Fisheries New Zealand
Tini a Tangaroa

Enabling the removal of sea urchins for the management or prevention of urchin barrens

Fisheries New Zealand Decision Paper

ISBN No: 978-1-991285-91-1 (online)

June 2024

Te Kāwanatanga o Aotearoa
New Zealand Government

This publication is available on the Ministry for Primary Industries website at:
http://www.mpi.govt.nz/news-and-resources/publications/

Contents

1 Purpose

1. This decision document provides you with advice and feedback from public consultation on whether to approve the establishment of a proposed new purpose for issuing special permits under s 97(1)(c) of the Fisheries Act 1996 (**the Act**). The proposed purpose would allow special permits to be issued in support of managing urchin barren areas.

2. Urchin barrens, also known as kina barrens, are a significant concern across New Zealand, especially north-eastern New Zealand, where they are widespread across coastal rocky reefs. These barren areas occur when urchins reach high densities and consume virtually all the vegetation (kelp and other macroalgae) on a reef, leading to a loss of habitat and biodiversity. The widespread occurrence of barrens at large spatial scales is generally attributed to the removal of sea urchin predators through fishing activities, noting a wide range of factors also likely play a part. Consequently, the marine ecosystem experiences reduced biodiversity and productivity, posing challenges for the overall health and resilience of coastal environments. Addressing urchin barrens, and their causes, is important for restoring and maintaining the ecological balance of these marine habitats.

3. Fisheries New Zealand (**FNZ**) is progressing an integrated set of measures to address widespread barren areas, recognising the need for urgent action. This approach includes various initiatives aimed at restoring kelp forests and mitigating the impacts of urchin barrens, with the introduction of a new special permit purpose being a key tool in these efforts.

4. This paper refers to the New Zealand sea urchin (*Evechinus chloroticus;* hereafter referred to as kina) and the long-spined sea urchin (*Centrostephanus rodgersii;* hereafter referred to as *Centrostephanus*). Where the term 'sea urchin' is used, it refers to both kina and *Centrostephanus* collectively.

2 Background

2.1 Special permits

5. Special permits are a regulatory tool under section 97 of the Act that can authorise the take of fish, aquatic life, or seaweed when that activity does not fall under customary, commercial, or recreational fishing frameworks.

6. Section 97(1)(a) and (b) of the Act authorises the Director-General of the Ministry for Primary Industries (MPI) to issue a special permit for the purposes of:

   - education;
   - investigative research;
   - management or eradication of unwanted aquatic life[1];
   - the carrying out of trials and experiments with fishing vessels or fishing gear; or
   - sport or recreation in the case of any disabled person.

7. The proposed purpose of habitat restoration and/or prevention of urchin barrens, is not captured under one of the currently prescribed special permit purposes. When an application for a special permit does not fit into one of the purposes specified under sections 97(1)(a) and (b), the Minister may approve a new purpose under section 97(1)(c) of the Act.

[1] The Fisheries Act 1996 defines 'unwanted aquatic life' as any species listed in Schedule 3 of the Freshwater Fisheries Regulations 1983 or any species of fish, aquatic life, or seaweed that is determined by a Chief Technical officer under the Biosecurity Act 1993 to be an unwanted organism. These species can be found in the Official New Zealand Pest Register.

2.2 Sea urchins

8. Kina are commonly encountered in rocky reefs across north-eastern New Zealand, while *Centrostephanus* are more common on offshore reefs, particularly in the Northland region. Both play significant roles in marine ecosystems.

2.2.1 Kina

9. The New Zealand sea urchin (*Evechinus chloroticus*) is commonly known as kina (Figure 1). They are a shared species in that they are highly valued by Māori, recreational fishers, and the commercial fishing industry. Kina are also a key species in the ecological functioning of coastal marine ecosystems. The kina fishery has been managed under the Quota Management System (**QMS**) since 2003.

Figure 1: The New Zealand sea urchin (*Evechinus chloroticus*, kina)

10. Kina are herbivorous and are found throughout New Zealand and the sub-Antarctic Islands. They are found on coastal rocky reefs from shallow subtidal waters to depths of at least 60 metres.[2]

11. Movement of kina is minimal, and they cannot swim. However, they are able to move across hard surfaces using appendages called 'tube feet' that have suckers at the tip. Kina have an annual reproductive cycle which culminates in multiple spawning events across mid and late summer.[3] Size at maturity appears to vary between locations and may be as small as 30 mm test diameter (TD) and as large as 75 mm TD.[4] The rate of larval settlement is likely to vary between years and appears to differ among locations and habitats. Recruitment of kina is also known to be impacted by environmental factors. For example, larval abnormalities have also been correlated with increasing suspended sediment concentration in laboratory experiments.[5] This signals a link between the environmental factors associated with terrestrial runoff and kina abundance.

12. Important to the formation of urchin barrens, feeding experiments have indicated that kina possess a selective mode of feeding, being able to distinguish between algal species. A preference is shown for the key kelp species *Ecklonia radiata*[6] and to a lesser extent *Sargassum sinclarii*, *Landsburgia quercifolia* and *Carpophylum maschalocarpum*. When algal food is scarce kina can also feed on encrusting organisms, such as sponges meaning urchin barrens can remain stable once kelp species have been removed.

2.2.2 *Centrostephanus*

13. The long-spined sea urchin (*Centrostephanus rodgersii)* (Figure 2), like kina, are found in various coastal areas around northeastern New Zealand. With an annual reproductive cycle,

[2] Miller & Abraham (2011)
[3] Walker (1982)
[4] 'Test diameter' refers to the measurement of the diameter of a sea urchin's shell; Miller & Abraham (2011)
[5] Shima & Phillips (2006)
[6] Cole et al. (2000)

sexual maturity is reached at 40-60 mm TD. However, spawning in smaller individuals (30-50 mm TD) can occur but are not reliably fertile.[7]

Figure 2: The long-spined sea urchin (*Centrostephanus rodgersii*)

14. *Centrostephanus* feed on algae, including kelp and macroalgae, and benthic invertebrates (e.g., sponges). However, they exhibit a different grazing pattern to kina, showing a preference for understorey grazing which inhibits new recruitment of algal species.[8] Unlike kina, *Centrostephanus* exhibits a nocturnal feeding behaviour, residing in cracks and pockets within the rocks during the day and emerging to graze on algae at night[9]. This nocturnal behaviour makes *Centrostephanus* less susceptible to predation compared to kina, contributing to its ability to thrive in certain environments.

2.3 Urchin barrens

15. Urchin barrens are areas of rocky reef where sea urchins have become abundant and have consumed most or all of the macroalgae (seaweed) that would otherwise be present. In these areas, sea urchins graze on kelp and other macroalgae, preventing their growth and causing a shift to a barren rocky habitat. Urchin barrens are characterised by the absence or depletion of kelp forests and the proliferation of sea urchins, resulting in reduced biodiversity and ecological imbalance.

16. There is currently no broadly accepted formal definition of what constitutes an urchin barren. Consequently, FNZ has developed a definition for the purposes of identifying those areas that are of concern. Urchin barren areas vary depending on ecological factors, but they typically exhibit low biodiversity and reduced primary and secondary production compared to healthy ecosystems. With this in mind, urchin barrens have been defined as:

    "sea urchin dominated areas of rocky reef that would normally support healthy kelp forest but have little or no kelp due to overgrazing by sea urchins."[10]

17. There is a known link between the formation of urchin barrens and the local abundance of predator species. Where the abundance of sea urchin predators such as snapper and rock lobster is low, sea urchin populations can proliferate, which can lead to the formation of urchin barren areas.[11]

2.4 Previous removals

18. A number of small-scale kina removal trials have been authorised under special permits for the purpose of investigative research. Across these trials, researchers have tested the effects of kina harvesting, culling, and/or translocation.

[7] Byrne & Andrew (2020)
[8] Doheny et al. (2023)
[9] Byrne & Andrew (2013)
[10] Doheny et al. (2023)
[11] Doheny et al. (2023)

19. Removing kina from high density areas, and monitoring the results, has provided an improved understanding of:

a) The density of sea urchins associated with urchin barren areas;

b) The resourcing and effort required to clear urchin barren areas under differing circumstances;

c) The density to which urchins need to be reduced in order to provide for recovery of reef areas;

d) Insights into kelp recovery and the return of reef biodiversity over time; and

e) Timelines around recolonisation of urchins after a removal.

20. The largest removal trials conducted in New Zealand to date have been undertaken by University of Auckland researchers, who recently removed an estimated [12] 65 tonnes of kina (~403,000 individual kina) from just 7.1 hectares of shallow subtidal reef at sites at Hauturu-o-Toi / Little Barrier Island, Leigh, and Ōtata Island (Noises)[13]. This group has also conducted similar, but smaller scale removals of kina in the Marlborough Sounds.

21. Monitoring of the trial sites has shown rapid increases in algal regrowth and that the remaining kina are in better condition due to increased food availability. However, while large-scale removals of kina can lead to rapid algal recovery, without the presence of large predators such as snapper and rock lobster to maintain kina at low densities, urchin barrens were observed to re-establish.

22. Establishing a dedicated special permit purpose that will support the large-scale removal of urchins for the purpose of management and/or prevention of urchin barrens is considered by FNZ to be a key component of future restoration efforts.

23. However, while large-scale removals have the potential to contribute to ecosystem restoration efforts going forward, it is considered that they should be part of a comprehensive, long-term approach that addresses the range of factors contributing to the formation of urchin barrens, including measures to maintain ecological balance (including tools to increase the abundance of kina predators).

3 Proposed new special permit purpose

24. In most circumstances outside commercial kina harvest under the QMS, a special permit is required for any urchin removal activities of scale. This special permit purpose proposes to facilitate large scale removal of sea urchins from urchin barren areas. A special permit under this purpose would enable persons or organisations involved in the activity to:

- take and possess sea urchins in excess of current daily limits; without the need for a commercial fishing permit or annual catch entitlement, and/or
- take and translocate sea urchins back to the sea in a new area.

25. Currently sea urchin removals for the purposes of restoration and/or urchin barren prevention cannot occur at a meaningful scale using the existing recreational daily limit, which allows people to take up to 50 kina and *Centrostephanus* per fisher per day as part of a combined daily bag limit. FNZ is also providing you with advice on options to increase the recreational bag daily limit. While this proposal is expected to provide some opportunity for further utilisation of kina in areas that are recreationally fished, we do not consider the proposed increases will provide a mechanism that will assist in managing urchin barrens at a large scale.

26. Large scale removals could occur using commercial harvest under the total allowable commercial catch (**TACC**) set under the QMS. However, while commercial fishers have indicated that they may be willing to support removal initiatives, they do not consider it

[12] Miller & Shears (unpublished data)
[13] Miller & Shears (2022)

appropriate to use their annual catch entitlement (**ACE**) to harvest sea urchins from urchin barrens, as the condition of the roe is poor and largely unmarketable.

27. Previous sea urchin removal trials that have taken place have done so under a special permit issued for the purpose of 'investigative research'. This purpose enables research to better understand an issue and is not appropriate for ongoing management initiatives that require urchin removal activities for the purpose of restoration and/or prevention of urchin barrens.

28. Therefore, in order to provide a mechanism to support the management of urchin barren areas and kelp forest restoration, FNZ proposes that you approve a new special permit purpose under section 97(1)(c) of the Act, so that persons or organisations can apply for a special permit:

> ***"To allow persons or organisations to take and dispose, cull, or translocate sea urchins for the purpose of habitat restoration and/or prevention of urchin barrens[14]."***

29. Given the significance of kina to tangata whenua and their importance within healthy reef ecosystems, the proposed new special permit purpose would only enable sea urchin removal activities within identified urchin barren areas of concern, or areas at risk of becoming urchin barrens if intervention did not occur. This permit would also provide a mechanism for tangata whenua and the wider community to lead and/or participate in the active management and prevention of urchin barrens.

30. The identification of these areas would initially rely on evidence provided by the applicant, which would then be reviewed by FNZ when considering whether to approve the application. FNZ is currently engaged in a mapping project aimed at identifying urchin barrens, scheduled for completion by June 2025, with the goal of producing a comprehensive spatial layer incorporating all available historical data at a national scale and an updated spatial layer for northeastern NZ. Depending on the type and format of evidence provided by applicants, this data may enhance the spatial layer, providing data to further inform future management.

31. Should you choose to approve the proposed new special permit purpose, special permit applicants will be required to adhere to an agreed sea urchin removal plan. This is discussed further in section 5 of this document.

4 Treaty of Waitangi obligations as set in legislation

32. Section 5(b) of the Act requires that the Act be interpreted, and that people making decisions under the Act will act, in a manner that is consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (**the Settlement Act**). The Settlement Act provides that non-commercial customary fishing rights continue to be subject to the Principles of the Treaty of Waitangi and give rise to Treaty obligations on the Crown.

33. Section 10 of the Settlement Act requires the Minister to develop policies and programmes to recognise the use and management practices of tangata whenua. The Minister must also recommend the making of customary fishing regulations under section 186 of the Act to recognise and provide for customary food gathering by Māori and the special relationship between tangata whenua and those places of customary food gathering importance.

34. Through the development of this proposal, FNZ has engaged with tangata whenua in the upper North Island where urchin barrens are most prevalent. Hui were held in Whangarei and Kaitaia to discuss a range of kina management options, including the establishment of a special permit purpose. The establishment of a special permit purpose was also discussed at the Mid North (East), Mid North (West) and Te Hiku o Te Ika (Far North) Iwi Fisheries Forums.

35. There was general support for the proposal however there was some concern expressed that caution would be needed in the approval of special permits for sea urchin management, to

[14] The wording has been updated since consultation to better align with the language in the Act.

ensure engagement and consultation with tangata whenua, and that removals do not impact areas of cultural significance and/or important areas for customary harvest of sea urchin.

36. The proposal was also raised with the Mai I Nga Kuri a Wharei ki Tihirau (Bay of Plenty) Iwi Fisheries Forum, however no feedback was received.

37. Where tangata whenua manage their customary food gathering under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 or the Fisheries (South Island) Customary Fishing 1999 (**Customary Regulations**), they are able to determine their own customary practices which can include the removal of kina to rebalance the ecosystem within customary fishing grounds.

38. Where tangata whenua manage customary fishing under regulation 50 and 51 of the Fisheries (Amateur Fishing) Regulations 2013 (Amateur Regulations) they are limited to taking sea urchins for the purposes of hui or tangi. As part of the integrated approach to managing urchin barrens FNZ is also seeking agreement to introduce a new traditional non-commercial fishing purpose under regulation 52 of the Amateur Regulations to allow tangata whenua in these circumstances to also be able to issue authorisations to take, remove, relocate, or eradicate sea urchins from traditional fishing grounds. This is currently being tested with Iwi Fisheries Forums prior to a decision being made[15].

39. In August 2023, FNZ held an urchin barren management workshop with Te Uri o Hikihiki hapū, (one of the applicants on the 2022 and 2023 Judicial Review of the Northland rock lobster fishery), to discuss possible tools to address urchin barrens in Northland. At the time, the hapū expressed concern about increasing abundance of *Centrostephanus* and expressed support for hapū-led local management of urchin barrens.

40. You also hosted a public meeting on urchin barrens in Awanui on 10 May, where the proposed new special permit purpose was discussed with attendees. Views expressed during the hui also broadly supported the proposal, while recognising the need for engagement with local hapu and communities to ensure there are no unintended consequences of large-scale kina removal under a special permit.

5 Proposed special permit conditions

41. Section 97 (4) of the Act sets out that, notwithstanding anything in any other section of this Act, the chief executive may authorise the holder of a special permit to take and dispose of fish, aquatic life, or seaweed subject to such terms and conditions as the chief executive may set out in the permit.

42. Accordingly, special permit conditions for sea urchin removals will be developed to manage any risks that are identified during the special permit assessment process. The Act also allows for such conditions to be amended, added to, or revoked if necessary.

43. In general, special permits are issued for a specified period, and may be revoked if the applicant is not achieving the permit objectives or complying with any conditions. In relation to the proposed new special permit purpose for urchin barrens, the conditions set out below are proposed to be part of any approved special permit.

5.1 Conditions relating to removal activities

44. The objective of the proposed new purpose is to facilitate reef and kelp forest restoration in urchin barren areas. Based on previous research and trials it has been identified that the removal of sea urchins down to densities of less than one urchin per square metre is required to achieve this goal.

45. Therefore, the conditions associated with a special permit for sea urchin removals will require the special permit applicant to formulate a comprehensive removal plan that:

[15] Delegation of r52 decision

(a) sets out the area that the permit will apply to and how that area relates to the FNZ definition of an urchin barren

(b) outlines how the removal will take place to give effect to the special permit purpose objective; and

(c) outlines the intended means of disposal of the kina (if harvested) including any intent for any sale of harvested kina. Sales could only occur in limited circumstances via conditions if approved under this process (see discussion at paragraph 75 -77 below).

46. For FNZ to approve a special permit application, the removal plan would provide specific detail as to, for example: the method of removal (culling, harvest, or translocation), the number of removals (number of events, days and sites) to be undertaken, methods of collection, estimated number/amount of urchins to be collected, methods to achieve the desired density of sea urchins, transportation requirements and ongoing monitoring. If the removal is to involve translocation, then donor and receiver sites will need to be specified and agreed in order to manage risks, including biosecurity.

47. An applicant under this special permit purpose would have to demonstrate that consultation with relevant tangata whenua in the area of removal (and donor sites for translocation) has occurred.

48. FNZ will assess the proposal, including confirming the views of iwi and hapu in the relevant area, to ensure it supports the objective of restoration through urchin barren management. This includes evaluating the feasibility, effectiveness, and sustainability of the proposed plan, as well as considering potential unintended consequences that may arise.

5.2 Conditions relating to collections, reporting, recordkeeping, and sale

49. It is proposed that the special permit holder will be required to submit a "pre-trip report" to FNZ to advise when sea urchin removal activities will take place. The nature and timing of the notification requirements will vary based on the scale of the removal permissible by the permit. Information required to be submitted under this report will likely include the special permit holder's name and special permit number, the intended date(s), time(s) and location(s) of collection, the species to be collected, method(s) to be used and the name(s) of the person(s) responsible for the collection.

50. Reporting, at a frequency appropriate to the circumstances of the permit, will be required to be submitted to FNZ. Reporting requirements typically include a summary of all work undertaken under an approved special permit and would include an estimate of the quantity of sea urchin removed, how it was used or disposed of, the method of disposal/destination of the urchins and the results of any ongoing monitoring. The specifics of reporting and monitoring requirements can vary based on the scope or type of work undertaken under the permit.

51. Sea urchins, specifically kina, taken and returned as part of translocation activities would require reporting and monitoring for donor and receiver sites, and include an analysis of risks, including those pertaining to biosecurity. It is not expected that translocation permits would be issued for *Centrostephanus*. While assessing translocation permits, FNZ will consider the scale of the removal and the risks and benefits of this translocation. It is anticipated that translocation permits would be issued only under limited and specific circumstances, recognising the potential risks of reintroducing kina into new environments.

52. Under the Act, the sale of fish, aquatic life or seaweed taken under a special permit is permitted, subject to conditions specified in the permit[16]. This aspect of any special permit application under the proposed purpose will be subject to individual assessment based on specific circumstances and relevant considerations. Provisions with respect to the sale of kina will need to be carefully considered on a case-by-case basis. Concerns have been raised by some submitters with respect to the sale of kina from special permits and potential impacts on kina markets, as well as the value of kina quota and ACE under the QMS (discussed further in section **10.2.1** below).

[16] Section 97(7) Fisheries Act 1996

53. Fisheries regulations currently prohibit the use of Underwater Breathing Apparatus (**UBA**) for the commercial harvest of kina. It is anticipated that UBA as a removal method would be permitted under this special permit purpose, however this may be subject to condition depending on the circumstances.

54. Currently, in most areas, the use of dredges for kina harvest is not prohibited[17]. Dredging is known to have impacts on the benthic environment. FNZ does not anticipate issuing special permits under the proposed new purpose that intend to use dredging as a removal method. This may be reconsidered if an application can demonstrate how any potential environmental impacts would be mitigated.

55. FNZ will monitor how much kina is taken through the special permit process. These removals will count towards the allowance for Other Sources of Fishing-Related Mortality (**OSFRM**). If the amount of kina taken has a noticeable impact on sustainability or fisheries management, it should be included in the Total Allowable Catch (**TAC**). Any significant amount should be accounted for in the TAC. Future TAC decisions will need to consider these removals to make sure the kina population is managed properly.

5.3 Conditions relating to biosecurity

56. All vessels and equipment used for removal activities must be maintained in such a manner that reduces the risk of biofouling and the spread of unwanted aquatic life, such as exotic *Caulerpa*.

57. The special permit holder must also notify the Ministry for Primary Industries should they observe significant mortality or abnormally high numbers of distressed, diseased, or moribund other aquatic life, or if any unwanted or unusual organisms are observed during removal activities.

6 Purpose of the Act – section 8 of the Act

58. The purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability. Section 8(2) of the Act defines ensuring sustainability:

    a) as 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.

59. FNZ considers the proposal to introduce a new special permit purpose aligns with section 8(2) of the Act. While sea urchin removal is not considered the sole solution to manage urchin barrens, it may contribute to reducing herbivory in some areas, potentially leading to increased abundance of macroalgae. When combined with other management initiatives (including tools to increase the abundance and efficacy of kina predators), this could aid in mitigating adverse effects on the aquatic environment.

7 Environmental principles – section 9 of the Act

60. The environmental principles of the Act that must be taken into account by the chief executive when considering special permit applications, and by you when approving this new special purpose, are as follows:

- Associated or dependent species should be maintained above a level that ensures their long-term viability.
- Biological diversity of the aquatic environment should be maintained; and
- Habitats of particular significance for fisheries management should be protected.

[17] The Fisheries (Commercial Fishing) Regulations 2001 defines 'dredge' as a device towed on or over, or capable of being towed on or over, the seabed primarily for the collection of shellfish; and includes a box dredge or ring device.

7.1 Associated or dependent species – section 9(a) of the Act

7.1.1 Protected species interactions

61. Harvesting of sea urchins through hand-gathering or freediving/UBA is considered to pose little to no risk to seabirds.[18] However, when harvesting involves the use of boats or vessels, there is a risk of direct collisions between seabirds and the vessels that could lead to injury or death.

62. There are no known captures of marine mammals, seabirds, or protected fish species in New Zealand kina fisheries.

7.1.2 Fish and invertebrate bycatch

63. Sea urchins are typically harvested by hand-gathering while freediving in north-eastern New Zealand with some historically being taken by targeted dredging in the Marlborough Sounds.[19]

64. The method of hand-gathering is a highly selective one and there is no bycatch of any fish and invertebrate species. The method of dredging is known to have impacts on marine ecosystems, including to marine habitats, seabed structure, and marine life. It may also result in changes to localised sedimentation, affecting benthic organisms, and altering the balance of the ecosystem.

65. Limited information is available on bycatch in kina fisheries where harvesting occurs by dredging, but it is anticipated that dredging methods may result in bycatch of benthic species. It is not anticipated that a special permit for sea urchin dredging would be issued unless there was confidence that adverse effects could be mitigated.

7.2 Biological diversity of the aquatic environment – section 9(b) of the Act

66. Most sea urchin harvesting is conducted through hand gathering while freediving. The selective nature of this method of harvesting ensures that there is no bycatch or incidental mortality of kina or non-target organisms. In areas where dredging may occur, it is expected that bycatch or incidental mortality of kina or non-target organisms may occur.

67. Removal of kina may lead to a reduction in herbivory on a reef, resulting in an increase in the abundance of macroalgal and invertebrate species, and a corresponding increase in associated biodiversity. However, if ecological imbalances (predator abundance and size) are not addressed, it is expected that following removals kina abundance will return over time, requiring further and ongoing kina removals to occur.

68. FNZ notes that environmental factors, such as sedimentation and water quality, also affect the distribution and abundance of biological diversity on rocky reefs but are not directly managed by FNZ. FNZ will continue to monitor research in this field and will engage with relevant local authorities in this regard.

7.3 Habitats of particular significance for fisheries management – section 9(c) of the Act

69. Habitats of particular significance for fisheries management are not defined in the Act. FNZ recently consulted on draft guidelines for identification of habitats of particular significance for fisheries management and the operational proposals to support its application. There are no specific habitats of particular significance identified for kina fisheries at this time in the draft guidelines. What is known is outlined in Table 1.

70. Irrespective of whether a habitat of particular significance for kina has yet been identified, FNZ considers that the introduction of a special permit purpose would not increase adverse effects

[18] Ministry for Primary Industries (2021) Aquatic Environment and Biodiversity Annual Review (AEBAR): A summary of environmental interactions between the seafood sector and the aquatic environment.
[19] Fisheries New Zealand (2023)

on any significant kina habitats in New Zealand as the proposed special permit purpose would only enable harvesting from identified areas of concern and each permit will require assessment before approval. It is expected that special permits issued under the proposed purpose would ultimately contribute to improving the coastal marine environment.

Table 1: Summary of information on potential habitats of particular significance for fisheries management.

Habitat of particular significance	Rocky intertidal and subtidal reefs
Attributes of habitat	Sea urchins are found along in rocky intertidal and subtidal reefs dominated by encrusting algae. They inhabit shallow subtidal waters to depths of about 60 metres. Sea urchin populations are not uniformly distributed across all rocky reef habitats. Abundance is primarily determined by depth and wave exposure[20].
Reasons for particular significance	Sea urchin larvae settle on rocky substrate indicating the importance of the presence of suitable settlement surfaces. Rocky intertidal and subtidal reefs are also characterised by the growth of seaweed species and algae. Rocky shores provide stable platforms for seaweeds to anchor themselves to and create forests. These kelp forests provide shelter and nursery grounds for many fish species such as kina, snapper, and crayfish. They also provide food for grazing species such as kina, crabs and snails which serve as prey for large predatory fish species. Rocky shores in areas of wave exposure are important, as species that attach themselves to substrate permanently, such as barnacles and sea squirts, cannot forage for food, and therefore rely on waves to transport food to them. Intertidal and subtidal reefs, as a result of the points mentioned above, are typically defined as ecosystems that are high in biodiversity
Risks/threats	The overfishing of key predator species, such as snapper and rock lobster, is considered a key contributor to the formation of urchin barrens. Urchin barrens are characterised by bare rocky substrate, a complete or significant loss in seaweeds, low biodiversity, and high densities of kina and they ultimately threaten healthy kina habitats. Fine sediments introduced from runoff from the land may have adverse effects on sea urchins and their habitat. Layers of fine sediment can reduce light levels for marine plant species which could impact food availability for intertidal and subtidal species[21]. The oceans around the east coast North Island of New Zealand are warming at a rate well in excess of the global average[22], and moderate to strong heatwaves have been recorded in recent years in the Hauraki Gulf[23]. Changes in the environmental conditions associated with marine heatwaves may have impacts on the survival of urchin larvae and food availability for sea urchins. However, the extent to which changes in climate and temperature may be affecting sea urchin habitat suitability is unknown. The increased presence of the *Centrostephanus* may also pose a risk to sea urchin habitat. *Centrostephanus* has been observed to cause barren expansion[24].
Confidence	Body of empirical work exists but it is associated with some uncertainty, or the expert has direct personal research experience.

8 Information principles – section 10 of the Act

71. Under section 10 of the Act, you are required to take into account four information principles when making this decision:

    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;

[20] Shears & Babcock (2007)
[21] Nicholls et al. (2003)
[22] Sutton & Bowen (2019)
[23] Moana Project (n.d.)
[24] Kerr (2016)

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.

72. FNZ considers that the information presented in this paper represents the best available information.

8.1 Uncertainty in information

73. In various sections of this paper, FNZ has pointed out where information is uncertain and warrants caution for your decision making, in line with the principles above.

8.2 Weight to give uncertain information

74. You have discretion as to how much weight to give uncertainty in information noted above. However, the information principles note that you cannot use the absence of, or any uncertainty in, any information as a reason for postponing or failing to take any measure to achieve the purpose of the Act.

75. In considering both the uncertainty in the current information, and availability of new information, you must ultimately be satisfied that your current decision promotes the purpose of the Act.

9 Outcomes of issuing a special permit under this purpose

9.1 Impact

76. If you choose to approve the proposed special permit purpose, interested parties would then be able to apply for a special permit through FNZ's standard application process.

77. The application process includes an assessment of the application by FNZ and approval by the Chief Executive. This includes consideration of the purpose (section 8) of the Act, in providing for utilisation of fisheries resources while ensuring sustainability, the environmental principles (section 9), and the information principles (section 10) of the Act[25]. As part of the assessment, consideration is given to whether the issuing of any special permit will have a significant effect on fisheries resources or any fishing interest in the stocks affected that are provided for or authorised by or under the Act. If so, consultation is undertaken with relevant parties who have an interest in the granting of a special permit, including tangata whenua, commercial and recreational parties[26].

9.2 Cost

78. A special permit application submitted for the proposed purpose would incur an hourly charge[27] for time spent processing and assessing the application. However, the fee may be waivered for some applications upon request, if the waiver is in the public interest and no commercial benefit is going to be made from the activity.

9.3 Benefits

79. Kina is a taonga to tangata whenua, is prized by certain amateur fishers and is valuable to the inshore commercial fishing sector.

80. It is recognised that in and of itself, a special permit purpose will not solve the issue of urchin barrens. However, the ability to remove urchins from barren areas at scale, under a special

[25] Section 97(3)
[26] Section 97(2)
[27] The current hourly charge of $133.88 for special permit applications is stipulated in Schedule 2 of the Fisheries (Commercial Fishing) Regulations 2001.

permit, may enable further benefits to be derived from these fish stocks for all users, and enhance coastal ecosystems. These include:

- **Restoration/reforestation of coastal rocky reefs and associated biodiversity:** by reducing the density of urchins in barrens, there is a greater opportunity for the re-establishment of kelp forests and other marine vegetation, which in turn supports a diverse array of marine life.
- **Improved value/condition of sea urchins at removal site:** the removal of excess urchins can improve the health and condition of the remaining sea urchin population in their natural habitat.
- **Improved value/condition of sea urchins moved to receiver sites (where translocation occurs):** translocating sea urchins to areas with healthier ecosystems can enhance their overall quality and value, potentially leading to improved growth rates.
- **Enabling community-led local scale fisheries and environmental management:** supporting community-led initiatives for urchin removal not only aids in environmental restoration but also empowers local communities to actively participate in fisheries and environmental management, aligning with the principles of Ahu Moana in Revitalising the Gulf[28] and enhancing local decision-making.
- **Community engagement with and better understanding of coastal ecosystems:** involvement in urchin removal projects fosters community engagement with coastal ecosystems, leading to a deeper understanding of marine ecology and the interconnectedness of species and habitats.
- **Economic utilisation**: By allowing the sale of removals in some cases, harvested kina from barrens may be utilised economically, providing value from an otherwise underutilised resource.
- **Community capacity/capability building:** participation in removal efforts builds community capacity and capability in habitat restoration techniques, marine conservation practices, and sustainable resource management.
- **Food security:** The ability to shift sea urchins to areas where they are more accessible (through translocation) improves food security for local communities, offering nutritional benefits associated with the consumption of seafood as well as potentially supporting customary fisheries management and fishing practices.
- **Contribution to FNZ's efforts in addressing urchin barrens:** large-scale removal initiatives align with FNZ's ongoing efforts to address urchin barrens as an adverse effect of fishing, contributing to broader conservation and management objectives aimed at restoring and maintaining healthy marine ecosystems.

81. The proposed special permit purpose would therefore enable sea urchin removals to continue as part of long-term management solution, enabling fine-scale, timely and adaptive fisheries management responses.

10 Submissions

82. Before approving a new special purpose, you must consult with persons and organisations you consider are representative of those classes of persons having an interest in the granting of a special permit for such a purpose, including Māori, environmental, commercial, and recreational interests. [29]

83. A public consultation process ran from 26 March 2024 to 20 May 2024. A total of 52 submissions were received that addressed the proposal to establish a new special permit purpose for issuing special permits.

84. Of these submissions, 36 supported the establishment of this new special permit purpose while four were not in favour of its establishment. Twelve submissions did not explicitly indicate their support but also spoke to other factors that needed to be considered and have been accounted

[28] Revitalising the Gulf: Government action on the Sea Change Plan
[29] Section 97(1)(c)

for under the '*Other*' column below. Table 2 summarises the submissions received and the submitters' support for the proposal. You have also been provided with the full submissions for reference.

Table 2: Written submissions and responses received for the introduction of a new special permit purpose.

Submitter	Option Support			
	For	Against	Other	Notes
A. Bunt			✓	Did not indicate option support but submits that this is not required in Fisheries Management Area (FMA) 7.
A. Dawn			✓	Submitted that there is conflicting information on kina predators and feels more research is needed to determine if large snapper and rock lobster prey on kina, or if other causes are responsible.
Prof. A. Jeffs		✓		Submits that this proposal will make no meaningful difference and management efforts should be focused on increasing kina predator abundance.
Dr. A. Spyksma	✓			Submits that ongoing monitoring is crucial. Permit applications must include target densities and clear justifications for how removal will reduce barrens.
C. Balemi	✓			Submits that ongoing monitoring is crucial. Permit applications must include target densities and clear justifications for how removal will reduce barrens.
Cando Fishing Ltd.			✓	Only supports this proposal if UBA will be permitted for commercial fishing.
CRA 1 Rock Lobster Industry Association Inc.	✓			Emphasises importance of ensuring that special permits are only issued for sea urchin removal activities within identified urchin barren areas of concern, the conditions required for issuing and conditions relating to collections, reporting and recordkeeping are strictly adhered to.
D. Savage	✓			Submits that this proposal would aid reseeding practices via translocation but that this would need monitoring and supports the development of kina population mapping for long-term science and information needs.
E. Newcombe	✓			Supports the proposal with the exception of translocation.
Environmental Defence Society	✓			Strongly agrees that permits should only be issued for specific barren areas or where there is a risk of barren development. Shares concerns about the translocation aspect of the purpose to healthy reef ecosystems and submits that this method requires rigorous analysis to ensure balance is maintained within the receiving environment.
Environmental Law Initiative			✓	Submits that the proposal is not useful without addressing the underlying cause and protecting the abundance of kina predators.

Submitter	Option Support			
	For	Against	Other	Notes
EnviroStrat/Kinanomics NZ Ltd	✓			Does not support 'culling' and prefers the utilisation or translocation as its more consistent with the Act. Supports use of UBA as target density of 1 kina per square metre is likely unachievable through freediving.
Friends of Taputeranga Marine Reserve Trust	✓			Submits that dredging must not be permitted as a removal method. Specific management needs are required for *Centrostephanus*. Translocation should only be permitted under strict conditions and in limited numbers and only for cases where groups will actively manage the receiver site.
Hauraki Gulf Forum	✓			Submits that considering setting higher biomass targets for kina predators and maximum size limits is key, as this mechanism alone will not achieve long term goals of ecosystem restoration.
Hauturu Supporters Trust			✓	Does not support the proposal when underlying cause, which is overfishing of predators, has not been addressed.
Hei o Wharekaho Settlement Trust	✓			Mana whenua should be consulted and involved in the permit application/approval process.
J. Love	✓			Submits that this proposal would aid reseeding practices via translocation but that this would need monitoring and supports the development of kina population mapping for long-term science and information needs
J. Seccombe	✓			MPI shouldn't charge for these permits but could find funding elsewhere for administrative costs. Any voluntary programs should be run by volunteers without MPI charging fees. Assessing biomass levels compared to natural resources should be straightforward; applicants shouldn't have to pay for environmental or biomass reports.
Dr. K. Miller	✓			Submits that ongoing monitoring is crucial. Permit applications must include target densities and clear justifications for how removal will reduce barrens.
Kaikoura Runanga		✓		Submits that this is not required in SUR 3 and that monitoring, and management should be carried out through already established pathways such as the TAC.
Kina Industry Council			✓	Only supports this proposal if UBA will be permitted for commercial fishing.
Marlborough Oysters and Flipfarm Systems Ltd	✓			Submits that this will aid in aquaculture ventures that utilise kina of low roe quality.
Mountains to Sea Conservation Trust			✓	Did not indicate support for or against this proposal but submits that efforts on increasing predator abundance and protection need to be integrated.

Submitter	Option Support			
	For	Against	Other	Notes
Dr. N. Shears	✓			Submits that ongoing monitoring is crucial. Permit applications must include target densities and clear justifications for how removal will reduce barrens.
Dr. K. Miller	✓			Submits that translocation should only be permitted under strict conditions and in limited numbers and that smaller scale urchin removals to provide for education should be encouraged. Calls for measures to protect predator abundance. Calls for specific management measures for *Centrostephanus* and does not support dredging as a method of removal under this permit.
New Zealand Federation of Commercial Fishermen	✓			Expressed concerns around how MPI will be able to verify barren areas submitted in permits, and the sale of kina harvested from barrens and effects this has on quota owners.
New Zealand Rock Lobster Industry Council Ltd	✓			Supports the proposal apart from translocation and emphasises that permits only be issued in areas were barrens already exist. Submits that UBA is permitted within the special permit scope and permit fees should be waived.
New Zealand Sports Fishing Council	✓			Submits that translocation shall not apply to *Centrostephanus*, and special permits are only approved for harvesting methods using hand-gathering while freediving or UBA.
Ngāti Manuhiri Settlement Trust	✓			Submits that funding for research on preventing urchin barrens and finding new uses for urchins is required. FNZ should provide incentive for businesses to join in solving this issue. Submits that fisheries closures are needed to help kina predator populations grow.
Dr. O. Pelag	✓			Submits that effort to increase kina predator abundance is important, site selection for removals requires strict guidelines, ongoing reef monitoring is necessary, and this data should be utilised by FNZ.
P. Burton Bell	✓			Submits that a permit issued should trigger a prohibition of snapper and crayfish harvesting in the area for an extended period of time to aid the removal.
P. Nepia – Korokota Marae, Te Parawhau, Ngāti Whātua	✓			Submits that this strategy won't solve the long-term problem of kina barrens because kina breed a lot and their predators are being overfished. We need multiple strategies involving everyone concerned—iwi, hapu, government agencies, marine biologists, and harvesters.
Patuharakeke Te Iwi Trust Board			✓	Submits that gazetted tangata tiaki/rohe moana groups must be specifically included in any conditions pertaining to permit approval. Without this, they submit that the

Submitter	Option Support			
	For	Against	Other	Notes
				Minister only grant a permit in an area that is not subject to the Kaimoana Regulations.
Pāua Industry Council	✓			Expresses concerns around the potential sale of harvested kina under this permit purpose and the risk of illegal sales, as well the undermining of legitimate commercial activity. Submits that permits only be approved in specific FMAs where barrens are a known issue.
Paul Leighton	✓			Supports the provision alongside measures to address the overfishing of predator abundance.
Q. Duthie			✓	Did not indicate support for or against the proposal but submits that FNZ support mana whenua and their implementation of management.
R. Matthews	✓			Submits that barrens have been created due to a failure of the fisheries management agencies to control the extraction of large predators and if there are costs, these agencies that should pay. Does not support the enabling of translocation as this 'shifts' the problem. This is a regional issue, and it would be more efficient and effective if the planning and control were to be delegated to regional councils.
Royal New Zealand Society for the Prevention of Cruelty to Animals Inc.	✓			Expresses concerns that dredging may be permitted under the special permit and opposes dredging and other bulk harvest methods as they result environmental degradation and bycatch.
S. Fowler	✓			Submits that there should not be a charge for charities or community groups applying for the permits.
S. Nicholas			✓	Submits that the proposal should integrate kina predator abundance measures as well.
S. Quinlan	✓			Submits that management efforts should be focused on increasing kina predator abundance as well.
S. Scaife	✓			Suggests that financial cost to obtaining a permit should be waived. Many marine reserves don't allow for human interference, so we see marine reserves struggling with barrens too.
Sea Urchin New Zealand			✓	Submits that more refining around criteria is needed, especially around the sales of kina and how this may affect quota holders.
Specialty and Emerging Fisheries Group			✓	Only supports this proposal if UBA will be permitted for commercial fishers.
Stet Ltd.		✓		Does not support active kina removal where the underlying cause of overfishing predators has not been addressed but supports *Centrostephanus* removal as a short-term

Submitter	Option Support			
	For	Against	Other	Notes
				measure. Views this as a remedial management action rather than taking precautionary management action.
T. Simhony	✓			Believes that this is an effective way to combat kina barrens and it is better regulated than amateur fishing limits. Advocates for an increase in research around snapper, crayfish, kina, and kelp ecosystems to better understand how to holistically resolve the issue of barrens.
T. Turner	✓			Need to specify that a required reduction in kina density must be achieved, as well as monitoring requirements.
Tasman Bay Guardians	✓			Supports the proposal with the exception of translocation and highlights how urchin removal doesn't address the underlying cause which is overfishing of kina predators.
Te Ātiawa o Te Waka a Māui Trust	✓			Submits that local hapu need to be involved in the approval process.
Te Kohuroa Rewilding Initiative	✓			Submits that predator protection measures need to be integrated.
Te Uru Kahika - Regional and Unitary Councils Aotearoa	✓			Submits that this specific permit purpose only have validity for 10 years to provide incentive for management to properly address measures to protect predator species. Submits that *Centrostephanus* be assessed separately to kina. Expressed concerns about translocation and the spread of unwanted organisms such as exotic Caulerpa. Does not support the method of dredging to be used for removals. Seeks clarification about whether removals would be permitted in marine reserves/marine protected areas.
W. S. Macky		✓		Submits that management efforts should be focused on increasing kina predator abundance and is concerned this will have further negative consequences on the marine environment.

10.2 Analysis

85. Thirty-six submissions supported the establishment of the new special permit purpose. Four submissions did not support the proposal. Many of the submissions not in favour highlighted they felt this mechanism does not address the underlying cause of urchin barrens – the overfishing of urchin predators (particularly snapper and rock lobster).

86. Eighteen submissions called for measures to protect kina predators and address the concerns related to their low abundance. There is a significant concern among stakeholders regarding the ecological balance and the role of sea urchin predators, such as snapper and rock lobster, in maintaining healthy ecosystems. Protecting these predators is seen as essential to preventing the proliferation of urchin barrens, which occur when predator populations are low, leading to unchecked kina populations that overgraze kelp forests.

87. Eight submissions did not support or expressed concerns about translocation of kina through a special permit and highlighted the importance of monitoring the sites at which removal and translocation activities will be occurring. Permits issued under this purpose that involve the translocation of kina will be assessed on a case-by-case basis, taking into account the environmental impacts, effectiveness of translocation efforts, and potential risks, including to marine biosecurity. Specifically, reporting and monitoring will be required for both donor and

receiver sites to ensure thorough analysis and risk management. As noted in the discussion above, it is not expected that translocation permits will be issued for *Centrostephanus*. FNZ will carefully consider the scale of the removal and the associated risks and benefits when evaluating translocation permits, including engaging with other relevant Business Groups and agencies where appropriate (e.g. Biosecurity NZ and the Department of Conservation).

10.2.1 Other matters raised

88. Three submissions raised concerns over the sale of kina harvested under special permits and the effect this would have on quota owners.

89. Kina from urchin barrens are generally in poor condition and therefore have limited economic value. However, over summer months, barren reefs may be covered in algal turfs or other ephemeral algal species, which kina can feed on, thereby attaining a gonad size and condition where they would be suitable for sale. Commercial kina harvesters have expressed their concern that this special permit purpose will create a parallel pathway for kina to be sold which will create competition and decrease the value of their quota. As a way of working through these concerns in practice, two specific scenarios were highlighted as examples of how the issue may arise:

    I. A community or iwi/hapu group is issued a special permit to remove kina from a local urchin barren. The kina is harvested at the right time of year and is suitable for human consumption. The community group have approval under the special permit to sell the kina harvested to recoup the costs of the operation. Given current commercial kina harvest is almost entirely on the domestic market, these kina sales have the potential to reduce the sale of kina harvested under ACE within that region.

    II. A commercial kina harvester operating in an FMA with urchin barrens is issued a special permit to remove kina from urchin barrens across a large section of coastline. They plan to harvest the kina at the right time of year when the kina is suitable for human consumption. Although the kina condition is not as good as non-barren kina, they are able to use UBA to increase the efficiency of their harvest and do not need to use their ACE for this harvest. These factors together make the harvest economically viable. These kina then enter the commercial market where they are sold in competition against kina harvested with ACE and without the ability to use UBA.

90. FNZ acknowledges these concerns and will assess the volume of kina permitted to be collected and sold under the proposed special permits on a case-by-case basis. The primary intention of kina removals under the proposed special permit purpose is for habitat restoration and prevention of urchin barrens, as opposed to commercial benefit. However, it is also acknowledged there may be opportunities to derive benefits from urchin barrens in ways that do not impact, or have limited impact on, the kina market under the QMS. Careful consideration will need to be given to any sale conditions to ensure that the special permit process does not unfairly disadvantage quota owners or disrupt the existing market dynamics.

91. While permits issued under this special permit purpose could enable the use of UBA for taking kina, three submissions have also called for the removal of the regulation prohibiting the use of UBA for commercial kina harvest. More generally, you have also asked for advice on whether the ban on use of UBA to commercially harvest kina should be lifted.

92. The previous Minister approved the removal of the UBA prohibition in relation to commercial scallop harvest and this amendment is currently being drafted by the Parliamentary Counsel Office. The prohibition on UBA for kina harvest was not considered at the time and has since been raised by commercial stakeholders, particularly those operating in the South Island.

93. FNZ's initial view is that it is appropriate to also initiate consultation on reviewing the UBA ban for commercial kina harvest as well, noting that this would also be consistent with the proposed Commercial Fisheries Reform Work Programme being developed with the fishing industry. Kina stocks are now generally in good health with commercial catch capped under the QMS. In addition, recreational fishers can already use UBA to harvest kina.

94. Some submissions raised concerns about the costs associated with applying for a permit. These concerns highlight the potential financial burden on individuals or organisations seeking to participate in the management and restoration of urchin barrens. The costs associated with permit applications could deter participation, particularly for smaller community groups or individuals who may have limited resources. This financial barrier could hinder the effectiveness of the special permit purpose by limiting the number of stakeholders able to contribute to habitat restoration efforts.

95. Fee waivers for special permits are available and are linked to regulation 83 of the Fisheries (Commercial Fishing) Regulations 2001, which sets out that the Chief Executive may waive fees if the waiver is in the public interest. Operational policy then sets out how this is assessed and applied. Broadly if the applicants are a non-commercial entity (trust/iwi/hapu/community group) undertaking, for example ecological or environmental or fisheries management work, which is in the public interest, and the exercise is not intended for profit, a fee waiver would likely be available. However, commercial companies or entities seeking to capitalise from kina removals under a special permit and engage in an activity that seeks to make profit, there may be less opportunity for fees to be waived. This is somewhat untested in the context of kina removals, as the large-scale removal of kina is likely to be of ecological benefit and have positive outcomes from a public interest point of view, while also presenting opportunities for profitable enterprise. As such, each case will be assessed on its merits and guided but the existing regulation and operational policy.

96. Some submissions advocate for separate management of *Centrostephanus*, stating conducting further population and habitat studies, alongside a literature review, would provide essential insights to inform specific management measures. Consultation with tangata whenua, scientists, and other relevant stakeholders would also be crucial in this process.

97. One submitter suggested kina management should fall to local Government. While there may be opportunities for collaboration between central and local Government, FNZ does not support this view as the Fisheries Act provides a range of tools for managing kina and responding to urchin barrens. Additionally, *Centrostephanus* is not identified as a pest on the Auckland Council's pest list. However, if added to the pest list and the Regional Pest Management Plan[30], an approved special permit purpose exists for the eradication of pest species and could be considered alongside Fisheries Act tools. Consultation with tangata whenua, scientists, and other relevant stakeholders would also be crucial in this process.

11 Conclusion and recommendations

98. The best available information suggests that sea urchins exist in high densities to the point where they are creating urchin barrens. Special permits are one mechanism that is available under the Act that would allow kina to be removed from urchin barren areas. However, the purposes for which special permits can be issued under the Act currently do not provide for habitat restoration and/or the prevention of urchin barrens.

99. FNZ recognises that kina are not uniformly distributed and not all coastal locations have urchin barrens. It is also recognised that kina are a taonga to Māori, a shared species of importance to recreational and commercial fishers, and an important part of healthy functioning ecosystems. It is also recognised that there are a range of important considerations that would need to be taken into account if special permits under the proposed new purpose are to be issued.

100. As such, it is proposed that special permits issued under the new special permit purpose would be assessed on a case-by-case basis and any approved applications would have appropriate conditions with respect to the taking of kina, reporting, recordkeeping and sale. Ensuring appropriate monitoring is in place will also be a key part of any special permit approval.

101. FNZ considers that your approval of this special permit purpose would provide for the removal of kina at a meaningful scale, support managing urchin barren areas and contribute to restoring kelp forests.

[30] Auckland Regional Pest Management Plan 2020 - 2030

102. Therefore, FNZ recommends that you approve the introduction of a new special permit purpose under section 97(1)(c) of the Act:

'to allow persons or organisations to take and dispose, cull, or translocate sea urchins for the purpose of habitat restoration and/or prevention of urchin barrens.'

103. It is also important to note that this proposal is one aspect of a wider programme of work with respect to urchin barrens and forms part of an integrated package of management measures that is underway [B23-0735 refers]. While the special permit purpose will support the removal of kina from urchin barren areas to allow for restoration of kelp forests, effective and enduring management of urchin barrens will require a multi-pronged approach. In particular, measures to manage kina predators (particularly snapper and rock lobster) are recognised as a key component to controlling kina populations in the longer term. You will be receiving further advice on these other measures as they progress.

104. An additional matter for your consideration has been raised through consultation on the new special permit purpose. This is the current prohibition on the use of UBA for commercial kina harvest. The use of UBA by commercial fishers has been banned for many years under fisheries regulations, and commercial fishers have requested a review of this requirement – calling for it to be removed.

105. FNZ recommends that you agree to initiate consultation on reviewing the UBA ban for commercial kina fishing. If you approve, we will commence this by seeking input from tangata whenua during the next round of iwi fisheries forums, which will be happening across the country in July. Depending on the outcome of this engagement we would then initiate consultation more widely through a public process. We would provide you with further updates and advice as this process progresses.

12 Decision

Approve the introduction of a new special permit purpose:

'to allow persons or organisations to take and dispose, cull, or translocate sea urchins for the purpose of habitat restoration and/or prevention of urchin barrens.'

Agreed / Agreed as Amended / Not Agreed

AND

Agree that FNZ initiate a review of the ban on using underwater breathing apparatus for commercial kina fishing, including seeking input from iwi.

Agreed / Not Agreed

AND

Note the wider work programme with respect to urchin barrens, including measures to support increasing the abundance of kina predators.

Noted

13 Referenced reports

Byrne, M. & Andrew, N. L. (2020). Chapter 22 - Centrostephanus rodgersii and Centrostephanus tenuispinus. Developments in Aquaculture and Fisheries Science, 43: 379-396. https://doi.org/10.1016/B978-0-12-819570-3.00022-6.

Cole, R. G. & Keuskamp, D. (1998). Indirect effects of protection from exploitation: patterns from populations of Evechinus chloroticus (Echinoidea) in northeastern New Zealand. Marine Ecology Progress Series 173: 215–226.

Dayton, P. K. (1985). Ecology of kelp communities. Annual review of ecology and systematics, 215-245.

Doheny, B.; Davis J.P.; Miller, B. (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. 110 p.

Fisheries New Zealand (2023). Fisheries Assessment Plenary, May 2023: stock assessments and stock status. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 1904 p.

Kerr, V.C. (2016). Urchin barrens and algal community zonation; a transect-based study, Maunganui Bay and Cape Brett. Prepared by Kerr and Associates for Fish Forever, Bay of Islands Maritime Park Inc.

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

Miller, S. L. & Abraham, E. R. (2011). Characterisation of New Zealand kina fisheries. Accessible at: https://files.dragonfly.co.nz/publications/pdf/Miller_Abraham_2011_FAR2011_7.pdf

Miller, K. I. & Shears, N. T. (2022). The efficiency and effectiveness of different sea urchin removal methods for kelp forest restoration. Restoration Ecology 31: e13754. Available at https://doi.org/10.1111/rec.13754

Moana Project. (n.d.). Recent marine heatwaves. Retrieved May 8, 2023, from https://www.moanaproject.org/recent-marine-heatwaves

Nicholls, P., Hewitt, J., Halliday, J. (2003). Effects of suspended sediment concentrations on suspension and deposit feeding marine macrofauna. *NIWA Client Report HAM2003-077 prepared for Auckland Regional Council (NIWA Project ARC03267)*. August. 43 p. ARC Technical Publication No. 211.

Shears, N. T. & Babcock, R. C. (2007). Quantitative description of mainland New Zealand's shallow subtidal reef communities. *Science for Conservation 280*, 126.

Shima J.S. & Phillips, N.E. (2006). Differential effects of suspended sediments on larval survival and settlement of New Zealand urchins Evechinus chloroticus and abalone Haliotis iris. Marine Ecology Progress Series. 314: 149–158.

Sutton, P. J. H. & Bowen, M. (2019). Ocean temperature change around New Zealand over the last 36 years. *New Zealand Journal of Marine and Freshwater Research, 53*(3), 305–326. https://doi.org/10.1080/00288330.2018.1562945

Walker, M.M. (1982). Reproductive periodicity in Evechinus chloroticus in the Hauraki Gulf. New Zealand Journal of Marine and Freshwater Research, 16: 19-25, DOI: 10.1080/00288330.1982.9515944.