock lobster overfishing and the prevalence of urchin barrens in north-eastern New Zealand and barrens are widespread around the country. There is no evidence that indicates a different relationship between rock lobster fishing and kina barrens in CRA 4.

Thresholds and limits

36. As summarised above, FNZ's proposed thresholds are different to the existing 'soft' and 'hard' limits. The current soft and hard limits are defined in relation to SSB and are therefore not directly relatable to the exploitable biomass management targets. FNZ considers it appropriate to retain these limits.

37. EDS agrees, subject to the following observations:

(a) The thresholds will indicate when biomass has fallen to the extent that "management action may be required to prevent the stock from declining further".[36] In practice, it would trigger a stock review.[37] This is a lesser requirement than a rebuild plan or closure for falling below soft and hard limits respectively. EDS submits that the thresholds should specifically require a rebuild plan (including a potential closure) if breached, to align with the soft limit requirements.

(b) The SSB has reduced significantly since 1980, when records began, to a low point in ~2016. Stock abundance has similarly declined. Yet even then, the SSB did not reach the soft limit (let alone the hard limit) and a rebuild plan was not triggered.[38] In hindsight, a rebuild plan/closure in 2016 would likely have improved rock lobster stock abundance leading to better avoidance of new, and reductions of existing, urchin barrens. EDS considers that the SSB limits should be retained but increased substantially so that they can trigger appropriate management actions when required.

Proposal 2: Fisheries plans

38. FNZ is proposing fisheries plans for CRA 2 and CRA 4 to implement management targets and thresholds, and to define management actions to help manage the stocks to the new targets. FNZ has released draft plans for public comment.

39. EDS supports the use of fisheries plans to manage CRA 2 and CRA 4. However, we have some serious concerns with the draft plans proposed by FNZ.

40. First, the 'aim' of the plans needs redrafting because it is inconsistent with the purpose of the Act. As drafted, the aim of the plans is:

> "To ensure the CRA 2 spiny rock lobster fishery provides for current customary, recreational, and commercial fishing and fishing for spiny rock lobster is

[36] Discussion Paper, above n 1, at [24].
[37] Discussion Paper, above n 1, at [45]
[38] Plenary Report, above n 4, at 332 Figure 6.

> sustainable in that it can provide for reasonably foreseeable future needs and that any adverse effects of the fishing on the aquatic environment are avoided, remedied, or mitigated."

41. There are two problems with this aim as it is currently worded. First, the reference to 'current' fishing is inconsistent with the purpose of the Act which refers to utilisation more generally and not 'current' utilisation. Secondly, the aim fails to state that where fishing and sustainability conflict, sustainability must take precedence. We set out the legal analysis to support this below.

42. The purpose of the Act is "to provide for the utilisation of fisheries resources *while* ensuring sustainability".[39] The use of the word "while" is significant. When considered by the Supreme Court in the *King Salmon* case, in the context of similar usage in the Resource Management Act 1991 (RMA), the Court held that "while" meant "at the same time as".[40] This means that "ensuring sustainability" must be achieved at the same time as providing for the utilisation of fisheries; providing for utilisation cannot trump ensuring sustainability. As recently stated by the High Court, the purpose of the Act "is broadly to create an environmental 'bottom-line' of sustainability".[41]

43. This is further emphasised by the words prefacing the two concepts. The utilisation of fisheries is to be "provided for" whereas sustainability is to be "ensured". Ensuring is to "*make certain* that (something) will occur or be the case" whereas provide for is "to cause (something) to be available". "Ensuring" sustainability is stronger than the active word used in the purpose of the RMA which is "to promote" sustainable development. [42] It is a strong, active word which creates an obligation to make something occur whereas "provide for" is more enabling.

44. Section 8(2) defines key aspects of the purpose as follows:

> **ensuring sustainability** means—
> (a) maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and
> (b) avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment
>
> **utilisation** means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being

45. In *New Zealand Recreational Fishing Council Inc v Sanford Ltd*, the majority of the Supreme Court provided the following guidance on the purpose of the Act (footnotes omitted):[43]

> Section 8(1) … expresses a single statutory purpose by reference to the two competing social policies reflected in the Act. Those competing policies are "utilisation of fisheries" and "ensuring sustainability". The meaning of each term in the Act is defined in s 8(2). The statutory purpose is that both policies are to be accommodated as far as is practicable in the administration of fisheries under the quota management system. But recognising the inherent unlikelihood of those making key regulatory decisions under the Act being able to accommodate both policies in full, s 8(1) requires

---

[39] Fisheries Act 1996, s 8(1).
[40] *Environmental Defence Society Incorporated v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [24(c)].
[41] *The Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 at [11].
[42] Resource Management Act 1991, s 5(1)
[43] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [39].

that in the attribution of due weight to each policy [the weight] given to utilisation must not be such as to jeopardise sustainability. Fisheries are to be utilised, but sustainability is to be ensured.

46. This guidance was recently affirmed by the Supreme Court in *Seafood New Zealand Ltd v Royal Forest & Bird Protection Society of New Zealand Inc* [2024] NZSC 111,[44] where the Court observed that the Act "adopts a single objective, the elements of which are complementary; utilisation of stock includes its conservation, and the Act pursues sustainable utilisation to meet the reasonably foreseeable needs of future generations." Put another way, "utilisation may not jeopardise sustainability".

47. EDS submits that this means any sustainability measures must rebuild depleted rock lobster populations within CRA 2 to sustainable levels and avoid, remedy or mitigate adverse effects of fishing (e.g. urchin barrens). As discussed above and at length in Attachment A, current rock lobster fishing levels (particularly in CRA 2) are jeopardising sustainability. Therefore, the aims of maintaining *current* fishing and ensuring sustainability are incompatible and require amendment:

> ~~To ensure t~~The CRA 2 spiny rock lobster fishery is rebuilt so that it can provide ~~provides~~ for ~~current~~ customary, recreational, and commercial fishing ~~and fishing for spiny rock lobster~~ while ensuring ~~is sustainable in~~ that rock lobster can play their normal ecological role, including helping to keep kelp forest habitats healthy, now and in the future ~~it can provide for reasonably foreseeable future needs and that any adverse effects of the fishing on the aquatic environment are avoided, remedied, or mitigated~~.

48. Our second concern with the draft fisheries plans is that the management actions are inadequate as currently proposed. These plans offer a real opportunity to set the strategic direction for the management of rock lobster, and to address urchin barrens, and the 'actions' should not be limited to the setting of management targets and thresholds. The following amendments and/or additions are needed (at a minimum):

(a) The stocks should be managed at or above the target, not "around" the target. This reduces ambiguity and enables progress towards achieving the target to be more accurately measured.

(b) Details of the "additional management tools" should be provided. Such measures should include spatial fishing restrictions, changes to legal size limits (maximum and minimum), changes to recreational take limits, splitting the stocks into smaller parcels under the QMS, etc. Crucially, the implementation of no-take kelp restoration areas must be an action that is provided for in the plans, as the best available information indicates that this is the most effective tool to prevent/reverse urchin barrens.[45]

(c) Priority areas for "improved research" should be made explicit. For instance, as noted previously, further research is urgently needed on the extent of urchin barrens, particularly at wider depth ranges and in areas outside of north-eastern New Zealand (including CRA 4). This research should be provided for as an action in the plans.

---

[44] *Seafood New Zealand Ltd v Royal Forest & Bird Protection Society of New Zealand Inc* [2024] NZSC 111 [*Tarakihi case*] at [15] and [83]. See also *The Environmental Law Initiative v Minister for Oceans and Fisheries* [2025] NZHC 177 at [20].
[45] For example, see: Babcock et al (1999) "Changes in community structure in temperate marine reserves". *Marine Ecology Progress Series* 189:125-134; Shears N and Babcock R, above n 20.

(d) Ongoing monitoring programmes should be provided for so that the effectiveness of the management measures can be objectively and independently assessed.

49. Our third concern with the fisheries plans is in respect of the proposed performance criteria. As drafted, if the probability of exploitable biomass achieving the management target is 50%, then the objectives and strategies of the plans can be considered 'achieved'. EDS considers much greater confidence is needed - we would expect the requisite probability to be set to at least >90%, i.e. 'very likely' the exploitable biomass is at or above the management target.

50. Finally, EDS considers the 'context' section of the plan should be taken into account by the Minister as this underpins the objectives and other measures adopted within the plan. As currently drafted, the Minister would be precluded from taking this context into account.

Additional measures

51. For completeness, EDS considers this submission should be read together with our forthcoming submission on FNZ's review of rock lobster fishery management measures for urchin barrens in northeastern New Zealand (Fisheries New Zealand Discussion Paper No: 2025/26), and our comments on additional management measures discussed in Attachment A including spatial closures.

Conclusion

52. EDS supports stronger and more precautionary management measures for CRA 2 and CRA 4, including higher biomass targets, thresholds, and meaningful fisheries plans that align with the purpose of the Act.

53. Given the longstanding depletion of rock lobster populations, the risks of further recruitment failure, and the demonstrated links to widespread urchin barrens, a cautious and proactive approach is essential.

Attachment A: Previous submission on CRA 2

Fisheries management (CRA 2)
Fisheries New Zealand
By email: FMsubmissions@mpi.govt.nz

29 January 2025

Review of sustainability measures for spiny rock lobster (CRA 2) for 2024/25

SUBMITTER DETAILS

FULL NAME:	Environmental Defence Society Incorporated
ADDRESS:	PO Box 91736, Victoria Street West, Auckland 1142
CONTACT:	Raewyn Peart / Tracey Turner
EMAIL:	raewyn@eds.org.nz / tracey@eds.org.nz

Introduction

1. This is a submission on proposed sustainability measures for the Hauraki Gulf, Coromandel and Bay of Plenty spiny rock lobster fishery (**CRA 2**) as set out in the Fisheries New Zealand (**FNZ**) Discussion Paper No: 2024/33 (**Discussion Paper**).[1]

2. The Environmental Defence Society (**EDS**) is an independent not-for-profit organisation conducting interdisciplinary policy research and litigation. It was established in 1971 with the purpose of improving environmental outcomes in Aotearoa New Zealand.

3. EDS has a special interest in the marine environment. In May 2022, EDS completed the first phase of a multiyear project looking at issues within the national oceans management system and options for future reform.[2] EDS is undertaking phase two of the project which focuses on developing recommendations for oceans reform.

4. Fisheries management has been a core focus of EDS's work for many years. In 2018, EDS led an in-depth review of the national fisheries management system and published findings in a report entitled "*Voices from the Sea: Managing New Zealand's Fisheries*".[3] Drawing on this work, EDS has sought to improve fisheries decision-making by submitting on proposed measures for various wild stocks, including rock lobster within northeastern New Zealand (CRA 1 and CRA 2).[4]

[1] FNZ (2024) *Review of sustainability measures for spiny rock lobster (CRA 2) for 2024/25* (Fisheries New Zealand Discussion Paper No:2024/33, December 2024), [**Discussion Paper**], available here.
[2] Greg Severinsen et al (2022) "*The Breaking Wave: Oceans Reform in Aotearoa New Zealand*" (EDS, May 2022), available here.
[3] Raewyn Peart (2018) "*Voices from the Sea: Managing New Zealand's Fisheries*", (EDS, 2018), available here.
[4] For example EDS (12 December 2024) "*Submission on proposed measures for the Northland spiny rock lobster fishery (CRA 1)*", available here. Previous submissions by EDS on proposals applying to CRA 1 and CRA 2 are available here.

Summary of submission

5. EDS commends FNZ for taking steps to manage the negative impacts of rock lobster harvest on kelp forests in the CRA 2 fishery which is long overdue and now urgently needed.

6. EDS is very concerned about the depleted biomass levels of CRA 2, the significant implications for the health of rocky reef ecosystems, and the negative flow-on effects for the productivity of the broader marine environment. Available information shows the stock has remained persistently depleted under the current management settings. An urgent and careful management approach is required to support the recovery of the stock and kelp reef systems.

7. The information presented in the Discussion Paper relies heavily on the latest FNZ stock assessments. EDS finds it concerning that the Discussion Paper attempts to disregard relevant fisheries-independent information about important matters that the Minister for Oceans and Fisheries (**Minister**) is required to take into account. This approach is not consistent with the information principles in s 10 of the Act or the requirements in s 13(2) of the Act.

8. EDS supports the need to set a higher long-term biomass management target for the CRA 2 stock because this is likely to result in more large rock lobster over time. EDS stresses the need for an increase of at least 3.5 times the current target (i.e. $\mathbf{B_R}$) above the other less precautionary options in the Discussion Paper. This will support critical increases in rock lobster abundance at a quicker rate, which is necessary to restore the predatory influence of rock lobster in shallow reef ecosystems.

9. EDS does not support any increases to catch limits for the 2025/26 fishing year and prefers retaining the status quo ("**Option A1**") as it is the most conservative of the options proposed. EDS finds it concerning that the Discussion Paper fails to consider any *reductions* in the Total Allowable Catch (**TAC**). This contradicts the other proposals in the Discussion Paper, which may require reductions in the TAC to be successfully implemented.

10. EDS supports the proposed closure of the inner Hauraki Gulf to commercial and recreational rock lobster harvest ("**Option B2**"). There is strong evidence that rock lobster are critically depleted across shallow reefs in the inner Hauraki Gulf and recruitment may be limited by prevailing oceanic conditions. The proposed closure may support recovery of these rock lobster populations. However, there is a material omission in the Discussion Paper; it fails to include any spatial measures applying to the wider CRA 2 fishery and this oversight means there is a failure to take into consideration relevant evidence of urchin barrens and severely depleted rock lobster populations. Stronger measures are required to achieve consistency with the environmental principles and purpose of the Act.

11. Overall, the proposals in the Discussion Paper do not go far enough to ensure sustainability of the CRA 2 stock and associated reef ecosystems. EDS requests a suite of necessary additional measures that will provide for effective ecosystem-based management of the stock. These include (as a minimum):

(a) A finer scale spatial stock assessment and ecosystem based management approach for CRA 2 based on the recommendations outlined in MacDiarmid (2025).[5] As an initial step, this would involve subdividing the stock into 6 subregions and incorporating fisheries-independent data into the assessment process. Targeted measures, including ecosystem based biomass management targets and appropriate catch limits, could then be applied to each subregion rather than the fishery as a whole.
(b) A maximum legal size limit to protect large rock lobster with the highest reproductive capacity and most important predatory influence.
(c) Strong spatial measures aimed at rebuilding depleted rock lobster populations and restoring kelp forests in areas susceptible to urchin barrens throughout the CRA 2 fishery. In these areas, deployment of proactive restoration tools should be enabled, such as urchin removal and/or rock lobster translocation, with appropriate conditions.
(d) An ecosystem monitoring plan to track the status of kelp forest habitat over time.
(e) Additional protections for packhorse rock lobster that reflect the management settings for spiny rock lobster. For instance, the daily bag limit for packhorse lobster should be reduced from 6 to 3, and packhorse lobster should be included in the spatial measures deployed for spiny rock lobster in CRA 2.
(f) Mandatory reporting of recreational catch of rock lobster (spiny and packhorse).

12. This submission addresses the relevant management context and then provides EDS's feedback on the proposals in the Discussion Paper. Additional comments on the legislative framework are included in **Appendix 1** and a summary of EDS's responses to questions in the Discussion Paper is included in **Appendix 2**.

Management context

Key characteristics of the CRA 2 fishery

13. CRA 2 encompasses coastal waters on the east coast of the North Island from Te Arai Point (south of Whangārei) to East Cape in the Bay of Plenty. As shown in Figure 1, the CRA 2 fishery is divided into four statistical areas for reporting purposes:

(a) Statistical area 905 falls within the Hauraki Gulf Marine Park (**HGMP**) and includes waters surrounding Little Barrier Island, Great Barrier Island and the western side of the Coromandel Peninsula (**Hauraki Gulf**).
(b) Statistical area 906 overlaps with the southern part of the HGMP and includes coastal waters to the east of the Coromandel Peninsula (**Eastern Coromandel**).
(c) Statistical areas 907 and 908 span waters off the eastern Bay of Plenty (**Eastern Bay of Plenty**).

[5] Alison MacDiarmid (2025) "What is an appropriate spatial scale for ecosystem based fishery management of koura, spiny lobster, Jasus edwardsii, in the Hauraki Gulf Marine Park, Aotearoa New Zealand?" *Fisheries Research* 281 107261, available here, at 8.

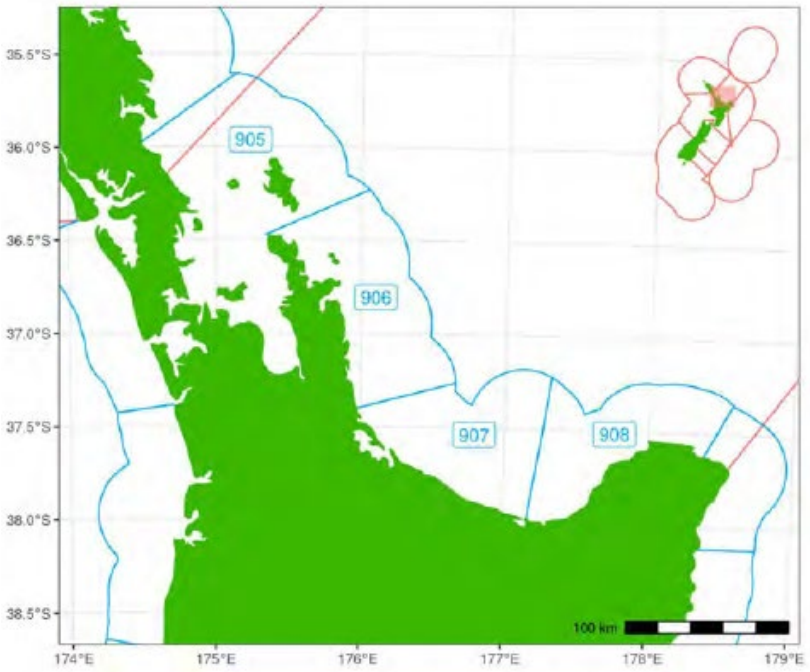

Figure 1. Map reproduced from the Fisheries Assessment Plenary (2024) showing the boundaries of the statistical reporting units within CRA 2.[6]

14. A recent report commissioned by FNZ (**FNZ Report**) indicates that approximately half (47-50%) of the annual commercial catch of rock lobster in CRA 2 is taken from the Hauraki Gulf and Eastern Coromandel (combined statistical areas 905 and 906).[7] However, annual landings are unevenly distributed between these areas. For instance, between 2020-21 and 2022-23, the Eastern Coromandel supported 33-34% of annual landings, while only 13-17% of landings were taken from the Hauraki Gulf (statistical area 905).[8] The Discussion Paper suggests that 0.5-2% of the annual commercial harvest has been taken from the inner Hauraki Gulf over the past five years, while 93% of fishing effort occurred elsewhere.[9]

15. The FNZ Report demonstrates that the number of commercial vessels operating within CRA 2 has decreased through time, from 70-80 vessels during the 1980s, to 16 vessels in 2022.[10] The number of vessels operating within the Hauraki Gulf (statistical area 905) dropped to just 4 in the 2020/22 fishing year and has remained at this level since.[11] This has occurred alongside declines in commercial catch and has implications for the reliability of stock assessments (addressed further below).

[6] FNZ (2024) *Fisheries Assessment Plenary: November 2024, Stock assessment and stock status Volume 1 Introductory sections and Albacore to Yellowfin Tuna* (Wellington, November 2024) [**Plenary Report**], available here, at 318.
[7] P J Starr (2024) *Rock lobster catch and effort data: 1979-80 to 2022-23* (New Zealand Fisheries Assessment Report 2024/10, March 2024), available here, at 13.
[8] Ibid at 39.
[9] Discussion Paper, above n 1, at [47].
[10] Starr, above n 7, at 38.
[11] Starr, above n 7, at 38.

16. There is limited understanding of recreational or customary harvest in CRA 2. Recreational catch is estimated through results of the National Panel Surveys of Marine Recreational Fishers (**NPS**), boat ramp ("creel") surveys and reported landings from recreational charter vessels.[12] The NPS is undertaken once every 5 to 6 years, and relies heavily on self-reported data, making it difficult to assess spatial or temporal trends in recreational fishing effort. The latest NPS indicates that recreational landings in CRA 2 have decreased over the past decade from approximately 40 tonnes in 2011/12 to 10 tonnes in 2022/23.[13] The Discussion Paper suggests that recreational fishers have shifted away from the inner Hauraki Gulf in recent years due to localised depletion of rock lobster.[14]

17. There is also limited information on settlement levels and recruitment in CRA 2. In 1999-2000, settlement monitoring frames were installed at four locations in CRA 2 with the aim of identifying a site for long-term monitoring.[15] The frames were installed at Papatu Point (near Tauranga Harbour), Mount Maunganui wharves (briefly until the frames were vandalised), Okurei Point (Maketu), and Little Awanui (eastern Bay of Plenty).[16] Some of these locations had been monitored in the 1980s but only temporarily and no long-term record had been established.[17] The frames were monitored monthly for a year and pueruli and young juvenile rock lobsters were only reported at Papatu Point.[18] Low or zero catches were observed elsewhere. While Papatu Point was identified as a potential candidate for long-term monitoring, a permanent station was not established.[19]

18. Rock lobster have an extended larval stage. They spend at least 12 months drifting in oceanic currents, where they transition from a planktonic larval stage ("phyllosoma") to a post-larval stage ("puerulus"), and then return to the coast to settle on suitable reef substrate.[20] This extended larval phase has implications for management of CRA 2 because there are important linkages between populations located in different parts of the country.

19. A broad analysis of larval sources and sinks around the country indicates that 19% of settlement in CRA 2 is sourced from the Northland stock (CRA 1) while 20% is sourced from local recruitment.[21] Other recruitment is sourced from stocks further to the south extending all the way to Kaikōura.[22] There is strong evidence that rock lobster populations on the east coast of CRA 1 have collapsed due to long-term overfishing,[23] which is likely to have implications for future recruitment in downstream stocks including CRA 2. In addition, the depletion of CRA 2 itself, will be likely affecting local recruitment.

---

[12] A Heinemann and A Gray (2024) *National Panel Survey of Marine Recreational Fishers 2022–23* (New Zealand Fisheries Assessment Report 2024/51, August 2024), available here; and J Q Maggs et al (2024) *Monitoring of recreational harvest of red rock lobster Jasus edwardsii in CRA 2* (New Zealand Fisheries Assessment Report 2024/52, August 2024), available here.
[13] Plenary Report, above n 6, at 274.
[14] Discussion Paper, above n 1, at 16.
[15] J D Booth et al (2001) *Settlement indices for 1999, and 1999-2000 juvenile abundance of the red rock lobster, Jasus edwardsii* (New Zealand Fisheries Assessment Report 2001/28, Ministry of Fisheries, Wellington, June 2001), available here, at 7.
[16] Ibid at 7-8.
[17] J D Booth et al (2007) *Monitoring the settlement of red rock lobsters (Jasus edwardsi) in New Zealand, with settlement levels to 2004* (New Zealand Fisheries Assessment Report 2007/43, NIWA, Wellington), available here, at 10-11.
[18] Booth et al, above n 15, at 6.
[19] Booth et al, above n 17, at 10-11.
[20] Plenary Report, above n 6, at 277.
[21] Stephen M Chiswell and John D Booth (2008) "Sources and sinks of larval settlement in Jasus edwardsii around New Zealand: Where do larvae come from and where do they go?" *Mar Ecol Prog Ser* 354:201-217, available here, at 213.
[22] Ibid at 212.
[23] See EDS, above n 4, for an overview.

20. Overall, the evidence confirms rock lobster populations are critically depleted in parts of the CRA 2 fishery, that settlement from 2 key sources is likely depressed, and the stock is vulnerable to fluctuations in settlement. A cautious approach must be adopted to management of the CRA 2 fishery in light of this context.

Past management approaches

Long-term declines in abundance of rock lobster

21. Rock lobster in CRA 2 have been heavily fished for many decades. The latest Fisheries Assessment Plenary Report (**Plenary Report**) suggests the abundance of legally harvestable rock lobster ("vulnerable biomass") is around 20% of the unfished reference level (**URL**) (a modelled estimate of unfished or "virgin biomass" used to determine the current status of the stock)[24] while the biomass of sexually mature female lobsters ("spawning biomass") is around 38% of the URL.[25]

22. Model-derived estimates of vulnerable biomass show the CRA 2 stock reached an initial low point in 1992, increased until the mid-1990s, and then decreased rapidly to a new low point by 2002.[26] The vulnerable biomass remained relatively stable (at this depleted level) until 2007 and then decreased to a new historic low by 2017.[27]

23. The abundance of rock lobster in CRA 2 has increased since 2018 but remains well below historic levels. For example, the Discussion Paper notes that the vulnerable biomass was more than *two times* greater in 1980 (the earliest modelled biomass).[28] Studies exploring long-term trends in population structure and ecosystem functioning of marine species in the Hauraki Gulf suggest rock lobster populations had already experienced significant declines (~76%) by 1950.[29] This means the current biomass levels of rock lobster in CRA 2 reflect a historically depleted state and stronger measures are required to rebuild the stock.

Reliance on flawed management procedures

24. Between 2014 and 2016, decisions on the setting of catch limits in CRA 2 were informed by a "*management procedures*" approach.[30] Generally, management procedures involve the development of a harvest 'decision rule', which defines the relationship between catch and effort data and the Total Allowable Commercial Catch (**TACC**).[31] Decision rules are developed with inbuilt triggers so that if the reported catch changes by a prescribed amount, the output will automatically adjust in response, without any further management scrutiny.

[24] Plenary Report, above n 6, at 341. (See Table 11 - B_{2024}/B_0).
[25] Plenary Report, above n 6, at 341. (See Table 11 - SSB_{2024}/SSB_0).
[26] Plenary Report, above n 6, at 331.
[27] Ibid.
[28] Discussion Paper, above n 1, at [17].
[29] A B MacDiarmid et al (2016) *Taking Stock the changes to New Zealand marine ecosystems since first human settlement: synthesis of major findings, and policy and management implications* (NZAEBR No 170, MPI, June 2016), available here, at 27.
[30] D N Webber et al (2018) *The 2017 stock assessment and management procedure evaluation for rock lobsters (Jasus edwardsii) in CRA 2* (NZ Fisheries Assessment Report 2018/17, MPI, May 2018), available here, at 11-12.
[31] See summary: Plenary Report, above n 6, at 286.

25. The management procedure adopted for CRA 2 relied heavily on fisheries-dependent catch-per-unit-effort (**CPUE**) data, which was considered to be a reliable indicator of relative stock size.[32] This proved to be inadequate and led to significant depletion of rock lobster biomass over the span of several years.

26. When it became apparent that rock lobster populations had been critically depleted across shallow reef habitats in CRA 2, industry agreed to voluntarily shelve 25 tonnes of quota (i.e. 12.5% of the TACC) for the 2015-16 fishing year. The amount of shelved quota was increased to 49 tonnes (i.e. 24.5% of the TACC) in the 2016-17 and 2017-18 fishing years.[33]

27. In 2017, a stock assessment was undertaken for CRA 2. Results showed the spawning biomass of rock lobster was critically low at about 18.5% of the (then) URL and very likely (82%) below the soft limit for the stock (which required a rebuilding plan).[34] The assessment found the biomass of rock lobster had steadily decreased between 2007 and 2016. However, between 2014 and 2016 when management procedures were used to inform catch settings, the decision rule indicated no change in TACC was necessary despite the low and declining stock levels.

28. The 2017 stock assessment suggested that low recruitment played a part in the declining trends.[35] However, it also found changes in the commercial fleet likely contributed to the disconnect between CPUE data and stock biomass levels. Vessels with lower catch rates had left the fishery, while those with higher catch rates remained. This led to an observed increase in CPUE that was independent of any increase in stock biomass and likely overestimated the abundance of the stock in preceding years.[36]

29. In 2018, the (then) Minister decided to implement a 'fixed catch approach' and to depart from the management procedures approach for CRA 2 as part of a rebuilding plan.[37] This involved reductions in the TAC (from 416.5 to 173 tonnes), TACC (from 200 to 80 tonnes), recreational catch allowance (from 140 to 34 tonnes) and other mortality allowance (from 60 to 42.5 tonnes).[38] In 2020, the recreational daily bag limit was reduced from 6 to 3 red rock lobster.[39] These settings remain in force as of January 2025.

Latest stock assessments

30. The latest stock assessments for CRA 2 were undertaken in 2022 (full assessment), 2023 (rapid assessment) and 2024 (rapid assessment). Full stock assessments for rock lobster occur every four to five years and include a review of key parameters and assumptions underlying the assessment model ("base case").[40] Rapid assessments retain the base case but include new data

[32] Webber et al, above n 30, at 11-12.
[33] Ibid.
[34] Webber et al, above n 30, at 22-23.
[35] Webber et al, above n 30, at 14.
[36] Webber et al, above n 30, at 3.
[37] Decision by Hon Stuart Nash on *Fisheries sustainability measures for 1 April 2018* (26 March 2018), available here.
[38] Ibid at 3.
[39] Ministry for Primary Industries "Review of the CRA 2 rock lobster fishery" here.
[40] Plenary Report, above n 6, at 284.

such as additional years of CPUE.[41] Consequently, rapid updates provide an opportunity to evaluate how the stock is tracking against projections made by the full assessment model.

2022

31. The 2022 full assessment estimated the vulnerable biomass of rock lobster in CRA 2 that can produce the Maximum Sustainable Yield (**MSY**) for the purposes of managing the stock in accordance with the Act.[42] The biomass management reference target for the stock (i.e. $\mathbf{B_R}$) was estimated to be about 335 tonnes.

32. The assessment found the vulnerable biomass was about 19.9% of the URL (i.e. 1.67 times B_R) and the spawning biomass was about 39.7% of the URL.[43] Results suggested the CRA 2 biomass had rapidly increased (i.e. more than doubled) since the last full assessment in 2017. Vulnerable and spawning biomass were predicted to increase over the next 5 years under the existing management settings.

2023

33. The 2023 rapid update found the vulnerable biomass had increased slightly to 21.3% of the URL (i.e. 1.77 times B_R) and the spawning biomass to 41.2% of the URL.[44] The assessment predicted that the biomass of the CRA 2 stock would continue to increase but at a slower rate than projected by the 2022 full assessment.[45]

2024

34. The 2024 rapid update found the vulnerable biomass was about 20% of the URL (i.e. 1.54 times B_R) and the spawning biomass was about 38.3% of the URL.[46] Consistent with the 2023 rapid update, the 2024 rapid update predicted that the stock biomass would continue to increase but at a slower rate than projected by the 2022 full assessment.[47] These results suggest the biomass of rock lobster in CRA 2 slightly declined between 2022 and 2024.

Concerns related to the FNZ stock assessment approach

Gaps and uncertainty underpinning stock assessment results

35. EDS has concerns about the reliability of the latest stock assessments and considers these should be approached with caution.

[41] Ibid.
[42] M B Rudd et al (2022) *The 2022 stock assessment of red rock lobsters (Jasus edwardsii) in CRA 2* (New Zealand Fisheries Assessment Report 2023/43, August 2023), available here, at 29.
[43] Ibid, see table 11: median 50%: B_{2022}/B_0 = 19.9%, B_{2022}/B_R = 1.676, SSB_{2022} / SSB_0 = 39.7%.
[44] M Pons et al (2024) *Rapid updates for New Zealand rock lobster (Jasus edwardsii) stocks in 2023* (New Zealand Fisheries Assessment Report 2024/13, March 2024), available here, at 24. See table 8: median 50%: B_{2023} / B_0 = 21.3%, B_{2023}/B_R = 1.772, SSB_{2023} / SSB_0 = 41.2%.
[45] Ibid at 38.
[46] Plenary Report, above n 6, at 341, see table 11, metrics: median 50%: B_{2024} / B_0 = 20%, B_{2024}/B_R = 1.538, SSB_{2024} / SSB_0 = 38.3%.
[47] Plenary Report, above n 6, at 345.

36. The model used by FNZ to assess the status of the CRA 2 stock is heavily reliant on fishery-dependent data as an indicator of stock abundance. CPUE data has known limitations because it can be influenced by a range of factors such as gear selectivity, changes in fishing patterns, fleet efficiency or fleet dynamics over time.[48] As previously indicated, past reliance on CPUE-based management procedures led to rapid depletion of the CRA 2 stock and changes in vessel/fisher behaviour are thought to have contributed to this outcome.

37. The Plenary Report acknowledges that there is no robust puerulus settlement series to inform the stock assessment model for CRA 2.[49] This means the assessment model is not responsive to changes in settlement levels, which can have significant implications for future recruitment to the fishery.

38. Recent modelling has identified a potential negative correlation between sea surface temperature and annual recruitment in CRA 2.[50] Specifically, model results show that high temperatures may impair the survival of rock lobster in CRA 2 around the size of recruitment.[51] This means there is a risk that ocean warming could affect stock productivity in future years on the north-east coast. The stock assessment model does not account for this.

39. The above examples demonstrate that there is considerable uncertainty associated with estimates of rock lobster biomass produced by the latest stock assessment reports, and that reliance on these estimates may have led to further depletion of the CRA 2 stock.

Inadequate consideration of fisheries-independent data

40. Recent scientific studies have used fisheries-independent data to assess the status of rock lobster populations at marine reserve and fished locations in the Hauraki Gulf.[52] Results suggest the latest FNZ stock assessments have overestimated the biomass of rock lobster populations within the CRA 2 fishery. For example:

    (a) Hanns et al (2022) used fisheries-independent data (i.e. potting and diver surveys) to assess the status of rock lobster populations at 2 marine reserves and adjacent fished locations in CRA 2.[53] They found the modelled total, spawning and vulnerable biomass levels of rock lobster populations in fished areas were all <10% of the biomass in marine reserves.[54] For example, the vulnerable biomass of fished populations was estimated to be 2.58% (range 0.87- 9.28) of the vulnerable biomass in marine reserves; and the spawning biomass was 1.94% (range 0.31-7.41).[55] The results suggested the biomass

[48] Mark N Maunder et al (2006) "Interpreting catch per unit effort data to assess the status of individual stocks and communities" *ICES Journal of Marine Science*, 63(8) 1373-1385, available here.
[49] Plenary Report, above n 6, at 326 and 336.
[50] Plenary Report, above n 6, at 336.
[51] Plenary Report, above n 6, at 336.
[52] Nessia et al (2024) "Using marine protected areas to assess the status and recovery of the spiny lobster Jasus edwardsii fishery in the Hauraki Gulf, Aotearoa New Zealand" *Front Mar Sci* 11, available here. Benn J Hanns, Tim Haggitt and Nick T Shears (2022) "Marine protected areas provide unfished reference information to empirically assess fishery status" *Biol Conserv* 276, available here.
[53] Hanns et al, above n 52, at 1.
[54] Hanns et al, above n 52, at 8-9.
[55] Hanns et al, above n 52, at 9, see table 5.

levels of rock lobster populations in fished areas were substantially lower than estimated by the FNZ stock assessment for the wider CRA 2 fishery at the time (2018-2019).[56]

(b) Nessia et al (2024) used fisheries-independent survey data to assess the status of rock lobster populations at additional sites (i.e. 3 marine reserves and 6 fished locations) in the Hauraki Gulf. They found the modelled total biomass of rock lobster in the Hauraki Gulf (statistical area 905) was 12.9 times higher in marine reserves than in fished locations and 42.5 times higher in the Eastern Coromandel (statistical area 906).[57] Overall, consistent with the findings of Hanns et al (2022), they found the total, vulnerable and spawning biomass of rock lobster at fished locations was <10% of the biomass in marine reserves.[58] However, estimates of biomass were slightly higher on average (sitting around 5%) than reported in Hanns et al (2022).[59] These results suggested there had been little evidence of rock lobster recovery across the wider Hauraki Gulf following catch reductions in 2018.

41. The above studies used rock lobster populations within marine reserves as a proxy for the unfished reference level (or 'virgin biomass'). However, as outlined in Nessia et al (2024), rock lobster populations in marine reserves do not represent the *true* unfished biomass level, which is likely much higher, and therefore the above over-estimates the rock lobster biomass in unfished areas. This is because rock lobster abundance has declined over the past two decades at marine reserves in the CRA 2 fishery (along with declines in the broader fisheries) despite no-take protection.[60] This is thought due to 'edge effects' where strong fishing pressure at the reserve boundaries leaves rock lobster vulnerable to harvest during offshore movements outside the reserves.[61]

Stock assessment model operates at inappropriate spatial scale

42. A recent synthesis of scientific information by MacDiarmid (2025) suggests a finer-scale assessment approach is needed to ensure sustainability of the CRA 2 stock.

43. MacDiarmid (2025) describes how the FNZ stock assessment model is applied at the scale of the whole Quota Management Area (**QMA**) and treats all rock lobster within CRA 2 as a single unit ("unit stock assumption").[62] The model assumes there is a high degree of mixing of individual rock lobsters within the CRA 2 fishery and predicts annual recruitment, growth, fishing effort and natural mortality across the entire stock area.[63] The model then draws on this information to assess the status of the stock and how it may respond to different levels of harvest at the same scale.

[56] Hanns et al, above n 52, at 9, see figure 5.
[57] Nessia et al, above n 52, at 6.
[58] Nessia et al, above n 52, at 10, see figure 5.
[59] Nessia et al, above n 52, at 10, see figure 5 which suggests the modelled biomass levels for combined statistical areas 905 and 906 are (on average) sitting around 5%.
[60] Nessia et al, above n 52, at 9-10.
[61] La Scala-Gruenwald et al (2022) "Small marine reserves do not provide a safeguard against overfishing" *Conservation Science and Practice* 3(1565), available here.
[62] MacDiarmid, above n 5.
[63] MacDiarmid, above n 5, at 7.

44. MacDiarmid (2025) found key aspects of the unit stock assumption were violated in the CRA 2 context because (in summary):[64]

    (a) There was a high likelihood of variable rock lobster recruitment across the fishery with a strong trend of decreasing settlement from the outer to inner Hauraki Gulf. This reflected the longer distances that pueruli would have to travel to reach the inner Hauraki Gulf from the shelf edge. Consequently, rock lobster populations in the outer Gulf likely experience higher and more consistent settlement and recruitment to the fishery.
    (b) Once rock lobster have settled on suitable reef habitat they remain within that area and are unlikely to move between adjacent reefs separated by wide stretches of sediment.
    (c) Fishing patterns are not uniform across the fishery. For example, commercial effort is concentrated in specific areas near the east coast of the Coromandel, Great Barrier Island and Little Barrier Island, while recreational effort is more widely distributed.
    (d) There is considerable spatial variation in the abundance of rock lobster across the Hauraki Gulf. Surveys have indicated that rock lobster are more abundant in the outer Gulf with very low abundance reported in the inner to mid Hauraki Gulf.
    (e) Results from ecosystem based model approaches (which account for a wider range of variables than the FNZ stock assessment model) suggest different sized rock lobster populations will play different roles in reef ecosystem functioning.

45. This means continued reliance on the FNZ stock assessment model could enable ongoing and increased depletion of rock lobster in areas where recruitment is limited (e.g. the inner Hauraki Gulf), where fishing is concentrated (e.g. the outer Hauraki Gulf) or where other model assumptions are not satisfied.

46. MacDiarmid (2025) suggests an ideal approach for the CRA 2 fishery would be to focus on assessing rock lobster populations at the *reef scale* given there is limited movement of juvenile and adult rock lobster between adjacent reefs.[65] However, as an interim step, MacDiarmid makes the following recommendations:[66]

    (a) Incorporate existing fine-scale data on rock lobster populations, including fisheries-independent data, in the stock assessment approach.
    (b) Identify new ways to collect data at suitable spatial scales to fill information gaps.
    (c) Develop a stock assessment model based on the four statistical areas, with the Hauraki Gulf (statistical area 905) divided into three sub-areas representing rock lobster populations located at different settlement points (i.e. inner, mid and outer Hauraki Gulf). This would provide for six subregions where targeted management measures could be applied.

[64] MacDiarmid, above n 5, at 7-8.
[65] MacDiarmid, above n 5, at 8.
[66] Ibid.

47. **Given the above, EDS submits that the latest stock assessment findings should be viewed extremely cautiously. A finer-scale spatial assessment and management approach should be urgently adopted for CRA 2 with targeted measures deployed to support recovery of depleted rock lobster populations and kelp forest habitat.**

Effect of rock lobster fishing on shallow kelp forests within CRA 2

Implications of urchin barrens

48. Widespread shifts from kelp forests to urchin barrens have been observed across shallow reefs in northeastern New Zealand.[67] This is of considerable concern because kelp forests support much higher biodiversity, significantly contribute to fisheries productivity and support healthy ecosystem functioning when compared to urchin barrens.[68] The scientific literature describes urchin barrens as "*a collapsed kelp ecosystem*" and it is widely accepted that urchin barrens are an indicator of significant ecosystem degradation.[69] They indicate that a 'tipping point' has been passed where the ecosystem has 'tipped' into a stable depauperate state.

49. The loss of kelp forests from shallow reefs represents a significant threat to the CRA 2 stock as well as the wider ecosystem. Kelp forests are an important facilitator of rock lobster puerulus settlement onto rocky reefs after larval transition, with the physical structure and chemical cues emitted by them having a positive effect on settlement and recruitment levels.[70] Scientists have recorded higher survival rates of juvenile rock lobster (40%) in kelp habitat versus in urchin barren habitat (10%) in Tasmania and linked this to potential protective benefits of kelp forests (e.g. food and shelter).[71]

50. Urchin barrens form when urchin densities exceed a critical threshold that drives destructive overgrazing of macroalgae.[72] Once barrens have formed, they are difficult to reverse because urchins are highly adaptive and can alter feeding behaviour to survive off less nutritious biota.[73] Studies have shown it is necessary to reduce urchin numbers to very low levels (e.g. 1 kina per m^2) to enable kelp recovery.[74]

Rock lobster fishing has contributed to urchin barrens in north-eastern New Zealand

51. The best available information demonstrates that fishing of rock lobster has contributed to a trophic cascade in CRA 2, where the depletion of rock lobster (and other key predators) has

[67] Vince C Kerr, Roger V Grace and Nick T Shears (2024) "Estimating the extent of urchin barrens and kelp forest loss in northeastern Aotearoa, New Zealand" *Journal of Marine and Freshwater Research*, available here.
[68] Aaron M Eger et al (2024) "Kelp forest versus urchin barrens: a comparison of ecosystem functions and services provided by two alternative stable marine habitats" *Proc R Soc B* 291: 20241539, here.
[69] Karen Filbee-Dexter and Robert E Schiebling (2014) "Sea urchin barrens as alternative stable states of collapsed kelp ecosystems", *Mar Ecol Prog Ser*, 495:1-25, available here.
[70] Iván A Hinojosa et al (2015) "Settlement and early survival of southern rock lobster, Jasus edwardsii, under climate-driven of kelp habitats", *ICES Journal of Marine Science*, 72(Supplement 1), available here.
[71] Ibid.
[72] S D Ling et al (2015) "Global regime shift dynamics of catastrophic sea urchin overgrazing", *Phil Trans R Soc B*, available here.
[73] See review by Kelsey I Miller, Caitlin O Blain and Nick T Shears (2022) "Sea Urchin Removal as a Tool for Macroalgal Restoration: A Review on Removing "the Spiny Enemies" *Frontiers in Marine Science*, available here, at 2.
[74] See Kelsey I Miller and Nick T Shears (2023) "The efficiency and effectiveness of different sea urchin removal methods for kelp forest restoration" *Restoration Ecology* 31(1), available here.

allowed kina to flourish and overgraze kelp on shallow reefs.[75] This in turn, has driven the loss of kelp and formation of extensive kina barrens.[76]

52. The scientific evidence on the role of fishing in trophic cascades in northeastern New Zealand was accepted by the High Court in the recent CRA 1 case.[77] The Court found (footnotes omitted):[78]

> (a) rock lobsters have an important ecological role in coastal ecosystems;
> (b) their primary ecological role is as a predator in shallow water areas;
> (c) in New Zealand, rock lobsters prey upon sea urchins/kina;
> (d) kina are an important herbivore on rocky reefs in north-eastern New Zealand because they can consume entire kelp forests and other seaweeds;
> (e) generally, the ecological role of rock lobsters as a predator influences the ecological role of the species they prey on;
> (f) where there are fewer rock lobsters, there is an increased population of kina, thereby increasing the grazing activity of kina, and resulting in the loss of strands of seaweed, particularly kelp forests, in coastal areas, described as a "trophic cascade";
> (g) trophic cascade has been reported in New Zealand, and areas affected by it are described as 'kina barrens', which take decades to reverse;
> (h) loss of kelp forests is ecologically damaging for surrounding coastal systems, in fisheries production, biodiversity, and ocean carbon sequestration;
> (i) there is strong evidence that trophic cascade has significantly contributed to the presence of kina barrens in the north-east of New Zealand, within both CRA1 and CRA2;
> (j) there are other factors, such as water temperature, water depth, storm damage, sediment and kelp disease that may impact on the prevalence of kina barrens; and
> (k) there is a lack of evidence as to this relationship around the remainder of New Zealand.

53. The above findings of the High Court were informed by scientific evidence and results from peer-reviewed publications that involved monitoring of sites within the CRA 2 fishery. Therefore, these findings are relevant to the Minister's decision on sustainability measures for CRA 2.

Extent and distribution of kina barrens

54. In northeastern New Zealand, the majority of urchin barrens are dominated by *Evechinus chloroticus* (kina). Studies have found that kina barrens predominately occur on shallow reefs (<10 m) but they can extend deeper (to ~20 m) at exposed offshore islands; they are most extensive on moderately wave-exposed reefs; and they are not observed in areas with high turbidity or wave action.[79]

55. A recent study by Kerr et al (2024) used survey data from seven sites on the northeast coast (within CRA 1 and CRA 2) to estimate the spatial extent of kina barrens at the regional scale. In summary, they found existing kina barrens:[80]

---

[75] Nick T Shears and Russell C Babcock (2002) "Marine reserves demonstrate top-down control of community structure on temperate reefs" *Oecologia* 132 (131):142, available here; Nick T Shears and Russell C Babcock (2003) "Continuing trophic cascade effects after 25 years of no-take marine reserve protection" *Marine Ecological Progress Series* 246:1-16, available here.
[76] Ibid.
[77] *The Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 [*CRA 1 case*] at [69].
[78] Ibid.
[79] Nick T Shears and Russell C Babcock (2004) *Community composition and structure of shallow subtidal reefs in northeastern New Zealand* (Science for Conservation 245, Department of Conservation, October 2004), available here, at 6-7.
[80] Kerr et al, above n 67, at 12.

(a) Covered approximately 30% of shallow reefs in north-eastern New Zealand, which equates to an area of 30 km^2;
(b) Extended to depths of 12-16m at surveyed sites; and
(c) Were less common in no-take marine reserves (<2% coverage of shallow reefs) than at fished locations (7-49% coverage of shallow reefs).

56. Several studies have analysed long-term trends in the spatial extent of urchin barrens at sites within the Hauraki Gulf based using a combination of aerial imagery and ground-truthing surveys.[81] These studies have demonstrated that the spatial extent of urchin barrens has significantly increased since the 1950s at sites within CRA 2. For example:[82]

(a) Dartnell (2022) found the extent of kina barrens had increased from 0.4% to ~32% of shallow reef habitat around Little Barrier Island between 1953 and 2019. When mapping was undertaken in 2019, kina barrens were mostly found between 3 and 7m depth but extended to 14 m (and deeper) in some areas.
(b) Dartnell (2022) found urchin barren extent grew from 24% in 1979 to 49.5% in 2019 at The Noises.
(c) Lawrence (2019) found over a 40-year timeframe that urchin barrens had increased in extent at the Mokohinau Islands (CRA 2) and Mimiwhangata (CRA 1). In contrast, the extent of barrens had decreased within the no-take marine reserve at Leigh (CRA 2).

57. During recent surveys at sites around the Mercury Islands, Caiger et al (2023) observed some large areas of kina barrens (100-1000m^2) where rock lobster populations were depleted and dominated by small individuals.[83]

58. The above studies demonstrate that kina barrens are not isolated to the inner Hauraki Gulf but extend into the mid and outer Hauraki Gulf and other parts of the CRA 2 fishery.

Kelp forests are under increasing pressure from long-spined urchins

59. *Centrostephanus rodgersii* (long-spined urchins) have been described as an "*emerging threat*" for northern New Zealand.[84] Long-term monitoring data indicates that long-spined urchins have increased in abundance and spatial extent over the past two decades.[85] Balemi and Shears (2023) found long-spined urchins had formed barrens at protected and fished sites in Northland; and these barrens were generally deeper than kina barrens (i.e. > 10 m).[86] The authors suggest warmer sea temperatures may have contributed to the increases in long-spined urchin populations.

[81] See literature review by B Doheny, J P Davis and B Miller (2023) *Fishery-induced trophic cascades and sea urchin barrens in New Zealand: a review and discussion for management* (NZAEBR No. 324, FNZ, November 2023), available here at 49.
[82] Ibid.
[83] P E Caiger, O Peleg and N T Shears (2023) "Biodiversity and habitat assessment of subtidal reefs at the Mercury Islands, northeastern New Zealand" (Waikato Regional Council Technical Report 2023/25, October 2023, available here.
[84] Celia A Balemi and Nick T Shears (2023) "Emergence of the subtropical sea urchin Centrostephanus rodgersii as a threat to kelp forest ecosystems in northern New Zealand" *Frontiers in Marine Science* 10, available here, at 1.
[85] Ibid.
[86] Ibid.

60. Available information suggests long-spined urchins are more challenging to manage than kina. They were first detected on the east coast of Tasmania, in the late 1970s, and rapidly expanded range in response to warming coastal waters. By 2001, the long-spined urchin population occupied reefs across eastern Tasmania at depths ranging from 4 to 40 m, and formed extensive barrens.[87] Long-spined urchins have been observed to form discrete patches of barren habitat ("incipient barrens") which eventually expand and join with others to create extensive barrens.[88]

61. Ling and Keane (2021) monitored the response of long-spined urchin barrens to measures aimed at increasing the abundance of rock lobster (i.e. translocation and rock lobster fishery closure) over a 12-year period (2008-2020).[89] They found locations with healthy rock lobster populations have an increased ability to avoid formation of new barrens.[90] For example, the spatial extent of *incipient* barrens decreased over this period, which contrasted with observed trends in other areas where rock lobster had not been translocated.[91] However, there was no detectable effect of lobster enhancement on the coverage of existing *extensive* barrens, which persisted in a stable state without reducing in area.

62. The above demonstrates that long-spined urchins must be carefully and proactively managed to avoid formation of extensive urchin barrens in CRA 2. While FNZ has commissioned mapping of shallow (<10 m) urchin barrens in northeastern New Zealand,[92] long-spined urchin barrens pose a potentially greater threat to kelp forests across a wider depth range. **Therefore, it is essential that wider mapping is undertaken to identify incipient long-spined urchin barrens so measures can be deployed to avoid their expansion into more persistent networks.**

EDS's comments on the information basis presented by the Discussion Paper

63. The Minister is required to take into account the information principles set out in s 10 of the Act when making a decision on sustainability measures applying to the CRA 2 fishery (see **Appendix 1**). EDS considers aspects of the Discussion Paper do not present the "*best available information*" and should not be relied on without recourse to the fisheries-independent publications and additional information listed in this submission.

<u>Insufficient regard to fisheries-independent data</u>

64. The Discussion Paper includes information from FNZ stock assessments and fishery-independent studies of rock lobster populations in CRA 2.[93] However, the Discussion Paper does not treat these types of information equally. Instead, it emphasises differences between the sources of

[87] See summary in Katherine Cresswell et al (2024) "When overfishing is the sustainable option: controlling a range-extender" (published online but not yet peer-reviewed), available here, at 2.
[88] Ibid.
[89] Scott Ling and John Keane (2021) "Decadal resurvey of long-term lobster experimental sites to inform Centrostephanus control" (Final contracted report for the Abalone Industry Reinvestment Fund, AIRF Project 2019_08), available here.
[90] Ibid.
[91] Ibid at 13.
[92] Discussion Paper, above n 1, at [214.d].
[93] Discussion Paper, above n 1, at [179] to [191].

information, and ultimately disregards the fisheries-independent data, while giving preference to the FNZ stock assessments. For example, the Discussion Paper states:[94]

> caution should be exercised when extrapolating the Nessia et al. (2024) study to make inferences on rock lobster abundance outside of the areas surveyed, the wider CRA 2 fishery; especially when making direct comparisons to the 2022 CRA 2 stock assessment. Therefore, FNZ considers that at this stage, the 2024 rapid assessment update (that is informed by the 2022 CRA 2 stock assessment) constitutes the best information on the state of rock lobster populations within CRA 2.

65. EDS submits that it is not open to FNZ to cherry-pick what amounts to the "*best available information*" for the Minister to base his decision on. The Act defines this concept as:[95]

> **Best available information** means the best information that, in the particular circumstances, is available without unreasonable cost, effort or time.

66. The fishery-independent studies cited in the Discussion Paper provide important and relevant information on the abundance and status of rock lobster populations at different locations in the Hauraki Gulf. They show that rock lobster populations are critically depleted in some places and stronger management measures are required to achieve consistency with the principles and purpose of the Act. This is highly relevant to the Minister's decision. Failing to account for this information, by relying exclusively on the 2024 rapid stock assessment update, is not consistent with the information principles set out in s 10 of the Act.

67. The approach adopted by the Discussion Paper effectively disregards peer-reviewed scientific publications. In the recent *CRA 1 case*, the (then) Minister made a decision in reliance on an unpublished report and disregarded peer-reviewed scientific publications. In considering the evidence before it, the High Court found the scientific papers reflected the best available information because they had been peer-reviewed "*and found suitable for publication*".[96] This suggests the Nessia et al (2024) and Hanns et al (2022) studies, which are reported in peer-reviewed scientific publications, should be given more weight than the FNZ stock assessment reports.

68. EDS submits that information from the FNZ stock assessments and other relevant published studies collectively represent the "*best available information*" on rock lobster populations within CRA 2. The fisheries-independent surveys fill gaps in the FNZ stock assessment by producing estimates of rock lobster biomass at finer spatial scales than the model. They also provide complementary information (e.g. about sub-legal rock lobster size) which is collected during dive surveys.

69. The Discussion Paper does not identify any "*unreasonable cost, effort or time*" associated with consideration of available fisheries-independent information and overseas experience suggests it can easily be included in assessments. For example, fisheries-independent rock lobster potting data has been used to complement CPUE-dependent stock assessments in the South Australia

[94] Discussion Paper, above n 1, at [190].
[95] Fisheries Act 1996, s 2(1).
[96] *CRA 1 case* at [112].

rock lobster fishery since 2006/07.[97] The fisheries-independent data is considered alongside model outputs, as part of a quality assurance process, to check if the model results are robust.[98] EDS submits that a similar approach should be taken in relation to the CRA 2 fishery rather than delaying consideration of fisheries-independent data (as suggested by the Discussion Paper).[99]

70. As a final point on this matter, EDS emphasises that the 2024 rapid assessment results show the rock lobster biomass levels in CRA 2 are slightly lower than was projected by the 2022 and 2023 stock assessments. This trend is consistent with comments in Nessia et al (2024), which suggest an increase in CPUE following the 2018 catch reductions may have influenced fisher behaviour and resulted in the FNZ stock assessments overestimating the biomass of the CRA 2 stock.[100] If the 2022 stock assessment findings were accurate, the biomass levels of rock lobster populations would have continued to increase but they have plateaued instead.

Inaccurate, misleading and unsupported statements

71. The Discussion Paper contains various comments to support FNZ's position that the latest stock assessments represent the best available information on rock lobster populations. For example:[101]

> The higher density of rock lobster within marine reserves … cannot be attributed solely to fishing effort targeting this species. The higher abundance of rock lobster observed inside marine reserves will in part be due to rock lobster's preference for a biological environment that has developed in the absence of fishing for all species (and other human activities), which in turn attracts rock lobster and causes aggregations of localised high rock lobster abundance.

72. EDS queries the scientific basis for this statement which appears to minimise the role of fishing in contributing to observed differences in rock lobster abundance at marine reserves and fished locations. No scientific information was provided in the Discussion Paper to support the proposition that marine reserves attract rock lobsters from other areas (as opposed to supporting the survival of rock lobster that settle within those areas). This statement also appears to contradict the recent synthesis by MacDiarmid (2025), which found that rock lobsters exhibit high side fidelity and are unlikely to move between adjacent rocky reefs post-settlement.[102] **It needs to be deleted from any final advice to the Minister.**

73. The Discussion Paper also states:[103]

> The options proposed here have the potential to support kelp recovery in the long term.

[97] Linnane et al (2022) *Southern Zone Rock Lobster (Jasus Edwardsii) Fishery Stock Assessment 2020/21* (South Australian Research and Development Institute (Aquatic Sciences), Adelaide, SARDI Research Report Series No. 1156, July 2022), available here, at 8.
[98] Ibid at 39-40.
[99] Discussion Paper, above n 1, at [190].
[100] Nessia et al, above n 52, at 12.
[101] Discussion Paper, above n 1, at [189].
[102] MacDiarmid, above n 5, at 5-6.
[103] Discussion Paper, above n 1, at [152].

74. However, the Discussion Paper includes proposals to increase the TAC and TACC for rock lobster in CRA 2 by up to 9% and 25% respectively (i.e. "Option A3"). There is no scientific evidence to suggest *increases* in the rock lobster harvest would support kelp recovery in the long term.

75. Overall, EDS submits that the information basis presented by the Discussion Paper is not consistent with the information principles listed under s 10 of the Act because it:
    (a) Disregards relevant peer-reviewed scientific information;
    (b) Fails to adequately recognise uncertainty associated with the latest FNZ stock assessment results; and/or
    (c) Includes statements that are inaccurate, misleading and unsupported by peer-reviewed and published literature.

76. **EDS requests that these matters are addressed in advice provided to the Minister on the CRA 2 proposals to ensure his decision is consistent with the requirements of the Act.**

EDS's comments on specific proposals in the Discussion Paper

77. The Discussion Paper includes three proposals:

    (a) Set a new long-term biomass management target for CRA 2;
    (b) Retain or increase the catch limits for CRA 2; and
    (c) Close the inner Hauraki Gulf to the commercial and recreational harvest of rock lobster.

Proposal 1: Set a new long-term biomass management target

78. FNZ seeks feedback on a new long-term biomass management target for CRA 2. The Discussion Paper includes three options, which reflect increases of varying magnitude compared to the current management target (i.e. $\mathbf{B_R}$):

    (a) An increase of 1-2 times B_R (i.e. 335 to 670 tonnes);
    (b) An increase of 2-3 times B_R (i.e. 670 to 1005 tonnes); or
    (c) An increase greater than 3 times B_R (i.e. >1005 tonnes).

79. EDS supports the need for a higher biomass management target for the CRA 2 stock. The latest FNZ stock assessments show the current management settings are inadequate to rebuild rock lobster populations or to address the cumulative effects of fishing on shallow kelp forest habitat.

80. The Discussion Paper suggests a higher management target will result in more (and larger) rock lobsters in the CRA 2 fishery over time.[104] EDS generally supports this outcome because:

    (a) Large rock lobster have greater reproductive potential;[105]

[104] Discussion Paper, above n 1, at 8-9.
[105] See A B MacDiarmid, D Freeman and S Kelly (2013) "Rock Lobster biology and ecology: contributions to understanding through the Leigh Marine Laboratory 1962-2012", *New Zealand Journal of Marine and Freshwater Research*, 47:3, 313-333, available here, at 319.

(b) Large rock lobster (with a carapace length > 130 mm) fulfil an important predatory role in shallow kelp habitats because they have an ability to consume large numbers of kina of all sizes and particularly large kina;[106]

(c) Large rock lobster (spiny and packhorse) are the only known predator of long-spined urchins. This means large rock lobsters may play a critical role in regulating long-spined urchin numbers and preventing the expansion of urchin barrens into deeper kelp habitat;[107]

(d) Larger urchins eat more kelp than smaller urchins. Therefore, large predators play an important role in regulating the most destructive kina and preventing barrens.[108]

81. FNZ modelling suggests an increase of 3.5 times B_R would result in (at least) 2.9 times more large male and 5.9 times more female rock lobsters relative to the current biomass of CRA 2.[109] An increase of 2.5 times B_R would result in at least 2.3 times more large male and 3.2 times more large female rock lobsters. **Therefore, out of the options included in the Discussion Paper, EDS prefers an increase of *at least* 3.5 times B_R as it will provide for the greatest increase in large rock lobster biomass over time.**

82. However, EDS submits that a higher biomass target of at least 3.5 times B_R is not sufficiently cautious (on its own) to ensure sustainability of rock lobster populations in CRA 2 or to address urchin barrens as required by the Act. This is because:

(a) The Discussion Paper indicates that the new target will be used to inform the development of CPUE-based management procedures.[110] As addressed above, past reliance on management procedures based on CPUE resulted in rapid depletion of rock lobster from shallow reefs in CRA 2. EDS considers the risk associated with CPUE-based management procedures is elevated, in the context of recent declines in vessels operating within CRA 2, because changes in fisher/vessel behaviour are known to affect their reliability.

(b) The Discussion Paper notes an increase of 3.5 times B_R would be consistent with the level of estimated rock lobster biomass in CRA 2 in the late 1970s / early 1980s.[111] However, urchin barrens were already present in the Hauraki Gulf by the 1960s.[112] This suggests efforts to rebuild the CRA 2 stock to higher levels around 3.5 times B_R will not be sufficient to address cumulative adverse effects of rock lobster harvest on shallow kelp habitats.

(c) Fisheries-independent studies of rock lobster populations in marine reserves suggest total biomass levels were about 12.9 times higher in the Hauraki Gulf (statistical area

[106] N L Andrew and A B MacDiarmid (1991) "Interrelations between sea urchins and spiny lobsters in northeastern New Zealand". *Marine Ecology Progress Series*, 70, 211-222, available here, at 216.
[107] Balemi and Shears (2023), above n 84, at 9.
[108] Christine F Stevenson, Kyle W Demes and Anne K Salomon (2016) "Accounting for size-specific predation improves our ability to predict the strength of a trophic cascade" *Ecology and Evolution*, available here.
[109] Discussion Paper, above n 1, at 9.
[110] Discussion Paper, above n 1, at 2 (see footnote #10), [26] and [185].
[111] Discussion Paper, above n 1, at [17].
[112] Ibid.

905) and about 42.5 times higher in the Eastern Coromandel (statistical area 906) compared to fished areas.[113] Studies tracking long-term ecosystem trends in marine reserves in CRA 2 have shown that urchin barrens are less prevalent in these marine reserves compared to fished areas.[114] This suggests a significantly higher biomass management target (of at least *10 times*) is required to restore the functional role of rock lobster on shallow reef habitats in CRA 2.

(d) There is strong evidence that a finer-scale spatial management approach is needed to ensure sustainability of rock lobster populations in CRA 2. Applying a biomass management target at the scale of the whole fishery is inconsistent with the best available information as summarised in MacDiarmid (2025) and may worsen outcomes for rock lobster in the inner to mid Hauraki Gulf.[115]

83. **For completeness, EDS confirms that it does not support an increase of 1-2 times B_R (i.e. the lowest magnitude of increase considered in the Discussion Paper).** The 2024 rapid update assessment estimated that the vulnerable biomass of rock lobster was currently sitting around 1.54 times B_R. Therefore, setting the target anywhere below 1.5 times B_R would reflect a lower level than the estimated vulnerable biomass of rock lobster within CRA 2 as of 2024. In other words, it would provide for a decrease in biomass over time. A slight increase (i.e. to 2 times B_R) is inadequate in the context of widespread urchin barrens and critically depleted rock lobster populations.

Proposal 2: Retain or increase catch limits

84. FNZ is proposing to review the catch settings for CRA 2 for the 2025/26 fishing year. The Discussion Paper includes three options:

(a) Retain the status quo with the TAC unchanged at 173 tonnes and the TACC at 80 tonnes (**Option A1**);
(b) Increase the TAC to 174.5 tonnes (+1%), the TACC to 90 tonnes (+12.5%) and decrease the "other mortality" allowance (from 42.5 to 34 tonnes) (**Option A2**).
(c) Increase the TAC to 188.5 tonnes (+9%), the TACC to 100 tonnes (+25%) and decrease the "other mortality" allowance (from 42.5 to 34 tonnes) (**Option A3**).

85. EDS strongly opposes any increase in catch allowances for CRA 2 because:

(a) Available information indicates that rock lobster populations are critically depleted in parts of the Hauraki Gulf and the biomass of the wider CRA 2 fishery is substantially below historic levels. In this context, increasing the catch limits for the CRA 2 fishery is inconsistent with the environmental principles set out in s 9 and the purpose of the Act (see **Appendix 1**).

[113] Nessia et al, above n 52, at 6.
[114] Shears and Babcock (2003) above n 75.
[115] MacDiarmid, above n 5, at 7.

(b) The options presented in the Discussion Paper were modelled using an interim biomass management target of 2 times B_R. EDS considers this reference level is not sufficiently cautious to ensure sustainability of the CRA 2 stock or to address cumulative effects of fishing on shallow kelp habitats. This is because it does not provide for any substantive increase in rock lobster biomass compared to the current biomass levels (which are about 1.5 times B_R).

(c) Increasing the TAC or TACC for CRA 2 is inconsistent with s 13(2) of the Act, which requires the Minister to set a TAC having regard to "*the interdependence of stocks*" (see **Appendix 1**). Increased catch limits would provide for more rock lobster to be harvested in areas susceptible to urchin barrens and/or where rock lobster populations are already critically depleted. This fails to give adequate consideration to the role of rock lobster as a key predator of kina on shallow reefs in CRA 2.

(d) The Discussion Paper indicates that a full stock assessment is planned for CRA 2 in 2025.[116] Moreover, it acknowledges that *reductions* in the TACC and recreational catch may be required if a higher long-term biomass management target (>3 times B_R) is adopted.[117] EDS considers it is premature to consider increasing the TAC and TACC in advance of a full stock assessment and additional measures being implemented (see below). This approach risks leading to worse outcomes, and requiring greater future reductions in harvest, by enabling further overfishing in areas with depleted rock lobster populations.

(e) Increasing the TAC or TACC could lead to perverse outcomes if spatial closures (or other measures) are implemented as a result of the FNZ consultation process. For instance, FNZ is proposing to close the inner Hauraki Gulf to the commercial and recreational harvest of rock lobster (addressed further below). The Discussion Paper notes an increase in the TAC and TACC, coupled with the proposed spatial closure, could lead to displaced effort and higher competition in other parts of the CRA 2 fishery. EDS finds this deeply concerning because available information suggests urchin barrens are already prevalent in the outer Hauraki Gulf (e.g. Mokohinau Islands and sites near the Mercury Islands). Increasing harvest effort in these areas will worsen cumulative effects of fishing which is inconsistent with the requirements of the Act.

(f) Increasing the TAC or TACC ignores available information showing that rock lobster populations have been heavily depleted in areas of CRA 2. A *reduction* in the TAC is needed to support rapid recovery of these populations.

86. The Discussion Paper provides no rational basis for increasing the TAC and TACC. Indeed, increasing the TAC and TACC appears to contradict other measures in the Discussion Paper, which identify the need to manage the CRA 2 stock to higher biomass levels and to significantly reduce fishing pressure in areas that are susceptible to urchin barrens.

[116] Discussion Paper, above n 1, at [185].
[117] Discussion Paper, above n 1, at 10.

87. **Of the options provided in the Discussion Paper, EDS prefers Option A1 (i.e. retain the status quo) because it is the most conservative of those being considered.** However, EDS finds it concerning that the Discussion Paper does not provide any analysis of potential reductions in the TAC or TACC. This is particularly surprising, as it appears to acknowledge that these measures will be necessary to achieve better outcomes for rock lobster populations in CRA 2. **EDS requests that a wider range of catch settings (including significant reductions in the TAC / TACC) are provided to the Minister for consideration as part of the review of sustainability measures for CRA 2.**

Proposal 3: Close the inner Hauraki Gulf to harvest of rock lobster

88. FNZ seeks feedback on proposed spatial measures to address urchin barrens in the Hauraki Gulf.[118] The Discussion Paper includes two options:[119]

    (a) Retain the status quo (i.e. no additional spatial measures would be implemented) (**Option B1**).
    (b) Close the inner Hauraki Gulf to commercial and recreational harvest of rock lobster with a review after 10-years and ongoing ecosystem monitoring (**Option B2**). The proposed closure would apply to coastal waters to the south of a straight line from the Leigh Marine Reserve to Port Jackson Bay.[120]

89. **EDS supports an urgent closure of the inner Hauraki Gulf as a minimum step towards more effective long-term management of the CRA 2 stock.** Available information indicates that rock lobsters have been removed from most shallow reefs in the inner Hauraki Gulf and this has been accompanied by an expansion of kina barrens. Moreover, the Discussion Paper indicates that commercial and recreational fishers have already shifted away from the area because they are unable to find legally harvestable lobster.[121] Given rock lobster populations are critically depleted, and recruitment levels in the inner Gulf are low, it is important that the proposed closure is implemented without delay to support recovery of the stock.

90. The Discussion Paper fails to include any spatial measures for the wider CRA 2 fishery. This is concerning because available information shows rock lobster populations have been heavily depleted in other places, including the mid to outer Hauraki Gulf. For example:

    (a) In recent years, surveys of rock lobster populations on shallow reefs (<20m) at Great Barrier Island and the Mercury Islands have recorded few legally harvestable lobsters.[122] Only one rock lobster was observed across 24 transects spanning 1.2ha of reef area at the Mokohīnau Islands (while this area is set to become a High Protection Area under the Hauraki Gulf / Tīkapa Moana Marine Protection Bill, it is indicative of heavy fishing effort across the outer Gulf).[123]

[118] Discussion Paper, above n 1, at [49].
[119] Discussion Paper, above n 1, at [48]-[56].
[120] Discussion Paper, above n 1, at 5 (Figure 2).
[121] Discussion Paper, above n 1, at 16.
[122] Nessia et al, above n 52, at 6; Caiger et al, above n 83, at 7.
[123] Nessia et al, above n 52, at 6.

(b) As previously indicated, mapping studies have shown that kina barrens are prevalent across shallow reefs in the wider CRA 2 fishery.[124]
(c) Populations of long-spined urchins are expanding across exposed locations within the Hauraki Gulf and are likely to increase in abundance in response to warming waters. This creates a significant risk for deeper kelp forest habitat in CRA 2 because long-spined urchin barrens can form at a wide depth range and are unlikely to naturally reverse once they have become extensive.

91. **Given the above, EDS submits that additional spatial measures are necessary to rebuild depleted rock lobster populations and support recovery of kelp forests in areas susceptible to urchin barrens.**

92. EDS supports the need for stronger spatial measures applying to the wider CRA 2 fishery. Areas with extensive urchin barrens should be prioritised and proactive tools should be enabled in these areas (e.g. kina removal and/or rock lobster translocation) to support effective recovery of rock lobster populations and kelp forests.

93. **As a minimum, EDS requests that the following additional spatial measures be included in advice to the Minister to inform his decision:**

(a) Urchin barren mapping should be undertaken at a wider depth range relevant to kina and long-spined urchins. This would expand on the results of the urchin mapping exercise being undertaken by FNZ at shallow reefs within the 10 m depth limit.
(b) Results of initial urchin barren mapping should be used to inform development of area-based measures such as closures to rock lobster harvest or fully no-take protection.
(c) Clear thresholds should be set to guide long-term ecosystem management. For example, Vince Kerr (marine scientist) has previously recommended a two-tier management response, where:[125]
    (i) Level 1: if urchin barrens cover 5-10% of rocky reef habitat then careful monitoring of predator populations is needed and fishing restrictions should be considered.
    (ii) Level 2: if urchin barrens cover >10% of rocky reef habitat and are accompanied by low fish diversity and predator abundance then long-term no-take protection is required to restore ecosystem balance. Areas could be reviewed for reopening only if urchin barren extent is reduced below 10% for a specified period that indicates the 'health' of the ecosystem has stabilised.
(d) The scale of management would need to be carefully considered for the purposes of determining when thresholds had been exceeded (e.g. relative barrens coverage at a scale that has ecological relevance).
(e) Closed areas should be monitored against clear criteria such as urchin barren or kelp forest extent and the abundance and distribution of key predator populations should be tracked inside and outside of these areas to enable relative trends to be assessed.

[124] Doheny et al, above n 81, at 49.
[125] Statement of evidence of Vince Kerr on behalf of Te Uru o Hikihiki Hapu, dated 25 March 2021, available here.

94. **For the reasons addressed above, EDS does not support retaining the status quo ("Option B1").** There is strong evidence that overfishing has resulted in localised depletion of rock lobster and this has resulted in persistent urchin barrens across shallow reefs in the CRA 2 fishery. In making decisions to set sustainability measures, the Minister must "*avoid, remedy or mitigate*" the cumulative effects of rock lobster harvest on reef ecosystems. Taking no action to rebuild the stock or address urchin barrens is not consistent with the principles and purpose of the Act (Appendix 1). Therefore, **EDS requests that Option B1 be removed from ministerial consideration.**

Additional measures

95. The Discussion Paper identifies a suite of other potential measures for *future* consideration:[126]

    (a) QMA subdivision to provide for a finer-scale management approach;
    (b) Additional spatial closures to harvest of rock lobster;
    (c) Additional no-take areas;
    (d) Seasonal closures;
    (e) Vessel and accumulation limits for recreational vessels;
    (f) Increasing the minimum legal size and/or introducing a maximum legal size limit for rock lobster in CRA 2; and
    (g) Reviewing the management settings for packhorse rock lobster.

96. The Discussion Paper indicates that further work is required to understand the effectiveness of such measures before they can be developed for CRA 2.[127] EDS disagrees for the reasons already addressed. Available information demonstrates that additional measures are necessary to address cumulative effects of fishing on shallow reefs in CRA 2. **EDS requests that the following additional measures are included in the scope of options presented to the Minister for consideration as part of this sustainability review**:

    (a) A finer scale spatial stock assessment and ecosystem based management approach for CRA 2 based on the recommendations outlined in MacDiarmid (2025).[128] This would involve subdividing the stock into 6 subregions and incorporating fisheries-independent data into the assessment process. Targeted measures, including ecosystem-based biomass management targets and appropriate catch limits, could then be applied to each subregion rather than the fishery as a whole.
    (b) A maximum legal size limit to protect large rock lobster with the highest reproductive capacity and most important predatory influence.
    (c) Strong spatial measures aimed at rebuilding depleted rock lobster populations and restoring kelp forests in areas susceptible to urchin barrens throughout the CRA 2 fishery. In these areas, deployment of proactive restoration tools should be enabled, such as urchin removal and/or rock lobster translocation, with appropriate conditions.
    (d) An ecosystem monitoring plan to track the status of kelp forest habitat over time.

[126] Discussion Paper, above n 1, at [61].
[127] Discussion Paper, above n 1, at [60] and [62].
[128] MacDiarmid, above n 5.

(e) Additional protections for packhorse rock lobster that reflect the management settings for spiny rock lobster. For instance, the daily bag limit for packhorse lobster should be reduced from 6 to 3, and packhorse lobster should be included in the spatial measures deployed for spiny rock lobster in CRA 2.
(f) Mandatory reporting of recreational catch of rock lobster (spiny and packhorse).
(g) Mandatory recreational catch reporting to improve understanding of fishing pressures.

Conclusion

97. The best available information demonstrates that urgent action is required to rebuild sustainable levels of rock lobster and promote the maintenance and recovery of healthy kelp forests in the CRA 2 fishery.

98. Out of the options provided in the Discussion Paper, EDS prefers:

(a) An increased long-term biomass management target of *at least* 3.5 times B_R.
(b) Retention of the current catch settings (i.e. "Option A1").
(c) The proposed closure of the inner Hauraki Gulf to commercial and recreational harvest of rock lobster (i.e. "Option B2").

99. None of these measures are sufficient, either on their own or in combination, to achieve consistency with the principles and purpose of the Act.

100. Additional measures are necessary to ensure sustainability of the CRA 2 stock and associated kelp forest habitat, including catch reductions, strong spatial measures targeting existing urchin barrens and maximum size limits for spiny and packhorse rock lobster.

APPENDIX 1: LEGAL FRAMEWORK

101. The Minister must comply with various requirements when considering the setting of sustainability measures under the Act.

Sustainability measures (s 11)

102. A "*sustainability measure*" is any measure set "*for the purpose of ensuring sustainability*".[129] A range of options are available to the Minister for the CRA 2 fishery, including area closures, size limits and adjusting annual catch limits.[130]

103. The Minister must make decisions on sustainability measures:[131]

    (a) In a manner that is consistent with the purpose of the Act in s 8;
    (b) Taking into account the environmental principles in s 9;
    (c) Taking into account the information principles set out in s 10;
    (d) After taking into account any effects of fishing on any stock and the aquatic environment in accordance with s 11; and
    (e) Having regard to the interdependence of stocks in accordance with s 13(2).

Purpose (s 8)

104. The purpose of the Act is "*to provide for the utilisation of fisheries resources while ensuring sustainability*".[132] Section 8(2) defines key aspects of the purpose as follows:

> **ensuring sustainability** means—
> (a) maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and
> (b) avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment
>
> **utilisation** means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being

105. In *New Zealand Recreational Fishing Council Inc v Sanford Ltd*, the majority of the Supreme Court provided the following guidance on the purpose of the Act (footnotes omitted):[133]

> Section 8(1) … expresses a single statutory purpose by reference to the two competing social policies reflected in the Act. Those competing policies are "utilisation of fisheries" and "ensuring sustainability". The meaning of each term in the Act is defined in s 8(2). The statutory purpose is that both policies are to be accommodated as far as is practicable in the administration of fisheries under the quota management system. But recognising the inherent unlikelihood of those making key regulatory decisions under the Act being able to accommodate both policies in full, s 8(1) requires that in the attribution of due weight to each policy [the weight] given to utilisation must not be such as to jeopardise sustainability. Fisheries are to be utilised, but sustainability is to be ensured.

106. This guidance was recently affirmed by the Supreme Court in *Seafood New Zealand Ltd v Royal Forest & Bird Protection Society of New Zealand Inc* [2024] NZSC 111 (the *Tarakihi case*).[134]

---

[129] Fisheries Act 1996, s 2(1).
[130] Fisheries Act 1996, s 11(3).
[131] Fisheries Act 1996, s 11(1).
[132] Fisheries Act 1996, s 8(1).
[133] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54 at [39].
[134] *Seafood New Zealand Ltd v Royal Forest & Bird Protection Society of New Zealand Inc* [2024] NZSC 111 [*Tarakihi case*] at [15].

107. The purpose of the Act was considered by the High Court in *Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 (the *CRA 1 case*) which involved a challenge to the Minister's decision on catch limits for the Northland rock lobster fishery (**CRA 1**). In that case, Churchman J described the purpose as creating an "'*environmental bottom line' … complemented by a scheme that favours precaution*".[135]

108. EDS submits that this means any sustainability measures must rebuild depleted rock lobster populations within CRA 2 to sustainable levels and avoid, remedy or mitigate adverse effects of fishing (e.g. urchin barrens) to achieve consistency with the purpose of the Act.

Environmental principles (s 9)

109. Section 9 of the Act sets out environmental principles which the Minister must "*take into account*". The two most relevant to this review of measures for the CRA 2 fishery are:

    (a) "*biological diversity of the aquatic environment should be maintained*" (s9(b)); and
    (b) "*habitat of particular significance for fisheries management should be protected*" (s9(c)).

<u>Biodiversity should be maintained</u>

110. *"Biological diversity"* is defined in s 2(1) as *"the variability among living organisms, including diversity within species, between species, and of ecosystems".*

111. The word "*maintained*" is not defined by the Act and no commentary on its meaning in the fisheries context was identified in case-law. However, the online Oxford English Dictionary defines "*maintain*" as follows:[136]

> To keep up, preserve, cause to continue in being (a state of things, a condition, an activity, etc.); to keep vigorous, effective, or unimpaired; to guard from loss or deterioration.

112. The approach adopted by the Discussion Paper to assessing whether s 9(b) has been achieved appears to use rock lobster abundance as a proxy for increased biodiversity. For example, the Discussion Paper states:

    (a) In relation to proposals to increase the catch limits (i.e. TAC and TACC): "*A greater TAC increase would provide for more utilisation of the fishery, that in turn would likely constrain rock lobster abundance, which in turn would reduce the likelihood that rock lobster can fulfil their ecological role. This would likely result in a lower amount of biological diversity than what would be expected if a smaller / no TAC increase were implemented*".[137]
    (b) In relation to proposals to set a higher biomass target "*in the longer term, there is a higher probability of increasing rock lobster abundance, which in turn increases the likelihood that rock lobster can fulfil their ecological role. This would likely result in higher biological diversity within CRA 2 than what would be expected if the stock were managed to a lower biomass level*".[138]

[135] *The Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 at [108].
[136] Oxford English Disctionary (online edition) available here.
[137] Discussion Paper, above n 1, at [148] – bullet point one.
[138] Discussion Paper, above n 1, at [148] – bullet point two.

113. Kelp forests support higher levels of biodiversity than urchin barrens. Therefore, to "*maintain biodiversity*" it is necessary to avoid new urchin barrens in CRA 2 as well as address past effects of fishing activity on them (ie reverse existing urchin barrens) under section 8(b), noting that the definition of "effects" in section 2 includes past effects.

Habitat of particular significance should be protected

114. The Discussion Paper identifies eight potential habitats of particular significance for fisheries management (**HoPs**) within CRA 2.[139] However, no HoPs for rock lobster have been identified.

115. EDS finds this concerning because kelp forests are likely to be an important habitat for rock lobster in CRA 2. For example, a recent synthesis by MacDiarmid (2025) states:[140]

> One of the most striking results of recent underwater surveys of [rock lobster] populations across the HGMP is the higher apparent abundance of sublegal size individuals within no-take marine reserves than in the fished areas (Nessia et al, 2024). This could be a result of higher puerulus settlement and/or juvenile survival in areas of higher kelp abundance, typical of these marine reserves (Edgar et al., 2013). In field experiments in Tasmania, Australia, Hinojosa et al. (2015) found that artificial crevice collectors with attached natural kelp had higher catches of pueruli than those with artificial kelp or controls with neither, which suggested enhanced settlement through chemical attraction.

116. This indicates that kelp forests are HoPs under section 9(2) of the Act, and therefore need to be identified as such in advice to the Minister, along with measures to ensure their protection. The association between rock lobster and kelp is generally acknowledged by the Discussion Paper,:[141]

> We recognise the likely importance of kelp-dominated habitat in supporting settlement, recruitment, and productivity of a number of species, including rock lobster.

Information principles (s 10)

117. The Minister must take into account the information principles in s 10 of the Act, which are:

> (a) decisions should be based on the best available information:
> (b) decision makers should consider any uncertainty in the information available in any case:
> (c) decision makers should be cautious when information is uncertain, unreliable, or inadequate:
> (d) the absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

118. The terms *"information"* and *"best available information"* are defined as: [142]

> **Information** includes –
> (a) scientific, customary Maori, social or economic information; and
> (b) any analysis of any such information
>
> **Best available information** means the best information that, in the particular circumstances, is available without unreasonable cost, effort or time.

[139] Discussion Paper, above n 1, at [150].
[140] MacDiarmid, above n 5, at 6.
[141] Discussion Paper, above n 1, at [152].
[142] Fisheries Act 1996, s 2(1).

119. As outlined in the main body of EDS's submission, it is important that all relevant information, not just the FNZ stock assessment, contributes to the advice provided to the Minister.

Catch settings (s 13)

120. Section 13(1) of the Act requires the Minister to set a Total Allowable Catch (**TAC**) (i.e. an annual harvest allowance) for the CRA 2 fishery. Under s 13(2)(a), the Minister must set a TAC that maintains the stock at or above a level that can produce the maximum sustainable yield (**MSY**), having regard to "*the interdependence of stocks*".

121. The Act defines MSY as:[143]

> The greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock

122. The Act does not provide a definition for "*the interdependence of stocks*". However, the Supreme Court recently observed that the concept (emphasis added in bold): [144]

> concerns the effects of fishing on associated stocks, including bycatch harvested with the target species, **and the role of the target species in the food chain**.

123. The "*interdependence of stocks*" is a relevant consideration when the Minister sets a TAC for stocks that are estimated to be above the MSY under s 13(2)(c) of the Act.[145] The concept is particularly important in relation to the CRA 2 fishery because rock lobster fulfil an important role in regulating, through predation, urchin populations and associated urchin barrens on shallow rocky reefs in north-eastern New Zealand.

124. Under s 13(3), the Minister must have regard to social, cultural and economic factors (to the extent he considers relevant) when considering the "*way*" and "*rate*" at which a stock is moved towards or above a level that can produce MSY. In the *Tarakihi case*, the Supreme Court confirmed that these factors do not detract from the primary objective of sustainability, which underpins s 13 of the Act.[146]

125. None of the proposed catch settings proposed in the Discussion Paper adequately account for the role of rock lobster in shallow reef systems. The proposed inner closure of the Hauraki Gulf fishery does not resolve the deficiencies related to proposed increases in the TAC and TACC.

[143] Fisheries Act 1996, s 2(1).
[144] *Seafood New Zealand Ltd v Royal Forest & Bird Protection Society of New Zealand Inc* [2024] NZSC 111 [*Tarakihi case*] at [23].
[145] Fisheries Act 1996, s 13(2)(c).
[146] *Tarakihi case* at [90].

APPENDIX 2: SUMMARY OF EDS'S RESPONSES TO QUESTIONS IN DISCUSSION PAPER

FNZ Discussion Points[147]		**EDS Response**
1	*Do you support using a higher biomass management target for long-term management of the CRA 2 stock? Why?*	EDS supports a higher biomass management target because: (a) It is likely to result in more (and larger) rock lobsters in the CRA 2 fishery. (b) It is likely to rebuild the stock at a faster rate than the current target. (c) More (and larger) rock lobsters are necessary to support wider ecosystem functioning.
2	*What do you think of the long-term biomass management targets discussed? Do you support a particular biomass target?*	EDS supports a target of <u>at least</u> 3.5 times B_R. As addressed in the main body of the submission, EDS has concerns about the broad scale of the stock assessment model used to identify biomass reference levels for CRA 2. This is because the stock is not distributed evenly across the QMA. Higher biomass management targets (e.g. <u>10 times</u> B_R) may be necessary in areas where rock lobster populations are critically depleted.
3	*Do you support the 2 x B_R preliminary target? Why?*	EDS does not support the 2 times B_R preliminary target for the reasons under '2' and as addressed in the main body of the submission.
4	*Which option do you support for revising the TAC and allowances? Why?*	Of the options included in the Discussion Paper, EDS prefers Option A1 (i.e. retain the status quo) as it is the most precautionary. EDS requests additional options that provide for significant reductions in the TAC and other catch allowances.
5	*Do you support the proposed spatial closure? Why?*	EDS supports the proposed closure of the inner Hauraki Gulf (Option B2) <u>as a minimum step</u>. The closure is necessary to rebuild critically depleted rock lobster populations and/or address cumulative effects of fishing on reef ecosystems. EDS considers additional measures are necessary. See below under '8'.
6	*Do you support the boundaries that FNZ has suggested for the proposed inner Hauraki Gulf closure? Why?*	The alignment of the proposed closure area with existing marine reserves needs to be carefully designed to avoid 'edge effects' or effects from displaced fishing. EDS considers a larger buffer area should be applied around the existing marine reserve Cape Rodney-Okakari Point Marine Reserve (Goat Island). Particularly if the proposed closure is implemented prior to the Hauraki Gulf / Tīkapa Moana Marine Protection

[147] Discussion Paper, above n 1, at [97].

		Bill being passed into law (which will extend the existing marine reserve into adjacent waters). Additional spatial measures are necessary to address cumulative effects of rock lobster harvest in the wider CRA 2 fishery. See below under '8'.
7	*If you do not support any of the options listed, what alternative(s) should be considered? Why?*	EDS considers additional measures are necessary. See below under '8'.
8	*Do you think any additional measures should be considered?*	EDS seeks a suite of additional measures to provide for effective long-term management of the stock. These include (as a minimum): (a) Reduction in catch limits for the 2025/26 fishing year. (b) A finer scale spatial stock assessment and ecosystem based management approach. (c) A maximum legal size limit for male and female rock lobster. (d) Strong spatial measures aimed at rebuilding depleted rock lobster populations and restoring kelp forests in areas susceptible to urchin barrens throughout the CRA 2 fishery. (e) An ecosystem monitoring plan to track the status of kelp forest habitat over time (including in and outside of closure areas). (f) Additional protections for packhorse rock lobster. (g) Mandatory reporting of recreational rock lobster catch.
9	*Are the allowances for customary Māori, recreational, and other sources of mortality appropriate? Why?*	EDS does not support any increases to the TAC or other catch allowances and queries the rationale for reducing the 'other sources of mortality' limit. EDS requests the inclusion of additional options that provide for significant *reductions* in the TAC and other catch allowances. Reductions in the TAC are necessary to support rapid recovery of depleted rock lobster populations and kelp forests.
10	*Do you think these options adequately provide for social, economic, and cultural wellbeing?*	Overall, EDS considers the options in the Discussion Paper adopt a short-term focus that does not adequately provide for social, economic and cultural wellbeing. These outcomes can only be achieved if rock lobster populations are restored to sustainable levels and the health of associated kelp forests restored.

11	*What are your aspirations for the CRA 2 fishery? Do you think there is another way to realise this outside of this discussion document?*	EDS seeks a productive CRA 2 fishery with restored and healthy kelp ecosystems. This will require active kelp restoration (and sea urchin removal) alongside regulatory measures. This needs to be explored, and supported with adequate investment in scientific research and monitoring, alongside progressing necessary regulatory measures.
12	*Do you have any concerns about potential impacts of the proposed options on the aquatic environment?*	EDS finds the approach adopted by the Discussion Paper concerning because the proposed options are not sufficient to address urchin barrens. They will continue and potentially worsen negative impacts of fishing on the aquatic environment.
13	*Is there any relevant literature or research you are aware of that you think should have been referred to in this paper?*	Relevant literature omitted from the Discussion Paper includes: (a) A recent synthesis by Alison MacDiarmid (2025) entitled "*What is an appropriate spatial scale for ecosystem based fishery management of kōura, spiny lobster Jasus edwardsii, in the Hauraki Gulf Marine Park, Aotearoa New Zealand?*"[148] is highly relevant to the Minister's decision on sustainability measures applying to the CRA 2 fishery. (b) The report by Caiger et al (2023)[149] identified large areas of kina barrens near surveyed locations at the Mercury Islands in the outer Hauraki Gulf. This information has not been incorporated into the Discussion Paper or material cited therein. As addressed in the main body of the submission, EDS has concerns about the information basis presented in the Discussion Paper.
14	*Do you have any further information to share on the location of urchin barrens in CRA 2?*	See above under '13(b)'.
15	*Are there any other fishery management measures that you feel could be appropriate in CRA 2? Why?*	See above under discussion point '8'.

[148] MacDiarmid, above n 5.
[149] Caiger et al, above n 83.