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Submission on Bottom Fishing Access Zones in the Hauraki Gulf Marine Park

1. Introduction

1.1 This submission addresses the proposed Bottom Fishing Access Zones (**BFAZ**) in the Hauraki Gulf Marine Park (**HGMP**) as set out in the Fisheries New Zealand Discussion Paper No 2023/19 (**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. EDS has a special interest in coastal and marine ecosystems and is currently leading research on future options for oceans system reform.

1.3 The Hauraki Gulf Tīkapa Moana has been a core focus of EDS's work for many years. EDS strongly supported the Sea Change Tai Timu Tai Pari (**Sea Change**) process. EDS Policy Director Raewyn Peart was a member of the Stakeholder Working Group (**SWG**) that developed the Sea Change Marine Spatial Plan, was subsequently a member of the Ministerial Advisory Committee on Sea Change, and is currently a member of the Hauraki Gulf Fisheries Plan Advisory Group.

1.4 EDS has published widely on issues within the HGMP. In 2016, EDS produced an environmental history of the Hauraki Gulf[1] followed by a 2017 lessons learnt review of the Sea

[1] Peart R, 2016, *The story of the Hauraki Gulf*, Bateman, Auckland

Change process,[2] a 2018 investigation into fisheries management which included a Hauraki Gulf case study,[3] a 2019 investigation into aquaculture which included a Hauraki Gulf case study,[4] and a 2019 report outlining potential options for improving the governance of the Hauraki Gulf.[5] In 2020, EDS published a report on protecting the Hauraki Gulf Islands as part of its landscape protection project.[6]

1.5 More recently, EDS has submitted in support of iwi-led proposals to temporarily close the waters around Waiheke Island and Aotea Great Barrier Island, and in support of the proposed Hākaimango-Matiatia (Northwest Waiheke Island) Marine Reserve. EDS also submitted on the review of sustainability measures for Coromandel scallops and the Draft Hauraki Gulf Fisheries Plan.[7]

2. Summary of submission

2.1 Bottom trawling has been undertaken in the HGMP since 1899 and has caused profound and wide-spread damage to the benthic habitats of the Park. Some of this damage was intentionally caused by commercial trawlers, in order to 'condition' the seabed so that it was more suitable for trawling.

2.2 The loss of biogenic habitats, as a result of damaging fishing methods, has had a profound impact on the ecological health and productivity of the HGMP. The Park is now thought to support less than half the biomass present in 1925, and there is a likely bottleneck in the availability of juvenile habitat to support fish production. There is more recent evidence that fish in the Park are undergoing prolonged periods of starvation.

2.3 The co-governance and collaborative Sea Change process developed a roadmap to address such ecological loss. This included a carefully designed process to transition bottom trawling, Danish seining and dredging entirely out of the HGMP, coupled with support for fishing vessels to move to more environmentally sustainable fishing methods. This was aimed at achieving higher value from the fish caught within the Park (in a 'win win' for the environment and the fishing industry) and to address any potential impacts from displaced effort.

2.4 Despite improved trawl equipment being available for at least a decade, that reduces seabed contact by up to 95% while also reducing fuel costs, it has not been widely adopted by the fishing industry. Damaging practices which see heavy trawl doors dragged through seabed sediment still continue within the HGMP and elsewhere.

2.5 The Hauraki Gulf Fisheries Plan, which must be taken into account under the Fisheries Act when setting measures to address the environmental impacts of bottom trawling and Danish seining, has the objective of protecting marine habitats from "any adverse effects" of bottom contact fishing methods. This sets the frame for the consideration of any measures to address such effects.

2.6 Within the above context, EDS seeks the total transition of bottom trawling and Danish seining out of the HGMP, so would only support any proposal to establish BFAZ if they were used as a transition measure to achieve the full removal of these methods over time.

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[2] Peart R, 2017, *Turning the tide: Integrated marine planning in New Zealand*, EDS, Auckland, available form www.eds.org.nz
[3] Peart R, 2018, *Voices from the sea: Managing New Zealand's fisheries*, EDS, Auckland
[4] Peart R, 2019, *Farming the Sea: Marine Aquaculture with Resource Management System Reform*, EDS, Auckland
[5] Peart R and B Cox, 2019, *Governance of the Hauraki Gulf: A review of options,* EDS, Auckland, available from www.eds.org.nz
[6] Peart R and C Woodhouse, 2020, *Protecting the Hauraki Gulf Islands*, EDS, Auckland, available from www.eds.org.nz
[7] Recent submissions prepared by EDS are available from www.eds.org.nz

2.7 In order to meet the legal requirements under the Fisheries Act including to avoid and remedy adverse effects of fishing on the aquatic environment (as well as mitigate), the options provided to the Minister need to include one that sees a complete withdrawal of bottom trawling and Danish seining from the HGMP. Failure to do so will leave the Minister's decision vulnerable to legal challenge.

2.8 The Discussion Paper also includes misleading information in terms of identifying the benefits and costs of the different options and EDS does not consider that it meets the requirement for best available information under section 10 of the Fisheries Act.

2.9 If BFAZ are to be used as a transition measure, such a transition period should be no longer than five years (ie with all bottom damaging methods removed by 2028), and there should be a requirement that any vessels accessing BFAZ during the transition period use best practice methods including, in the case of bottom trawling, the mandatory use of semi-pelagic doors (or other doors) that do not contact the seabed.

2.10 An assistance package for any bottom trawling and Danish seining vessels currently operating in the HGMP, to transition to long-lining or other harvest methods that do not impact the seabed, should also be provided and could take the form of soft-loans to fund the purchase of new gear.

2.11 If a transition approach were adopted (with all bottom trawling and Danish seining removed from the HGMP by 2028), EDS would support Option 4, subject to a requirement to use best practice methods within the BFAZ during the transition period (as described above) and the BFAZ boundaries being modified as described below.

2.12 In order to reduce the 'edge effect', where sediment plumes generated from bottom trawling disperse over large distances, Option 4 should be modified to remove the little 'finger' extending to the north of the BFAZ to the east of Aotea Great Barrier Island, and to reduce the BFAZ to the west of the cable protection zone to mirror the area shown in orange on the trawl effort map.

3. The proposal

3.1 The Discussion Paper seeks views on four options proposed for establishing BFAZ or trawl corridors within the HGMP, with bottom trawling and Danish seining to be excluded from the balance of the Park. The four options range from the smallest closure area (3,759 km^2), being Option 1, to the greatest closure area (8,076 km^2), being Option 4.

3.2 In order to properly evaluate the options, and the extent to which they effectively protect benthic habitats within the HGMP, it is important to reflect on the history of trawling and dredging in the HGMP and its impact on the health and productivity of the Park. It is also important to consider the collaboratively developed proposals in the Sea Change Marine Spatial Plan (finalised in 2016) that include carefully designed and detailed measures to address the impacts of trawling, Danish seining and dredging on the HGMP. We cover these matters in the next two sections below.

4. History of trawling and dredging in the Hauraki Gulf[8]

4.1 Bottom trawling was first introduced into the Hauraki Gulf by Albert Sanford in 1899. This took the form of beam trawling, where a large straight beam held open the mouth of the net, with the net being dragged over the seabed by a steam-driven fishing vessel. The trawler operated within the inner Gulf, where there were flat soft sediments suitable for dragging a net (which were likely covered in seagrass). These early trawls, undertaken in areas that had never experienced industrial-scale fishing before, harvested huge quantities of fish.

4.2 The shallow waters that Sanford trawled were important fish nursery areas for the broader east coast fisheries. This meant that the trawler scooped up large quantities of tiny fish (reportedly up to half the catch) which were simply dumped over the side. Within months of the trawler arriving in the Gulf, commercial line fishermen found fish much harder to catch, and this led to calls for the trawler to be banned from the area.

4.3 In response to the strong opposition to trawling, the government set up an inquiry in 1901, and the following year regulations prohibited trawling inside a line running from Colville Bay west across to Tiritiri Matangi Island and then north to Flat Rock (thereby including a larger trawling exclusion area than is currently in place in the inner Gulf).

4.4 At that stage, being largely untouched by fishing or other gear, the seabed of the Hauraki Gulf was heavily encrusted with rich biogenic habitats, and these supported a hugely productive fishery. This was confirmed by reports from government-sponsored experimental trawls, which were undertaken in the Gulf in 1901 and 1907, as well as eye-witness accounts from commercial fishers.

4.5 The 1901 government experimental trawl found that "good hauls of marketable fish were made on almost every occasion" indicating the health of the fishery. This was especially so in the Firth of Thames "where fish appear to be particularly plentiful and of good quality".

4.6 More importantly, as well as fish, the trawler brought up material from the seabed indicating the nature of the habitats there. When the net was hauled up from the Tāmaki Strait, it was full of "grass and weeds" indicating the extensive seagrass beds in the area. There was "a lot of marine growth" to the south-west of Cape Colville on a largely sandy and shelly substrate, indicating prolific marine life. Lots of large mussels were encountered along the coast between the Coromandel and Manaia harbours and off Tapu further south.

4.7 Six years later, the 1907 experimental trawl provided further information about benthic habitats, this time in the outer Gulf, as the trawler was required to keep outside the 1902 trawl line. Trawling in the deeper water did not prove easy as the seabed was heavily encrusted with marine life.

4.8 Trawling to the west of Cape Colville and to the north of Waiheke Island (near the centre of the Gulf) resulted in the net becoming torn as it was dragged over rough ground including horse mussel and sponge beds. When trawling halfway between Channel Island and Little Barrier Island, the net was badly torn due to it "having met with foul bottom" including coral and shell. A tow off the west coast of Little Barrier also revealed a "bottom of a dirty nature".

[8] For the sources of the historical information in this section see chapter 11 Early commercial fishing, in Peart R, 2016, *The story of the Hauraki Gulf*, Bateman, Auckland

4.9 The Inspector of Fisheries who wrote a report of the trip concluded that "All the ground covered appeared to be unsuited for trawling, the bottom consisting of horse-mussel, coral and dirty mud." This was no doubt the reason that the steam trawler, that had started operating in the Gulf in 1899, was retired after the 1902 regulations came into force. It was not possible to trawl in the outer Gulf due to richly encrusted benthic habitats which seriously impeded the ability to drag a net across the seabed.

4.10 In 1914, when the First World War began, the inner Gulf trawling ban was largely removed and Sanford purchased three steam trawlers to operate in the Gulf. They adopted the then new method of 'otter' trawling, the method still used in the Gulf today (albeit with more hydrodynamically efficient equipment). It involves dragging two heavy steel doors over the seabed, to keep the mouth of the net open, along with ropes, chain and rubber discs or bobbins to hold the net close to the seabed.[9] Otter trawling proved to be more damaging than beam trawling because of the need to drag heavy trawl doors through seabed sediments.

4.11 A considerable amount of seabed damage wrought by the trawlers was not incidental to fishing itself, but was intentionally caused to better facilitate bottom trawling. When the Gulf was reopened to trawling during World War One, much of the area proved untrawlable, due to the thick carpet of horse mussels, corals and other growths that snagged the nets. To address this problem, two steam trawlers would drag between them an old ships chain, and motor out from Rangitoto, past the Noises Islands and into the outer gulf in order to smash up this rich mosaic of seabed life.

4.12 Such practices eventually reduced much of the Gulf's biogenic habitats to muddy 'paddocks' which were regularly 'hoed' by trawl equipment. The term 'paddock' was how many fishermen came to refer to the Gulf fishing ground.

4.13 A 1916 description of trawling on the outer coast of Tiritiri Matangi indicated that the transformation of the Gulf's seabed from a mosaic of rich benthic habitats to a soft sediment 'paddock' had not yet been completely achieved. A reporter who was on the trip wrote that the lower part of the net was "heavily protected with coconut fibre chafing gear, to protect the ropes from the tearing action of rocks and the sharp edges of the big horse mussels which cover the bottom over the great area of the best fishing grounds."

4.14 While trawling was ripping apart benthic habitats in the outer Gulf, dredging was destroying the rich green-lipped mussel beds in the inner Gulf, in a benthic habitat loss 'double whammy'. Mussel dredging, using power-driven vessels, became established in the Hauraki Gulf during the 1940s. By 1960, all the rich mussels beds which had formed a thick belt along the western coast of the Coromandel Peninsula from south of Te Puru up to Colville Bay, were gone. By 1969, the fishery had collapsed, with other dense beds running up the centre of the Firth of Thames, off Kaiaua, around Waiheke Island, in the Tamaki Strait and off Rangitoto also destroyed.[10] These beds have never recovered, highlighting the irreversible habitat damage that such fishing methods can cause.

4.15 At the same time as the green-lipped mussel beds were collapsing, commercial trawlers continued to destroy other ecologically important benthic habitats in the broader Gulf. For example, during the 1950s, bottom trawlers destroyed a large dense bed of horse mussels on a deep-water shelf that covered an area from Happy Jack Island north of Coromandel Harbour, across the top of the Firth of Thames to the west of Hooks Bay on Waiheke Island

[9] Eayrs S E, T Craig and K Short, 2020, *Mitigation techniques to reduce benthic impacts of trawling*, Terra Moana, Wellington, at 1
[10] Peart R, 2016, *The story of the Hauraki Gulf*, Bateman, Auckland, at 244-245

and then up to just west of Port Jackson. Commercial handline fishers had regularly harvested large catches over the horse mussel beds. As one commercial fisher recalled, "Then the trawling got going" and "With the trawler boards and sweep wires, they knocked the top off every horse mussel and in about five years they had killed the lot".

4.16 Another long-standing commercial fisherman recalls that during the 1950s the area out from Leigh was full of horse mussels but now "the place has been dragged clear". "We used to have thousands of hectares of horse mussels with crabs, worms and other creatures living in there, all the sardines coming in, and all the bigger fish, the snapper, kahawai, kingies and squid coming to feed. That whole thing was bubbling away and then you tear all of that out."

4.17 Such profound damage to the Gulf's benthic habitats from trawling has continued up until recent times, incrementally eating away at the edges of once 'rough' habitat. This has been aided by newer technologies. As the Sea Change Marine Spatial Plan noted "Recent advances in technology (such as electronic net monitoring and 3-D bottom scanning technology) have put more foul territory at risk of disturbance, as they enable trawl gear to be towed into foul ground."[11]

4.18 Dredging has also continued to impact the Gulf. Since the collapse of the mussel beds during the 1960s, dredging has continued, re-targeted onto the Gulf's vulnerable scallop beds. This was until they too collapsed in 2021, with the biomass of core scallop beds in the Hauraki Gulf declining from 1,005 tonnes in 2012, to just 52 tonnes in 2021 (just 5% of the 2012 level).[12] They have since been closed, but dredging has not been excluded as a fishing method if they were to reopen.

5 The impact of trawling and dredging on the health and productivity of the Hauraki Gulf

5.1 Although there has been no quantification of the cumulative impacts of trawling and dredging on the Hauraki Gulf, it is clear that such impacts are very widespread. Dredging completely eliminated 500 km^2 of green-lipped mussel beds which have not recovered in 60 years. Trawling has also destroyed most of the large areas of horse mussel beds and other three-dimensional biogenic habitat in the outer Gulf, although the precise area that has been impacted remains unknown. As stated in the Sea Change Marine Spatial Plan:

> *"The Park has experienced large declines in the abundance of many habitats, in particular the loss of biogenic (living) habitats, which provide numerous ecosystem goods and services, including supporting fisheries. These include 'foundation species' which create habitat for other species, including wide spread horse mussel, green-lipped mussel and scallop beds, kelp forests, soft and hard corals, sponge gardens, bryozoan fields, polychaete worm meadows and red algal beds."*[13]

5.2 Such loss has undoubtedly had a profound impact on the ecological health and productivity of the Hauraki Gulf. In terms of the loss of the *green-lipped* mussel beds, scientists have found that:[14]

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[11] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 62

[12] Fisheries New Zealand, 2021, *Review of sustainability measures for New Zealand scallops (SCA 1 & SCA CS) for 2022/23*, FNZ Discussion Paper No 2021/30, available at www.mpi.govt.nz

[13] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 63

[14] Morrison M A et al, 2014, 'Linking marine fisheries species to biogenic habitats in New Zealand: A review and synthesis of knowledge', *New Zealand Aquatic Environment and Biodiversity Report* No. 130, at 46-47

a) The densities of small fish over remnant mussel beds in the Hauraki Gulf are up to 10 times the densities on adjacent bare sediments indicating that the loss of the beds has significantly impaired the ability of the area to act as a nursery ground for small fish.

b) The densities of invertebrates in mussel patches are 2 to 8 times greater than on adjacent bare sediments with associated biomass values increased 7 times. The mussel patches also contain much greater species richness and densities of larger crustaceans. The lack of crustaceans on bare sediment likely has a strong cascading effect on fish production with an estimated loss of between 200 and 16,000 tons of predatory fish per year as a result of the demise of the Gulf's green-lipped mussel beds. This can be compared to the total allowable catch for snapper 1, which is 8,050 tonnes per year, over an area stretching from North Cape to East Cape. Potentially the mussel beds produced up to double this amount of fish per year from a small fraction of the area. This enormous productive capacity has now been lost, probably irretrievably, as a result of the unconstrained use of a damaging fishing method.

c) In addition, it is estimated that the mussel beds could have potentially filtered the entire water volume of the Firth of Thames in less than a day, compared to over a year currently due to the severely reduced mussel biomass. This would have contributed to increased water clarity benefitting many other marine species.

5.3 In terms of the ecological impacts of the loss of the extensive *horse mussel* beds, scientists have found that:[15]

a) "Horse mussel beds often support diverse species assemblages of sponges, macro-algae, bryozoans, filter feeding bivalves, and soft corals, and mobile species such as sea cucumbers, hermit crabs, and small benthic fishes". In addition, "both living and dead horse mussels are often a component of many other diverse biogenic seafloors, along with contributions from dog cockles, scallops, maerl, bryozoans, sponges, hydroids and macro-algae". This means that horse mussel beds strongly enhance marine biodiversity.

b) Horse mussel beds provide a nursery area for juvenile snapper and trevally, supporting 10 to 30 times more juvenile snapper than adjacent sediment.

c) Adult snapper are also commonly associated with horse mussels beds indicating that they likely provide a rich food source.

5.4 Such impacts are cumulative, being exacerbated by localised depletion, the overharvesting of stocks and sedimentation in the inner Gulf. Scientists have estimated that the HGMP now supports less than half the biomass present in 1925[16] and there is likely a bottleneck in the availability of juvenile habitat to support fish production. As stated in the Sea Change Marine Spatial Plan, "With the reduction of these habitats, a number of species may now face 'habitat bottlenecks', where the overall production of juveniles is constrained by a lack of sufficient habitat to support them." This means that the carrying capacity of the environment has been "significantly reduced" and that it will not be possible to rebuild fish stocks back towards historical abundances without restoring these habitats.[17]

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[15] Morrison M A et al, 2014, 'Linking marine fisheries species to biogenic habitats in New Zealand: A review and synthesis of knowledge', *New Zealand Aquatic Environment and Biodiversity Report* No. 130, at 55-56

[16] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 60

[17] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 62

5.5 The issue of the ongoing loss of productivity of the Gulf was brought to the fore more recently with the appearance of multiple snapper and trevally with milky white 'mushy' flesh. Although some fish had been observed with this syndrome in previous years, it became much more common during the 2022-23 fishing year.[18] Investigations have attributed the syndrome to fish undergoing a prolonged period of starvation.[19]

5.6 It was the issue of reversing such lost productivity and reduced ecological health within the HGMP that the Sea Change process focused on when developing the Sea Change Marine Spatial Plan. The Plan set out a roadmap of actions to restore the mauri of the Hauraki Gulf / Tīkapa Moana / Te Moananui-ā-Toi.

6 Sea Change process

6.1 The Sea Change project had its inception in the Hauraki Gulf Forum's 2011 *State of Our Gulf Report,* which highlighted the ongoing and significant environmental decline of the Hauraki Gulf, and the failure of current management approaches to effectively address it.[20] The Report made it clear that incremental shifts would be insufficient to address the size of the challenge and a step change in approach was required.

6.2 In response, Auckland Council and Waikato Regional Council agreed to initiate a marine spatial planning project for the Hauraki Gulf, with the Department of Conservation (**DOC**) and the Ministry for Primary industries (**MPI**) subsequently joining the agency grouping. The project design drew on international best practice in marine spatial planning.[21]

6.3 A co-governance Project Steering Group (**PSG**) was established to oversee the project consisting of eight mana whenua representatives and eight representatives from the statutory bodies involved in managing the Gulf (including territorial authorities, Auckland Council, Waikato Regional Council, DOC and MPI). The PSG approved the Terms of Reference for the SWG and received and adopted the final Sea Change plan.

6.4 The plan, itself, was developed through a collaborative process by a SWG consisting of representatives from mana whenua, commercial and recreational fishing, farming, aquaculture, infrastructure, community and environmental interests. The plan was based on the best available science and mātauranga Māori. Scientists from a range of research institutions presented their work directly to the SWG and 2 science advisors supported the SWG in writing the plan.

6.5 The Sea Change Plan was agreed to by all 14 members of the SWG and was received and adopted by the PSG. It was publicly launched on 6 December 2016 (now nearly 7 years ago).

6.6 The impact of trawling, Danish seining and dredging on the Hauraki Gulf was a matter that the SWG strongly focused on. The group carefully assessed the science on the impacts of these fishing methods and concluded that, if the Gulf was to be returned to a healthy state, these methods needed to be transitioned out of the HGMP entirely.

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[18] https://www.mpi.govt.nz/fishing-aquaculture/recreational-fishing/information-on-popular-fish-in-nz/snapper-status-and-information/milky-white-flesh-in-snapper-and-some-other-finfish/

[19] "Milky-white flesh syndrome in snapper (*Pagrus auratus*) and trevally (*Pseudocaranx dentex*) investigated', 2023, *Surveillance* 50(2), at 34

[20] Hauraki Gulf Forum, 2011, *State of our gulf 2011*, Hauraki Gulf Forum, Auckland, at 13

[21] Hauraki Gulf Forum, 2011, *Spatial planning for the Gulf: An international review of marine spatial planning initiatives and application to the Hauraki Gulf*, Hauraki Gulf Forum, Auckland

6.7 For this reason, the Sea Change Marine Spatial Plan sets as an outcome:

> *"An end to any further loss of biogenic habitats, and cessation of activities which hinder their ability to recover through ongoing disturbance, due to the large extent of historic loss and their importance in the life cycle of many species."*[22]

6.8 The Plan goes on to further explain the rationale behind transitioning benthic-damaging fishing methods out of the Gulf:

> *"The need to increase the ability of the Hauraki Gulf Marine Park to produce more fish: by restoration and protection of habitats of importance to juvenile fish (Green-lipped and horse mussel beds, seagrass beds, sponge and coral gardens etc). This necessitates transitioning fishing methods out of the Hauraki Gulf Marine Park that can cause further damage and/or prevent habitat recovery through impacting the seabed…"*[23]

6.9 When developing the Plan, the SWG was aware of the risk of displaced effort damaging other areas if bottom trawling was simply moved elsewhere. The SWG was also concerned to address potential financial impacts on the commercial fishing sector if benthic impacting fishing methods were to be excluded from the HGMP. For this reason, another outcome set out in the Plan is "A flourishing Hauraki Gulf Marine Park fishery that focuses on harvesting high quality, high value fish". The Plan goes on to explain "In improving the management of fisheries within the Hauraki Gulf Marine Park, and restoring habitats of importance to fisheries, the plan is intended to support a flourishing and financially successful commercial fishing sector." This was on the basis that restored habitat would improve the productivity of fish stocks and consequently support higher long-term fisheries yields.[24]

6.10 In terms of the Gulf's commercial fishery, the Plan also emphasised:

> *"The desirability of generating the greatest value from the fishery, through encouraging commercial methods that produce the highest quality and therefore highest value fish (e.g. artisanal methods such as long-lining) …"*[25]

6.11 The Plan therefore placed importance on transitioning the commercial fishing industry into less environmentally damaging methods (which would facilitate habitat recovery thereby supporting higher fish production in the future), and which would produce higher quality, and therefore higher value fish from the current limited supply. In this way it would be a 'win win' for the industry, which would eventually be able to harvest a greater quantity of higher value fish.

6.12 There has for decades been a strong longline fleet in the Hauraki Gulf, largely consisting of small owner operators, and the Sea Change proposal sought to support, strengthen and expand this fleet. Longlined fish is of much higher quality (and therefore can be sold for higher prices) than fish caught by traditional trawl nets because the fish do get squashed and damaged in the nets and can be killed instantly after being hauled up on the line. Notably,

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[22] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 40

[23] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 66

[24] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 58

[25] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 66

longlining in the HGMP (at 12% of greenweight) currently harvests a similar proportion of fish as single bottom trawling (14%) and much more than precision bottom trawling (7%).[26]

6.13 It was for the above reasons that the Sea Change Plan provided for a carefully planned, and well thought through, phase out of trawling, Danish seining and dredging from the HGMP. This was to take place over a 9 year period in order to minimise any short-term adverse impacts on the fishing industry. The sequence was as follows:[27]

a) No new trawling or Danish seining vessels were to be allowed to operate within the HGMP (from 2016).
b) A collaboration between the fishing industry, universities and Crown research institutes was to be formed to research innovative harvest methods that avoid damaging benthic habitats (from 2017).
c) Bottom trawling was to be withdrawn from the inner Gulf and Danish seining was to be withdrawn from the east coast of the Coromandel Peninsula (2018).
d) The habitat of the HGMP was to be mapped to identify priority areas for the withdrawal of bottom trawling and Danish seining based on ecological importance (2019). This work was completed in 2023.
e) Bottom trawling and Danish seining were to be withdrawn from areas identified as high priority based on ecological importance (2020).
f) Bottom trawling and Danish seining were to be withdrawn from areas identified as medium priority based on ecological importance (2023).
g) Bottom trawling and Danish seining were to be withdrawn entirely from the HGMP (2025).
h) Progress in achieving the restoration of the Park's benthic habitats would be reviewed and any further actions required taken (2030).

6.14 A similar phased out approach was applied to scallop dredging which included:[28]

a) Immediately restricting the use of scallop dredges to existing scallop beds and allowing the use of underwater breathing apparatus for commercial scallop harvesting (this second element has been progressed).
b) Banning the use of scallop dredges in areas less than 20 metres deep (2018)
c) Prohibiting the use of scallop dredges within the entire HGMP (2025).
d) Providing research, development and funding support to enable scallop dredgers to transition to other methods that do not impact the seabed (such as robots) as well as investigating scallop aquaculture.

6.13 The Plan also sought to avoid damaging impacts of any displacement of effort with an action to "Put in place mechanisms to prevent any displacement of these methods to other areas, including the east coast of the Coromandel Peninsula and the nearby islands, during the transition".[29] In order to avoid the displacement issue, the Plan sought to transition fishers to more sustainable methods (as described above), not just move the damaging methods elsewhere. This is an important aspect of the Sea Change approach which has not been picked

[26] Hauraki Gulf Forum, 2023*, State of our Gulf 2023: Hauraki Gulf / Tīkapa Moana /Te Moananui-ā-Toi State of the Environment Report 2023*, at 39
[27] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 70-71
[28] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 71
[29] Sea Change Stakeholder Working Group, 2017, *Sea Change Tai timu Tai Pari Hauraki Gulf Marine Spatial Plan*, Environment Waikato, Hamilton, at 71

up in the current proposals and needs to be. The development of less damaging fishing methods is discussed below.

6.14 In terms of assisting commercial fishers to transition bottom contact methods out of the HGMP the plan described the necessity for an assistance package which:

> *"will be multi-dimensional, and may include financial support, investment in new vessels and/or refitting existing vessels, investment in new technology development and training for people involved in the commercial fishing sector. Principles for an assistance package need to be developed as part of implementation but should learn from global best practice as nothing at this scale or significance has been undertaken in New Zealand previously. It must:*
> *• Be innovative;*
> *• Be fair, honest, and transparent;*
> *• Be based on agreed principles;*
> *• Recognise actual costs and the desirability of avoiding displacement of effort; and*
> *• Draw on learnings from other negotiated outcomes (such as Treaty of Waitangi settlements, establishment of MPAs in Australia etc.)."*

7. Development of less damaging fishing methods

7.1 Since otter trawling was widely adopted in Aotearoa New Zealand, the technology has not been significantly modified to reduce its impacts on the seafloor. The greatest impact is from the trawl doors which "can plough deep furrows in unconsolidated sediment that may be up to 30cm deep and 20cm wide", which compress sediments at the bottom of the furrow and may create a sediment berm on each side. They are also "a major contributor to sediment resuspension" which "can also have serious negative ecological impacts, including the release of nutrients or contaminants held on the sediment, vertical redistribution of sediment layers or exposure of anoxic layers, and smothering of epibenthic fauna resulting in compromised feeding, respiration, reproductive capability, and survival rates."[30]

7.2 There are a number of ways that trawl doors can be modified to reduce this impact, the most promising being the use of semi-pelagic trawl doors which have a high aspect-ratio, multi-foil design that can be used clear of the seabed. As concluded by Eayrs et al (2020), "These doors are also very hydrodynamically efficient (high lift to drag ratio), very stable in the water column, and can be used to replace bottom-tending trawl doors".[31]

7.3 Semi-pelagic trawl doors were trialled in New Zealand in 2014, in the inshore trawl fishery, with very positive results. The research "demonstrated the ability of these trawl doors to reduce seabed contact by 95% compared to conventional trawl doors. Catch rates of target species were almost identical between trawl doors, and fuel consumption was reduced by an average of 16% ..." Fuel cost is a significant factor in trawl fisheries as "in calm weather, between 80% and 90% of a fishing boat's fuel consumption is used to overcome the drag of the fishing gear in the water".[32]

7.4 The doors have been tested in Australia, Europe and the United States (as well as in New Zealand) and they can be used on trawlers of a wide variety of sizes and design. They also don't require any significant change in deck layout, winches or hauling gear. They are used voluntarily in other countries because they are simple to operate and reduce fuel costs.

[30] Eayrs S, T Craig and K Short, 2020, *Mitigation techniques to reduce benthic impacts of trawling*, Terra Moana, Wellington, at 24-25
[31] Eayrs S, T Craig and K Short, 2020, *Mitigation techniques to reduce benthic impacts of trawling*, Terra Moana, Wellington, at 35
[32] https://issuu.com/seafishuk/docs/150446_quay_issues_dec_2018_pages/s/33929

Alaskan pollack fishermen use them, as do shrimp fishermen in Greenland and some fishermen in Northern Ireland targeting cod and haddock.[33]

7.5 Despite these impressive results, which were produced almost a decade ago, "for reasons that are unclear, these outcomes were not embraced by fishers" in New Zealand.[34] The price of the doors has been estimated as typically over $10,000, and can reach $20,000 depending on size, but the payback period (in fuel savings) can be less than one year in some circumstances.[35] They also have the added benefit of reducing the fishing vessels' carbon footprint.

7.6 Research recently undertaken by Eayrs and Craig with contract fishers working for Moana New Zealand, including 11 bottom trawl vessels, indicated that there is a willingness to improve trawl methods with some innovations already being undertaken. However, there was no evidence of widespread adoption of best practice technologies amongst the fleet.[36] The current laissez faire approach, which simply permits damaging trawl methods to continue, is clearly not sufficient to incentivise the adoption of best practice methods which could significantly reduce environmental damage.

7.7 This is why the Sea Change Plan included a carefully calibrated mix of regulatory methods (to gradually exclude bottom trawling and Danish seining from the entire HGMP) and assistance packages (to support fishers to adopt improved technologies). Such a nuanced approach is notably missing from the current proposals and needs to be incorporated within it.

8. Hauraki Gulf Fisheries Plan

8.1 The Hauraki Gulf Fisheries Plan is designed to provide a framework for the implementation of the fish stocks chapter in the Sea Change Plan. It has a five-year time horizon (i.e., until 2028), setting out:

> *"… long-term outcomes to guide the management of fisheries in the Hauraki Gulf Marine Park over the next five years. Management objectives and associated management actions describe the goals and discrete steps that will be taken over the next five years to achieve these desired outcomes, using the tools and associated regulations under the Fisheries Act 1996 (the Act)."*[37]

8.2 The Plan was approved by the Minister in August 2023 under section 11A(1) of the Fisheries Act 1996. It is to be taken into account when setting or varying any sustainability measure under the Act, including measures to manage the environmental impacts of bottom trawling and Danish seining.[38]

8.3 Of relevance to the issue of removal of bottom trawling and Danish seining from the HGMP, the Plan sets out as Management Objective (1.1): "Protect marine habitats from *any adverse effects* of bottom contact fishing methods, to enable passive and active restoration that support ecosystem services". This accurately captures the intent of the Sea Change Plan. It is supported by Management Action 1.1.1 "Exclude bottom trawling and Danish seining from the Hauraki Gulf except within defined areas."[39]

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[33] https://issuu.com/seafishuk/docs/150446_quay_issues_dec_2018_pages/s/33929
[34] Eayrs S, T Craig and K Short, 2020, *Mitigation techniques to reduce benthic impacts of trawling*, Terra Moana, Wellington, at 8
[35] Eayrs S, T Craig and K Short, 2020, *Mitigation techniques to reduce benthic impacts of trawling*, Terra Moana, Wellington, at 53
[36] Eayres S and T Craig, 2023, *A review of Moana New Zealand's efforts to reduce seabed contact by fishers engaged in bottom trawl, Danish seining, and bottom longline fishing in New Zealand* (Short version modified from major report), Terra Moana, Wellington, at 10
[37] Hauraki Gulf Fisheries Plan 2023, at 4
[38] Section11(2A)(b), Fisheries Act 1996
[39] Hauraki Gulf Fisheries Plan 2023, at 18

8.4 When reading Management Action 1.1.1 within the context of the Management Objective 1.1 it can be concluded that any "defined areas" where bottom trawling and Danish seining can be allowed to operate must not result in any "adverse effects" on marine habitat. Otherwise, the action will not enable the objective to be achieved.

8.5 It is within the above context that the current proposals for BAFZ need to be considered, including:

a) The historic damage caused by bottom impacting fishing methods in the HGMP;
b) The profound impact this has had on the ecological health and productivity of the HGMP;
c) The provisions in the Sea Change Plan which were carefully developed to address these impacts while supporting the future prosperity of the commercial fishing industry;
d) The availability of much less damaging harvest methods which have largely not been taken up by the industry; and
e) The provisions of Hauraki Gulf Fisheries Plan, including its management provisions.

9. The current proposals for BAFZ

9.1 As stated above, the current proposals in the Discussion Paper comprise four options for establishing BFAZs within the HGMP ranging from the smallest closure area (3,759 km^2) to the largest closure area (8,076 km^2). No option proposes to entirely close the HGMP to bottom trawling and Danish seining. Nor are there any proposals to transition the affected fishing vessels to more sustainable and less environmentally damaging fishing methods (thereby addressing any displacement issues).

9.2 In order to seek feedback, the Discussion Paper poses a number of questions and we address these below:

1. Which option do you support for proposed Bottom Fishing Access Zones? Why?
EDS seeks the total transition of bottom trawling and Danish seining out of the HGMP, in line with the Sea Change Plan, so would only support any proposal to establish BFAZ to the extent that they are used as a transition measure for the eventual full removal of these methods. The reasons for this are set out in detail above. In this regard, EDS notes that the Fisheries Plan provisions are only intended to have a five-year time horizon, and so a similar time horizon for any trawl and Danish seining access to BFAZ would be appropriate, subject to a clear direction that the areas will be closed to such methods in 2028. EDS is also concerned that there are no proposals to address any impacts of displaced effort as a result of closing parts of the HGMP to bottom trawling and Danish seining. In order to address this matter the proposals need to include: • A requirement that any vessels accessing BFAZ use best practice methods including, in the case of bottom trawling, the mandatory use of semi-pelagic doors that do not contact the seabed or any other door configurations that avoid seabed contact. By reducing bottom impact by 95%, the mandatory use of such doors would significantly reduce the ecologically damaging impacts of trawling in the

BFAZ, even if the effort in those areas increases. Although outside the scope of the current exercise, such a requirement could usefully be extended to the balance of the inshore fishery outside the HGMP.

- An assistance package for any bottom trawling and Danish seining vessels currently operating in the HGMP to transition to long-lining or other harvest methods that do not impact the seabed. This could take the form of soft loans to fund the purchase of new gear. Similar assistance could be provided for the purchase of semi-pelagic doors for trawlers operating in the BFAZ. Terms of the loans could be configured taking into account the projected pay-back period for the investments (which are likely to be reduced as fuel costs increase).

If a transition approach were adopted (with all bottom trawling and Danish seining removed from the HGMP by 2028), EDS would support Option 4, subject to best practice methods, including semi-pelagic trawl doors which are flown above the seabed (as described above), being required and the boundaries being modified as described below to address the sediment 'edge effect' of trawling.

As noted in the Discussion Paper (para 32), sediment plumes from bottom trawling can disperse over large distances, affecting areas well beyond the location where the trawl occurred. This means that sediment plumes will almost certainly disperse into areas where trawling is excluded, thereby inhibiting recovery of benthic habitats there (because of smothering and reduced water quality). For this reason, it is important when designing the shape of BFAZ to minimise the length of the boundary line in order to reduce this 'edge effect'.

When looking at the shape of the BFAZ in Option 4 (and in the other Options) it is evident that such edge effects have not been addressed and they need to be, as follows:

- The proposed BFAZ to the east of Aotea Great Barrier Island has a little 'finger' extending to the north, meaning that trawling in the finger will likely impact a wide fan of no-trawl area around its periphery. When examining the trawl effort map[40] it is clear that this area is not required for trawling tows as the much heavier trawl effort within the BFAZ is entirely outside the finger (i.e., to the south-west portion of the BFAZ). **This finger needs to be removed from the BFAZ so that a straight line is drawn along its north side.**

- The BFAZ to the west of the cable protection zone, extends along approximately two-thirds of the western boundary of that protection zone, meaning that the sediment plumes will likely impact the protection zone along this long boundary area. When examining the trawl effort map, it is evident that there is currently little trawl effort within the proposed BFAZ adjacent to the boundary of the cable protection zone or to the north (i.e., where the cable protection zone angles to the east). **This BFAZ needs to be reduced in size to mirror the area shown in orange on the trawl effort map thereby reducing its edge effect on the cable protection zone.**

[40] Fisheries NZ, 2023, *Supplementary information: Bottom trawl fishing effort in the Hauraki Gulf Marine Park (HGMP)*, Figure 1

2. If you do not support any of the options listed, what alternative(s) should be considered? Why?

Full removal of bottom trawling and Danish seining out of the HGMP should be considered for the reasons outline above, and in accordance with the Sea Change Marine Spatial Plan. This should be an option presented to the Minister for consideration, with an accompanying package of support measures for the industry provided, as described above.

3. Do you have any ideas or alternative approaches to the management of bottom fishing impacts, apart from the proposed Bottom Fishing Access Zones?

As described above, a better approach is to remove bottom trawling and Danish seining from the HGMP entirely and to support the affected vessels to transition to other less damaging methods as set out in the Sea Change Marine Spatial Plan.

4. Is there any literature or research that is relevant and has been omitted in this paper?

Yes, the following should also be referenced in the Discussion Paper:

Eayrs S, T Craig and K Short, 2020, *Mitigation techniques to reduce benthic impacts of trawling*, Terra Moana, Wellington

Eayres S and T Craig, 2023, *A review of Moana New Zealand's efforts to reduce seabed contact by fishers engaged in bottom trawl, Danish seining, and bottom longline fishing in New Zealand* (Short version modified from major report), Terra Moana, Wellington

Morrison M A et al, 2014, 'Linking marine fisheries species to biogenic habitats in New Zealand: A review and synthesis of knowledge', *New Zealand Aquatic Environment and Biodiversity Report* No. 130

5. Do these proposed options adequately provide for Treaty of Waitangi obligations and customary access to fishing? Why?

Te Tiriti o Waitangi fisheries rights have been severely compromised by the degradation of the Hauraki Gulf, loss of mauri and reduction in fisheries productivity. This means that commercial and non-commercial customary harvests are far less than would otherwise be possible if there were healthy habitats.

As described above, the HGMP now only supports less than half the biomass present in 1925 and there is now likely a bottleneck in the availability of juvenile habitat to support fish production. Much of this loss of productivity is due to the historic use of damaging fishing methods in the HGMP, and the Gulf has been unable to recover while such methods continue.

Removing benthic damaging fishing methods from the HGMP, and undertaking both passive and active habitat restoration, will help restore the fisheries which will in turn better support the exercise of Māori fisheries rights.

It should also be noted that the Sea Change process, which provided for a phase out of bottom trawling and Danish seining from the HGMP (along with dredging), was a project led by a iwi-central/local government co-governance body. That body adopted the Marine Spatial Plan, which was itself developed by consensus by an iwi and multi-stakeholder representative group.

It should also be noted that, as reported in the Discussion Paper, "the majority of iwi primarily supported the removal of some or all mobile contact fishing from the Gulf."[41]

In addition, transition support could be targeted to Māori commercial fishers, to assist with the adaption of their fishing vessels to non-benthic impacting methods. This could potentially provide greater opportunities for Māori to enter the commercial fishing industry in the HGMP.

6. Do you think these options adequately provide for social, economic, and cultural wellbeing?

Social, economic and cultural wellbeing will all be increased by a healthier and more productive HGMP which the removal of seabed damaging methods will assist in achieving. As noted in the Discussion Paper (para 102) "there are long-term benefits associated with resilient habitats that can support complex marine systems." Almost certainly the use of damaging fishing methods for over a century, and the devastating effect this has had on benthic habitats, has considerably reduced social, economic and cultural wellbeing associated with the HGMP.

Providing assistance to trawl and Danish seine vessels to move to less damaging methods (as proposed above) would also increase economic wellbeing (including potentially reducing fuel costs and their carbon footprint and achieving a higher price for harvested fish) as well as help address any impacts from displaced effort.

We also note that the assessment of the economic impacts of the various options in the Discussion Paper assume that the fish currently caught by trawl and Danish seine within the exclusion area in the HGMP will no longer be harvested at all. This is a fallacious assumption that does not accord with practical reality. EDS does not consider that this economic information meets the requirement for best available information under section 10 of the Fisheries Act.

Most quota management areas for the species targeted by trawl and Danish seine in the HGMP are very large and extend either from the top of North Cape down to East Cape (snapper, trevally, kahawai) or in many cases include the entire top of the North Island including the west coast as well (John Dory, red gurnard, terakihi and rig). It is therefore highly unlikely that fish no longer commercially harvested within the HGMP (which is only a small area of these much larger QMAs) will be harvested from elsewhere. This means that any economic impact on the industry as a whole is likely to be minimal and any such

[41] Discussion Paper, para 93

impacts could be further reduced by providing an assistance package to transition to alternative gear as proposed above.

7. Do you think the proposed options appropriately consider the sustainability obligations under the Act?

No, because they do not include measures to adequately "avoid" and/or "remedy" the adverse effects of bottom trawling and Danish seining on the benthic habitats of the HGMP.

The purpose of the Fisheries Act, under section 8, is "to provide for the utilisation of fisheries *while ensuring sustainability*". The Supreme Court has held that "while" means "at the same time as",[42] thereby requiring sustainability to be achieved at the same time as providing for the utilisation of fisheries. As recently stated by the High Court, the purpose of the Act "is broadly to create an environmental 'bottom-line' of sustainability".[43]

This is further emphasised by the requirement that sustainability is to be "ensured". Ensuring is to *make certain* that (something) will occur or be the case. Ensuring sustainability is further defined as "avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment" as well as "maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations".

As the Supreme Court has stated, "avoiding" has its ordinary meaning of "not allowing" or "preventing".[44] In the context of the Fisheries Act it means preventing adverse effects of fishing on the aquatic environment from occurring. Remedying means to take action to correct any harm caused. Mitigate "is to alleviate, or to abate, or to moderate the severity of something".[45]

Given the widespread and profound harm already caused to the benthic habitats in the HGMP by commercial fishing activities (as outlined above), with such damage likely approaching and in some cases possibly exceeding ecological tipping points, it is clear that mitigation is not sufficient to "ensure sustainability" as required by the Act. Further harm needs to be avoided, and remedial action is urgently required, to address the harm already caused.

This is particularly the case when the Fisheries Act's purpose is applied in the context of the section 9 environmental principles which require biological diversity of the aquatic environment to be maintained and habitat of particular significance for fisheries management to be protected amongst other things. Allowing damaging practices to continue, through a mitigation regime, is simply not appropriate within this legal and factual context.

This is further emphasised by Management Objective 1.1 in the Hauraki Gulf Fisheries Plan which is "Protect marine habitats from *any adverse effects* of bottom contact fishing methods, to enable passive and active restoration that support ecosystem services". This Objective is consistent with the intent and framework of the Fisheries Act.

[42] *Environmental Defence Society Incorporated v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [24(c)]
[43] *The Environmental Law Initiative v Minister for Oceans and Fisheries* [2022] NZHC 2969 at [11]
[44] *Environmental Defence Society Incorporated v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [24(b)]
[45] *Royal Forest and Bird Protection Society of New Zealand Inc v Buller District Council* (No 2), [2013] NZHC 1346, at [72]

To meet the legal requirements under the Fisheries Act, the options provided to the Minister need to include one that contemplates a complete withdrawal of bottom trawling and Danish seining from the HGMP. Failure to do so will leave the Minister's decision vulnerable to challenge.

8. Do you think the criteria outlined in section 5 will provide a suitable basis to assess the options and their impacts?

EDS supports the general approach taken to predicting the distribution of biogenic habitats but would emphasise the significant amount of uncertainty surrounding the modelled outputs. This is due to the large gaps in available data that informed the model and the model outputs not being ground truthed. Problems that can occur when over reliance is placed on models have been recently highlighted by the abandonment of the fisheries model developed for orange roughy ORH3B.[46]

EDS is concerned that the gaps in input data, and uncertainties in the modelled outputs, are not clearly described in the Discussion Paper. It therefore potentially gives the impression that the percentages shown for the protection of suitable habitats by the different options are precise and factually correct.

In addition, EDS is concerned that reliance on modelling, which only considers the likely presence or absence of particular species, does not adequately recognise the impacts of trawling on the broader functioning of soft seabed sediments. Such impacts can include biogeochemical changes and a reduction in the carbon storage capacity of the sediments. These impacts need to be taken into account when considering options.

As indicated above, EDS also has concerns that the economic data used to compare the economic impacts of different options provides a misleading picture.

An explanation of uncertainties surrounding the data presented, and therefore the importance of adopting a precautionary approach, need to be included in any analysis of options provided to the Minister.

Such uncertainties in information is a further reason why a highly precautionary approach should be taken, which would be achieved through transitioning bottom trawling and Danish seining entirely out of the HGMP.

9. Do you think the proposed options appropriately consider the effects on the benthic environment?

No, as outlined above, the level of uncertainty in the modelled data has not been adequately explained and the impacts of trawling on soft sediment communities have not been factored into the analysis and need to be. In addition, the edge effect, where trawling induced sediment disperses onto protected areas has also not been adequately accounted for.

[46] See *Review of sustainability measures for orange roughy (ORH 3B) for 2023/24*, Fisheries New Zealand Discussion Paper No 2023/10

10. Do you think the proposed options adequately mitigate the adverse effects of mobile bottom contact fishing methods on the benthic environment?
No. For a start, mitigation is not the standard required under the Fisheries Act, for the reasons set out above. Given the historical and current context in the HGMP avoidance and remedy of past damage is necessitated. In this context, none of the proposed options achieve the required outcome unless they are treated as transitional measures towards full exclusion of benthic damaging fishing methods in 5 years' time. In addition, the lack of any measures to address potential displaced effort means that mitigation may not be achieved when considered over the broader fishery. Regulations requiring the adoption of best practice methods (including trawl doors that do not contact the seabed) accompanied by some form of financial assistance to help fishing vessels change to more environmentally friendly fishing gear, are also required.