BEFORE THE FAST-TRACK EXPERT PANEL

IN THE MATTER	An application for approvals under section 42 of the Fast-track Approvals Act 2024 ("FTAA")
AND	
IN THE MATTER	Te Ākau Bream Bay sand extraction, a project listed in Schedule 2 to the FTAA

STATEMENT OF EXPERT EVIDENCE OF DARREN PARSONS FOR NGĀTIWAI TRUST BOARD AND TE PATUHARAKEKE TE IWI TRUST BOARD

(FISH)

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1 INTRODUCTION

1.1 My name is Darren Parsons

1.2 I am a fisheries scientist at Earth Sciences New Zealand, where I have worked for the last 20 years. I work on inshore fish population monitoring, specialising on snapper. This includes leading trawl surveys in the Hauraki Gulf, market sampling of Hauraki Gulf fish species where we measure the size and age composition of commercial catches, monitoring recreational effort and harvest at boat ramps, and working with commercial catch and effort information to describe fishery dynamics. I also conduct ecological investigations on snapper addressing aspects such as their diet, juvenile nursery habitat association and movement ecology.

1.3 I have been asked by Te Patuharakeke Te Iwi Trust Board and Ngātiwai Trust Board to provide expert evidence to inform their comments on the application lodged by McCallum Bros Ltd for approvals for sand mining in Te Ākau Bream Bay.

1.4 In this brief of evidence, I have assessed the potential for sand mining activities to impact the fish populations and fisheries of Te Ākau Bream Bay.

1.5 In preparing this brief I have:

a. reviewed "Assessment of Effects on Fish and Fisheries in Te Ākau Bream Bay" by R.O. Boyd.

b. read and complied with the Environment Court's code of conduct for expert witnesses in Part 9 of the Environment Court Practice Note and agree to abide by that code.

2 EXECUTIVE SUMMARY

2.1 This statement of evidence reviews the "The Assessment of Effects on Fish and Fisheries in Te Ākau Bream Bay". I refer to this as the Boyd assessment.

2.2 While the high-level description of fish, shellfish, and fisheries is broadly accurate, in some instances the Boyd assessment utilises outdated datasets, does not fully describe the limitations of available survey coverage of Te Ākau Bream Bay, and incompletely considered relevant commercial and recreational fisheries. This constrains confidence in conclusions about the magnitude and distribution of potential effects of the proposed sand mining activity.

2.3 Te Ākau Bream Bay has historically supported an important scallop fishery. Recent surveys indicate that while scallop biomass is low, recruitment is occurring and recovery is possible if additional pressures are avoided. Potential effects of sand mining include degradation of coarse sediment habitat and direct mortality from dredging. Key assumptions in the Boyd assessment, such as scallop avoidance of suction dredges, are not supported by empirical evidence, and uncertainties remain unresolved.

2.4 The Boyd assessment also concludes that impacts on benthic food resources for fish will be negligible, but this conclusion lacks quantitative support and does not consider cumulative effects. The Hauraki Gulf snapper population has declining growth rates

and recent episodes of milky-fleshed snapper suggest food is limited. In this context, any further reduction in benthic productivity (through mortality of benthic invertebrates entrained by suction dredging) should be assessed cautiously.

2.5 Overall, there is potential for some material adverse effects on fish populations and therefore on fisheries.

3 BOYD ASSESSMENT REPORT STRUCTURE AND GENERAL FISH POPULATION AND FISHERY DESCRIPTION

3.1 The Boyd assessment has three main sections: (1) a description of the fish and shellfish communities in Te Ākau Bream Bay with information coming from research surveys, (2) A description of the commercial and non-commercial fishing activity in Te Ākau Bream Bay, and (3) the potential impacts of sand extraction on fisheries resources and fishing.

3.2 In terms of the fish and shellfish communities of Te Ākau Bream Bay, they are described in the Boyd assessment as follows. Demersal fishes are comprised of more than 50 species, dominated by tāmure (snapper), with other valued species such as kuparu (John dory), kumukumu (gurnard) also present. Pelagic fishes include hautere (jack mackerels), tawatawa (blue mackerel), kahawai (*Arripis trutta*), araara (trevally), haku (kingfish), kōheru (*Decapterus koheru)* and mōhimōhi (pilchard). Shellfish in the Te Ākau Bream Bay area include pipi and tūangi (cockle) (although they occur outside of the application area along the coastal margins), and tipa (scallops) which occur in deeper waters, including the application area. Mangō taniwha (great white shark) are a protected species that will also be present within the application area periodically.

3.3 These species support commercial, recreational and customary fisheries in Te Ākau Bream Bay. This includes a mixed species trawl and Danish seine fishery for demersal species such as snapper, gurnard and John dory, a bottom longline fishery largely catching snapper, set net fishing catching snapper, kahawai, sharks and trevally, and purse seine fishing catching a variety of pelagic fish. Commercial fishing also included a dredge fishery for scallops up until the closure of the relevant scallop fishery (SCA 1) in 2022. Recreational fishing in the area predominantly catches snapper and kahawai.

4 DEFFICIENCIES OF THE BOYD ASSESSMENT

4.1 While the high level description of the fish and shellfish communities and associated fisheries (as summarised above) of Te Ākau Bream Bay is accurate, the report often relies on old or incomplete information, or does not present information in a way which allows a full understanding of potential overlap between the proposed activities.

Deficiency / issue: Utility of the trawl surveys to understand relative differences in abundance of demersal fish between Bream Bay and other areas

4.2 The Boyd assessment utilises a time series of research trawl surveys to describe the fish communities of the Hauraki Gulf and Bream Bay. While the trawl surveys have been conducted in the Hauraki Gulf since the 1960s, the survey series has been conducted in a consistent and comparable manner since the 1980s.

4.3 It is important to note that while Bream Bay may not be part of the Hauraki Gulf from a geographical perspective, Bream Bay forms part of one stratum in the Hauraki Gulf trawl survey series. In addition, from a snapper perspective, Bream Bay and the Hauraki Gulf are connected through fish movement, with some snapper migrating into the inner Gulf for spawning. As such, from here on I refer to Bream Bay as part of the Hauraki Gulf.

4.4 Overall, the Hauraki Gulf trawl survey series is useful for describing the fish communities of the Hauraki Gulf (including Bream Bay) in general. However, its utility does have some limits and caveats which need to be acknowledged.

4.5 For example, while a large number (1381) of trawl tows have been conducted as part of the Hauraki Gulf trawl survey series, only two trawl surveys have been conducted in the Hauraki Gulf in the last 20 or more years. Further, of those two surveys no tows were conducted in Bream Bay itself in 2020 and only three tows were conducted in Bream Bay in 2019.

4.6 In addition, the Hauraki Gulf trawl survey series was generally conducted in spring, when a proportion of the snapper population migrates into the inner Gulf to spawn. At other times of year snapper will disperse back throughout the Hauraki Gulf.

4.7 Given this additional context about the trawl survey series (spring focussed survey series with little information specifically about Bream Bay in the last 20 years) it does not provide strong evidence to support statements about relative differences in the abundance of demersal fish species between Bream Bay and other areas of the Gulf.

4.8 Therefore, using the trawl survey series alone it is not possible to assess whether sand mining activities in Bream Bay would or would not have more or less impact on fish populations and fisheries than if similar sand mining activities would be conducted in other parts of the Hauraki Gulf.

Deficiency / issue: Importance of Te Ākau Bream Bay for commercial fin-fisheries

4.9 It is important to interpret the most up to date information on fisheries because patterns of fishing effort can be quite dynamic.

4.10 Over the last 20 or so years there have been big shifts in commercial fishery patterns in the Gulf driven by a number of factors including: permitting of new trawl net technology (Precision Seafood Harvesting) and associated spatial restrictions, availability of ports for fishing vessels due to the America's cup and fish factory closure, changes in market demand for premium fish which can influence the proportion of bottom longline vs trawl effort, the availability of non-snapper by-catch (which is desirable and less available in the Gulf), and spatial differences in the quality of snapper (which peaked in 2022 with the milky fleshed snapper issue that resulted in a large reduction in fishing effort in the Gulf).

4.11 The description of commercial fisheries presented in the Boyd assessment relies on publicly available maps of fishing effort and catch which cover the period 2007-2013. More recent information describing these fisheries was not requested from Fisheries New Zealand (FNZ) because this information is confidential and because only the start positions of fishing events are provided. Both of these points are incorrect. FNZ can supply data on fishing catch and effort, but there are restrictions placed on how this information can be communicated to ensure data confidentiality is maintained. It would be possible to obtain and analyse this data and aggregate effort and catch variables to an area representing Bream Bay as a whole and then compare that to other parts of the Hauraki Gulf. In addition, since electronic reporting was introduced for fishing vessels in c. 2019/20 fishers have had to report the start and end positions of trawl tows.

4.12 The interpretation of the commercial fishery information presented (which covers the period from 2007-2013) underemphasises the relative importance of Bream Bay to other areas. It is correct that other parts of the Gulf receive more trawl effort and have higher associated catch, but Bream Bay is not a low effort or catch area. With respect to bottom longline, Bream Bay appears to be an important area.

4.13 Furthermore, information provided to me by Moana New Zealand suggests that Bream Bay is an important location for their fishing operations because it provides vessels with a sheltered water option when there are strong westerly winds, it is close to Whangārei port which reduces fuel costs, and it is a productive fishing option. For example, over the last five fishing years Moana vessels caught between 3.8 and 24.3 tonne of snapper and 0.7 and 9.9 t of trevally in Bream Bay (Nathan Reid, Moana, pers. comm.).

4.14 There is also no mention in the Boyd assessment of the purse seine fishery for pilchard. There is a purse seine vessel that operates out of Whangarei and Bream Bay is an important area for that fishery (Sam Williams, skipper of the FV Raconteur II, pers com.).

Deficiency / issue: Importance of Bream Bay to the former scallop fishery

4.15 The Boyd assessment describes the Northland scallop fishery (SCA 1) as small with Bream Bay generating modest catches in only two years (2005 and 2006). Results from a dredge survey conducted in 2021 are also presented, with Bream Bay scallop biomass described as low other than in 2005 and 2006.

4.16 While there has been a long-term decline in scallop biomass and associated fishery catches across all scallop stocks, the Boyd assessment does not provide a complete description of this situation.

4.17 Bream Bay is one of the main stays of the Northland (SCA 1) scallop fishery. Substantial landings (higher than in 2005 and 2006) into Whangarei (which would have been from Bream Bay fishing effort) occurred throughout the 1980s and 1990s (Fisheries New Zealand 2025, Hartill and Williams 2014). The Bream Bay fishery also continued, with reduced catches, up until the fishery closure in 2022 (Fisheries New Zealand 2025). That closure was put in place because surveys in 2021 showed an overall decline in biomass and abundance from historical levels. As a result FNZ considered that the biomass and abundance of scallops in the Northland scallop fishery (SCA 1) were not a level to support sustainable fishing at the existing catch limits and allowances and the fishery was closed to allow population recovery (FNZ 2025).

4.18 A more recent scallop survey report (Williams et al. 2025) has been published since the Boyd assessment was conducted. Williams et al. (2025) conducted camera based surveys in Bream Bay and incorporate these new results into the survey timeseries for the area. These results show that while recruited scallop biomass in Bream Bay in 2024 was lower than historic levels, at 21 t meat weight, the Bream Bay stratum had the third highest biomass of any of the strata surveyed throughout the Northland (SCA 1) or Coromandel (SCA CS) fisheries. Further, there were signs of good recruitment (juvenile scallops) appearing in the Bream Bay area. Williams et al. (2025) emphasised that with fishery closure, locations with good habitat can result in scallop population recovery. Given the exposed nature of Bream Bay (exposed to easterly wind and swell) and its coarse sandy sediments, it is a location where such recovery would be expected.

Deficiency / issue: Recreational fisheries in Bream Bay

4.19 A map of recreational fishing effort in the broader Bream Bay area is presented in the Boyd report but the application area is not represented on this map so it is difficult to understand the spatial overlap of these two activities. Further, statements are made about the temporal overlap, with sand mining activities occurring in the afternoon which falls outside of the peak daily fishing activity. While this is correct, it fails to mention that close to 50% of daily recreational fishing activity occurs in the afternoon when sand mining would be occurring (Hartill et al. 2011).

Summary of consequences of deficiencies / issues with the information presented in the Boyd assessment

4.20 Overall, these deficiencies / issues result in a slightly different description of the fish populations and associated fisheries of Bream Bay than presented by the Boyd assessment.

4.21 Some of the key differences as context for the panel's decision making are: (1) The Hauraki Gulf trawl survey series by itself does not provide strong evidence that other parts of the Hauraki Gulf have more abundant fish populations. (2) The information utilised to describe the fin-fisheries of the Hauraki Gulf (including Bream Bay) was more than 10 years old and it is possible that changes have occurred in this time. The information provided, however, does suggest that Bream Bay is an important fishery location for bottom longline. (3) Additional information provided to me also suggests that Bream Bay is an important location a small purse seine vessel targeting pilchard and is also an important location for Moana New Zealand's fishery operations. (4) Bream Bay supported an important scallop fishery that has the potential for recovery if additional stressors are managed. (5) The proposed sand mining activities would overlap with close to 50% of daily recreational fishery effort.

5 POTENTIAL FOR ADVERSE IMPACTS

Scallops

5.1 As stated in the Boyd assessment scallops are patchily distributed through space, living in dense 'beds' where habitat characteristics are suitable. The long-term commercial fishery in Bream Bay is evidence that habitat characteristics are suitable for scallops in the Bream Bay area, regardless of whether the fishery is currently closed or not. Further, a survey was conducted in 2024 (Williams et al. 2025) which indicates that locations with good habitat (coarse sediments) such as Bream Bay should expect population recovery when fishery harvest is reduced, and that there are signs that recruitment is occurring in Bream Bay.

5.2 As a result, the low biomass that presently exists should be cause for caution and protection, as any additional stressors (such as sand mining) could limit recovery, rather than cause for an approach that there is not anything left to lose because the fishery is currently closed which is the approach implied in the Boyd assessment.

5.3 There are two main ways that sand mining may impact scallops, changes in habitat and direct mortality.

5.4 While the Boyd assessment did not address habitat change it does refer to localised elevated suspended sediment. It is not clear whether this suspended sediment would then settle to the seabed and as a result reduce the grain size of sediment in the application area. If this did occur it would likely be detrimental to scallop recovery in the area, which as discussed is very dependent on habitat quality.

5.5 With regard to direct mortality, the Boyd assessment suggests that scallops will be able to avoid entrainment by the suction dredge by clapping their shells and moving away. While scallops can indeed swim, no evidence is presented demonstrating how effective scallops would be at actually avoiding the suction dredge given its relative speed compared with their relative speed and awareness. Assessment of the effectiveness of dredge avoidance would require field testing to have any level of certainty.

5.6 From my personal experience conducting scallop dive surveys, scallops are only able to swim a short distance and do not always swim away even when the diver casts a shadow that they can detect. Importantly, it is also not clear to me if smaller scallops (i.e. recruits) are able to swim away from stimuli such as a diver or dredge.

5.7 Given the level of uncertainty around habitat change and direct mortality outlined here it does not seem possible to rule out the potential for material harm to the Bream Bay scallop population caused by sand mining activities.

5.8 By material harm I mean that sand mining activities could potentially inhibit the rebuilding of scallop biomass in Bream Bay and potentially impact the commercial fishery that would be associated with that scallop population.

Availability of benthic fauna as food for fishes

5.9 The assessment report emphasises that impacts on benthic fauna available as food for fish will be "very small" and that fish are mobile so can just move to an adjacent area for food. Overall the Boyd assessment concludes that "the effect of the proposed sand extraction on the availability or abundance of food for benthic fishes is expected to be negligible".

5.10 First, this conclusion has been reached without estimating the annual loss of benthic productivity that could have alternatively been available as food for fish. This could be done by combining the biomass of benthic fauna that could be eaten by fish (from sampling data) with the estimated mortality rates of benthic fauna that are extracted and released and finally multiplied by the annual area where extraction will occur.

5.11 Doing this would place more certainty on statements and conclusions that are made.

5.12 Second, a critical point is the context within which we assess the availability of food resources for fish.

5.13 The growth rates of snapper in the Hauraki Gulf have been declining for more than 20 years (Walsh et al. 2024). This is at least partly driven by the increase in snapper biomass over this time, but it is also possible that decreases in the productivity of the Hauraki Gulf may have contributed to this trend. Since 2022 severely nutritionally deprived snapper (known as milky-fleshed snapper) have also been present in the Hauraki Gulf (Lockton et al. 2026). Together these results suggest that snapper in the Hauraki Gulf are to some extent food limited.

5.14 Activities, such as sand mining, which have the potential to further reduce the availability of food for fish should therefore be assessed within this context. Essentially the cumulative effect of the proposed sand mining activity and associated stressors and the limited existing productivity of the marine system of the Gulf have the potential to further exacerbate nutritional limitation for fish such as snapper (and associated flow-on effects for fisheries productivity). The scale of this productivity limitation (i.e., the amount of impact or the amount of material harm), however, is unknown.

6 COMMENT ON APPLICANT'S RESPONSE TO PANEL INFORMATION REQUEST

6.1 The additional evidence submitted by Richard Boyd in response to the panel information request states that the future state of the scallop population in Bream Bay is uncertain and that the recruitment, survival and growth of scallops is dependent on environmental conditions.

6.2 There is always uncertainty regarding the future of any marine population and to some extent this will always be influenced by environmental conditions. The key point is to try and understand this uncertainty so that meaningful predictions can be made.

6.3 Bream Bay was one of the main stays of the Northland (SCA 1) scallop fishery. Substantial landings (higher than in 2005 and 2006) into Whangarei (which would have been from Bream Bay fishing effort) occurred throughout the 1980s and 1990s (Fisheries New Zealand 2025, Hartill and Williams 2014).

6.4 Scallops occur in 'beds' where habitat is suitable to allow scallops to reach high densities. Recruitment to these beds (of juvenile scallops) occurs in pulses when environmental conditions are suitable to support larval and juvenile scallop survival. Periodic recruitment events such as this are characteristic of many marine invertebrates.

6.5 If fishery extraction is sustainable, scallops should remain in these beds until the next recruitment event occurs.

6.6 Specifically regarding scallops in Bream Bay, recent survey work (Williams et al. 2025) shows that while recruited scallop biomass in Bream Bay in 2024 was lower than historic levels, at 21 t meat weight, the Bream Bay stratum had the third highest biomass of any of the strata surveyed throughout the Northland (SCA 1) or Coromandel (SCA CS) fisheries. Further, there were signs of good recruitment (juvenile scallops) appearing in the Bream Bay area.

6.7 Williams et al. (2025) stated that the survey results "provides strong evidence that fishery closures are protecting scallop beds from fishing and can result in good survival and growth of scallops in certain areas with suitable habitat."

6.8 Given the exposed nature of Bream Bay (exposed to easterly wind and swell) and its coarse sandy sediments, it is a location where such recovery would be expected (J. Williams, ESNZ, pers. com.).

6.9 In conclusion, rather than the future state of scallop population in Bream Bay being uncertain, it would seem likely that recovery will occur if scallop fishery extraction is managed sustainably.

7 CONCLUSION

7.1 **Fish populations and fisheries incompletely characterised:** The Boyd assessment does not provide a complete evidence base to fully evaluate potential impacts of sand mining on fish populations and fisheries in Bream Bay. For example, the description of demersal fishes relied heavily on a trawl survey series which only conducted three trawl tows in Bream Bay in the last 20 years. The assessment report also emphasised the difference in relative abundance of snapper between Bream Bay and other parts of the Hauraki Gulf although these differences were largely driven by the spring timing of the trawl survey series. The description of the fin-fisheries themselves relied on information that was 13 or more years old even though it is possible to obtain more up to date information. There was also no mention of the pilchard fishery in the region. A clear point was made that the daily timing of sand mining activity avoided the peak of recreational fishing activity, but it was not mentioned that daily activities would still overlap with close to 50% of recreational fishing. The majority of the maps provided in the Boyd assessment do not illustrate the application area as well as other activities (i.e., fishery distributions), thus making it difficult to understand potential overlap between sand mining and fishing.

7.2 **Potential for impact on scallops:** The Bream Bay area has historically supported an important component of the Northland commercial scallop fishery. Recent survey work shows early signs of recruitment and suggests recovery is possible if additional pressures are avoided. Given the current low biomass, any new stressors—such as sand mining—could undermine recovery. Potential impacts include degradation of coarse sediment habitat through settling suspended sediments and direct mortality from dredging. While the assessment report suggests that scallops would be able to move to avoid the suction dredge no evidence is provided to back this up and such a conclusion remains uncertain. Given these uncertainties, it is not possible to rule out material harm to the Bream Bay scallop population.

7.3 **Potential for cumulative effects to impact food availability for fish:** While the assessment report concludes that impacts on benthic food resources for fish will be negligible, this conclusion lacks quantitative context and does not consider cumulative effects. Evidence from the Hauraki Gulf indicates declining snapper growth rates and recent signs of food limitation, suggesting that fish productivity may already be constrained. In this context, any activity that further reduces benthic productivity—even at a local scale—should be assessed cautiously, as incremental losses may compound existing pressures on fish populations and fisheries.

Darren Parsons

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