Department of Conversation
PO Box 10420
Wellington 6011

By email: seachange@doc.govt.nz

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SUBMITTER DETAILS

Full name:	Environmental Defence Society Incorporated
Address:	PO Box 91736, Victoria Street West, Auckland 1142
Contact:	Raewyn Peart
Email:	raewyn@eds.org.nz

SUBMISSION ON REVITALISING THE GULF: MARINE PROTECTION PROPOSALS

Introduction

1. This is a submission on the Revitalising the Gulf: Marine protection proposals: Information Document **(Information Document)** prepared by the Department of Conservation **(DOC)**.

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 coastal and marine ecosystems and is currently leading research on future options for oceans system reform.

3. The Hauraki Gulf 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 Tai Timu Tai Pari, and is currently a member of the Hauraki Gulf Fisheries Plan Advisory Group.

4. EDS has published widely on Hauraki Gulf issues. In 2016, EDS produced an environmental history of the Hauraki Gulf[1] followed by a 2017 lessons learnt review of the Sea Change process,[2] a 2018 investigation into fisheries management which included a Hauraki Gulf case study[3] and a 2019 report outlining potential options for improving the governance of the Hauraki Gulf.[4] In

[1] Peart R, 2016, *The story of the Hauraki Gulf*, Bateman, Auckland
[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 and B Cox, 2019, *Governance of the Hauraki Gulf: A review of options,* EDS, Auckland, available from www.eds.org.nz

2020 EDS published a report on protecting the Hauraki Gulf Islands as part of its landscape protection project.[5] More recently, EDS submitted in support of iwi-led proposals to temporarily close the waters around Waiheke Island and in support of the proposed Hākaimango-Matiatia (Northwest Waiheke Island) Marine Reserve.[6]

Summary of submission

5. Overall EDS strongly supports the proposals to increase marine protection in the Hauraki Gulf and commends DOC for putting them forward. The proposals largely reflect those presented in the Sea Change marine spatial plan which were developed through a three-year collaborative process with mana whenua and stakeholder representatives. It is now nearly six years since that plan was completed so these proposals are long overdue and sorely needed.

6. The Hauraki Gulf is a place of considerable importance to mana whenua, local and regional communities, the national and the international community. This was recognised through the creation of the Hauraki Gulf Marine Park. However, the intention that the international and national significance of the Park be protected in perpetuity has not been realised. A mere 0.3% of the Marine Park is currently protected from direct human-induced pressures within marine reserves.

7. The state of the environment of the Marine Park is of serious concern, as highlighted in the 2020 State of Our Gulf report. This paints a stark picture of long-term declines in biodiversity, depletion of taonga species and loss of important benthic habitat. Scallop and cockle beds have collapsed, kina barrens are expanding and the Gulf's seabirds are becoming even more threatened.

8. There is an urgent need to significantly increase marine protection in the Park to help reverse this decline. This is particularly the case in the face of a changing climate and rapidly warming and acidifying seas.

9. Marine protected areas are a proven tool that enable marine ecosystems to recover. Not only are they beneficial for marine life and habitats, they also provide enhanced opportunities for commercial and recreational fishing and other forms of recreation, tourism and educational activities. In addition, they generate economic benefits for local communities.

10. EDS supports the proposal to extend the size of the Cape Rodney to Okakari Point and Whanganui-ā-Hei marine reserves. The extensions should a be in the form of marine reserves, rather than HPAs, to maintain and support the important role these areas play in providing control sites for better understanding the impact of fishing on the marine environment. This would also avoid creating complicated management boundaries between different parts of what should be integrated marine protected areas.

11. EDS supports the proposal to create 12 new HPAs as these areas have a range of important ecological and biodiversity values that both merit and need protection. In particular, EDS supports the inclusion of the Ōtata/the Noises HPA in the protection package.

12. The HPA proposals do not include protection around Ahuahu/Great Mercury Island, an area that was proposed for protection in the Sea Change Plan. Such protection is urgently needed. EDS urges that this gap be closed as soon as possible, and that provision be made in the Bill for a subsequent HPA to be created around the islands.

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[5] Peart R and C Woodhouse, 2020, *Protecting the Hauraki Gulf Islands*, EDS, Auckland, available from www.eds.org.nz

[6] Recent submissions prepared by EDS are available from www.eds.org.nz

13. There are also gaps in coverage of the proposed HPAs around Waiheke Island and Aotea/Great Barrier Island, with the areas not being included in the Sea Change proposal. The existing proposal for the Hākaimango-Matiatia (Northwest Waiheke Island) Marine Reserve could potentially be included in the Bill alongside the other proposed HPAs. Provisions could also be made for future HPAs to be identified around Aotea/Great Barrier island and for other gaps to be filled.

14. Due to their damaging impacts, it is important that bottom trawling, Danish seining and dredging is excluded from on or near important benthic habitats in the Hauraki Gulf Marine Park. EDS supports the proposed SPAs but submits that the areas they cover should be extended in the future. Provisions should be made in the Bill for this to occur.

15. The overall impact of the marine protection proposals on recreational and commercial fishers appears small, and will likely be more than compensated for in the longer term by an increase in fish production generated by the new protected areas.

16. EDS generally supports the proposals relating to the development and role of Biodiversity Objectives. However, given the wide range of interests in the Hauraki Gulf, and the significant role that the Biodiversity Objectives play, it is imperative that wide input is sought in their development.

17. Active management might be required to assist the protected marine systems to restore themselves and it is good to see this provided for in the activities that can take place in HPAs. The Bill should require regular monitoring and review of the sites. It is also important that there is effective enforcement of the HPAs through a regular on-water presence. this will require more resourcing and this will need to be budgeted for.

18. Overall, EDS supports the proposals in the Information Document and urges the Minister to proceed with legislation to create the 12 high protection areas, 5 seafloor protection areas and extension of two existing marine reserves without delay.

The proposal

19. The Department of Conservation **(DOC)** has issued an Information document describing a package of marine protection proposals for the Hauraki Gulf. The proposals include establishing:

    - 12 High Protection Areas **(HPAs)** to protect and enhance marine habitats and ecosystems while providing for the customary practices of mana whenua
    - 5 Seafloor Protection Areas **(SPAs)** to protect sensitive sea floor habitats while continuing to allow for compatible activities; and
    - 2 protected areas adjacent to Whanganui-a-Hei (Cathedral Cove) and Cape Rodney-Okakari Point marine reserves to be established as HPAs or marine reserve extensions.

20. These proposals need to be considered within the context of the considerable importance of the Hauraki Gulf to mana whenua, local and regional communities, Aotearoa New Zealand and the rest of the world, and the ongoing degradation of this nationally and internationally significant marine area. In addition, as the proposals have been largely based on those set out in the Sea Change marine spatial plan[7], with some minor boundary changes, it is important to understand the genesis of the Sea Change process, how the marine protection proposals were developed,

[7] Sea Change Tai Timu Tai Pari, 2016, *Hauraki Gulf marine spatial plan*, Waikato Regional Council, Hamilton, at 18

and the broad cross-sectoral support for the Sea Change plan as a result of the collaborative process.

The importance of the Hauraki Gulf

21. The Hauraki Gulf is "is a taonga of the utmost cultural and spiritual significance to mana whenua through its rich history of settlement and use since the first waka (ancestral canoes) navigated its water many centuries ago."[8] It is a highly productive marine system, a major spawning and nursery area for snapper and other finfish,[9] and supports some of the most important commercial and recreational fisheries in the country.

22. The Gulf is an international seabird biodiversity hotspot, with over 70 species being sighted in the area, comprising some 20% of the world's total number of seabird species. At least 23 species breed in the Hauraki Gulf.[10] The wider Hauraki Gulf region and many of its islands are recognised as globally important with five species endemic to the region and breeding nowhere else in the world.[11] Around 50 Bryde's whales live year-round in the Gulf, and common and bottlenose dolphins are thought to use the Gulf as a calving and nursery area, possibly due to the year-round abundance of food.[12]

23. The national and international importance of the Gulf is highlighted by the passage of the Hauraki Gulf Marine Park Act in 2000 which establishes the Hauraki Gulf Marine Park "to recognise and *protect in perpetuity the international and national significance* of the land and the natural and historic resources within the Park".[13] This highlights the need to protect the area in perpetuity.

24. In section 7, the Act recognises *as a matter of national significance* the interrelationship between the Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the Gulf (which includes its waters and ecosystems).[11] Section 8 sets out management objectives for the Gulf which include "(a) the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments".

25. To date, action towards achieving these objectives has been underwhelming at best. A mere 3,960 ha (or 0.3%) of the Hauraki Gulf Marine Park is protected within marine reserves. Only one marine reserve, the Te Matuku Marine Reserve on the south coast of Waiheke Island, was created after the establishment of the Marine Park in 2000 and the application for it was lodged prior to the Marine Park being in place.[14]

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[8] Ibid

[9] Zeldis J R and R I C C Francis, 1998, 'A daily egg production method estimate of snapper biomass in Hauraki Gulf, New Zealand', *ICES Journal of Marine Science*, 55, 522-534

[10] Gaskin C P and M J Rayner, 2013, *Seabirds of the Hauraki Gulf: Natural history, research and cons*ervation, Hauraki Gulf Forum, Auckland

[11] Gaskin C P (ed), 2021, *The state of our seabirds 2021: Seabird ecology, research and conservation for the wider Hauraki Gulf/Tīkapa Moana/Te Moananui-ā-Toi region*, Northern New Zealand Seabirds Charitable Trust, Auckland

[12] Stockin K A, 2008, *The New Zealand common dolphin (Delphinus sp.): Identity, ecology and Conservation*, PhD thesis, Massey University, Auckland; Dwyer S L et al, 2014, 'Overlooking a potential hotspot at Great Barrier Island for the nationally endangered bottlenose dolphin of New Zealand', *Endangered Species Research*, 25, 97-114

[13] Hauraki Gulf Marine Park Act 2000, section 32(a)

[14] Hauraki Gulf Forum, 2020, State of our Gulf 2020: Hauraki Gulf /Tīkapa Moana/Te Moananui-ā-Toi State of the Environment Report 2020, available from www.haurakigulfforum.org.nz, at 13
Hauraki Gulf Forum, above n 4, at 39

26. The Hauraki Gulf Forum has set a goal of at least 30% marine protection of the Hauraki Gulf Marine Park in its 2021-22 Annual Report,[15] recognising the growing need to provide significantly increased protection for the Marine Park.

27. The Forum's goal has been supported by a public survey undertaken in September and October 2021. Of the 1,000 respondents, 77% supported putting 30% of the Hauraki Gulf into marine protected areas. Only 5% were opposed.[16]

28. Mana whenua have been showing leadership in providing some protection in the absence of government action. In January 2021, Ngāti Pāoa placed a rāhui on the harvest of scallops, mussels, rock lobsters and pāua from the nearshore marine area around Waiheke Island. In February 2022, Ngāti Manuhiri laid a rāhui over the entirety of the Hauraki Gulf to prohibit the harvesting of scallops.

29. There is an urgent need to support these efforts by implementing strong area-based protection to meet the vision and objectives for the Hauraki Gulf Marine Park.

The need for greater marine protection in the Hauraki Gulf

30. The state of the environment of the Hauraki Gulf Marine Park is of serious concern. The latest assessment report, published by the Hauraki Gulf Forum in 2020, describes long-term declines in biodiversity, the depletion of taonga species, and the loss of important benthic habitat.[17] Cumulative effects of human-induced pressures, including overfishing, introduction of invasive species and poorly regulated land-based activities (ie sedimentation and nutrient run-off), have led to widespread degradation of the marine environment. This, in turn, has undermined the capacity of species and ecosystems to perform important ecological functions and provide ecosystem services including fish production.[18] Specific findings in the report, indicative of the ongoing poor health of the Gulf, include:

    - Tāmure and tarakihi are at levels where action is needed to actively rebuild their stocks (less than 20% of unfished stock biomass).
    - Kōura (crayfish) is regarded as functionally extinct in heavily fished areas.
    - Reductions in populations of tāmure (snapper) and kōura (crayfish), have allowed kina to flourish, causing the loss of kelp forests and expansion of urchin barrens on the Hauraki Gulf's subtidal reefs.
    - There has been universal decline in the density of harvestable (>30 mm) tuangi (cockles) over the last 20 years at the 12 monitored sites where harvesting is allowed year-round.

31. In addition, scallop beds are in a state of collapse with the biomass of commercially fished scallop beds declining by more than 80% in the Coromandel fishery over the past 10 years, representing a decline from 1,397 tonnes to 249 tonnes in biomass between 2012 and 2021.[19] Steeper declines have been observed within certain areas. For example, the biomass of core

[15] Hauraki Gulf Forum, 2022, Annual report Te Pūrongo ā Tau 2021-22, at https://gulfjournal.org.nz/wp-content/uploads/2022/08/HGF-AR-2022-10.pdf
[16] Horizon Research, 2021, *Hauraki Gulf survey*, prepared for the Hauraki Gulf Forum, at https://gulfjournal.org.nz/2021/11/results-of-hauraki-gulf-poll/
[17] Hauraki Gulf Forum, 2020, *State of our Gulf 2020: Hauraki Gulf /Tīkapa Moana/Te Moananui-ā-Toi State of the Environment Report 2020*, available from www.haurakigulfforum.org.nz
[18] Hauraki Gulf Forum, 2020, *State of our Gulf 2020: Hauraki Gulf /Tīkapa Moana/Te Moananui-ā-Toi State of the Environment Report 2020*, available from www.haurakigulfforum.org.nz
[19] 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

scallop beds in the Hauraki Gulf declined from 1,005 tonnes in 2012 to 52 tonnes in 2021 with the current biomass only 5% of the 2012 biomass. Long-term declines have been observed at all commercially targeted scallop beds except for Pakiri, which hosts a relatively low biomass of 7 tonnes. Similar declines have been observed across recreationally targeted scallop beds located in the Hauraki Gulf.

32. Even more alarming is recent research on the expansion of kina barrens off Te Hauturu-o-toi/Little Barrier Island and the Noises. Kina barrens surrounding Te Hauturu-o-toi/Little Barrier Island have increased from 0.4% of the rocky reef system in 1953, to 11.6% in 1979 and 32.73% in 2019. The figures for the Noises are even more stark with kina barrens increasing from 23.97% of reef areas in 1978 to 49.52% in 2019. [20] Kina barrens are associated with the fishing down of large snapper and crayfish. Evidence from marine reserves indicate that a high level of marine protection (with all fishing excluded) will enable the kelp forests to recover. This further highlights the urgent need to increase marine protection in the Hauraki Gulf.

33. The loss of kelp forests in the Hauraki Gulf not only reduces biodiversity and productivity but it has potentially significant climate consequences. Kelp forests play a vital role in mitigating climate change. As explained in a recent article in the *Yale Environment Review*, as a kelp forest deteriorates, it releases sequestered carbon dioxide back into the atmosphere and the kelp forests become a source of carbon rather than a sink.[21]

34. The poor state of the marine environment is affecting other species including the Hauraki Gulf's internationally important seabird population. As described in the *State of Our Seabirds 2021* report, "many populations of resident seabirds remain in a poor state because of our devastation of the Gulf's food webs through overfishing and habitat damage".[22] The proportion of species that breed in the Hauraki Gulf Marine Park that are threatened have increased from 4% in 2002 to 22% today.[23]

35. In addition to fishing, other growing pressures on the marine environment make an increase in marine protection critical, in order to increase the resilience and ability of marine ecosystems to survive cumulative impacts. Foremost is climate change which is already having significant impacts on marine areas (and will have much greater impacts in the future) with seawater warming and acidification and increased sediment inputs from the greater intensity of storms.

36. This is highlighted by the severe marine heatwaves which have recently hit the Hauraki Gulf, with the 2022 episode being the longest marine heatwave on record. The heated water caused bleaching of large rocky reef sponges, with some appearing to 'melt' off the Hauraki Gulf reefs. This is somewhat alarming as the sponges play important ecological and biochemical roles within these rocky reefs communities.[24]

37. The situation is predicted to get much worse. Research has indicated that, by 2100, the 40-odd marine heatwave days we currently see in a normal year will increase to between 80 days (low emissions, best-case scenario) and 170 days (high emissions, worst-case scenario) by the end of

[20] Dartnell L, 2022, *The extent of kina barrens over time at Hauturu-o-Toi and the Noises Islands*, Masters of Marine Studies Masters thesis, University of Auckland

[21] Yale Environment Review, 2022, 'Kelp can help: Kelp forests reveal hidden potential for blue carbon sequestration', 2 May, available at https://environment-review.yale.edu/kelp-can-help-kelp-forests-reveal-hidden-potential-blue-carbon-sequestration

[22] Gaskin C P (ed), 2021, The state of our seabirds 2021: *Seabird ecology, research and conservation for the wider Hauraki Gulf/Tīkapa Moana/Te Moananui-ā-Toi region*, Northern New Zealand Seabirds Charitable Trust, Auckland, at 7

[23] Hauraki Gulf Forum, 2020, *State of our Gulf 2020: Hauraki Gulf /Tīkapa Moana/Te Moananui-ā-Toi State of the Environment Report 2020*, at 147

[24] Shears N, 2022, 'Marine heatwave and melting sponges in Te Moananui o Toi – the Hauraku Gulf, Aotearoa New Zealand', Youtube video, 9 June, at https://www.youtube.com/watch?v=Cvmp1jJQIJc

the century. In addition, average marine heatwave intensities are predicted to increase by 20% (best case) to 100% (double, worst case) by the century's end. For the North Island (including the Hauraki Gulf), this means an average marine heatwave could be between 0.5°C to 2°C more intense than they are today.[25]

38. The impacts of such pressures are not only ecological. It is now difficult to find, let alone harvest, many of the taonga marine species that were once abundant across shallow coastal waters of the Hauraki Gulf. The absence of rock lobsters, scallops, mussels and pāua around Waiheke Island has impeded the continuation of customary harvest practices and led local tangata whenua to show leadership in placing rāhui and requesting urgent fisheries closures.

39. Such impacts are very concerning because of the enormous importance of the Hauraki Gulf to regional communities and Aotearoa New Zealand as a whole.

The Sea Change Tai Timu Tai Pari process

40. The Seachange Tai Timu Tai Pari project had its inception in the Hauraki Gulf Forum's 2011 *State of Our Gulf Report* (now over a decade old) which highlighted the ongoing and alarming environmental decline of the Hauraki Gulf and the failure of current management approaches to turn things around.[26] It was clear that incremental change would be insufficient to address the size of the challenge and a step change in approach was required.

41. In response, Auckland Council and the Waikato Regional Council agreed to initiate a marine spatial planning project for the Hauraki Gulf, with 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.[27]

42. A co-governance Project Steering Group **(PSG)** was established to oversee the project consisting of eight representatives of Mana Whenua and eight representatives from the statutory bodies involved in managing the Gulf (including territorial authorities, regional councils, DOC and MPI).

43. The PSG defined the purpose of the project as being to "develop a spatial plan that will achieve sustainable management of the Hauraki Gulf, including a Hauraki Gulf which is vibrant with life and healthy mauri, is increasingly productive and supports thriving communities."[28] It approved the Terms of Reference for the SWG and received and adopted the final Sea Change plan.

44. The plan itself was developed by the SWG which consisted of representatives from Mana Whenua, commercial and recreational fishing, farming, aquaculture, infrastructure, community and environmental interests. The role of the SWG, as set out in its Terms of Reference, was to "compile information and evidence, analyse, represent all points of view, debate and resolve conflicts and work together as a group to develop a future vision for a healthy and productive Hauraki Gulf … The future vision will be manifested as a physical document – the Hauraki Gulf Marine Spatial Plan." The group operated on a consensus basis which meant that "every member either supports or does not actively oppose (can live with) the decision."[29]

[25] Behrens E, 2022, 'Mean heat: Marine heatwaves to get longer and hotter by 2100, NIWA media release, 7 March, at https://niwa.co.nz/news/mean-heat-marine-heatwaves-to-get-longer-and-hotter-by-2100
[26] Hauraki Gulf Forum, 2011, *State of our gulf 2011*, Hauraki Gulf Forum, Auckland, at 13
[27] 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
[28] Sea Change Tai Timu Tai Pari, 2013, *Stakeholder Working Group: Terms of reference*, Auckland Council, Auckland
[29] Sea Change Tai Timu Tai Pari, 2013, *Stakeholder Working Group: Terms of Reference*, Auckland Council, Auckland, at 2-4

45. The SWG first convened in December 2013 and met approximately monthly for a 3 year period up until late 2016 when the plan was completed (with a break of several months during mid 2015). SWG members agreed that the plan would be science based as well as incorporating mātauranga Māori. Scientists from a range of research institutions presented their work directly to the SWG.

46. An extensive public process was undertaken alongside the SWG. This involved public meetings, 25 'Listening Posts', a web-based use and values survey and an active website and email updating programme. In addition, a 'Love Our Gulf' event and social media campaign was undertaken. This public engagement effort connected with more than 14,500 people overall, with 9,350 actively contributing their views to the project. The results of the engagement was summarised and made available to the SWG members to inform plan development.

47. A group of community stakeholders who had been present at meetings held to select the SWG members, called the 'Hauraki 100+', were convened every few months to provide an update on progress, discuss key issues and obtain feedback. The group was intended to act as a 'sounding board' for the SWG during the preparation of the marine spatial plan.

48. Spatial data sets were assembled on a web-based tool called SeaSketch which was used to identify and evaluate marine protection options. A technical team supported by two science advisors supported the SWG.

49. The work of the SWG was overseen by an Independent Review Panel comprising 5 experts in various fields including Paris-based Charles Ehler who was the co-author of the UNESCO guide to marine spatial planning. The Panel provided three reports and many of the recommendations were adopted by the SWG.

50. The resultant marine spatial plan was structured around four kete of knowledge: Part One Kaitiakitanga and Guardianship, Part Two Mahinga Kai – Replenishing the Food Baskets, Part Three Ki Uta Ki Tai – Ridge to Reef or Mountains to Sea and Part Four Kotahitanga – Prosperous Communities.[30] Amongst its wide-ranging and detailed recommendations was the creation of 13 new marine protected areas and extensions to two existing marine reserves. The marine protected areas were to be created by 2020.[31]

51. 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 6 years ago).

52. It is clear that the Sea Change process and plan had wide agency, cross-sectoral and public support. The process was sponsored and overseen by the key implementing agencies including DOC and MPI. Mana whenua representatives were active participants in the governance of the project and development of the plan. However, implementation of the Sea Change Plan has been very slow, and meanwhile the State of the Gulf has continued to deteriorate. It is therefore urgent that additional marine protection, in broad alignment with the Sea Change Plan, is put in place without delay.

[30] Sea Change Tai Timu Tai Pari, 2016, *Hauraki Gulf Marine Spatial* Plan, Waikato Regional Council, Hamilton
[31] Sea Change Tai Timu Tai Pari, 2016, *Hauraki Gulf Marine Spatial* Plan, Waikato Regional Council, Hamilton, at 112 to 120.

The benefits of marine protection

53. "No-take" marine reserves are recognised as one of the most powerful and effective methods for protecting marine life and habitats.[32] They provide refuges where populations of exploited marine species can recover and habitats modified by fishing can regenerate.

54. Long-term studies at sites within marine reserves in Aotearoa New Zealand have identified the numerous ecological benefits of permanent marine protection.[33] The Cape Rodney to Okakari Point Marine Reserve **(Leigh Marine Reserve)**, gazetted in 1975, was the first to be established in the country. Two decades after protection, scientists observed significant increases in the abundance and size of snapper and rock lobsters; declines in the abundance of urchins; and the expansion of kelp forest across shallow rocky reefs within the reserve.[34] The total area of urchin barren habitat shrunk from 31.4% to 3.2% within 20 years, which increased primary productivity within the reserve by an estimated 58%.[35] Studies have shown that the increase in kelp habitat supports aggregations of marine invertebrates, which in turn provide an important food source for larger fish species.[36]

55. The increase in kelp habitat also provides significant climate benefits. A study of Australian kelp forests revealed that they sequestered around 1.3-2.8 teragrams of carbon per year accounting for 30% of total blue carbon sequestered in Australia annually and about 3% of the total global blue carbon budget.[37]

56. The potential benefits of marine reserves extend beyond their boundaries. Studies have shown that marine reserves can benefit adjacent fisheries through the spill over of adults and juveniles and the export of eggs and larvae to sites located down-current.[38] Studies have shown that the adult snapper in the Leigh Marine Reserve (extending over 5.2 km^2) contributed an estimated 10.6% of newly settled juveniles in surrounding areas covering around 400 km^2 and up to 40 km away.[39] This is because increases in the size and abundance of individuals within marine reserves result in increased reproductive potential thereby boosting the capacity of target fish stocks to maintain sustainable population levels.[40] Consequently, marine reserves can enhance opportunities for commercial and recreational fishing activities in surrounding waters.

57. An evaluation of the economic impacts of the enhanced recruitment evidenced from the Leigh Marine Reserve identified a boost to the commercial fishery of $NZ 1.49 million catch landing value per annum and $NZ 3.21 million from recreational fishing activity associated spending per annum. As the researchers emphasised "These values all come from the recruitment effects

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[32] See Ballentine B, 2014, 'Fifty years on: Lessons from marine reserves in New Zealand and principles for a worldwide network', *Biological* Conservation, 176, 297-307

[33] See Babcock et al, 1999, 'Changes in community structure in temperate marine reserves', *Mar Ecol Prog Ser,* 189, 125−134; Shears N T and R C Babcock, 2002, 'Marine reserves demonstrate top-down control of community structure on temperate reefs', *Oecologia*, 132, 131-142; and Shears N T and R C Babcock, 2003, 'Continuing trophic cascade effects after 25 years of no-take marine reserve protection', *Mar Ecol Prog Ser*, 246, 1-16

[34] Babcock et al, 1999, 'Changes in community structure in temperate marine reserves', *Mar Ecol Prog Ser,* 189, at 131

[35] Babcock et al, above n 23, at 131.

[36] Ballentine B, 2014, 'Fifty years on: Lessons from marine reserves in New Zealand and principles for a worldwide network', *Biological* Conservation, 176, 297-307

[37] Yale Environment Review, 2022, 'Kelp can help: Kelp forests reveal hidden potential for blue carbon sequestration', 2 May, available at https://environment-review.yale.edu/kelp-can-help-kelp-forests-reveal-hidden-potential-blue-carbon-sequestration

[38] Gell F R and C M Roberts, 2003, 'Benefits beyond boundaries: Fishery effects of marine reserves', *Trends in ecology & evolution*, 18(9), 448-455, available from www.aquadocs.org

[39] Le Port A et al, 2017, 'Temperate marine protected areas provides recruitment subsidies to local fisheries', *Proceedings of the Royal Society B Biological Sciences*, 284, 1865

[40] Ibid

associated with one species, from only 0.08% of the marine space in the Hauraki Gulf, New Zealand".[41] This indicates that increasing the area of marine protection will likely increase the available commercial and recreational harvest with associated economic and social benefits.

58. Marine reserves are also a tourism and recreation attraction and can provide substantial economic benefits at local and regional scales. An economic impact analysis of the Leigh Marine Reserve estimated there were 375,000 visits to the reserve in 2008, which contributed $18.6 million into the local economy.[42] In contrast, the operational costs associated with managing the reserve over the same period were relatively low at $70,000.[43]

59. The scientific benefits of marine reserves are of critical importance when we are moving into a period where environmental change is expected to occur at unprecedented scale, magnitude and pace. Marine reserves provide an opportunity to study the natural processes and ecology of areas that are protected from the direct effects of fishing. Results can then be compared with findings from fished areas to provide insights into the impacts of fishing on species and the wider environment.

The need to increase the size of existing marine reserves

60. When the Leigh Marine Reserve was established in 1975 the boundary was drawn just 800m offshore. This boundary was arbitrary. As explained by Bill Ballantine:

> *"there was virtually no precedent at the time and research scientists, including me, were obsessed with rocky reefs. Flat sandy bottoms didn't seem very real, which is quite wrong, but that's how it was then. The other consideration was that, at that time, trawling was not allowed within 0.5 nautical miles of land. That translates to 800 metres and that's where we set the seaward boundary. There was no scientific justification for it, it was just a piece of political pragmatism."*[44]

61. Despite its small size, the Leigh marine reserve enabled a wealth of science about rocky reef ecosystems and the impacts of fishing on them. Monitoring has been undertaken inside and outside the marine reserve, enabling a comparison to be made between the two areas, and providing insights into the impacts of fishing on marine systems.

62. The first species to show a marked recovery was crayfish. Four years after the reserve was created, their numbers had increased five-fold.[45] As the numbers within the protected area increased, so did the catches of crayfish outside the seaward boundary of the reserve, as the animals migrated past the narrow protective boundaries.

63. Although numbers within the marine reserves increased initially, when the crayfish populations declined in the surrounding CRA 2 fishery (thought to be a result of poor recruitment combined with sustained fishing pressure), it become apparent that the small areas protected by the Leigh Marine Reserve and the Whanganui-a-Hei (Cathedral Cove) Marine Reserve were not large enough to protect crayfish populations in the longer term. While the marine reserves continue to support much higher numbers and larger crayfish than surrounding fished waters, monitoring

[41] Qu Z, S Thrush, D Parsons and N Lewis, 2021, 'Economic valuation of the snapper recruitment effect from a well-established temperate no-take marine reserve on adjacent fisheries', *Marine Policy*, 134, 104792
[42] Hunt L, 2008, *Economic Impact Analysis of the Cape Rodney Okakari Point (Leigh) Marine Reserve on the Rodney District,* DOC Investigation Report 4052, at 2, available from www.howtokit.org.nz.
[43] Ibid
[44] Peart R, 2016, *The story of the Hauraki Gulf*, Bateman, Auckland, at 328-329
[45] Peart R, 2016, *The story of the Hauraki Gulf*, Bateman, Auckland, at 330

has showed declines inside the reserves of between 59–80% over the past 10-15 years, despite being in a strict 'no-take' area.[46]

64. The research indicated that the decline had been exacerbated by the continued capture of crayfish on the offshore boundaries of these relatively small reserves. Tracking research has shown that crayfish undertake seasonal movements whereby they move off the reef and out onto sandy habitats where they feed on bivalves. These movements often take them near to and beyond reserve boundaries where they are likely to be caught.[47] This indicates a need to expand the boundaries of these two marine reserves. As recently emphasised by Dr Nick Shears:

> *"Currently, less than 1 per cent of crayfish populations in the Hauraki Gulf are protected in marine reserves and these results highlight the urgent and overdue need to substantially increase the level of marine protection in the Gulf… This can be achieved through expansion of existing reserves and implementation of new marine protected areas that are well-designed and large enough to effectively protect these important species and their associated ecosystems."*

65. One of the significant contributions made by science based on the Leigh Marine Reserve was a better understanding of the phenomena known as 'urchin barrens'. During the 1970s, divers observed extensive strips of rocky reef that were bare of plant cover, most noticeably kelp. At first, scientists struggled to understand what was going on. But, as several marine reserves were established along the coast and the populations of snapper and crayfish recovered, the barren areas of rock started to disappear. As stated by the researchers, "no-take marine reserves provide real-world experiments that show the importance of species in food webs, and the consequences of fishing for ecosystems".[48] Such knowledge would not have been possible without full protection.

66. On reviewing 50 years' experience with marine reserves in New Zealand, Bill Ballantine concluded:[49]

> *"The scientific benefits of marine reserves proved so numerous that it became clear that* ***marine reserves are as important to science as clean apparatus is to chemistry****, and for the same reason. They are the controls for the uncontrolled experiment that is happening due to fishing and other human activities."*

67. It is important that the extensions to the Leigh and Hahei Marine Reserves are also marine reserves so they can be seamlessly integrated into the existing reserves. The Leigh Marine Reserve, in particular, has enabled a wealth of science to be undertaken in what is a largely unimpacted marine system providing an important 'control' site. Creating a boundary within them between two types of protected area will also likely create logistical problems with enforcing different rules and having different management approaches.

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[46] University of Auckland, 29021, 'Existing reserves too small to protect crayfish', 4 May, at https://www.auckland.ac.nz/en/news/2021/05/04/existing-reserves-too-small-to-protect-crayfish-.html

[47] University of Auckland, 29021, 'Existing reserves too small to protect crayfish', 4 May, at https://www.auckland.ac.nz/en/news/2021/05/04/existing-reserves-too-small-to-protect-crayfish-.html

[48] Leleu K, B Remy-Zephir, R Grace and M J Costello, 2012, 'Mapping habitats in a marine reserve showed how a 30-year trophic cascade altered ecosystem structure', *Biological Conserv*ation, 155, 193-201

[49] Ballantine B, 2014, 'Fifty years on: Lessons from marine reserves in New Zealand and principles for a worldwide network', *Biological Conservation*, 176, 297-307

The need to create 12 High Protection Areas

68. The proposals include establishing 12 HPAs which EDS supports. It is clear from the evaluation of different areas included in *Revitalising the Gulf* that they have high biodiversity values that merit protection. For example, they protect, amongst other things:[50]

    - Sponge and black coral assemblages and deep patch reefs (HPA 1)
    - Largest of the few remnants of subtidal seagrass habitat in the Gulf (HPA 2)
    - Shallow reefs, dog cockle and horse mussel beds (HPA 3)
    - Sponge dominated reef in high current areas (HPA 4)
    - Deeper reefs with large sponge assemblages (HPA 5)
    - Diverse high-current rocky reef assemblages and high biodiversity (HPA 7a)
    - Extensive reef systems with highly productive and diverse species assemblages (HPA 8a)
    - Outstanding underwater scenery and an abundance and high diversity of flora and fauna (HPA 9a)
    - Diverse rocky reef assemblages including kelp forests, sponges, hydroids, anemones and ascidians (HPA 9b)
    - Sponge assemblages, large rhodolith bed and horse mussel beds (HPA 10a)
    - High habitat diversity and ecological values supporting a diverse range of species (HPA 11a)
    - Unique geographical location that supports a regionally significant range of biogenic habitats (HPA 14)

69. These HPAs are generally in line with the Sea Change proposals with some refinement and boundary changes. During the Sea Change process, it was evident that there was strong public support for more marine protection in the Hauraki Gulf. The Sea change Plan reports:[51]

    > *"A common theme highlighted in the Listening Posts was a concern for declining species and habitats, and a clear desire for more marine reserves. A parallel result came from an Auckland Council People's Panel survey published in 2014 which showed that 39% of respondents had visited a marine reserves in Auckland, whereas only 24% had fished in the ocean. These results, along with extensive ecological analysis, led the Stakeholder Working Group to conclude that we had a clear mandate to recommend creation of more MPAs."*

70. In particular, EDS supports the inclusion of the Ōtata/the Noises HPA in the package of HPAs to be included in the Hauraki Gulf Marine Protection Bill. This is a biodiverse area with important benthic habitats and is of particular importance to seabirds that nest on many of the islands in the group. It urgently needs protection. This is highlighted by the alarming increase in urchin barrens on its reefs as described above.

71. The HPA proposals do not include protection around Ahuahu/Great Mercury Island which was proposed in the Sea Change Plan due to it high habitat diversity including diverse algal and encrusting invertebrate assemblages, diverse sponge assemblages and black and gorgonian corals.[52] The exclusion of the area from the current proposals was not because it did not have high biodiversity values that merited protection but on the basis that the Sea Change proposals did "not provide sufficient protection for the biodiversity of this area".[53] *Revitalising Our Gulf* identified this as a "gap" in protection that needs to be addressed.[54] EDS urges that this gap be

[50] DOC, Fisheries New Zealand and MPI, 2021, *Revitalising the Gulf: Government action on the Sea Change Plan*, Appendix 4
[51] Sea Change Tai Timu Tai Pari, 2016, *Hauraki Gulf Marine Spatial Plan*, Waikato Regional Council, Hamilton, at page 117
[52] Sea Change Tai Timu Tai Pari, 2016, *Hauraki Gulf Marine Spatial Plan*, Waikato Regional Council, Hamilton, at page 274
[53] DOC, Fisheries New Zealand and MPI, 2021, Revitalising the Gulf: Government action on the Sea Change Plan, at 65
[54] DOC, Fisheries New Zealand and MPI, 2021, Revitalising the Gulf: Government action on the Sea Change Plan, at 65

closed as soon as possible, and that provision be made in the Bill for a subsequent HPA to be created around the islands.

72. There are also gaps in coverage of the proposed HPAs around Waiheke Island and Aotea/Great Barrier Island, with the areas also not being included in the Sea Change proposal. The existing proposal for the Hākaimango-Matiatia (Northwest Waiheke Island) Marine Reserve could potentially be included in the Bill alongside the other HPAs. Provisions could also be made for future HPAs to be identified around Aotea/Great Barrier island and for other gaps in the network to be filled.

73. In respect of the Proposed Kawau (HPA) it should be recognised that there is an existing wastewater outfall located south of Martin's Bay which discharges treated wastewater into the area via a 500m long pipeline. In addition, we understand that Watercare Services is planning to install a second outfall structure to discharge wastewater from an upgraded Snells Beach Wastewater Treatment Plant in late 2025.

74. It appears that the current and proposed outfalls were not identified by the SWG or DOC when developing the proposals. The inclusion of the outfall area in the proposed Kawau Bay HPA creates potential issues as "discharge of sewage from outfalls" is proposed to be prohibited in HPAs. As well as creating practical challenges for the provision of wastewater services for the Martins Bay and Snells Beach community, the discharge of wastewater into a HPA ideally needs to be avoided. We suggest that the boundaries for this HPA be adjusted to exclude the existing outfall, including a commensurate additional area to compensate.

75. It should also be noted that Watercare operates a second outfall pipeline at Army Bay that extends 1000 metres into the proposed Tiritiri Matangi SPA (11b). While wastewater discharges are not prohibited in SPA, and do not create the same issues as with HPAs, it might be useful to explicitly identify this infrastructure in the legislation.

The need to create 5 Seafloor Protection Areas

76. EDS supports the creation of 5 proposed SPAs. As recently explained by Fisheries New Zealand:[55]

> *"It is well known that fishing with mobile bottom-contact gear, such as bottom trawling, has adverse effects on benthic communities and their habitat (Rice 2006, Kaiser et al. 2006). These effects consist of destruction of organisms by crushing, or their removal as bycatch, and physical disturbance to the habitat as fishing gear is dragged across the seafloor."*
>
> *"On soft sediments, bottom trawling can not only displace sediment and associated species, but also suspend sediment into the water column. Plumes of suspended sediment within the turbulent wake of trawl gear can take days to settle, and may be significant, relative to natural levels of suspension in areas with little seabed disturbance by currents or waves (Durrieu de Madron et al. 2005). There is a risk that bottom trawling on soft sediments near rocky reef systems could lead to suspended sediment deposition onto sensitive benthic species and affect their abundance, or health and condition."*

77. It is therefore important that bottom trawling is excluded from on or near important benthic habitats in the Hauraki Gulf Marine Park. In EDS's view, bottom disturbing fishing methods (including bottom trawling, Danish seining and dredging) should be excluded from the entire

[55] Fisheries New Zealand, 2022, *Review of commercial fishing sustainability measures for the Cape Brett to Mimiwhangata area*, Northland, Discussion Paper 2022/17

Hauraki Gulf Marine Park. It therefore supports the proposed SPAs but submits that the areas they cover should be extended in the future. Provisions should be made in the Bill for this to occur.

Impact on commercial and recreational fishers

78. The proposed HPAs, and to a lesser extent the proposed SPAs, will have some direct impacts on both recreational and commercial fishers. However, such impacts need to be put into context. In broad terms, the additional 12 HPAs, and extension to 2 marine reserves, will increase the area of the Hauraki Gulf Marine Park under a high level of protection to around just 6%. This means that 94% of the Marine Park will remain open to fishers. This does not seem unreasonable to provide some badly needed protection for the Gulf's marine ecosystems and species. In light of the Hauraki Gulf Forum's target of 30% marine protection it appears somewhat modest.

79. Martin Jenkins was commissioned to quantify the estimated impacts of the marine protection proposals on commercial and recreational fishers. For the majority of commercial fishing stocks (those managed according to the October fishing year), only 1% (530 tonnes) of the total catch within the Hauraki Gulf is currently caught within the areas to be protected, which is estimated to be just 2% ($1.37 million) of total port revenue derived from the Hauraki Gulf. This means that 99% of the tonnage and 98% of the revenue of the commercial fishing industry in the Hauraki Gulf will remain unaffected.[56]

80. It is important to recognise that the SPAs do not ban fishing per se, but only bottom impact methods, so the impacts are likely to be even less than the small percentages indicated in the Martin Jenkins analysis. Where bottom trawl is currently used in the proposed SPA areas, at least part of this effort could be transferred to other methods such as longlining. And at least part (if not all) of the remaining minimally affected catch could potentially be caught elsewhere within the respective quota management areas which extend far further than the Hauraki Gulf Marine Park itself.

81. In this respect it is important to note that for the most valuable finfish species in the Gulf, snapper, the SNA1 area from which harvest can be taken extends from North Cape right around the entire top half of the east coast of the North Island to East Cape. It seems extremely likely that any small reduction in harvest within the marine protected areas could be caught elsewhere within this vast area. As a result, any reduction in commercial catch/revenue is likely to be very small, if there is a reduction at all, as a result of the proposed protection.

82. It should also be borne in mind the benefits that marine protection will likely provide for commercial fishing. If the value of increased recruitment from the Leigh marine reserve, which comprises only 0.08% of the Hauraki Gulf Marine Park, provides an additional $NZ 1.49 million catch landing value per annum[57] it could be expected that the network of HPAs which will cover around 6% of the area would in the future provide added value that far outweighs the value of any immediate reduction in commercial harvest.

83. Rock lobster and pack horse lobster commercial catch is managed according to the April fishing year and separate figures have been calculated by Martin Jenkins for the impact on this industry. It concludes that 3% of the total Hauraki Gulf harvest for these stocks (4.47 tonnes) was caught

[56] Leung-Wai J and R Kulwant, 2022, *Revitalising the Gulf Stage 1 – Impact of the marine protection proposals on commercial fishers*, Martin, Jenkins & Associates Limited

[57] Qu Z, S Thrush, D Parsons and N Lewis, 2021, 'Economic valuation of the snapper recruitment effect from a well-established temperate no-take marine reserve on adjacent fisheries', *Marine Policy*, 134, 104792

within the proposed protected areas comprising 4% of total port price. This means that 97% of the lobster harvest in the Hauraki Gulf occurs outside these areas.

84. It should be borne in mind that this harvest is part of the CRA2 fishery which extends down the coast to the tip of the East Cape. There is therefore a large area from which the 3% of the Hauraki Gulf harvest displaced from the protected areas could be harvested from, meaning that marine protection may not result in any direct reduction in total harvest.

85. Also, a potential 4.47 tonne reduction in harvest (if indeed a reduction would occur at all) needs to be considered within the broader context of the fishery. In 2018 the total allowable commercial catch was reduced from 200 to 80 tonnes, a reduction of 120 tonnes. This was because the stock was "experiencing critically low levels of abundance".[58] This indicates that other factors are likely to have a much greater impact on the industry, than the proposed protected areas, which if anything will serve to help increase abundance over time.

86. Displacement of recreational fishing of snapper is estimated to be slightly higher at 5.7% in terms of weight, but this needs to be considered in the context that "recreational tāmure [snapper] catches dropped by around 27% between the 2011–12 and 2017–18." This decrease was put down to cuts in bag limits, increased size limits and fewer recreational fishers.[59] This means that, compared to other factors, the reduction in recreational catch due to increased marine protection is very small. As with commercial fishing, in the future it is also likely that increased protection will increase the abundance of fish stocks targeted by recreational fishers.

Development and role of Biodiversity Objectives

87. The Information Document sets out a framework for managing customary practices in HPAs. It indicates that 'Initial Biodiversity Objectives' will be developed for each HPA and will be incorporated into the Bill. These are to be identified with input from mana whenua. Once the HPAs are established, the Government will support mana whenua to co-design 'Biodiversity Objectives' for each HPA site. As indicated in the Information Document, it is important that the objectives are based on the best available science and mātauranga Maori and this requirement should be specified in the Bill.

88. The Biodiversity Objectives are important in the context of the Bill because it is proposed that:

- Customary fisheries regulations must give effect to the Biodiversity Objectives (ie customary fishing exercised under the regulations must not conflict with the Biodiversity Objectives);
- Customary Practice Management Plans (which customary fishing will need to be consistent with) will align with the Biodiversity Objectives; and
- They will inform management, research and monitoring for each site.

89. EDS generally supports the proposals relating to the development and role of Biodiversity Objectives. EDS recognises the importance of providing for the ongoing relationship of mana whenua with the Gulf including the ability to exercise their role as kaitiaki. The importance of enabling this, in respect of highly protected areas, was highlighted in the Sea Change Plan which provided for customary take within the areas on a case-by-case basis by special permit.[60]

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[58] Minister of Fisheries, 2018, *Fisheries sustainability measures for 1 April 2018: Decision letter*, at https://www.mpi.govt.nz/dmsdocument/27987-Ministers-Decision-letter-1-April-2018-signed

[59] Hauraki Gulf Forum, 2020, State of our Gulf 2020: Hauraki Gulf /Tīkapa Moana/Te Moananui-ā-Toi State of the Environment Report 2020, available from www.haurakigulfforum.org.nz, at 12

[60] Sea Change Tai Timu Tai Pari, 2016, Hauraki Gulf Marine Spatial Plan, Waikato Regional Council, Hamilton, at 118

90. However, given the wide range of interests in the Hauraki Gulf, and the significant role that the Biodiversity Objectives play, not only in guiding customary use, but also in the management, research and monitoring of sites, it is imperative that wider input is sought on the Initial Biodiversity Objectives and the proposed co-design of refined objectives. This includes from local people and community groups who have deep local knowledge about place. We note that the Sea Change Plan, which set out a series of design and management principles for Type One Marine Protected Areas (which include HPAs), indicates the intention that the co-design process be inclusive and include local communities and stakeholders along with Mana Whenua. It stated:[61]

    "Mana whenua, local communities and stakeholders will take a leading role in the implementation phase through a co-design process."

91. With respect to the proposal that customary fisheries regulations give effect to the Biodiversity Objectives (ie not conflict with them), EDS agrees and considers that it is important that this be included in the legislation to avoid undermining achievement of the Biodiversity Objectives.

92. EDS also supports the proposal that mana whenua will have the option to develop a Customary Practice Management Plan, to describe how they will manage their customary practices including fishing, and that the Plan align with the co-designed Biodiversity Objectives, with government offering support including with information.

Monitoring and review

93. Active management might be required to assist the protected marine systems to restore themselves and it is good to see this provided for in the activities that can take place in HPAs. The Bill should require regular monitoring and review of the sites. It is also important that there is effective enforcement of the HPAs through a regular on-water presence.

94. It needs to be recognised that a more active management approach which includes active enforcement, regular monitoring and potential recovery assistance will require more resourcing and this will need to be budgeted for.

Conclusion

95. Overall, EDS supports the proposals in the Information Document and urges DOC to implement the proposed HPAs and SPAs without delay.

[61] Sea Change Tai Timu Tai Pari, 2016, Hauraki Gulf Marine Spatial Plan, Waikato Regional Council, Hamilton, at 118