Decision No. W 2512002 ORIGINAL

TN THE MATTER of the Resource Management Act 199 1

AND

IN THE MATTER of **an appeal under section** 120 **of the** Act

BETWEEN **KUKU MARA PARTNERSHIP (FORSYTH BAY)**

(RMA 391/00)

Appellant

AND **THE MARLBOROUGH DISTRICT COUNCIL**

Respondent

BEFORE THE ENVIRONMENT COURT

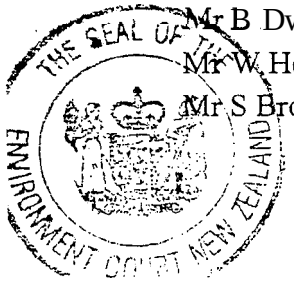
Environment Judge S E Kenderdine (presiding)
Environment Commissioner J R Mills
Environment Commissioner H McConachy

HEARING at BLENHEIM on 27, 28, 29, 30 and 31 August, and 3, 4, 5, 6, 7, 10, and 11 September 2001

Final Submissions received 5 November 2001

COUNSEL/APPEARANCES

Mr R Somerville QC and Mr Q Davies on behalf of Kuku Mara Partnership
Mr B Dwyer on behalf of the Marlborough District Council
Mr W Heal on behalf of the Friends of Nelson Haven and Tasman Bay Inc
Mr S Browning on behalf of the Marlborough Environment Centre



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DECISION

Introduction

[1] Kuku Mara has applied for a coastal permit *to site a* **42.25** hectare marine farm towards the southwestern quadrant of Forsyth Bay, Marlborough Sounds ("the site"). The application represents the first manifestation before the Court of a paradigm shift in the siting of marine farms in the Marlborough Sounds – away from the inshore areas extending out approximately 200 metres – to offshore areas. It is also the first of the larger "mid bay" applications to come to court[1].

[2] This application has added interest in that Forsyth Bay is the habitat of several rare bird species, including the King Shag, declared *vulnerable* by the IUCN[2].

The Site and its Surrounding Environment

[3] Forsyth Bay is a broad sheltered bay, located immediately to the east of the East Entry Point to Pelorus Sound near its entrance to Cook Strait. It is a large semi-enclosed bay. Forsyth Island is located to the northeast and Allen Strait to the east. The bay itself is approximately 3 kilometres wide and 5 – 6 kilometres in length from north to south[3].

[4] The main entrance to the bay opens to- the north between headlands 3 kilometres apart. Allen Strait, approximately 350 metres across, breaks up the eastern coastline of the bay. The strait separates Forsyth Island to the north from the mainland to the south. Duffers Reef, renowned as a specific habitat for the King Shag species, extends westward 1.5 kilometres from the eastern headland. To the north, beyond Duffers Reef, the bay opens out of Pelorus Sound to Cook Strait. In the centre of the bay there is a long rock outcrop known as Bird Island, with scattered rock outcrops known as Sugarloaf further south.

[5] Ridges between 180 and 400 metres above sea level bound the western, eastern and southern sides of the bay. The peak of Mt Stokes in the southeast dominates the skyline. To the south, the low-lying narrow Piripaua isthmus joins the outer peninsula in the west with the mainland in the east. Beatrix Bay is located across the isthmus, only a few metres away at the narrowest point.

[6] The indigenous vegetation around most of Forsyth Bay has been previously cleared for farming. The land is now a mixture of pasture and regenerating bush. In particular, Forsyth Island is in the process of regeneration to indigenous vegetation cover.

[7] The coastal margin is a combination of long rocky shorelines and headlands, interspaced with pebble and coral beaches. The shoreline grades steeply to marine depths greater than 30 metres.

[8] There is one small settlement, of at least five houses, a jetty and workshop for boat maintenance and building at Wakatahuri Bay, which is south of Sugarloaf. There are 2 individual dwellings on the western shore of Forsyth Bay, and another on Forsyth Island, at Sunday Bay. There is also a tourist lodge further north in an elevated position on the west side of Forsyth Island, overlooking Forsyth Bay.

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1 Dwyer OS 2. There are currently other applications or appeals involving similar "mid bay" sites in the Marlborough Sounds (as they have colloquially become known) totalling in excess of 8,400 hectares.

2 International Union for Conservation of Nature and Natural Resources, Schuckard EIC 9.

3 Bartlett EIC 9 says approx. 6 km: Rackham EIC 5 says 5 km: Kyle EIC 4 says 6 km.

[9] There are 41 marine farms located within the 200 men-e coastal fringe made up of small embayments, and a salmon farm on the western shore of the bay to the north of the application site.

[IO] The site for the proposed marine farm, described as south of 3ird Island in the north of the southern part of Forsyth Bay, takes up 42.25 hectares of this area. The application site is 410 metres from the nearest existing marine farm to the southeast, approximately 8 10 metres from farms elsewhere to the south and west, and 500 metres from Bird Island.

[1 1] A copy of Figure 1, taken from the evidence Dr M R James, consultant scientist to Kuku Mara, is attached to this decision marked Appendix "A". It shows the general geographic features of the bay, the location of the proposed farm offshore, and the existing inshore marine-farms.

Zoning and Mapping

[12] The proposed Marlborough Sounds Resource Management Plan (PMSRMP) divides the Marlborough Sounds coastal marine area into two zones: Coastal Marine Zones 1 and 2 (CMZ 1 and CMZ 2). That part of the Forsyth Bay CMA in question falls within the CMZ 2. Marine farms within the CMZ 2 are a discretionary activity in terms of Rule 3, subject to compliance with the standards set out within Rule 3.2.9, which requires that no part of any farm shall be located closer than 50 metres to mean low water mark or further than 200 metres from mean low water mark. The proposed marine farm is to be located further than 200 metres from mean low water mark and in terms of Rule 4, is a non-complying activity.

[13] The land nearest the marine farm site (the site) around the western and southern sides and the head of Forsyth Bay is predominantly zoned Rural 1 in the PMSRMP, although there is a strip of land along the immediate foreshore zoned Conservation. There is a small area of Sounds Residential zoning at Wakatahuri at the head of the bay, approximately 1.5 kilometres from the nearest edge of the proposed marine farm site.

[14] All the land along the eastern side of Forsyth Bay, Allen Strait and Forsyth Island itself as well as the headland to the south of Forsyth Island and Bird Island[4], are identified on the planning maps as being areas of Outstanding Landscape value, together with the headland at the northwest entrance (Kaitira Head) to 'Forsyth Bay, and Duffers Reef. Large areas of Forsyth Bay to the north, east and south of the site are identified as Ecological Areas, being King Shag feeding habitat. Bird Island is also identified as an Ecological Area due to the number of bird species it sustains and is a Scenic Reserve. Attached to this decision marked Appendix "B", is Figure 2 taken from the evidence of Dr R M Bartlett showing the ecologically important areas in Forsyth Bay in relation to the site of the proposed farm.

The Proposal

[15] The proposal is located 500 metres southwest of. Bird Island which is in the middle of Forsyth Bay over relatively flat, or gently sloping, muddy habitat, of a mean high water depth of 40 metres. The farm is proposed in the form of a square, with each side measuring 650 metres, including backbones and anchor warps. It is to be made up of 6 sub-blocks, each containing 11 longlines when fully developed. The longlines will have 185 metre long backbones and will be attached to approximately 80 metre long anchor warps with 8 tonne concrete wedge block anchors at each end. As a result of this configuration, surface structures will be present in an area covering less than 60 per cent of the total area of the proposed farm.

[4] Buckland EIC 20 - 21.

[16] The number of standard buoys on each line, if set at 2 metres spacings with heavy crop, may be as many as 90 a line. If all the lines are set up in this way, the fully developed farm will have 3000 floats. The proposal is to stage the development by putting in every second line during the first year. Infilling of lines (stage 2) will only occur if the monitoring confirms a lack of adverse results. If the two part programme proceeds, there will be approximately 1,400 buoys in each stage. There is to be a 140 metre wide fairway through the middle of the farm. The surface structures of the site do not extend to the edge of the site in the nor'easterly and sou'wesrerly direction[5].

[17] The proposed farm has an increased distance between longlines (20 metres compared with close spacing of 10 – 15 metres on existing, farms). The longlines will be orientated in a northeast to southwest direction which is at an angle to the prevailing current direction.

[18] The appellant considers that if the marine farming industry is to grow and prosper, providing increased benefits to the regional and national communities, it needs to find an alternative to the *"coastal* ribbon " sites (within the 200 metre zone) previously provided for. Inevitably, this had led the appellant to identify several "mid bay" sites for the activity.

[19] It is the appellant's evidence that the site is located in an area that is:

- distanced from intensive recreational and other uses;
- outside of main navigation channels or passages;
- not in areas known to be of particular cultural or historical importance;
- within existing marine farming areas – in that the bay selected already has substantial development along the coastal ribbon so it is not out of character with the surrounding environment;
- located where effects on conservation values are no more than minor,

[20] In response to the call by submitters for a strong application of the precautionary approach to the development, extensive environmental, technological, performance and process conditions have been developed by Kuku Mara, underpinning its adaptive management techniques to meet unidentified risks in the coastal marine area[6]. It is explained that it is a response to the difficulties in predicting whether environmental controls will be effective in practice.

[21] The Kuku Mara proposal is not one where the farm is to be established and then a report on environmental effects made. Instead the concept of *adaptive management* in Kuku Mara's terms encompasses:

- a comprehensive management plan is proposed prior to exercising consent within six months of the date of commencement detailing how the consent is to be exercised;
- base line assessments (of the benthic environment as an example) are proposed once consent is granted;
- development in three stages: a third of the farm will comprise stock in the early development stage, another will be in mid stage of development, and a final third of the farm will contain stock at, or near, maturity;

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5 Kuku Mara Exhibit 11.

6 Somerville CS 22. The adaptive management approach is endorsed by the Department of Conservation and Ministry for the Environment in *The New Zealand Biodiversity Strategy,* Wellington 1 February 2000. Counsel includes a number of references to adaptive management approaches in his footnotes: CS 24 – 25, notes 28, 29, 30.

- two substages are also proposed: in the first, only every second iongline will be developed: additional longlines will only be developed once it has been demonstrated that depletion rates and changes in current flow and direction will not be detectable outside a few hundred m.etres from the boundary farm;
- the longlines are to be spaced further apart than the traditional farms;
- a comprehensive environmental monitoring regime is to be established which incorporates recording and reporting systems;
- opportunities will be created for the council to review the conditions of consent to ensure that effects are appropriately avoided, remedied or mitigated and that monitoring is appropriate;
- opportunity is provided for the consent holder to apply for a change in conditions;
- the term of consent is only 10 years;
- if adverse effects are found to be major through monitoring, these effects are not irreversible;
- if adverse effects are found and the proposal is scaled back it is anticipated the environment will recover.

[22] Kuku Mara is particularly mindful of the dangers of incrementalism where inshore farms were/are allowed without sufficient procedures to address the risk of potential cumulative effects, from future projects. It cites some of the difficulties now being experienced with the sustainability of the inshore areas as a warning to others of how not to proceed without proper research. and adaptive management techniques.

The Parties

- ***The Council***

[23] The council accepts that each marine farm application must be dealt with on its own merits. It declined the application having acknowledged the economic benefits of marine farming to the region: But it considers that when those benefits are weighed against the issues of sustainability of the marine and coastal ecosystems, natural character, navigation and public access and recreation issues, the application is reasonably declined.

- ***Friends of Nelson Haven and Tasman Bay (Incorporated)***

[24] The Friends are concerned at the impact of this proposal on the wider biophysical environment. It was noted that few if any inshore farms are obliged to monitor the effects of their activities, and consequently the council has little or no knowledge of the overall effects of farming on the inter-tidal and the inshore and offshore areas of the Sounds. The Friends consider that the evidence from this proposal discloses that impacts on the wider environment include:

- navigational issues;
- nutrient depletion;
- the establishment of new species of organisms (such as *Underia* seaweed);
- species displacement;
- the numerical growth of some primitive species such as spotties and leatherjackets.

[25] The Friends consider that a fundamental change of this kind (mid-bay marine farming), should proceed by way of plan change rather than be predetermined by ad-hoc consent decisions.

[26] The criticisms of Kuku Mara's proposed monitoring regime by the Friends include the opinions that:

- if the proposal is modified to provide for a limited area, it would be unacceptable because the consent would not properly reflect the right of occupation and in the circumstances it would be inappropriate to grant consent for 42 hectares;
- all monitoring will do is present historical information post impact – the remedial action proposed falls short ofremoval;
- if there is a condition requiring removal, this would defeat the purpose of the consent and would be invalid;
- there is insufficient baseline information to determine what impacts the activity in isolation from other marine farms is having on the environment generally – namely the food chain and other organisms living in the bay such as the King Shag;
- information gained will not have a coherent purpose – *the* folly of a *"do it and* see" approach is becoming increasingly evident in parts of the inshore CMZ 2 zone as indicated by the scientists;
- the adverse effects have to include activities that may become established via other applications should this proceed as well as those approved previously;
- *a frontier approach* such as proposed by Kuku Mara is inappropriate in the marine environment;
- the risk is obvious.

- ***The Marlborough Environment Centre***

[27] The Environment Centre's case centres on the belief that a marine farm of the size proposed, with its nutrient depletion, sedimentation, and disruption of natural processes, is inappropriate in its setting, and especially near the unique and natural features of Bird Island.

[28] The Centre is concerned that the natural species diversity and integrity of marine habitats is maintained and enhanced in particular the habitat of Hector's Dolphins and the King Shag.

[29] In addition, the Ngati Kuia hapu sees its traditional kaitiaki role of the area offended by the presence of too many marine farms.

[30] The Centre also finds the proposal contrary to the intent of the plan causing a sense of alienation of public space, and causing undue risk to navigation. The beauty of the Sounds and its unique character is seen as under threat from such a large farm in this bay.

Section 104(1) (a): Actual and Potential Effects

[31] In terms of identifying the actual and potential effects of the proposal on the environment under s.104(1)(a), we assess each issue in turn. In terms of avoiding, remedying or mitigating any adverse effects which are identified under s.5(2)(c), these matters are addressed under Part II.

[32] The terms 'environment' and 'natural and physical resources' are defined in s.2 as follows:

Environment includes-
(a) Ecosystems and their constituent parts, including people and communities; and
(b) All natural and physical resources; and
(c) Amenity values; and

(d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters:

Natural and physical resources includes land, water, air, soil, minerals, and energy, all forms of plants and animals (whether native to New Zealand or introduced); and all structures:

[33] We address these matters mainly in the order listed above.

- ***The Community***

[34] We address economic issues under Part II Matters but note at the outset there will be a positive potential effect on the community from the proposal in terms of the downstream economic benefits it will bring. As to individual community concerns, such as navigation and visual amenity, we address these in this section of the decision.

- ***Natural and Physical Resources of Forsyth Bay***

Issues

[35] The following are the issues we address under this heading:

- existing elements of natural character;
- natural ecological continuums, interruptions, and interactions;
- Bird Island: a significant natural and physical resource.

[36] Dr Bartlett, environmental consultant to Kuku Mara and a terrestrial ecologist by profession, gave generalist evidence on most of the elements which comprise natural character in the bay with the exception of the terrestrial aspects of natural character to which she gave particular attention. Her evidence is essentially an overview of the actual and potential effects of the farm on natural character: For the preservation and protection of the CMA, Dr Bartlett draws on the information provided by the scientists for marine birdlife (Dr C Lalas and Mr P Sagar), the marine mammals (Mr M Cawthorn), the water column (Dr M James), and the benthic environment (Dr P Gillespie). Ms M Buckland's evidence is relied on for landscape, and the visual environment, and the evidence of Messrs J Elkington and B Mikaere is relied on for cultural and heritage values.

[37] Mr A Rackham gives expert landscape evidence for the council, Messrs D S Melville and R Schuckard for the Friends give evidence on birdlife and Dr E Slooten for the Environment Centre on marine mammals.

- *Existing elements of natural character*

[38] Dr Bartlett evaluates the elements of the physical and biological environment, concluding that CMZ 1 is more pristine than the CMZ 2 – it has a predominantly native vegetation cover – with high quality vegetation cover and landforms. She acknowledges in cross-examination however, that there are no provisions in the PMSRMP which suggest that natural character values should be weighted at a lower level or are less worthy of protection in CMZ 2 rather than CMZ 1[7].

[39] The witness gives a detailed description of the fragmented vegetation and land cover issues in Forsyth Bay (an absence of sea to sky forest cover), her conclusion being that the

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[7] Bartlett **NOE 160.**

area enveloping the bay is considerably modified for pastoral farming purposes, with farm tracks and erosion evident, particularly on its western side. The regenerating shrubland over pastures which cover much of the eastern mainland slopes with patches of wilding pines is noted, as is the fact that there is little indigenous vegetation remaining within the bay. Marine farms are identified as common, the salmon farm which exists on the western shore is noted, as well as the wharf and several houses at Wakatahuri.

[40] Dr Bartlett concludes that the wild, isolated and scenic nature of the outer Sounds environment elsewhere, is overladen in Forsyth Bay with previous human modification to both the terrestrial and marine environments. *The* bay's "*working nature* " by way of contrast with more natural areas in the Sounds is emphasised, the conclusion being that the bay is suitable for further modification of its natural character, and marine farming is appropriate in this context.

[41] At the generalised level, Dr Bartlett notes that the area of the marine farm supports diverse seabirds, including the nesting and roosting sites on Duffers, Reef and Bird Island of rare bird species as described in Dr Lalas' and Mr Sagar's evidence. The existence of the sensitive rocky reef extending from Bird Island underwater towards the northern boundary of the marine farm site is recorded, as is the fact that marine mammals use the area, though infrequently, as described in Mr Cawthom's evidence.

[42] Dr Bartlett also makes reference to R J Davidson *et al* (1995) *Ecologically Important Freshwater, Island and Marine Areas from Cape Souci to Ure River, Marlborough, New Zealand: Recommendations for Protection.* She notes the existing reserve areas are zoned Conservation and are depicted as Ecological Areas in the PMSRMP. Many of the areas recommended for protection by Davidson she observes are also Ecological Areas in the PMSRMP.

[43] The natural character components of Forsyth Bay are described in detail. After describing the natural character attributes of Duffers Reef (10 small islands and stacks extending 1.5 kilometres from Forsyth Island on the eastern headland of Forsyth Bay), the witness observes that although the reef is identified as a Wildlife Sanctuary, it has no formal reserve classification. A recommended 1000 metre buffer zone for the reef (Davidson *et al* (1995)) also has no formal status.

[44] Bird Island is described as a small narrow chain of rocky stacks separated by low-lying rock and shingle reefs, located in the middle of Forsyth Bay. The islets are noted as unmodified, comprising of low-lying coastal scrub and herbaceous vegetation. Dr Bartlett observes the island is identified as a Scenic Reserve of national importance by Davidson *et al* (1995) and is listed as an area of Ecological Value with status 2 – National Significance in Site 3/25 in the PMSRMP. These recorders however do not recommend a buffer zone and no buffer zone is mapped on Map Ecology 2 of the PMSRMP.

[45] Dr Bartlett describes that the King Shags' feeding areas in Pelorous Sound are also listed in Davidson *et al* (1995) and in the PMSRMP plan (Site l/l 1) as having national importance, but are otherwise unprotected. She observes too that the location of the proposed marine farm extends into an area of Forsyth Bay known as a King Shag feeding area which is not shown on Map Ecology 2. She comments that Dr Lalas, consultant zoologist to Kuku . . . Mara, has concluded the PMSRMP map is merely indicative, with the full extent of the shags' feeding habitat known to be much larger'.

Bartlett EIC 13. Lalas EIC 11 states the main feeding area of King Shags would best be delineated as "*water with bottom depths of 20-40 metres within 25 kilometres of breeding sites and major roost sites . ..*".

[46] Dr Bartlett further notes that the Allen Strait bryozoan coralbeds – (sessile, slow growing and very fragile animals occur in colonies and resemble corals in form), and whilst vulnerable to physical damage, which are located 2 kilometres away from the proposed farm. She observes that also in Allen Strait is a native forest stand of 25 hectares, said to be of regional importance in Davidson et *al* (1995), but it too has no formal protection and is, in any event, located 1.85 kilometres away from the site,

[47] Dr Bartlett goes on to generally evaluate the proposal's effects on:

- marine ecological processes and sustainability – concluding no component of the ecosystem will be significantly affected and adverse effects are remedial;
- terrestrial ecology and the continuum of ecosystems – concluding there is no continuum of natural ecosystems inshore and the proposed farm is offshore and effects on the marine environment are minimised;
- visual effects – concluding these are adverse but relate only to the water surface of the bay and a sense of expanse and openness within the wide bay, and are generally acceptable, the proposed farm will be seen only by a small audience;
- sites of cultural significance – concluding there are none.

[48] In Dr Bartlett's opinion, the proposed marine farm's main change (compared with the existing marine farms) will be in terms of its location offshore, and its area. Cumulatively, she notes, the inshore farms cover 178 hectares as opposed to the 42.25 hectare farm – which will bring a development increase of 23% overall in the bay.

[49] Dr Bartlett concludes that, with the exception of the visual effects of the farm at close range, natural character effects from the proposal will be no more than minor. For the witness *the* term *preserving natural character'* means preserving the processes and functions of the environment. 'She concludes the overall sustainability of the marine (D'Urville Island – Northern Cook Strait) and terrestrial (Bulwer) *Character Areas* within which Forsyth Bay is situated, is not threatened by the proposal.. -The functioning of the broader ecosystem is not degraded and the visual aspects tend to be absorbed by the larger scale features of the bay. She makes the 'point, based on the scientific evidence, that any effects of the marine farm would almost be completely removed, if the activity is disestablished in the future.

[50] Finally, Dr Bartlett acknowledges the potential for the restoration of a continuum of ecosystems in the bay but concludes it is not threatened, in the long term, by the proposed farm.

- *Natural Ecological Continuums, Interruptions and Interactions*

[51] Both Dr Bartlett and Mr Rackham make the point that Forsyth Bay at a wider level is typical of much of the Bulwer ecosystem, one of eleven land *Natural Character Areas* in the Sounds as described in the PMSRMP.' In this system, maritime influence and exposure is described as high with fragmented vegetation patterns and much scrubland. It is a mark of this ecosystem that undisturbed natural gradients between terrestrial and marine ecosystems are uncommon due to marine farming". Dr Bartlett confirms this in her evidence[11] . She describes the existing contribution of indigenous forest vegetation to the natural character of Forsyth Bay as low and the ecological continuum around Forsyth Bay as interrupted. As

[9] The phrase reflecting the wording of s.6(a) of the Act.
[10] 'Volume One, App 2 – 3 1 Bulwer.
[11] Bartlett NOE 169.

there is no complete continuum of natural ecosystems. this justifies the Kuku Mara approach that Forsyth Bay is greatly modified.

[52] The bay also has the characteristics of the D'Urville Island/Northern Cook Strait marine ecosystem. Mr Rackham considers the bay has the typical characteristics of reefs, stacks and islands of this system".

[53] Dr Bartlett notes the smaller islands, good quality water and nutrient status with high oceanic influence at the broader level, relatively high concentrations of chlorophyll ***a in the*** area (compared with other areas in Pelorous Sound), diverse marine fauna, including a variety of seabirds and marine mammals, and a healthy ecosystem., supporting a variety of fish and smaller marineanimals and plants. She observes on the Forsyth Island, in particular, there are large areas of regenerating farmland.

[54] Dr Bartlett agrees in assessing natural character, that the effects of the proposal need to be looked at in a variety of scales, including the immediate, the broader bay, and also the wider Sounds. She accepts that the undisturbed central portion of Forsyth Bay is one of these three scales – the more immediate. In response to a question urging her to take the view that the preservation of the natural character of the application site is far more important because of what goes on around the edge, the witness concedes that what occurs around the edge of the bay should not provide a justification for not preserving the natural character of the remainder of the bay [13].

[55] Nevertheless, Dr Bartlett continues to place the proposed development into the context of the larger environment within which it is found. At close range the existing farms are seen as an extension of the modification created by terrestrial farming on the land, creating an interaction between human 'activity on land and in the marine environment. The witness considers, for example, that there is thus a degree of interaction between the natural character interruptions inshore, and what was extant offshore. She considers that it is important to look at these interruptions, because they may have a bearing on the natural character of the area in which the marine farm is situated and Bird Island[14]. Essentially, she considers- they will carry on modification to the natural character continuum which already exists.

[56] We looked at some of the natural character ***interruptions*** to the ecological systems inshore, and considered what degree of bearing or interaction they might have on the offshore natural character values of the bay – if any. We assessed, largely for the purposes of this case, the more southern area of Forsyth Bay from Bird Island south and across to Forsy-th Island and Allen Strait.

[57] The seascape, natural processes and birdlife are uninterrupted around the area of the proposed farm and around Bird Island which is immediately proximate.. Exhibit 19 taken from the evidence of Dr P Mitchell, environmental consultant to Kuku Mara[15] attached to this decision as Appendix "C" illustrates a 500 metre area around the marine farming site which demonstrates its "zone" of significant visual influence within the bay. It may be seen from this exhibit the marine farm site has a close nexus with Bird Island and its associated reef –

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[12] EIC 7.
[13] Bartlett NOE 163.
[14] Ibih NOE 163 - 164.
[15] Mitchell Exhibit 19.

both physical resources in terms of s.2 and highly natural. The reef is described as sustaining significant areas of rocky habitat and associated biota in a report tabled in evidence'".

[58] By way of contrast with the modified inshore region, Mr Rackham emphasises that the application site will be located in Forsyth Bay in an area with a strong natural character. Coastal waters are largely natural, with no structures or buildings on Bird Island and there are no marine farms or modifications to the water surface. Physical and biological processes continue untouched, they support a large and diverse bird population on Bird Island, and they provide feeding areas for many seabirds including the extremely rare King Shag[17].

[59] An important point of difference from Dr Bartlett, is that Mr Rackham sees Bird Island as a feature of particular natural interest as does Mr Schuckard (an ornithologist) - a highly significant island in the centre of the bay - and one that is associated with the area of the marine farm site. Dr Bartlett states she has taken the island's existing natural character values into account and its scenic reserve status was given regard to. She refers to the scientific witness Mr Sagar for the relevant evidence associated with Bird Island. He refers to it as an island of national importance and discusses boat disturbances to the white-fronted tern. But we had no close focus on the terrestrial ecology of the island apart from the reef.

[60] We conclude on the evidence of Kuku Mara's own witnesses nevertheless, that the inshore interruptions which historically exist, in fact have little apparent bearing on what is happening to the natural character processes, in the proximity of Bird Island.

[61] We next looked carefully for example at the continuum of natural character which arises around Forsyth Island, and the proximity of that island to both Bird Island and the area of the proposed marine farm.

[62] In questioning, of Dr Bartlett by Mr Browning for the Environment Centre, a slightly different picture emerges about the modified area of Forsyth Island facing the bay. In being asked whether Ms Buckland's Photomontage VPT2 of Bird Island with Forsyth Island and Allen Strait in the background, shows regenerating shrubland, Dr Bartlett agrees that the part of Forsyth Island as seen from either Bird Island or the site of the marine farm, appears to be predominately in the process of reforestation and/or in its natural indigenous state. She recognises Forsyth Island is being actively managed to allow regeneration. She acknowledges that in the proximity of the marine farm site is located the best example of indigenous forest in the area[18].

[63] Dr Bartlett considers there is no continuous forest cover from the ridgelines of Forsyth Bay to the shoreline. But she acknowledges the forest cover on the southern end of Forsyth Island, whilst there is a clear line of demarcation between the original forest and regenerating scrub to the ridgeline, is in an extremely advanced stage of being fully regenerated[19]. Her Photo Plate 4(b) put in evidence shows this clearly[20]. She did not know that the forest remnant at the southern end of the island and the forest remnant between the original forest and regenerating scrub of Forsyth Island at Sunday Bay are now registered with the QE2 National Trust. She acknowledges these parts of the island are well vegetated and that what is being undertaken is a positive step to support its revegetation.

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[16] Forrest and Barter - *Proposed Marine Farm Development in Forsyth Bay: Site Assessments for Seven Proposed Mussel Farm Areas in the Marlborough Sounds* Volume 2; Ecological Reports NIWA Client Report: KMPO 1203 June 200 I (Cawthron) 2 I.

[17] Rackham EIC 17.

[18] Ibid NOE 168- 17 1.

[19] Ibid EIC 169 attached Photograph 4(b).

[20] Bartlett NOE 156.

[64] In conjunction with the ridgeline revegetating cover on Forsyth Island, we note that the Allen Strait/Goat Point bryozoan beds, whilst two kilometres away from the site, contribute to the underlying natural character making this seabed to ridgeline of Forsyth Island of high natural character. And we could find nothing which disturbs those natural character features and processes which flow from Allen Strait/Forsyth Island to Bird Island, (which is unmodified and described as predator free) across a seascape undisturbed by marine farms in that area. Islands in the Bulwer ecosystem which lack mammalian pests are recorded as nationally important* [1].

[65] Dr Bartlett affirms there are no possums on Forsyth Island**, while its managed revegetation seems to us to fulfil the direction of protection of the coastal environment. Thus if there have been ecological interruptions in the past, there is an active process within Forsyth Bay for retention/restoration on a terrestrial margin/outstanding landscape adjacent to Bird Island.

[66] As to the inshore ecological processes affecting what happens offshore, Dr Bartlett mentions that when assessing the effects of the proposed farm, the effects on marine water quality need to be considered and the effects of the existing farm and the interaction of nutrient depletion between the existing and proposed farms needs to be assessed. In her view, a further possible interaction which needed to be taken into account is the land cover and the potential effects the presence or absence of forest or scrub vegetation might have on water quality and the shoreline environment[23]. These issues are important to consider, she maintains, because processes which are occurring round the bay may have a bearing on the character of the area in the centre of the bay[24].

[67] With respect to the water quality, we note that effects on water quality from run-off from surrounding pastoral slopes were not identified in Dr Bartlett's evidence in chief. Nevertheless, we note Mr J R Man-, a Director of Kuku Mara, makes it clear that Forsyth Bay is the one area in the Sounds which has the most lenient harvesting restrictions due to contamination problems from farm run-off (ie water quality affecting marine farms) due to its, steep catchment and low stock density[25].

[68] Further, it is Dr James' conclusion that there are no adverse cumulative effects expected in terms of water quality or nutrients between the offshore and inshore farms. Much of the offshore water never reaches the inshore regions. The two appear to have different circulation patterns. That conclusion by Dr James is not rebutted by any party[26].

[69] Further, the. proposed marine farm site is located approximately 575 metres from the landward shore. Consequently, it is situated over a general seabed 'zone' in a relatively flat, gentle sloping, subtidal muddy habitat. The subtidal slope over which most existing marine farms are situated, by way of contrast, consists of a transitional area between cobble and mud[27]. Dr Gillespie notes the deep mudflat cornmunities'contain biological coinmunities with different characteristics from those of the subtidal slopes. From surveys of the seabed of the proposed site, Dr Gillespie identifies a wide range of small and large bodied animals of

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21 Kyle discussing boat trip to Bird Island with Mr Sagar NOE 304.

22 PMSRMP App 2 – 7, Bartlett EIC 23.

23 Bartlett NOE 162.

24 Ibid NOE 163.

25 Marr EIC 9. This was echoed in the evidence of Mr A R Campbell, Senior Health Protection Officer for the Nelson Marlborough Health Services, which was tabled. He noted *in any event that contaminants and floodwater generally move with the predominant tidal currents which genera& run parallel to shore* (page 6).

26 James RE 4.

27 Gillespie EIC 8.

different taxonomic groups and. feeding types indicating a healthy muddy bottom community and balanced seabed environment.

[70] Mr A King, marine farmer, who gives evidence for Friends, describes his diving activities at a mussel farm in Beatrix Bay which has operated for 15 years and is in water 80 feet deep. He speaks of an obvious difference between the normal seabed and that below his farm where the beds of shells were up to 2 – 3 inches high and below that another layer of mussel shell had built up. On the shell litters there were nurnerous slugs and large starfish. Amongst the shell litter zones, there were no holes in the mud surface[28].

[71] There is very little doubt in our minds that the inshore seabed at Forsyth Bay will look much the same, and such detritus will ring the bay where the ribbon of marine farms are situated.

[72] The fact of the matter is, that in what is a healthy muddy bottom community now, a sedimentation footprint will eventuate from the proposed farm made up of organic and rich fine grained particles and the deposition and accumulation of live mussels, mussel shell litter and other biota will, occur. By way of contrast, while a *significant* sedimentation of farm-generated particles is not expected to extend to a distance of more than 100 metres outside the proposed farm boundaries[29], potentially, sedimentation will occur across and beyond the site, changing its existing high natural character. The potential area of discernible change is estimated by the council to be some 850 'metres. x 850 metres (72.25 hectares)[30] made up of the proposed boundaries of the lines and the- allowed sedimentation footprint identified in the conditions to the resource consent.

[73] Currently, the muddy seabed substrate. underneath the site is almost entirely natural. Dr Bartlett acknowledges that the important elements to take account of in benthic terms, are a healthy deep mudflat and a balanced seabed environment. She accepts that as they currently exist, these characteristics of the CMA, formulate a very high degree of natural character[31].

Bird Island: A Significant Natural and Physical Resource

[74] Bird Island is located to the north of the southern part of Forsyth Bay. The island at the time of hearing was 1.7 kilometres away from, any marine farm: It will be only 500 metres away if the proposal proceeds.

[75] Bird Island's associated reef lies only 100 metres from the boundary of the proposed Kuku Mara site to the south.' Witch flounder to which the King Shags seem very partial in Forsyth Bay (and Pelorous Sound generally), are known to favour the coarse sediment of the reef-like structure which Bird Island supports.'

[76] Dr Bartlett identifies that the reef heron which is an uncommon native species (also found in eastern Asia) use the Bird Island islets for feeding and probably for breeding[32]. Mr Sagar identifies the variable oystercatcher, fluttering shearwater, Cook Strait blue penguin and white-fronted terns are of particular interest on the island. Black backed gulls are also identified as nesting on the islets, while red-billed gulls and little pied cormorants are further identified by Mr Schuckard.

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[28] King EIC para 17.
[29] Dwyer CS 11.
[30] Ibid.
[31] Bartlett NOE 166.
[32] Volume Two, Appendix B, site 3/25 – ecological value includes breeding and feeding areas: Dawson EIC 43.

[77] In ornithological terms, Mr Schuckard, who has visited the island on a number of occasions, describes Eird Island as a habitat for a unique and very rich bird community in the outer Sounds. In his opinion, the abundance and diversity of at least 9 bird species on this small island, merits its distinction as *outstanding* in this confined area of the Marlborough Sounds. He identifies it is the only island within the confines of the Pelorous Sound, which supports such a diversity of seabirds. The witness considers the small rocky stacklets in the wide open marine environment as therefore a natural area of great significance. Duffers Reef at the head of Forsyth Bay also hosts a good variety of breeding birds such as the King Shag, but the community on Bird Island is seen by Mr Schuckard as more diverse[33].

[78] Mr Sagar identifies that Bird Island is a nationally important area to the white-fronted tern – it is a very valuable bird habitat. Whilst accepting that the phrase *"jewel in the Marlborough Sounds' ornithological crown"* is a layman's term attributed to Bird Island, Mr Sagar agrees that two factors (the reef and the fact that the island supports seabird fauna) make it so for birds[34].

[79] And Mr Sagar also describes Bird Island as predator free and well structured for nesting. He notes that the white-fronted tern is ranked as a category C priority because of threats posed by predation and disturbance[35]. Consequently breeding colonies on predator free and undisturbed islands assume a greater importance in the conservation of NZ white-fronted terns.

[80] We note of the species breeding on the island, that their habitat is stated as either exclusively marine or coastal and their use of the island relates to variously nesting on stacks,, breeding and feeding.

[8 1] Mr Schuckard identifies that the distribution of marine shags is closely related to areas of high oceanic and related zooplankton abundance[36], and that shags are very efficient marine predators in an environment with an abundance of food. He had also seen King Shags in an area around Bird Island feeding, as had Mr Rackham[37].

[82] Mr J Walker, a kaumatua of the Ngati Kuia, describes the Maori name for nearby Forsyth Island as *Titirangi* (a cloud full of birds) and provided for the Court the imagery for the natural character link to an area close to this island of birds. He speaks of a ***sky full*** of *birds in that area*[38].

[83] Of the seabirds breeding on Bird Island, three are of conservation concern. All Dr Bartlett said was that on her site visit she had *"probably"* observed various birds on the water surface of the proposed Kuku Mara site[39]. Ms Buckland stated that she had *seen birds* but *that was moving into another expertise* [sic] ***territory***[40]. When asked in cross-examination as to whether the birds carry out any other activities in the waters around Bird Island, such as feeding or bathing or instructing their young, Mr Sagar replies that as far as he is aware, there had been no reports of that occurring, *but he would imagine they would*[41].

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[33] Schuckard EIC 34, 37.
[34] Sagar NOE 118.
[35] Ibid EIC 3: Table 1 to Mr Sagar's evidence.
[36] Dr James NOE 237 affirms the site has both these attributes.
[37] Schuckard NOE 426, Rackham EIC 12.
[38] Walker NOE 378.
[39] Bartlett NOE 165.
[40] Buckland NOE 204.
[41] Sagar NOE 117.

[84] Tne Court was thus not given any evidence of where the considerable and rare bird population of Bird Island fed and played, as we would expect in any assessment of the natural character values of the area.

[85] We note from Mr Schuckard's evidence on the King Shag, that the area of up to 2 kilometres around Duffers Reef has a wider use than only feeding. Juveniles may be observed in the area for their first swim and adults often take a bath prior to leaving to forage. There were no assessments of these aspects of the use of Bird Island habitat – which should the proposal proceed, will be only 500 metres away from a potentially large industrial activity covering 42.25 hectares. There is the potential for disruption of the birds.

[86] Nevertheless we concluded that the area in which the marine farm is identified, because of its proximity to Bird Island, is very significant in terms of the natural and physical resources it sustains. The intrinsic natural character values of the island and the surrounding waters in their undisturbed state cannot be ignored.

[87] The fact that noise, lights and boats will increase in the area at all, close to this island supporting species of such distinction is, we consider, a potential amenity effect on the natural character values of the area. The activity introduces an industrial activity into a very special natural area.

Finding

[88] The proposal will actually and potentially affect the natural and physical resources of the southwest area of Forsyth Bay – through 'modification and disruption. Whether they are adverse effects we assess under Part II matters.

- ***The Ecosystem of Forsyth Bay and its Constituent Parts***

[89] The ecosystem issues which require addressing under this heading are:

- impact on the water column;
- impact on the benthic environment;
- marine mammals; and
- impact on the birdlife of Forsyth Bay.

- *Water Column*

[90] Dr James, an Aquatic Biologist and Regional Manager and Senior Scientist for NIWA, Hamilton, and consultant to Kuku Max-a has been assessing the ecological sustainability of marine farms since 1994 and general coastal processes since 1983: His evidence indicates he had undertaken extensive research on water column issues. He is widely experienced.

[91] For the Kuku Mara application itself, Dr James produced 5 NIWA Client Reports between January 2000 and June 2001, relating to assessment of sustainable production issues in Forsyth Bay, mussel food concentrations, water currents and structures. He provided a summary of major findings dealing with issues in the water column.

[92] Dr James identifies some of the findings from numerical models which have been developed by NIWA for Beatrix Bay, and then made further assessments from these after surveys and studies had been carried out in Forsyth Bay. It is his conclusion that given the similar size of Forsyth Bay to Beatrix Bay, stocking levels, growth rates, and the capacity and 'nutrient levels of both bays are generally the same. Assuming similar conditions in Forsyth

Bay, Dr James concludes there is room for limited expansion. There will be a threshold however, at which further development would lead to decreased growth and condition of farm mussels, and a significant effect on the natural ecosystem.

Water Column Structure and Phytoplankton Abundance

[93] Water column stratification in coastal waters is a major factor affecting water movement and the production and distribution of phytoplankton and zooplankton is another. Stratification is seen as particularly significant in the Marlborough Sounds because it controls the extent of light limitation to phytoplaxikton growth in winter and nutrient limitation in summer.

[94] Dr James' key conclusions in respect of the water column-in Forsyth Bay are:

- because of the bay's position in the outer Sounds and the lack of nearby streams, it receives little freshwater input and stratification is driven by temperature;
- there is a weaker water column structure here than in many other parts of the Sounds where less saline (and less dense) waters are found in the surface layers;
- density stratification is generally weak and this is likely to persist for much of the time;
- the significance of the weak structure is that phytoplankton will be relatively easily mixed and will spend a significant amount of time in deeper dark waters where growth would be limited through the summer;
- this is in contrast to inner mid Pelorous Sound which demonstrates low nutrient and low phytoplankton biomass during the summer;
- overall, the mean chlorophyll *a* level at the site, is in the upper range of the long term mean levels recorded in Pelorous Sound, and in Beatrix Bay since 1994;
- the phytoplankton-removed from the environment will be less than 10% (5% at Stage 1 at the edge of the farm) based on the Golden Bay marine farm studies[42];
- phytoplankton depletion from the farm is likely to recover within 200 – 500 metres of the farm boundaries[43];
- the closest shoreline is over 1 kilometre away – so it is unlikely, given the less than 10% phytoplankton extraction, that depleted water would have a significant effect on the intertidal and inshore region;
- the maximum phytoplankton removal could potentially be 40% between the two backbone ropes of a longline, but preliminary studies in Beatrix Bay reveal very little depletion between longlines[44];
- the greatest degree of depletion is likely to be very close to the dropper line (there are no studies at this fine scale)[45].

Currents and Water Movement

[95] Water circulation and movement are important as they determine the distribution of phytoplankton groups and the flushing rate and replenishment of the bay with new water. This in turn can have a major influence on the farmed mussels. Dr James' conclusions on the issues of currents and water movement are that:

- deep marine farm sites or those exposed to strong currents are generally considered less susceptible to adverse effects than shallower sites;

[42] James RE 4.
[43] Ibid NOE 226.
[44] Ibid EIC 15.
[45] Ibid 16.

- outer bays such as Forsyth Bay have greater flushing of nutrients than Beatrix Bay which is much more enclosed";
- because the bay 'is close to a major source of new nutrients derived from the deep nutrient rich waters of Cook Strait, the site is very suitable for marine farming;
- only 6% of the water flowing through the western part of the bay would flow through the farm, effects would be localised and not affect the wider ecosystem[47];
- nutrient depletion will not be significant as the bay is able to replenish quickly;
- circulation patterns are also evident in the spatial distribution of physical variables and chlorophyll;
- current speeds at the Forsyth Bay site are similar to those found in the outer Beatrix Bay farms, the assessments of which are used to underpin assessments of sustainability in Forsyth Bay;
- water moves generally from the northwest across the bay and either through Allen Strait or to the north and out of the bay again;
- the lack of significant reversal in current direction indicates a relatively weak influence of tidal flows on current direction, and is likely to result in greater flushing at the site than other locations, which have similar current speeds but stronger tidal influences;
- it is difficult to predict the effects 'of a 42.25 hectare farm on the alteration of water current speeds and direction, but they are likely to be localised;
- the longlines on the site would have minimal effect on the general current flow in Forsyth Bay as they will be orientated in a northeast to southwest direction, on an angle to the prevailing current;
- the angle of the longlines and a 140 metre channel (fairway) running down the middle would mitigate any 'adverse effects on the general current flow in Forsyth Bay;
- current attenuation may be 70% close up to the lines but will be much reduced further away from the lines[48].

- *The Benthic Environment*

[96] Dr P Gillespie, Senior Marine Scientist at the Cawthron Institute and consultant to Kuku Mara on the Institute's behalf, assesses the proposal for actual and potential adverse effects on the benthic environment[49]. He notes that there is a paucity of material on large offshore longline mussel farms from which to make predictions, and benthic surveys in the Sounds have generally concentrated on sediment surface dwelling organisms (epifauna).

[97] He makes the following findings:

Nature/extent of effects on benthos:

- the benthic environment at the site is fairly uniform and no features of special ecological, scientific, conservation or fisheries value were found, so the proposed farm is not contrary to the general thrust of the DOC (ecological) guidelines;
- benthic effects would be generally localised within 100 metres of the farm boundary and arise from the sedimentation of organic-rich, fine-grained particles

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46 James NOE 2 15.
47 Ibid RE 4.
48 Ibid NOE 223.
49 Dr Gillespie also gave an extensive list of reports described and published articles and guidelines describing the chemical and biological characteristics of the Marlborough Sounds and the effects of mussel farming and enrichment which he reviewed.

consisting of predominantly silt/clay and mud sized particles, and deposition accumulation of live mussels, mussel shell and other biota;

- benihic organic enrichment can, in severe cases, produce suiphide rich/oxygen depleted sediments which could adversely affect the benthic and epibenthic community but this has not occurred in New Zealand;
- a significant proportion of sedimentation of farm-generated particles would not be expected to a distance of more than 174 metres outside the proposed farm's boundaries;
- an offshore farm site, over relatively flat mud habitat (which contains more widespread representative communities than subtidal slopes), is generally less susceptible to adverse benthic impacts than near-shore sites over a coarser-textured seabed habitat or a rocky reef community;
- the general tidal flow is primarily in a westerly to northwesterly direction and consequently it is not expected that reef habitats (such as that attached to Bird Island) would be adversely affected by sedimentation;
- significant nutrient depletion would not be expected in Forsyth Bay;
- it is not possible to predict the extent to which new reef type communities will be formed from mussel clumps and shell litter due to the moderate near-bottom current velocities at the site;
- assuming a suitable marine farm location, the release of dissolved nutrients would not be expected to represent a significant degradation of water quality;
- because of the prevalence of large areas of muddy habitat and the abundance of particular species, the species' assemblage may represent important links in the food web;
- any changes in ecological structure of subtidal mud communities will potentially result in changes to the food web over a large proportion of a given embayment which extends beyond the farm perimeters;
- phytoplankton production down-current from the farm may be stimulated, but this is not likely to occur to an extent that would result in associated problems of putrification (particularly considering the reduced stocking density);
- appropriately managed, a lower-density mussel farm such as Kuku Mara propose will have the potential to create only minor adverse benthic impacts[50].

Professor Schiel's Review of Data

[98] Associate Professor D R Schiel, Zoologist at the University of Canterbury, and Co-director of the University of Canterbury/NIWA Centre of Excellence and Aquaculture and Marine Ecology, was asked by the council to act as an impartial reviewer of the scientific evidence for this case. Professor Schiel was not called to give evidence, but the findings of his review were filed and were the subject of questions to Drs Gillespie and James, as well as submissions by counsel. We were interested in the responses of Professor Schiel, as he is suggested as part of a review panel to advise the council and the industry, on ecological monitoring if this or the other Kuku Mar-a mid bay applications proceed.

[99] Professor Schiel has a number of concerns:

- that in terms of the benthic survey, although the farm site is entirely composed of deep mud habitat and the data obtained is characteristic of much of the Marlborough Sounds, the Cawthron Institute interpretation is not based on thorough sampling;

[50] Proposed stocking densities are approximately 50% lower than standard mussel farms in the Sounds.

- although it is standard sampling protocol to express abundances of organisms per a given area, or a mean, there is no such information here: nor are there variances of abundance estimates to allow the data to be statistically compared to future surveys to gauge the magnitude of the changes;
- the lumping of data in ranked categories of abundance across deep marine farm sites or those exposed to strong currents which are generally considered less susceptible to adverse effects than shallower sites transects of variable dimensions, has other consequences: one of these is the potential for diluting an effect by sustaining it into a larger area, for example, scallops could have occurred in discrete dense patches that exceeded the 0.1 per square metre trigger level of the DOC sampling guideline?';
- increased farm areas may enhance populations of predators such as spotties, with the potential' flow on effects in the natural environment as well as their propensity to be a major consumer of mussel spat;
- Kuku Mara's conclusions on the potentially affected zone which extends to the margins of the hard reef in the northeast comer of the site (ie Bird Island Reef) depend on how representative the results of the limited surveys undertaken are of more general conditions throughout the year;
- the potential effect of a large mussel farm on fish populations is only cursorily addressed;
- many assumptions and generalisations are made as to phytoplankton depletion, carrying' capacity, and sustainable production, because there is little or no long term data on Forsyth Bay;
- the validity of the. assumptions made'for Forsyth Bay on data collected in Beatrix Bay is also questioned;
- it is unclear how the production level of 6000 tonnes or 100 farmed hectares available for overall development in- Forsyth Bay is arrived at, as a precautionary threshold: the nature of the currents, the flushing rates of the bay, the filtration rate of mussels, the extraction rate of phytoplankton by mussels from the filtered water, and the availability of nutrients may all be highly variable;
- the monitoring conditions proposed by Dr James in his Appendix 1 are too generalised in terms of: the purpose of the monitoring; trigger levels; and benchmarks for adverse benthic effects, compared with the issues which Dr James discusses in his evidence-in-chief.

Evaluation

Water Column and Current Issues

[100] The Friends focus on Professor Schiel's point that there is insufficient hard data to reach the assumptions made by the consultant scientists and NIWA and Cawthron, even if they 'are' reasonable.

[10 1] Professor Schiel expresses concern that it is difficult to estimate scaling effects reliably and the effects from the large or small farms used in Kuku Mara's estimates do not appear to be proportional. He emphasises that there are numerous factors which affect a depletion zone.

[102] We consider that this issue is made clear in Dr James' evidence. Dr James states that future phytoplankton depletion from the Kuku Mara site will not be significant, because it is a much smaller farm than the 160 hectare Golden Bay farm from. where precise measurements have been taken and extrapolated. He considers the proposed site would replenish, depending

51 Schiel – Review of Scientific Evidence 3.

on the currents flowing around and underneath the farms. And the low estimated phytoplankton extraction rates for the Kuku Mara site indicate that there is unlikely to be significant sustainability problems for the other marine farms, or for the natural ecosystem of Forsyth Bay.

[103] More importantly for the Court, because of the proximity of the proposed farm to Bird Island and some of the smaller farms on the western shore, Professor Schiel accepts as reasonable the assessment that depletion is likely to have recovered within 200 metres of the farm boundary, based on the data available. We note his qualification that this conclusion depends, among other things, on whether or not depletion effects are linear with respect to farm size and is reasonable based on the data available[52].

[104] Mr Heal questions Dr James on the fact that the stationary current buoy and spatial survey had shown differing results (Figures 6 – 8 of Dr James' evidence). Dr James identifies that three different types of experiments were conducted to assess the directions of current velocity within the bay. He replies that apart from specific measurements in time, the direction can be variable (east or west) but the predominant ones generally are the flows coming in from the northwest around the bottom of the bay and then north and out through Allen Strait. He makes the point that while there is variability in direction, the estimates of depletion apply around the edge of the farm in either direction, and rely on current speed rather than direction. For this reason Dr James stands by his assessment of likely phytoplankton recovery.

[105] On the basis of the studies taken on an 80 hectare Golden Bay marine farm, findings suggest that any depletion on the Kuku Mara site will likely recover within a few hundred metres of the farm boundaries, through mixing with undepleted water and phytoplankton growth (measurements in this region suggest they can double within 3 – 5 days). If there is refiltration within the farm, depletion would be somewhat less[53].

[1063 The question of current water attenuation is also raised with Dr James on the basis that a reduced flow of water through the farm would reduce the mixing and so inhibit the rate of phytoplankton recovery. Mr Heal referred to a report by Dr M Gibbs, a fellow NIWA scientist, undertaken on smaller farms. Dr James indicates that he was co-author of this report and that while the attenuation could be up to 70% (maximised) very close to the mussel lines, attenuation was much further reduced away from the lines within the farms from the lines within the farms because of the water coming from underneath the farm and from water flowing between the droppers. Dr James considers that current attenuation will be very localised. He acknowledges that until the 42 hectare farm is in place however, NIWA cannot assess what its actual influence might be.

Finding

[107] We find that while there are actual effects on the water column, any potential effects fall to be adaptively managed.

Benthic Environment

[108] It is clear that there will be changes to the benthic environment within and outside of the marine farm. The challenge to Dr Gillespie is to interpret those changes with regard to their significance and adverse characteristics and ensure the integrity of the ecosystem is not

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52 Schiel Scientific Review 7.
53 James NOE 223.

impaired. It is his evidence that the fact there is a change in the organic content would not necessarily equate to an adverse effect or a significant change in the benthic community. If there is no increase in the sediment organic content then it is unlikeiy to have an adverse effect on the benthic community. With respect to challenges about a report that foodweb wiil adapt or respond to a change in the benthic community, such as the disappearance of one particular food item, he considers there may well be the enhancement of another, or there may well be an overall adaptation[54].

[109] Dr Gillespie was questioned carefully about organic enrichment as a result of the farm. He considers that in such cases even thdugh some marine creatures might disappear, it is likely that there will. be an increase in the number of species, so the end result might be a more diverse population. He does not consider the disappearance of one individual which is very rare to be significant in the scheme of things, particularly where the food web is concerned. With 40 metre line spacing, even if those very, very rare species are considered, they would not be entirely displaced from below the farm.

[1 10] Dr Gillespie considers that if there is displacement of a major species like little star or hard urchin which is quite abundant over the whole farm area, and considering that similar effects occur in other farms in the shoreline regions, this could have a cumulative effect within the bay in its entirety, Dr Gillespie assumes that food web links are present to some extent, but again starting with a 40 metre spread of lines is a useful way of ensuring the scientists do not get to the stage where these cumulative effects will occur before they have enough information on the effects of the farm. Reporting times of 2, 4, 7 years should be adequate.

[1 1 1] Dr Gillespie was questioned about a NIWA document[55] where scientists Handley and Cole criticise the Forrest and Barter review of 7 large marine farm sites in the Marlborough Sounds, including Forsyth Bay, where they did not list other potential seabed impacts such as the introduction of pests, fouling species and parasites, exotic species and the potential increase of predators beneath farms.

[112] In respect of the potential increase of predators such as the eleven armed sea star and hermit crabs to a critical mass, Dr Gillespie. notes there is no evidence to suggest that these species are limited by their reproductive stage, such that there could be critical mass involved in their dispersion and spread. He sees no reason to suspect that although predators build up underneath marine farms where there is a greater food supply, they would move out into their surrounding environment where the food supply is lower.

[113] In respect of the spread of *underia*, a concern now throughout the Marlborough Sounds and the Tasman District, Dr Gillespie states that marine farming has not been determined to be a mechanism for its spread, although they do provide a substrate for attachment. These questions would be addressed in the monitoring because they really referred to changes in the community structure, which would be identifiable through that mechanism.

[114] As to the transects and the small samples gathered, Dr Gillespie identifies that the videos taken showed a relatively uniform seabed and that there were very few scallops. He is confident that patch reefs do not exist, and if there is no increase in the sediment organic content then there is not likely to be an adverse effect on the benthic community.

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[54] Gillespie NOE 244 – 245.

[55] Handley and Cole – *Proposed Marine Farm Development in Forsyth Bay: Review of Benthic Impacts of Proposed Large Marine Farms, Marlborough Sounds* – Volume 2; Ecological Reports NIWA Client Report: KMP01203 June 2001: see note 16.

[115] As to sediment dispersion from the Kuku Mara site, Dr Gillespie is satisfied that 80% of sediment particles would settle within the zone and did not anticipate cumulative benthic effects from the farm, subtle or otherwise, would have effects on Allen Strait, Anakoha Bay and Forsyth Bay. He states:

> *I would consider that the effects from the Kuku Mara sites and from other sites should they develop would be minor and the serious effects of organic enrichment, which would in fact result in a more or less abiotic seabed environment would not occur anywhere and those effects would not be cumulative.* [56]

[116] When asked whether it was virtually impossible without a baseline study to establish a benthic threshold, Dr Gillespie's reply was that it was. We note Dr Gillespie talks of developing a *base line proposal for this farm"* – details of how this is to be achieved are found in the proposed conditions ofconsent (Schedule 2)[57].

[117] As to estimates of effects of marine farms on fish populations, Dr Gillespie identifies that anyone who has tried to estimate fish populations would know how difficult it is to estimate such changes. Here it is extremely difficult, because the populations are washed in and out of the bays exchanging water with those of Cook Strait. Being offshore makes it difficult, but Dr Gillespie makes the point there are no inshore studies and none expected. In Beatrix Bay, studies go through to the zooplankton level but no further up in the foodchain.

[118] Questioned about the links between the King Shag habitat and the 42 hectare proposed marine farm area not having any special ecological value, Dr Gillespie replies he did not know precisely what the link is between the benthic environment under the marine farm and the King Shag feeding requirements. He could only say that if the scientists were to observe significant changes in the benthic environment -over large areas, 'they would have to reconsider their approach.. And in terms of the reef communities of Bird Island, he reiterates that there is no significant current going towards Bird Island which might impact on the reef,

[119] Dr Gillespie considers that whilst it is difficult to predict what the seabed response will be in a particular location, that considerable effort had been put in between the boundary of the farm and the Bird Island species habitat. He reiterates that looking at monitoring results is the way to determine whether or not there is a benthic threshold and whether it is reached. He views the staged approach as one which guards against significant adverse cumulative effects.

Finding

[120] There are a number of actual and potential ecological effects from the proposal. The scientists signal changes to the benthic environment below the proposed farm as a result of the deposition of organic and inorganic material. Whether they are adverse is identified under Part II Matters.

- *Marine Mammals*

[121] The expert evidence of the impact of the proposed farm on marine mammals was given for Kuku Mara by Mr Cawthom, consultant zoologist, and for the Environment Centre by Dr Slooten, Zoologist, Department of Environmental Science, University of Otago.

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[56] Gillespie NOE 256.
[57] Mitchell Exhibit 18 (Schedule 2).

[122] Mr Cawthom identified the following mammals, and assessed the potentiai impacts on them from the marine farm: Fur Seals; Killer Whales; Southern Right Whales; Humpback Whales; Bottlenose Dolphins; Hector's Dolphins (caiegorised as critically endangered in the North Island); and Dusky Doiphins.

[123] Mr Cawthom's overall conclusions with respect to these species were that they are rarely sighted in the area, and in any case the risk' of (negative physical) interaction with the mussel farm is low.

[124] For example, Mr Cawthom says there is no evidence of Fur Seals, Bottlenose Dolphins or Dusky Dolphins having any negative interaction with mussel farms. From his personal observations of the Southern Right Whale in the vicinity of other farms; it did not appear disconcerted or become entangled. Forsyth Bay is identified as an enclosed bay, where marine mammals. would, in all probability, orient themselves very well according to the shoreline. There is no dispute as to this conclusion[58].

[125] Mr Cawthom considers a problem would' arise if an animal was to surface beneath the farm, but in view of the low numbers of Humpback Whales seen in the area (for example), the possibility is remote.

[126] Mr Cawthom also notes that at the Collingwood Golden Bay marine farm, Hector's Dolphins move freely within the lines.

[127] Mr Cawthom identifies the only foreseeable adverse influences from the marine farm site on local marine mammals, is from measurable alterations to the availability of food for either the Hector's or Dusky Dolphins. He states that his opinion would change if there were regular sightings of these mammals throughout the year in Forsyth Bay. He disputes the evidence that dolphins were very common in Forsyth Bay, maintaining they are not regularly reported.

[128] As a result of these findings, Mr Cawthom sees no actual or potential effects on the mammals from possible benthic changes,-boat noise and servicing activity, or light emissions from the farm perimeter marker beacons. In his opinion, siting the farm in the southern centre of Forsyth Bay in 30 – 40 metre depths, with between 500 metres to the southern shore and 1 kilometre distance to the eastern and western shores, is unlikely to cause significant problems for marine mammals utilising the remaining 80% of the bay.

[129] The evidence of Dr Slooten for the Friends was contradictory as to whether there were many or occasional sitings of the mammals[59]. She would prefer a full scale study to assess population numbers in Forsyth Bay. Mr P Anderson for the Environment Centre, a veterinarian with a holiday house in Forsyth Bay, indicates that he had seen pods of dolphins in Forsyth Bay – *they travel in and mill around in the area, often heading out through Allen Strait.* He observes large pods of the mammals having unrestricted access through and around the waterway south of Bird Island[60]. Evidence was given by Mr A M Browning, for the Environment Centre, whose evidence was tabled by consent. He indicates dolphins are a common occurrence in Forsyth Bay, including Hector's Dolphin?.

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[58] Cawthom NOE 153.

[59] Slooten NOE 472. In one part of her cross-examination she notes that there are occasional sightings of dolphins in Forsyth Bay. Later she states it is clear from the sightings information she has seen both for this hearing and from other sources, that dolphins are regularly sighted in the bay.

[60] 'Anderson EIC.

[61] Browning EIC.

[130] Mr A King, marine farmer, gave evidence for the Friends of frequent sightings of dolphins[62]. Mr D M Boulton, who runs a tourism business at French Pass and who also gave evidence for the Friends, has sighted dolphins in the reaches of Forsyth Bay, while on the way to Titirangi to view the King Shags on Duffers Reef[63].

Evaluation

[13 1] Mr Cawthorn's opinion that dolphins were not regularly seen in Forsyth Bay seems to be based on the anecdotal evidence of others[64]. It is to be contrasted with evidence from witnesses for the Friends and the Environment Centre, all indicating more than infrequent sightings of dolphins.

[132] We do not intend to resolve the *issue* here, as Mr Cawthorn's evidence *on* potential adverse effects from the proposed marine farm on the majority of marine mammals is not challenged, simply the frequency of sightings. Dr Slooten's report lists some potential risks and Mr Browning urges a precautionary approach to the placing of marine farms in this bay.

[133] We consider Kuku Mara's adaptive management regime appears capable of addressing food availability issues in the long term, and there is no relevant- evidence as to structures posing a hazard for marine mammals on which we could base .a conclusion.

[134] What became clear to us is that Forsyth Bay is a habitat not only for rare bird species, but is frequented also by dolphins, some of them possibly rare as well.

Finding

[135] There are no actual or potential effects on marine mammals identified from the. activities associated with the proposal.

. *Birds and their Habitats: The King Shag*

Introduction

[136] Dr Lalas, a zoologist with the Marine Science Department, University of Otago specialising in coastal wildlife, and shags in particular, gave evidence on behalf of Kuku Mara. His evidence concentrates on the diet and feeding habits of New Zealand King Shags, the potential effects of the proposed marine farm on the species, whether monitoring would detect any effects if the proposal were to be implemented and action to enhance the species.

[I 37] Mr Schuckard, a biologist specialising in ornithology, gave evidence for the Friends. He is involved with many King Shag projects in and around Pelorus Sound and gave evidence of their numbers, feeding habitats and habits. Mr Melville, an ecologist specialising in ornithology, also gave evidence for the Friends. His evidence is restricted to the broader issues concerning the taxonomic and conservation status of King Shags, New Zealand's responsibilities with regard to conservation of indigenous biodiversity, in particular, the King Shag, and implications for conservation of this bird of the potential impacts of marine farming in the area.

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[62] King EIC para 15.
[63] 'Bouiton EIC.
[64] Cawthorn NOE 151.

[138] The construction of a new mussel farm could potentialiy have two unrelated effects on King Shags:

- an increase in boat traffic could result in avoidance of some feeding areas through disturbance of shags that are foraging in the water;
- the proposed farm may impact on the King Shag feeding grounds.

The King Shag: A Vulnerable and Rare Species

[139] New Zealand King Shags are endemic to New Zealand with a small total population size and distribution restricted to the Marlborough Sounds.

[140] Dr Lalas notes that King Shags are the world's second rarest shag[65]. Mr Schuckard states that in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) for threatened species, it has been identified that the King Shag with 32 other New Zealand birds'like kiwi, yellowhead and stitchbird is designated, as *"Vulnerable: species is facing a high risk of extinction in the wild in the medium term future."*

[141] All scientists accept *the Vulnerable* status of the King Shag.

[142] Mr Melville notes the species is vulnerable because it has a very small population and it is very restricted in its area of occupation. Mr Schuckard lists these areas as Duffers Reef, Trio Island, Sentinel Rock, White Rocks and also Rahuinui Island, Stewart Island (Marlborough Sounds)[66]. Mr Melville observes 'if human disturbance or set netting cause a population decline or fluctuations in numbers or locations, it would require upgrading to *Endangered* status.

[143] The fact that the King Shag maintains low numbers in a very small distribution area is considered of concern for the survival of the species. Mr Melville notes that for King Shag, one of the priority conservation targets is given as *Prevent*[ing] *marine farming close to colonies and feeding areas*[67]. The issue is, therefore, whether this marine farm on this site will affect the King Shags'. vulnerability.

Iwi Perspective on the King Shag

[144] Mr J Elkington, a partner in the Kuku Mara Partnership and a member of the Ngati Koata iwi, gave a tangata whenua cultural perspective to the potential adverse effects of the Kuku Mara mussel farming proposal on the King Shag.

[145] It was Mr Elkington's evidence that Ngati Koata have a strong kaitiaki obligation towards kawau (King Shag) which they regard as taonga (cultural treasure). The mythology tells of the kawau used by Kupe to test the currents of the waterways and to report back on any dangers that lay ahead.

[146] *Kawau-a-toru* is the name of the kawau that tested the dangerous waters of Te-Au-Miti or French Pass. Kawau-a-toru tested the strengths of the current by dipping in first one wing and then the other but was overcome by the rushing water. His wings were broken and he drowned. The shape of his wings can be seen in the rock reef of that place.

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[65] Lalas RE 6.
[66] Schuckard EIC 11.
[67] Melville EIC 7.

[147] The numbers and health of the shag colonies provided iwi with a simple way of keeping an eye on the health of the local environment and fisheries. He states *if the shags were in good nick then the fish stocks on which they fed would be similarly healthy and so on for the rest of the foodchain.*

[148] We are told the King Shags of today represent a living link with the ancestors and are revered and respected by iwi for that reason. Mr Elkington believes that through his participation in the management of th.e Kuku Mara Partnership marine farms, Ngati Koata and all other iwi can be assured that the King Shag taonga will be protected. He comments:

> *If it can be demonstrated to me any of the activities of Kuku Mara Partnership are impacting on the colony on Duffers Reef, as a partner of Kuku Mara, I would have no hesitation in calling for the suspension of operations until such time as the problem can be identified and remedied.*

[149] Mr Elkington concludes by saying that through him the Ngati Koata kaitiaki responsibilities in terms of the King Shag would be properly discharged.

The Distribution and Habits of the King Shag

[150] Mr Schuckard gives detailed evidence describing the distribution of King Shags in the Marlborough Sounds (they are widespread throughout the central and outer Pelorous Sound), observing there is strong evidence that the total population has not much changed over at least the last 45 years. The population appears to be stable, and mortality and recruitment appears to be in balance@. He estimates the total population at about 650 birds[69].

[15 1] From his study Mr Schuckard estimates the average number of King Shags on Duffers Reef in Forsyth Bay as 204, comprising 30-34 breeding pairs with a recruitment of between 25 and 30 fledglings". The only other Shag species with a very limited number of breeding pairs is the Heard Shag[71]. Mr Schuckard also notes that Duffers Reef appears to have the highest number of fledglings, accounting for almost half the number of chicks which could be noticed per annum during the study period[72].

[152] The King Shags appear to have a physiological adaptation to deepwater[73] - there is a paucity of them diving in shallow water[74]. King Shags *are "bottom divers"* which target demersal prey – species that live at or near the bottom (including reef species)[75].

[153] The King Shags are among the heaviest sea birds to fly, and do so exclusively by wing flapping. A consequence of this is a relatively high flight speed. Stewart Island Shags, one of the closest relatives to the King Shag, cruise at an average 57 kilometres per hour in calm air[76]. The maximum 24 – 25 kilometre, foraging range from breeding and major roost sites recorded for King Shags by Schuckard (1994) would therefore be a half-hour flight[77].

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68 Schuckard EIC 15.
69 Ibid 12.
70 Ibid 12.
71 Ibid 13.
72 Ibid 13.
73 Lalas EIC 8.
74 Ibid 8.
75 Ibid.8.
76 Ibid 8.
77 Ibid 8.

[154] Dr Lalas identifies that a consequence of high flight speed is low manoeuvrability and observes the shags are 'flying bricks': which cannot land in trees or in cliff ledges. They rarely fly over land, their flight over Piripaua Neck to Beatrix Bay being an exception[78]. All typically nest above the splash zone on bare, flat or sloping islets. Dr Lalas considers the lack of suitable nesting locations could limit the population size.

Prey of the King Shags

[155] Dr Lalas' evidence is that as a result of a study *(Laias and Brown)* King Shags in the vicinity of Pelorus Sound have a diet dominated by a species of flat fish known as witch, the deepest dwelling of all New Zealand coastal species of flatfish[79]. This study, done 11 kilometres southwest of Duffers Reef – the only breeding ground for the King Shag in Pelorus Sound - analysed the contents of regurgitated pellets and shows witch fish accounted for 90 per cent of prey by number, and 95 per cent by weight. The witch dominance in the shag diet is seen by Dr Lalas as consistent with foraging depths by Schuckard (1994) who found that 74% of the birds he studied foraged over bottom depths of 20 – 40 metres[80].

[156] *Lalas and Brown* emphasise their results for the King Shag diet could not be extrapolated to encompass the entire population, as samples analysed from Trio Islands (north of Pelorus Sound) for example, showed' only 20 per cent of the prey items were witch. Dr Lalas explains this difference as being a result of a difference in foraging habitat: soft bottom (mud or sand) in Pelorus Sound, but hard bottom (reef) off Trio Islands. Dr Lalas concludes localised difference in shag diet and prey spectrum are to be expected, with differences in feeding habitats. They have been documented too for Stewart Island Shags and Chatham Island Shags, the two closest relatives of the King Shags.

[1573 Mr Schuckard agrees with Dr Lalas on the predominance of witch fish in the Pelorous King Shag's diet noting that witch is very distinctive from all the other species of flat fish with a specialised diet, feeding on pelagic and epibenthic active prey and are most common in deeper water with coarser gravel sediments or rock with thin patchy sediment cover.

[158] Mr Schuckard gives detailed evidence on where the King Shags from Duffers Reef forage presenting a map entitled "Main feeding areas of King Shags from Duffers Reef'. Dr Bartlett refers to some of these transformed into "Ecological Areas" in her generalist evidence" indicating the location of the proposed marine farm extends across an area of the bay not shown on map Ecology 2 of the plan as a King Shag feeding area. She confirms (as does Dr Lalas and Mr Schuckard) that this map is merely indicative; with the full extent of feeding habitat, being much larger than as set out in the PMSRMP. The feeding areas are much more extensive and include (for example) Beatrix Bay.

Increase in Boat Traffic

[159] Dr Lalas concludes that foraging or roosting shags are disturbed if boats approach too closely, but the various species differ in their tolerance. He notes that within the species studied, disturbance distances of foraging' shags and of resting shags are unrelated and cannot be predicted from one another.

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[78] Lalas NOE 7 1.
[79] Lalas EIC 9.
[80] Ibid.
[81] Bartlett EIC 8 (amended para 3.7), and 12, includes Figure 2 from the PMSRMP to which the marine farm site has been added as an attachment to her evidence. This is based on Schuckard's Figure #8 with the marine farm site included: see Appendix B attached to this decision.

[160] In order to test if an increase in boat traffic could detrimentally affect shag populations, Dr Lalas carried out surveys of the dispersion of Stewart Island Shags in Otago Harbour. He estimates a boat travelling 'the length of Otago Harbour in the shipping channel would disturb approximately 50 per cent to 70 per cent of the Stewart Island Shags foraging. He concludes that as the present Otago colony on the western slopes of Tairoa Head is sited only approximately 250 metres from the shipping channel, Stewart Island shags would not have established (and subsequently increased) in number at this location with relatively high boat traffic, if disturbance by boats was detrimental to the population.

[161] Dr Lalas' conclusion is that King Shags and Stewart Island shags are tolerant to boat approaches up to 100 metres. These results indicate that the Department of Conservation management recommendation for a 500 metre buffer zone around King Shag roosting site in Forsyth Bay is conservative: 100 metres would be sufficient. He also considers that there is an anomaly with attempts to implement permanent buffer zones around roosting sites which are, in fact, transitory.

[162] But he notes, nevertheless,. all species of shags are sensitive to human disturbance at breeding sites and people in boats should keep away[82].

[163] Although Mr Schuckard does not address the issue of King Shag disturbance by boats, in his evidence in chief, he did so in cross-examination, considering that runabouts are not representative of the standard of work boat used for mussel farming. Another important stimuli that is not addressed, in his opinion, is the difference in noise levels caused by petrol outboard engines compared with big diesel ones. He sees Dr Lalas' disturbance study therefore as a beginning one and not a final. Mr Schuckard highlights the point made by Dr Lalas in respect of his disturbance study, that, in practice the reaction distance was indicated by changes in King Shag behaviour that were difficult, if not impossible, to assess reliably and consistently[83].

Evaluation

[164] The first point we note is that there was no challenge to Mr Schuckard's evidence relating to the total population size (650) remaining worldwide and class (IUCN) designation as *"vulnerable "*. We see this as significant.

[165] Secondly, we note Mr Melville is confident that Dr Lalas adequately demonstrates the relevance of referring to his observations on the behaviour of Stewart Island Shags to extrapolate the generalised predictions regarding the behaviour of the King Shag[84]. On that basis we conclude that the King Shags are unlikely to be disturbed by the industrial boats like *the Pelorous Ranger* on which we journeyed on our site visit.

[166] While Mr Schuckard expresses views about the variation and disturbance of various boat engines, he himself has not carried out any such studies in relation to the birds. Subject to our discussion later in this section, we therefore prefer the evidence of Dr Lalas on the issue. It is reasonable to assume that the Otago Harbour shipping channel carries vessels with big diesel engines.

[167] And King Shags, on Dr Lalas' evidence, would only be *"interrupted"* not *"disrupted"* --when foraging for prey and that is important[85]. The evidence from Dr Lalas concludes that an

[82] Lalas EIC 14.
[83] Schuckard NOE 4 1 I.
[84] Melville EIC 5.
[85] Lalas NOE 75.

increase in boat traffic will not result in increasing the foraging range of the King Shags forcing them to go further afield and appears also not to be detrimental in terms of energy expended when diving to avoid boats.

Impact of Froposed Farm on Feeding Grounds

[168] In his study done to describe the general use of the Pelorous Sounds by birds from Puffers Reef, Mr Schackard concludes of the 43 birds feeding up to a distance of 16 kilometres into Beatrix Bay, 37% were observed in Forsyth Bay and 63% in Beatrix Bay. He concludes the Forsyth Bay Kuku Mara site is in the middle of the important south feeding sector. How this will impe'de birds on their way to the important foraging area at Beatrix Bay is unknown. Mr Schuckard considers that the establishment of farms in prime King Shag feeding areas may well have an impact on benthic condition, in the long term forcing birds to fly further away to look for food. He considers prey density, and distance to the feeding areas seem to be the main parameters for survival of many shag species and are seen as an evolutionary bottleneck for probably most of the shag species.

[169] Dr Lalas concludes that foraging by King Shags is randomly dispersed through Forsyth Bay. He states with some confidence that foraging King Shags are not targeting the area of the proposed mussel farm near Bird Island. He also would expect any effect (positive or negative) of the proposed farm on the foraging of King Shag will be too small to be detectable.

[170] Dr Lalas also notes that some King Shags actually feed in existing shoreline mussel farms in Pelorus Sound arid- in Forsyth Bay. He records King Shag resting (perching) on marine farm buoys but he has no evidence that King Shag used marine farm buoys as overnight roosts. Mr Schuckard's evidence is that King' Shags do use mussel buoys to roost.

[17 13 From his experience, particularly in the Otago Harbour, Dr Lalas concludes that none of the New Zealand species of shags are disturbed by the presence of silent and static man-made structures: eg wharves,' buoys, pylons, and moored vessels. The shags identified by Dr Lalas feed only during daylight and are ashore at colonies or roosts overnight. Consequently, in his opinion, they would be unaffected by navigation lights and any night-time activity around mussel farms.

[172] Finally, it is Dr Lalas' evidence that any alteration to the sea bed accumulation of shel 1 litter, mussel faeces and pseudo-faeces from the proposed farm will not have a detrimental effect on the King Shag.

[173] Mr Melville states that on perhaps one of the most fundamental issues, feeding distribution within Forsyth Bay, there is a 'lack of information. He states the Schuckard study is a snapshot of distribution throughout'orie year and it is perhaps unfortunate that this figure has now been taken as the basis for certain planning guidelines in the area. It may provide a false sense of security regarding areas where shags were not recorded by Schuckard. We note Dr Lalas' figures on feeding distribution may only be considered a snapshot in time also. They were undertaken over a four day period in June 2001. Both studies are related to first dives only.

[174] Mr Melville's evidence goes on to note the general paucity of data regarding the King Shag, and that indeed this has promoted the inclusion of a comparative data set from studies

of the Stewart Island Shag by Dr Lalas. Dr Lalas also notes this paucity of data during cross-examination [86].

[175] Attached to this decision marked Appendix B, taken from the Schuckard (1994) Study, Figure 8 map, depicts the main feeding areas of King Shag from Duffcrs Reef. If superimposed with a 500 metre significant 'zone' (Exhibit 19) surrounding the proposed farm, the figure shows the location of the Kuku Mara site showing ecologically important areas, excluding reserves. Whilst it is deficient in Mr Schuckard's and Dr Lalas' view, it may be considered as an indicator of the King Shag feeding habitat in Forsyth Bay[87].

[176] The one study undertaken on the habitat for witch flounder indicates it favours a rocky substrate" and it is apparently unusual for King Shags to be feeding in a muddy substrate. Whilst the rocky reef habitat of Bird Island may provide a coarse sediment habitat for the witch flounder, it is clear the King Shags feed throughout the area and no one knows why. Mr Schuckard concludes there are various reasons to believe that mussel farms in prime King Shag feeding areas may negatively affect the wellbeing of the species by habitat modification.

[177] Mr Melville takes issue with Dr Lalas regarding *"the randomness or otherwise of the foraging by King Shag in Forsyth Bay. "* It is his evidence that Dr Lalas provides no information to support his assertion other than Figure 3 attached, to his evidence. And he says:

> *Intuitively, such a "random " distribution would seem unlikely unless the bay is of uniform physical character with uniformed distribution of prey species . . .* [89]

[178] In terms of predicting impacts of the proposed marine farm on King Shags, Mr Melville considers:

> *It is thus apparent that, despite the data provided in evidence to this hearing, there remain extensive and substantial gaps in our knowledge of the biology of the King Shag. This lack of information significantly impacts on our ability to assess potential impacts of the proposed marine farm on King Shags.* [90]

[179] It is Mr Melville's evidence that should mussel farms have a detrimental effect on King Shags, it is more likely that this would be cumulative, rather than a result of a single operation which is an issue of concern to the Court overall given the large marine farm applications throughout areas which contain the feeding, grounds of the King Shags.

[180] Dr Gillespie considers evidence that any benthic effects from this proposal would be minor and as a result there would be no effects on the witch flounder. Although witch flounder would not be monitored, the benthic community would and so would the chemical and physical seabed environment. Dr Gillespie explains that even if these effects were measurable and adverse, he sees no reason to expect effects on other animals. He expects there will be a measurable effect but it will be minor and he expects its spatial extent will be limited to the area immediately under the lines.

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[86] Lalas NOE 84.
[87] Lalas EIC 10.
[88] Livingston: *Food resource use among five flatfish species (Pleuronectiformes)* Wellington Harbour, New Zealand. New Zealand Journal of Marine and Freshwater Research 19987, Vol 21: 28 l-293. Exhibit 12.
[89] Melville EIC 9.
[90] Ibid 10.

[181] We looked at the evidence of both Dr Lalas and Mr Schuckard very carefully to identify both the points on which they agree that are of significance to our analysis and also to identify the points of difference which have enabled them to come to somewhat different conclusions.

[1 82] Mr Schuckard acknowledges in cross-examination that in respect of the likely effect of this proposal on King Shags the combination of his evidence and that of Dr Lalas [they] *"provide*[s] *the best information available at the moment for the Court to consider."*

[183] The actual diet – predominantly (90% - 95%) witch flounder – of the Duffers Reef colony of King Shags is not a matter of dispute. We note that this does not hold for other colonies which have a more varied diet and who have demonstrated an ability to switch prey. Whether the Duffers Reef colony is either likely to or capable of prey switching is a matter to which we will return elsewhere.

[1 84] Mr Schuckard is at pains to point out that an area of supposed disagreement between himself and Dr Lalas is over whether feeding throughout Forsyth Bay is random or not. Mr Schuckard is concerned that the data set is fragmented and does not give full coverage for Forsyth Bay to substantiate the conclusion that King Shags feed randomly throughout the bay. Mr Schuckard agrees however that *King Shags foraging areas appear 'to be reasonably discrete and somewhat localised suggesting specific habitat requirements, ...*[91]

[185] In light of these statements and answers by Mr Schuckard, we are not convinced that this stated point of disagreement is, in the final analysis, of significance.

[186] Mr Schuckard agrees that the existing marine farms were in places over the coarse substrate areas (favoured by witch flounder) and while he also agrees that he had seen King Shags in existing marine farms he did not agree that the King Shags were necessarily feeding. He adds also that in the studies already conducted they came to the conclusion that:

> *Witch Flounder is the predominant species for King Shags in the Pelorous Sounds, they never mentioned common species of fish that can be found in and around the mussel farm. I think, in particular, to three species of fish that is Spottie, Leather-jacket, and Yellow Eyed Mullet. None of the pellets found by Dr Lalas and Mr Brown indicated that these common species around mussel farms are part of the diet.*[92]

[187] This is a question' with which we grappled. If we are to accept that the King Shags are readily able to switch prey, why is it that these commonly occurring fish species are not being targeted in the Forsyth Bay location currently?

[188] A further question is where do the King Shags feed after their first dives. The scientific analysis was carried out on first dives only. Did the shags go to other locations close to the marine farm site on other dives?

[1 89] Notwithstanding the comments of Messrs Schuckard and Melville, we note that Dr Gillespie's conclusions on the actual and potential effects of this proposal on the King Shag were not upset in cross-examination.

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91 Schuckard NOE 4 10.
92 Ibid 415.

Finding

[I 90] We could identify from the proposal an actual effect on the King Shag, in terms of a small reduction in the physical area of habitat. In terms of a potential effect, there may be a change to the benthic environment directly below the lines.

- *The Birds and Reef of Bird Island*

[191] Bird Island is a reef and rock stack of less than 1 hectare in area and is home to an estimated 125 pairs of white-fronted terns, 15 nests of little pied comorants, 3 pair of variable oyster catcher, one pair of reef heron with fledglings and 25 blackback gulls with fledglings.

[192] In respect of the proposed mussel farm near Bird Island, Mr Schuckard says:

> *Through intensified boat movements near the island general disturbance will increase to the detriment of the general wellbeing of the bird community of Bird Island I am uncertain about the impact of this substantial increase in commercial activity in Forsyth Bay will have on 'the bird community of Bird Island. It is well documented that terns and gulls can co-exist in the same colonies. It is also known, that during disturbance both species leave their nests and gulls are the first to return. If the tern nests are unattended, gulls can and will use the opportunity to predate on tern eggs.*[93]

[193] Mr Sagar, a scientist employed by NIWA, gave evidence for Kuku Mara Partnership. One of the purposes of his evidence was to assess the potential effects of the proposed farm on the seabirds breeding on Bird Island.

[194] Mr Sagar describes Bird Island as a recognised area of national importance for conservation purposes. Sites are so considered. if at least. 1% of the total population of a species (NZ white-fronted tern in this case) occurs there. There is evidence that the population is declining. Prime reasons for such declines are predation, disturbance of breeding colonies and disruption of feeding habitat. Mr Sagar agrees with Mr Schuckard's evidence that in 1997 half of the white-fronted terns in the Marlborough Sounds were breeding on Bird Island and this signifies how important the habitat is for that bird species.

[195] A number of other seabirds breed on Bird Island and of particular interest are fluttering shear-water; Cook Strait blue penguin, spotted shag, variable oystercatcher, and reef heron: Of these species, fluttering shearwater and Cook Strait blue penguin are nocturnally active and nest in burrows. In Mr Sagar's experience with such species, no offshore activity has ever disturbed the birds from their burrows during daylight.

[196] Mr Sagar's own research on breeding oystercatchers is that usually incubating birds do not leave the nest until approached within 50 metres. As to breeding reef herons he notes that his search of the literature indicates that because their nesting sites are in coves, rock crevices and under cliff vegetation an incubating bird on Bird Island is unlikely to be disturbed.

[197] Given the importance of Bird Island as a breeding site for white-fronted terns, Mr Sagar's evidence concentrates on the susceptibility of this species to disturbance arising from the proposed marine farm. It is his evidence that on the mainland, NZ white-fronted terns nest at sites such as rocky headlands, beaches, sandspit, shellbanks and eroded riverbeds. At these colonies, introduced predators take eggs, chicks and adults. In addition,

[93] Schuckard EIC 38.

human disturbance is a primary cause of nest failure and this comes in many forms. Mr Sagar quotes from a telephone conversation with G A Taylor, Science and Research Division, Department of Conservation, Wellington who was asked what his definition of *"near"* was (in terms of disturbance) in such situations. He answered:

> *In general breeding White fronted Terns were disturbed when approached to within 20 metres by boat and within 100 metres by landbased activities.*[94]

[198] In Mr Taylor's opinion, boat traffic greater than *200* metres from breeding white-fronted terns will present no problems. Mr Sagar concurs, identifying that his experience with nesting spotted shags and white-fronted terns is that they can be approached to within 100 metres and not be disturbed from their nests.

[199] It is Mr Sagar's overall opinion that the seabirds nesting 'on Bird Island will not be disturbed by normal operation of such a proposed farm.

> *Breeding seabirds can be protected from human disturbance by implementing a buffer zone around breeding colonies. No scientific study of the disturbance distances for nesting seabirds have been reported in New Zealand. However, anecdotal observation indicate that nesting birds start to be disturbed when approached to within 100 metres.*
>
> *The proposed Kuku Mara Partnership marine farm has no surface structures within 500 metres of Bird Island. However, boats servicing the proposed marine farm could come within 250 to 300 metres of Bird Island. At this distance, such boat traffic is unlikely to disturb birds nesting on the island.*[95]

[200] As noted Mr Schuckard regards the abundance of at least nine bird species on this small island as outstanding for this confined area of the Marlborough Sounds. But he is uncertain what impact this substantial increase in commercial activity in Forsyth Bay will have on the bird community of Bird Island.

[201] As to the reef of Bird Island Dr Gillespie identifies that the:

> *... rocky reef extending south from Bird Island was also investigated in order to determine the southern extent of the ecologically sensitive reef habitat and adjacent slope in relation to the farm site. A distance of approximately 100 m separates the site boundary from the subtidal slope region and a further 50 m (ie a total distance of 150 m) separates, the site from ecologically sensitive habitats identified at depths of <30 m. Cawthron 's recommendation was that this provided sufficient buffer to avoid adverse effects to the reef habit.*[96]

[202] Dr Gillespie agrees with this recommendation.

Evaluation

[203] It is clear from the cross-examination of Mr Sagar that his conclusions were drawn from his own experience and the study of the literature because *"there are no specific studies of disturbance of these birds"*. When questioned why he had given no attention to the other

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[94] Sagar EIC 6.
[95] Ibid 8.
[96] Gillespie EIC 11.

species and the potential for disturbance, he answers that it is his experience that of the species occurring on Bird Island the white-fronted terns would be disturbed at a greater distance than any other species.

[204] When questioned about the validity of drawing conclusions on the basis of studies of other colonies, Mr Sagar states *that the behavioural responses from one colony to the next throughout New Zealand are similar.*

[205] Mr Schuckard, when questioned about the adequacy of a proposed 500 buffer zone around Bird Island, was somewhat confused because Bird Island has the status of a scenic reserve to which the public have unrestricted access. He is concerned about how a buffer zone might work. He describes how meaningless the current buffer zone around Duffers Reef is and how boats (tourist) approaching the reef with loud speakers have caused serious disturbance to the King Shags in that location.

[206] He is also less than clear in his answers regarding the potential impact of the proposed farm on birdlife on Bird Island. They related to the possible increase in the gull population but the issue is unresolved.

[207] The concerns for the Bird Island habitat as a result of this proposal therefore differ from, and are less complex than, those we have for the King Shag in terms of disturbance, feeding, playing and breeding.

[208] We accept the basis for and the conclusions of Mr Sagar when he draws from his experiences of other colonies. The issue is one of potential disturbance from the normal operation of the mussel farm.

[209] 'We accept Mr Sagar's hypothesis that of all the species breeding on Bird Island, the white-fronted tern will be disturbed at the greatest distance and so it is on this species we concentrated. We accept the evidence given in respect of disturbance distance and accept that 250 metres from regular boat movement/noise should constitute an adequate buffer zone from potential effects.

[210] We note the number of NZ white-fronted tern using the island and also that number in relation to the total population – we also note a consensus that the total population is in decline. Our view (reinforced by the DOC ranking system – third -priority species for threatened species management – Category C) is that Bird Island is of national importance as a habitat for white-fronted tern but it will not be affected by the proposal.

[2 11] Dr James was questioned about the current flows carrying sediment from the marine farm travelling towards the reef but he satisfied us that there was very little indication of movement northeast to the. site itself[97].

[2 12) There was some general comment about the effect of strong lights on the fluttering shearwater but nothing conclusive.

[213] From the evidence of Mr N Hegley, acoustical consultant, noise from marine farm operations is unlikely to be an issue in the area.

[97] James NOE 236.

Finding

[2 14] We consider that there will be an actual effect on the birds of Bird Island in terms of possible boat disturbance from time to time, but in terms of other potential effects, we consider from the evidence that these are unlikely.

- ***Visual Amenity Values***

[2 15] Expert evidence on the issue of visual amenity values was given by Ms M C Buckland, consultant to the appellant in landscape architecture, landscape and visual assessment, Dr Bartlett in an overview, and Mr Rackham.

[216] We also took account of the generalist evidence of Ms H Woodward for the Kayaking Association, Mr S Browning and Mr Boulton, Eco-tourism Manager, all for the Environment Centre, and Mr Schuckard and Mr D Nugent, planning consultant, for the Friends.

[217] Evidence from Ms Buckland is largely confined to the visual effects of the marine farm. She describes the visual landscape and makes an assessment based on the two viewpoints from which the farm would be seen – the sea, and the land. The witness makes an analysis using a matrix to attain a qualitative measurement which could be then evaluated to measure the significance of the effect". The photographic evidence includes 'two photomontages of what the farm would look like, one before and one after the proposal was in place, made up from photos taken during the' site visit when markers were placed to show the parameters".

[218] Both Ms Buckland and Mr Rackham describe the landscape context of the Marlborough Sounds, within which the farm marine is proposed, as a landscape of drowned valleys formed over millions of years. Both witnesses described the landscape as unique. Mr Rackham identifies the coastline as the best example of a ria coastline in New Zealand, with an incised and intricately indented structure and numerous fragmented land. blocks surrounded by the sea. He describes the' regional landscape as a national icon, within which there is great local diversity.

[2 193 Of Forsyth Bay itself, the evidence identified the strong landforms which surround the bay. These vary between 354 – 550 metres in height, up to Mt Kiwi, and Mt Stokes at approximately 1203 metres in the south. There, is a wide variety of coastal features including offshore islands and reefs. The area contains a few built structures – two dwellings close to sea level on the western shore and several at Wakatahuri. As noted there is a wharf on the western coastline, and 41 mussel farms and one salmon farm exist around the bay's edge.

[220] In this setting, Ms Buckland sees the site of the proposed marine farm in various contexts. First of all there is the visual catchment comprising householders and the second is the audience made up of recreational, commercial and fishing people. There is also the seascape context of a wide open bay. She identifies the open water of the bay as one of the factors which contribute to its landscape character. She observes that the surrounding landscape is often mirrored in the bay[100]. Bird Island is only seen as part of the seascape/landscape backed by Forsyth Island and Allen Strait in two of her evidential photographs"[101].

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[98] Issues addressed ate visual quality, aesthetic characteristics of the development, capacity of landscape to absorb change (VAC), viewpoint analysis and the intrusion or contrast.

[99] 'VPT 1 – Photomontage 1 and VPT 2 – Photomontage 2.

[100] Buckland EIC 10.

[101] Photomontage 2 and Plate 11 Photograph 2.

[221] In Ms Buckland's opinion, the visual catchment from the land, due to a lack of roading, means that the terrestrial view is limited to those visiting Forsyth Island Lodge, the holiday house in the bay or those visiting or working on the farm. A land based Photomontage VPT 2, used in the assessment matrix, is taken from the southwest property, being the closest residential view 1.3 kilometres from the proposed farm. Ms Buckland's second Photomontage VPT1 was positioned I .5 kilometres from the proposed site, where boats enter the bay from Allen Strait. This was assessed as being the most representative navigational route cf all through the bay based on the Taylor Baines survey.

[222] From her site visit assessment and in evidence and cross-examination Ms Buckland came to the following conclusions:

- in the wider environmental context and existing visual environment, Forsyth Bay is a modified landscape;
- there is a distinction to be made between shoreline features and the open, central parts of the bay;
- the proposed farm will. only affect the water surface of the bay and the sense of openness within the wider bay;
- the marine farm will be a new feature in the bay;
- the proposed farm merely extends the visual continuum of the other marine farms in the entire bay in which all parts are viewed together;
- there is ample room in-the mid-bay for the farm – it is a very large bay and large expanses will remain open;
- the nearest buoy will be 500 metres from Bird Island and this will ensure the retention of open space around the island;
- the farm will not have adverse visual effects on Sugar Loaf Island and Piripaua Neck or the outstanding landscapes to the east;
- visual effects are significant at 500 metres, beyond that decreasing through to the low end of moderate up- to 1500 metres – when weather conditions permit optimum viewing;
- at the 500 metre distance, the proposed farm will be a significant visual intrusion;
- marine farms are quite difficult to see at distances greater than 1.5 kilometres;
- the open central parts of the bay have low absorption capability;
- the overall anticipated audience visual exposure to the new farm would be very low – the largest audience will be boaties and these people are likely to be accustomed to marine farms;
- views of the marine farm will frequently be lessened by distance; choppy. seas and poor lighting conditions;
- the proposal will not detract from any public view or vista which contributes to the aesthetic coherence of the area;
- the amenity values of the surrounding area will be maintained;
- the adverse effects on landowners and houseowners would be no more than minor;
- the proposed farm will not have a significant visual effect when seen in the context of the whole of the bay and for land based viewpoints, except if right in the middle of the marine farm or within 500 metres of it.

[223] Mr Rackham agrees with Ms Buckland on a number of issues. He makes the following observations:

- the seascape is a significant part of the character of the bay;
- the land surrounding and enclosing the bay is strongly modified to the west and south;

- Bird Island is a small but highly significant island in the centre of the bay – it is highly 'natural;
- the more central part of Forsyth Bay centred on Bird Island is also highly natural and unencumbered by structures;
- Forsyth Island contains several remnant 'areas of bush and is notable for the managed revegetation occurring under the present ownership;
- the marine farm will be located in an area of open space visually separate from the existing farms;
- marine farms are visible from sea level up to about 3 kilometres away in perfect viewing conditions;
- on the open water the public are free to travel virtually anywhere;
- if tourist boats are 200 – 300 metres offshore, they' would be within 200 odd metres of the proposed farm – this would adversely affect the quality of a natural experience for some visitors – particularly so if conditions are calm and clear;
- the proposed farm may have a moderate effect from vessels plying between Kaitira Point and Allen Strait;
- the farm will be a major feature for vessels which visit Wakatahuri and divert around Bird Island and potentially significantly affect visitor experience;
- adverse effects on the waters of the application site and adjacent areas will be significant;
- while shags are an icon; the diversity and value of other species should not be underplayed;
- marine farms. seen from the water are visible from several kilometres at approximately 1.5 kilometres really quite easy to, and when it gets to within 500 metres they become a very dominant element.

Evaluation

[224] Within the statutory context, the landscape witnesses evaluated the visual effect of the proposed farm taking into account the capacity of the site to absorb the operation, its scale and location, and visual amenity, and provided the distance at which this was affected, as well as the viewing audience.

- *Visual Appreciation of Natural Character*

[225] In Dr Bartlett's evidence-in-chief, she states:

> *The large scale of the hill sides surrounding Forsyth Bay, the dramatic seascape, steep topography, the sense of presence of Cook Strait and its oceanic marine influence dominate the existing natural character of Forsyth Bay. In this context, and at this scale, the presence of the existing marine farms barely registers, in either an ecological or visual sense.*
>
> *At close range, the existing marine farms and the extension of the modifications recreated by terrestrial farming on the land create an interaction between human activity on land and in the marine environment. At close range, the large scale features that dominate'the natural character of the bay recede in importance and the immediate environmental modifications and their effect on ecological functioning become the focus.*[102]

[102] Bartlett EIC 17.

[226] in an oral interpolation, she added *the scale at which you view the farm is very important* basing her opinion on Ms Buckland's only two viewpoints which Ms Buckland describes as her visual catchment

[227] We found Dr Bartlett's evidence to be revealing. At the larger sea wide scale, the existing marine farms barely register visually in this particular environment. So even if the inshore area is highly modified at close range, it does not necessarily 'read' as such from Ms Buckland's distance assessment of the wider bay at 1.5 kilometres away. Mr Rackham notes that when in the central bay you are barely conscious of the marine farms along the coast[103]. Mr Nugent, consultant planner to the Friends, also acknowledges that on his site visit even the mussel farms around *the* edge of the bay were *in the large part invisible,* having merged'into the background[104]. Mr Nugent was on the water in the central parts of the bay north and south of Bird Island.

[228] This evidence is relevant to the question of appropriateness or otherwise of the development in its particular setting. For Mr Rackham does not share Ms Buckland's opinion that the marine farm will take its place amongst all the others. His evidence is that it will be located in an area of open seascape visually separated from other farms. .He notes this is shown in Ms Buckland's simulation[105]. And as will become clear from this and other evidence, it is an opinion we share.

[229] As to visual elements, when asked whether she would agree that the surrounding hills provide a frame for the seascape in that it is the most significant visual element in the natural landscape, Dr Bartlett replies:

> *I think that's quite difficult to answer because it depends very much on where you are in the bay. If you are out in the broader expanse of the Bay there is a framing effect, but closer to shore clearly, the landforms, must assume a larger component of a viewer 's perception, depending on which way they 'refacing.*[106]

[230] From Dr Bartlett's answer we took it that the surrounding hills provide a 'frame' only-,. for the seascape at the distance we are interested in – towards mid bay. The proposed marine farm is not immediately adjacent to any landforms or the shore. It is not tucked in. any embayments. But it is 500 metres away from the south of Bird Island depicted in Figure 2 of Mr Tear's evidence. It is at least that distance to many inshore farms depending on direction. Into that open space is proposed a very large farm which will cause a significant visual interruption.

[23 1] The bay is in fact large enough to assess it visually in component parts – in this case in terms of the southwest quadrant. It may be separated out visually from the highly modified inshore areas. We did not take from Dr Bartlett's answers based on Ms Buckland's distance measures that there is such a strong connection between inshore/offshore visual physical elements after all.

[232] We agree with the council therefore, that Dr Bartlett took a much wider view of natural character values from a much larger distance rather than from mid bay. Basing her landscape/natural character/visual amenity assessment on Ms Buckland's evidence, she did not make an assessment of the effect of up to 3000 floats for a fully developed farm at 500

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[103] Rackham EIC 24.
[104] Nugent EIC 13. He notes the salmon farm is noticeable on the western side of the bay.
[105] Rackham EIC 11.
[106] Bartlett NOE 175.

metres, because nor did Ms Buckland. And there is no close assessment of the proposed farm in the context of Bird Island (a Scenic Reserve) which Mr Rackham considers of significance.

[233] We accept Mr Rackham's evidence that the proposed marine farm site is visually separated from others. In Photomontage VPT 2, from Ms Buckland's evidence, with the proposed farm in place, it is portrayed as effectively stretching from Bird Island. across to Sugarloaf. We consider this is a distinctive and adverse change in the visual impact of natural character.

. *Absorption Effects*

[234] Before embarking on her assessment Ms Buckland discussed the effects of the weather and light and how this affects the physical catchment exposed to the view. She describes the visual effects of marine farms *as by far the most transitory and ephemeral* of the many developments she had assessed[107]. The witness makes sufficient reference to the changing nature of the seascape and its absorption capacity to warrant examination of these factors in the overall assessment. It'is her evidence that light, weather conditions and backdrop could influence the visibility of the farms at distances of up to 1.5 kilometres. But Ms Buckland acknowledges that such conditions are changing all the time. She herself had visited the site only once for 6 – 8 hours when it was a perfect day.

[235] Subject to what we say about the weather in Forsyth Bay the Taylor Baines survey suggests good conditions are frequent and Ms Buckland states that currently the landscapes are "often" mirrored in the waters of the bay. We note good visibility of the marine farm is necessary for the safe operation of the enterprise. We note the efforts made to keep the marine farm well lit and the parameters clearly delineated by orange floats[108] two intermediate one metre high buoys and the two metre high Cardinal Marks on the comers of the site East Cardinal Beacon and Special Mark Pillar Buoy[109]. We therefore set aside the effects of weather and light variables and turn to the absorption capacity of the location.

[236] Ms Buckland identifies that the indented 'coastal landforms, the reefs and islands in place, the dark coloured vegetation along the edge and the modification to the land by means of farming activities, all contribute to the ability of the bay to 'absorb' marine farm development including the proposed Kuku Mara site. It is part of a visual continuum.

[237] But Ms Buckland also makes the, distinction between these shoreline features and the open central parts of the bay in her evidence in chief. She considers the farm is to be located well out from the coastal edge[110]. Mr Rackham notes the distinction. He too observes that in the central bay the viewer is barely conscious of the mussel farms along the coast although the salmon farm is more prominent' [111]. Mr Nugent, also makes this observation with the caveat that to the east the longline forms within' the area banded to the north by Sugar Loaf are somewhat visible' [112].

[238] In discussing Ms Buckland's visual assessment technique, Mr Rackham states:

> ... *it uses a technique with a heavy reliance on visual absorption capability which to my understanding is derived to identify characteristics that would allow*

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[107] Buckland EIC 5.
[108] Ibid NOE 184.
[109] Tear EIC Figure 5 shows recommended buoyage and lighting.
[110] Buckland EIC 22.
[111] Rackham EIC 24.
[112] Nugent EIC 4.

development to fit into a particular type of landscape and the key considerations were landform, land cover and modifications. The difficulty I have with that being applied to a mid bay site is that the water is essentially a flat plane and therefore has little or no visual absorption capability. There's clearly no vegetation cover and therefore the only thing that one can differentiate absorption capability on is whether it is screened from a particular viewpoint by land or is backdropped by land. That is perfectly valid where the landforms are near the marine farm. It becomes less useful as the development is further and further from those landforms. [113]

[239] We took these witnesses' viewpoints into account and on our journey south of Rird Island confirmed Messrs Rackham's and Nugent's assessment that one is not so aware of the onshore farms in visually assessing the waters of the bay in the context of Bird Island and the site. We accept that the existing large scale landforms of Forsyth Bay have a shadowing effect on the water and may in themselves, due to their scale and texture, moderate the visual effect of the existing marine farms in their foreground. They are therefore less intrusive than expected from our experiences elsewhere in the Sounds.

[240] The evidence is less convincing however in regard to these absorption factors moderating the visual effect of a mid bay farm. Mr Rackham is of the opinion that because the farm is in the open more central part of the bay it will not benefit from the shoreline features described by. Ms Buckland. During cross examination Ms Buckland agrees that background is a key factor in determining the visual impact of marine farms . . . you *can see the shadow of the land affects the visibility significantly. ... It reduces the visibility. When you go to Forsyth Bay . . . the close proximity of the farms to the hills is a material factor in. reducing their visual impact from the sea. . . . Correct.* Ms Buckland agrees that Photomontage VPT 2 shows the backdrop to be less absorbative[114].

[241] We conclude that, in the mid bay, the visual. absorption capability of the proposed location is lower than that of the current farms situated around the shoreline, and that the landscape factors will vary as the view point shifts, which is particularly pertinent when the viewing audience, as in this case, travels in boats and yachts.

. *Scale and location of the farm*

[242] Ms Buckland agrees that the large size and western location of the proposed farm introduced a new visual characteristic change to marine farming in the bay. By placing farms in this particular environment, a new visual characteristic is brought into play[115]. Such a change, in Mr Rackham's view, warrants the assessment of effects on natural character, outstanding natural features and landscapes and 'amenity values at both a broad and local scale.

[243] Ms Buckland's photomontages of the proposed farm *were* well presented with locations marked and times and dates recorded. But we are cautious as to the weight we give their relevancy in the context of this case. The montages are taken from 1.3 and 1.5 kilometres distance and Ms Buckland herself cautions the Court on the reliability of evidence relating to marine farms viewed from a distance because it will depend on so many factors' [16].

[113] Rackham NOE 349.
[114] Buckland NOE 200.
[115] Ibid.
[116] Ibid RE'4.

[244] Both witnesses discuss the visual nature of marine farms and were in agreement as to the utilitarian and uniform nature of their appearance. Ms Buckland agrees that if out in the central part of the bay, the farm is a significant visual intrusion and it has a utilitarian appearance [117]. She expands on the visual form of the marine farm stating that from *some* viewpoints some marine farms can appear very complicated and visually imposing depending on the orientation of the lines, numbers and types of buoys, navigation markers and type of background against which the farm is seen[118].

[245] The cardinal lights (2 – 3 metres high) were identified by Dr P Mitchell, Environmental Consultant to Kuku Mara, as having a capacity of 4 nautical miles. Ms Buckland considers the lights would only be slightly more visible than the 2 nautical mile lights. Mr Tear tells us the marine farm has been made very visible with the buoys and lighting because visibility is a navigational safety issue[119]. Mr Rackham observes in cross-examination that at that capacity, they would have to, be extremely powerful and would have a significant night time effect on essentially the whole of Forsyth Bay[120]. So there is a conflict of evidence in that regard. We favour the evidence of Mr Tear who is experienced in such matters. The lights will be very visible.

[246] The Court was made aware in Ms Buck&d's plan view, of the size of the proposal and its positioning within the bay. This detail was later expanded upon to show the marine farm with the additional visually significant zone of 500 metres and introduced at the Court's request into evidence by Dr Mitchell (Exhibit 19), a copy of which is attached to this decision marked Appendix "C". But we also note an area of visual influence would apply to the other marine farms which lie around the edge' of the bay and which again were shown in plan view by a number of the witnesses[121].

[247] Calculations by Dr Gillespie showed that there were approximately 9 13 hectares in the southern bay. The additional visual impact zone therefore brings the southern significantly affected area to approximately 30% (29.97% of the whole, the figure accepted by Ms Buckland) of the bay.

[248] The inclusion of the shoreline farms in visual perspectives from closer to the site and mid bay would essentially broaden the visual impact to cover 100% in the southwest quadrant. Mr Nugent is conscious of this and believes that in the southern part of Forsyth Bay visitors would gain a sense of being surrounded by marine farms as vessels would always be at best between 200 – 400 metres from a farm any one time. He believes the proposed farm with its form, materials, lights, and servicing vessels would be a significant human intrusion into this naturalness.

[249] The Court therefore finds that the proposed mid-bay farm creates a significant or major adverse visual amenity effect when added to the established edge of marine farms as the 500 metre visual effect zones overlap. The effect is to bring the area of significant visual impact across the seascape to reach the southern end of Bird Island. This creates a large continuous expanse of a seascape 1600 metres at its narrowest point, to 4000 metres (from Wakatahuri) at the widest, where there is a significant adverse visual effect.

[250] This is in accord with the council's viewpoint which suggests that the effect of the farm is to take the effect caused by the existing farms away from the periphery and move it out into

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117 Buckland NOE 1.97.
118 Ibid RE 9-10.
119 Tear NOE 41.
120 Rackham NOE 33 8.
121 Buckland EIC 5 – 6: Plates 1 – 9.

the, middle of the Bay in close proximity to the Scenic Reserve of Bird Island – a significant adverse. effect.

- *Amenity Values*

[25 1] The expert witnesses outlined what they viewed as reievant to the visual. amenity and what contributed to the aesthetic coherence and pleasantness of Forsyth Bay. We do not here revisit the wider context, which we have carefully taken into account in reviewing Ms Buckland's evidence, but bear it in mind when drawing our conclusions. We also take cognisance of those who visit the area for business purposes or recreationally. The Court is well informed by witnesses, by oral and written evidence and by a site visit as to the significant factors operating within the bay.

[252] Mr Rackham identifies the significant amenity attributes of the bay as follows:

> *The natural and physical qualities and characteristics of Forsyth Bay that will contribute to people 's appreciation of its pleasantness, aesthetic coherence and cultural and recreational attributes include, the. open windswept waters of the central bay, the sense of wildness especially associated with cliffs, stacks and islands, the wild life, the seascape views and the relative lack of obvious built structures.* [122]

[253] Ms Buckland was of the opinion that this proposal will not detract from any public view or vista which contributes to the aesthetic coherence of the area. She acknowledges the open. central waters and Bird Island as contributing to the visual quality of the bay but as noted excludes the birdlife from her assessment.

[254] Mr Rackham was more focused. The placement of the farm on an otherwise pristine water surface in the centre of the southern bay will, in his opinion, reduce the natural character around Bird Island, and will be visually cumulative on the existing farms. The. adverse effects on the area of application would be considerable. But in terms of the wider bay, the effects would be no more than minor.

[255] We prefer Mr Rackham's assessment to that of Ms Buckland. This farm critically interrupts the seascape in the southern quadrant by placing what is a large artificial structure across a landscape with an acknowledged high aesthetic coherence. This, we find, is established as a fact by the parties in opposition to the proposal.

[256] Mr Wills, representing the Nelson Marlborough Yachting Association, tells us that unspoilt views in the Pelorus area were becoming increasingly hard to find but were much sought after by recreational boaties. Forsyth Bay, he said, is highly regarded as one of the few unspoilt areas. He believes the size, colours, shape and central locus of the proposed structure would make it highly visible.

[257] Mr Browning for the Environment Centre considers:

> *A marine farm in the mid bay area would unfairly tilt the balance of activity in Forsyth Bay to one of industry rather than natural experience. Bird Island, its craggy appearance, wildlife, open sea vistas out to Duffers Reef and through to Allen Strait and views across to Mt Kiwi and Mt Stokes would have its naturalness compromised with a marine farm of such scale andproximity.*

[122] Ibid EIC 22.

> *Photomontage 2 clearly indicates the intrusion this application will cause to the magnificent vista seen from the Garden Bay house albeit that the superimposed floats will no doubt be at the iower end of the technical enhancement range. The scale of industrialisation almost from Bird Island across to Sugarloaf is I believe unacceptable in an area of such natural character, all the more when the water is clear oj' man made features directly in front of the house all rhe way past Sugarloaf, through Allen Strait, through to Alligator Head a distance of 12 kilometres. You can see why these people take their recreation there.* [123]

[258] Kuku Mara point out however that Plate 3 of Ms Buckland's evidence, common exhibit KMP4, Exhibit D (southwest of Forsyth Bay looking east), and Photomontage VPT 2 itself, all demonstrate that the view from the Garden Bay property already has a number of marine farms encroaching on it.' It is submitted that Mr Browning takes a very limited field of view which does not represent the true visual experience of that viewing audience[124].

[259] We carefully considered Ms Buckland's Photomontage VPT2 which was the view from the bach on land, in the southwest comer. This demonstrates that buoys from the proposed farm will be seen to extend across the middle of the view with other marine farms extending out from the landscape to the left and right. This is verbally confirmed by Ms Buckland in that *from the house in the southwest corner of Forsyth Bay the marine farm is always seen with the other marine farms in view.* But mid bay farming will change the present seascape views from this site, as marine buoys will be seen as a continuum at varying scales across the sea. Views through to Allen Strait, a visual focal point, would be affected. This is described as a *"moderate effect"* by Ms Buckland at the distance given. But she accepts in cross-examination that in Photomontage VPT 2, the marine farm cuts right across the view through to Allen Strait[125].

[260] What Photomontage VPT 2 does clearly demonstrate in a cumulative sense is that if the Kuku Mara proposal proceeds there will be a visual clutter of marine farms across that part of the bay which is unacceptable, whereas currently they are confined to the periphery of the bay. This evidence is also given by Mr Browning:

> *The applicant's evidence as produced by LA4 Plate I I – Photograph 2 (appendix 5) shows Bird Island backed by Forsyth Island, with Allen Strait to the right. This photograph clearly illustrates the outstanding landscape and open space features I associate with the area. Plate 9 (Appendix 6) is a reminder of the intrusive visual effect of man-made structures in a natural setting.* [126]

[261] Plate 9 (appendix 6) of Ms Buckland's evidence *(view taken of the inland east side of Forsyth Bay)* is a, close up of buoys in that location but they appear not to intrude on the vista *shown in Plate 11 Photograph 2 (appendix 5). This shows Bird Island as an 'open space landscape feature silhouetted in front of this noted outstanding landscape with one marine farm only partially intruding on the landscape/seascape from the left. To that extent, the existing farm does not create more than a minor modification on what is a large vista otherwise having high aesthetic coherence. Ms Buckland refers to the outstanding landscape of Forsyth Island as denoted in the PMSRMP. This provides a background to Bird Island in Photomontage VPT 2[127].

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[123] Browning EIC 7 – 8.
[124] Somerville CS 105.
[125] Buckland NOE 204.
[126] Mr Browning EIC 8.
[127] Buckland NOE 205.

[262] We conclude that adding a very large marine farm into that frame, to the right of Bird Island, will adversely affect visual amenity values associated with that landscape. Mr Rackharn considered tliat photographs can underplay the scale and sharpness of the proposal because they are presented at a reduced scale for convenience purposes, whereas if viewed on site, the actual phenomena (of marine farm structures) would be far larger and the features within it would appear larger also. We accept that assessment, not only because it came from a very experienced landscape witness, but it confirms the Court's experience of marine farms generally in the Sounds.

[263] It is Ms Buckland's evidence (Plate 3 View LV3), which we accept? depending on where the current marine farms are viewed from, that at about 2 kilometres, they appear as an area of shaded water. But being a very large farm towards midbay in an area of less absorption capability, the Kuku Mara proposal will be located towards a central bay focus and will not appear as an area of shaded water absorbed by the surrounding landscape.

[264] Counsel for Kuku Mara suggests that because Forsyth Bay has a number of marine farms within it, this demonstrates that the community is tolerant of onsite visual amenity effects We had no -direct evidence of this.. And. even if we did,, we consider that the intervening seascape/open space values of the southern quadrant, punctuated as it is by the significant and highly natural Bird Island, are all the more- urgent to protect in visual amenity terms, because the inshore is modified.

. *Viewing Audience*

[265] In Ms Buckland's opinion the visual effects of the proposed farm from landbased viewpoints would be acceptable and adverse effects on landowners and homeowners would be no more than minor and Mr Rackham agreed.

[266] But the majority of the visitors to the area journey by water. Ms Buckland supplied a-Photomontage VPT 1 taken 1.5 kilometres from the most used traffic route plying between Allen Strait and Kaitira Point. We agree with Mr Wills that the vantage point chosen by--Ms Buckland did not include vistas which would unfold if circumnavigating Bird Island travelling from the east through Allen Strait clearing the Sugar Loaf rocks before turning into Wakatahuri Bay or Piripaua Bay and which also applies to exiting the bay.

[267] We see these views as important to evaluate being destination features within the vicinity of the proposed farm. Ms Buckland concedes that the visual effects. close up would be significant for any boatie who went through the Allen Strait route past Bird Island [128]. She also concedes that the Taylor Baines Survey indicates boats visit all around Bird Island and the area between Sugar Loaf and the site[129]. Ms Buckland further acknowledges that the first part of Forsyth Bay the boaties see from those areas is in fact the southern part of Forsyth Bay on entering from Allen Strait. She acknowledges *the* marine farm *is right there,- 500* metres away when fishing or sightseeing at Bird Island[130].

[268] Mr Rackham considers the proposed farm may well have a moderate effect (ie more than a minor one) from vessels plying directly between Kaitira Point and Allen Strait but it will have a more significant effect from vessels that divert around the west side of Bird Island or visit Wakatahuri. He considers for those that pass southwest of Bird Island the proposed farm is likely to be a major feature that has the potential to significantly affect their

[128] Ibid NOE 187.
[129] Buckiand 187 – 188.
[130] Ibid 195.

experience. For many visitors intent on a 'natural' experience this effect would be a.dvcrse. He added that recreational boaties and particularly any boat visitors with high expectations of a natural setting to Bird Island would be disappointed to find a large farm in the area[131].

[269] Figure 3 of the Taylor Baines Survey shows fishing locations are fairly scattered in the southern parts of the bay and are clustered around. Bird Island. The island clearly provides an amenity for a range of visitors to the bay. It provides popular recreational fishing on its reef slopes, it is a scenic reserve, and a nationally import-ant bird breeding colony. Visitors may be local or international tourists who may visit by boat, canoe or kayak.

[270] Ms Woodward, President of the Association of Sea Kayakers, says kayaker visitors wanted wilderness experiences and they often camped in the area including Forsyth Bay. She states that the kayakers generally make a point. of pausing at Forsyth Bay because of its special character, both the sea vistas and landscape vistas and fishing is good there too[132].

[271] A local business specialising in eco-tourism operates in the area. Its operator, Mr Boulton, informed us that eco-tourism is increasing and Forsyth Bay, with the bird features of Duffers Reef and Bird Island, are of particular interest. Mr Boulton considers the natural values currently enjoyed would be diminished by the proposed farm because it would visually detract from the area. This would impact on current and growing eco-tourist businesses which are of benefit to the district.

[272] Other relevant vistas were bought to our attention. Of note were those entering and exiting the small residential and servicing centre of Wakatahuri. It offers, according to Mr Wills for the Friends, shelter, safe anchorage and deep water. This bay has a history of settlement particularly with regard to boat repair[133]. The route from Kaitira Point to Wakatahuri is identified as a popular boat route and one we also took on our site visit. Boat traffic entering and exiting Wakatahuri, from whatever direction, will see the farm at a much closer range than that shown in Ms Buckland's Photomontage VPT1 .

[273] If entering from Kaitira Point, the traveller will pass close by, as confirmed by Mr Tear, as the farm occupies a direct route and there will have to be a deviation closer to Bird Island. Boat traffic will also'view the site from Allen Strait approaching Sugar Loaf Island and the adjacent peninsula with the west as a backdrop. Ms Buckland notes that from **this viewpoint** there are no marine farms in view[134]. Mr Rackham considers the farm from this position however would be visible 700 metres away in reasonable conditions. But the distance coupled with the presence of existing farms along the southeast coast and the modified backdrop, suggest to him that the farm would not result in significant adverse effects on this area of outstanding landscape.

[274] Those in the location of the site, currently have a significant vista. This vista is captured by a photo supplied by Mr Rackham (Viewpoint I Bird Island from application area showing a dramatic silhouette against the sky).' Mr Schuckard's Exhibit B Photograph 4(a) is a slightly wider view. Forsyth Bay is seen as a wide expansive seascape broken only by Bird Island and in the distance Duffers Reef, framed by a landscape marked as outstanding in the PMSRMP. The dramatic shimmering qualities of the sea and the islands silhouetted with a sky backdrop in both photographs have a very obvious aesthetic coherence.

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[131] Rackham NOE 25, 29.
[132] Woodward NOE 374.
[133] Dawson EIC 5.
[134] Buckland EIC 16.

[275] Bird Isiand is situated in the middle of many view shafts[135]. Ms Buckland agrees that birds in flight, diving around the island are a significant part of the natural landscape of that island. She acknowledges that landscapes are generally assessed *in their context* so that a meaningful interpretation of their value can be prescribed. She acknowledges that clearly certain parts of the bay are of inferior value compared with others. She considers that the reefs and isiands in the bay are important contributors to the sense of naturalness which remains in the bay[136].

[276] In the context of Bird Island and the seascape surrounding it including the marine farm site, we have concluded that visual amenity values, on Ms Buckland's own evidence, are not inferior.

[277] It is submitted by Kuku Mara that at no time could a viewer within 500 metres of Bird Island view both the farm and the island given their spatial locations. Thus no viewers of Bird Island from within 500 metres of the island can have their view affected by the farm. From a distance the farm will have a moderate or low moderate effect depending on elevation and 'distance from the farm (elevation including the elevation of the vessel), a canoe for instance having a lesser elevation. and thus a lesser effect than a larger vessel. Thus any vista of Bird Island realistically will, on the- expert evidence, be affected to a lesser extent.

[278] Ms Buckland, as Kuku Mara's visual amenity expert, did not give any evidence of the spatial locations of Bird Island viz a-viz the proposed farm. In fact she states the 500 metres zone area of high visual significance encompasses the very end of Bird Island[137]. Exhibit 19 attached as Appendix C indicates very clearly where the farm may impact on visual amenity. Mr Rackham states that the island is not wide enough to obscure the application site when viewed from the north[138]. Kuku Mara submits that there would be no part of the bay. but for Allen Strait where marine farms could. not be viewed, and by implication the future proposal will be visually absorbed. But Ms Buckland's expert evidence on distance is that after 500. metres, visual impact gradually diminishes and in one of her photographs the 2 kilometre distant farms appear as an area of shaded water (Plate 3 – View LV3 – from southwest of Forsyth Bay looking east).

[279] We conclude that for people on boats visiting Bird Island and those standing off on the navigational routes the farm will be a significant presence. As Bird Island is part of the seascape vista which makes up the natural character of the bay and provides a focal point across an open expanse, it is our conclusion that what happens adjacent to the island will affect the overall seascape characterof that part of the bay.

- *Numbers*

[280] Ms Buckland's final evaluation was that the overall anticipated audience exposure would be very low and therefore any adverse effect was likely to be minor. Ms Buckland's conclusion is that the numbers were too low to have much effect. The largest audience will be boaties and these people are likely to be accustomed to marine farms. Ms Buckland said numbers formed a component of the matrix used to evaluate the site. She states her measurement was done *"as of now "*.

[135] Buckland Photomontage VPT 2, Plate 11 Photograph 2, Rackham Viewpoint 1, Schuckard Exhibit B.
[136] Ibid EIC 10.
[137] Ibid NOE 181.
[138] Rackham NOE 339.

[281] It is reasonable tc suggest that visitor numbers will increase. If this application is granted, it will be for ten years, with an expectation that it will not be removed if the marine environment is sustainably managed.

[282] The validity of numbers as a means of assessing visual amenity was bought into question by the council. Ms Buckland was questioned as to how a quantitative assessment measures a qualitative effect.

[283] The largest audience will be those visiting by boat. Mr Baines' evidence identifies that 90% of Sounds tourists are first time visitors. We must ask the question, what substantiates the conclusion that these visitors will be accustomed to marine farms – because they saw them on the way through Pelorous Sound or caught glimpse views travelling from Cook Strait through Allen Strait? And even if they are, currently in Forsyth Bay it is possible to circulate through the open spaces of the inner bay without being intruded upon too specifically by marine farms.

[284] In our opinion, this is all the more reason to keep marine farms out of sensitive areas where they will be intrusive. Mr Rackham also questions the assertion that 'boaties' will be accustomed to viewing marine farms as the size and location of this particular farm is quite different from anything seen before in the Sounds. This is borne out in evidence from Mr Wills. He came with a clear view from the Yachting Association delegates – that was they would be offended by the visual impact of the totality of the structure[139].

[285] It was apparent to us that while the Taylor Baines survey identified numbers, it is limited in both time and in locality. Those who visit Forsyth 'Bay, apart from those servicing marine farms, appear to do so for a wide range of reasons. Those before the Court attest to an amenity use of the bay which places a high value on its present natural qualities. We reiterate that discounting visual amenity values because of 'few visitor numbers is a narrow view[140].

Finding

[286] We find that the proposed marine farm on its site will have an actual and potential effect on the visual amenity values of the southwest area of Forsyth Bay.

- ***A Social and Cultural Condition: Navigational Safety and Public Access***

[287] Virtually all persons arriving and departing or transiting Forsyth Bay do so by boat. Navigational issues are therefore of primary importance in this case, due to lack of road access.

- ***Navigable Clearances***

[288] Mr B E Tear, 'Owner, Manager and Tutor for Nelson Boating Education, who gave evidence for Kuku Mara, considered the navigable clearances between the proposed and existing farms and land formations were excellent. This includes the reef running from the southern extremity of Bird Island which has a clearance of 400 metres from the proposed farm, 690 metres to Sugar Loaf and 410 metres to the nearest marine farm to the south[141].

[289] There is no rebuttal of this evidence.

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[139] Wills EIC 21.
[140] *Browning v Mar/borough District Council* Environment Court Decision W 20/97, page 11.
[141] Tear EIC 4: Figure 2 Proposed Surface Structures.

[297] Mr Tear acknowledges reduced visibility is likely to be a problem with bad weather, but he considers that if a boat is drifting out of control, crew would be able to make fast to the farm structure. Mr Tear further states that it is far preferable for a boat to strike a marine fat-m than a natural hazard such as Bird Island[146]. Mr Tear argues further, that the presence of lights on the farm may assist mariners during times of poor visibility, similariy, good radar reflectors on each of the cardinal buoys will assist vessels with radar equipment[147].

[298] Mr M A Oxley, Shipping and Ports and Risk Analysis consultant to Kuku Mara, gives similar evidence to Mr Tear, considering any risk in Forsyth Bay from the proposed siting of the marine farm to be very small in poor 'weather. This assessment is, in part, based on the few boating numbers over the Christmas period' 2001 – 2002 identified in a survey of boat numbers in the bay undertaken by Taylor Baines[148]. Otherwise it is based on Mr Oxley' s experience of navigational safety in the Kaipara and Waitemata Harbours. He concludes from his experience that the levels of risk of collision of vessels including the close quarters situations estimated at 3% of the time are negligible[149] situations, estimated at 3% of the time.

[299] Mr N Wills, a Technical Sailing Instructor and Immediate Past President of the Nelson/ Marlborough Yachting Assn and Immediate Past Vice Commodore of the Waikawa Boating Club gives evidence for the Friends. Mr Wills considers that the wind strengths referred to by Dr Laing may be understated in Forsyth Bay. He argues this because the wind speed measured at Stephen's Island had been reduced to estimate wind speeds at sites in the outer Marlborough Sounds, In his opinion, 'any adjustments of wind data in the proposal which reduces the Stephen's Island wind data, is likely to result in erroneous estimates of wind strength within the Sounds at sites surrounded by high hills – such as Forsyth Bay.

[300] From anecdotal evidence, Mr Wills concludes, despite Dr Laing's estimates, that during the equinox (ie spring/early summer), northwesterly gales predciminate, and persistent gales may blow for weeks on end. In fact, Dr Laing, in being questioned about the weather over the Christmas period 2000 – 2001 when the Taylor Baines Survey was undertaken, considered a very high percentage (40%) of winds ranged above 25 knots up to near gale force on the Beaufort scale) and that this is not unusual in the outer Sounds[150]. Dr Bartlett in her overview of natural character in the area notes in her evidence-in-chief that prevailing west to northwest winds bring frequent gales to Forsyth Bay. She thus confirms Dr Laing's answer"[151].

[301] There is relevant evidence from Mr K Murray, co-author of the *New Zealand Cruising Guide* (which covers the Marlborough Sounds), and who is past Chairman of the Wellington Yachting Federation and past Commodore of the Mana Cruising Club who gave evidence for the Friends. He indicates the proposed marine farm site is sheltered from the northwest winds and that in strong winds from the north to west, small boats and yachts transit the area of the marine farm site to avoid the seas to the east. He considers too that the majority of yachts capable of cruising speeds of less than 6 knots when under motor, seek areas which are more sheltered from waves – areas which on Dr Laing's and Mr Tear's evidence would include the area of the marine farm site. Mr Murray concludes from his knowledge of the area the proposed farm will restrict an important navigable waterway.

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146 Ibid EIC 10.
147 Ibid EIC 9.
148 A Survey of Boating Activity in Forsyth Bay, Marlborough Sounds, Prepared by Taylor Baines Associates foi Kuku Mara Partnership May 200 1.
149 Oxley EIC 4 – 8.
150 Laing NOE 146: Exhibit 8 for the Beaufort Wind Scale.
151 Bartlett EIC 7.

- *Weather Conditions*

[290] There are two aspects to weather conditions in the bay. Firstly, their impact on the marine farm in its proposed site and, secondly, their impact on vessels traversing through or close to the site.

[291] Dr A Laing, an Oceanographic and Meteorological Scientist employed as a Regional Manager of NIWA, Wellington, gave evidence for Kuku Mara. He states Bird Island and the reefs surrounding it shelter sections of the site to the north and northeast. From the site, the fetch is short and the western section of the farm is exposed to a very narrow window of open sea extending less than 5" due north past Stephens Island to the Taranaki Coast. This makes the site exposed to only very occasional extremes from a fetch of nearly 100 kilometres. A narrow fetch does not allow the full directional range of energy generation.

[292] Wave growth is limited by fetch rather than duration of a storm. Significant wave height is expected to reach 0.5 metres most years, but is unlikely to exceed 0.7 metres from winds from any direction. Dr Laing concludes the site has reasonable protection from the west although there may be strong gusts as turbulence from the surrounding hills produce strong bursts of wind in their lee[142]. These may be a wind hazard but would not be expected to have an impact on wave extremes. There is thus no reason to expect that wind/wave conditions will be more severe in Forsyth Bay than other parts of the Sounds where marine farms currently exist.

[293] Dr Laing identifies wind direction in the bay from measurements taken at the anemometer at Stephens Island. Dr Laing also took wind gauge data from the Brothers Weather Station (near Cape Komaru – Outer Queen Charlotte Sound) -this data was used solely for purposes of comparison, not to establish wind conditions in Forsyth Bay. Mr Tear concludes from those measurements that wave heights of the size indicated by Dr Laing are. not likely to present a safety hazard, even for small runabout craft. He concludes because Forsyth Bay offers such good shelter from waves, even in the worst winds, the proposed farm would not create an additional hazard[143].

[294] Wind and wave are treated separately by Kuku Mara. Waves and wave height are unlikely to be an issue, given the lack of significant fetch. But the same cannot be said for wind.

[295] We turn then to the effects of wind and bad weather on those traversing the bay. With respect to safety issues in bad weather, Dr Laing concludes that winds of greater than 20 metres per second (40 knots) will occur in the bay on an average of only three times a year.

[296] Mr Tear notes from the *New Zealand Cruising Guide*[144] that there are a number of natural navigation hazards in Forsyth Bay – namely unlit rocks and reefs – and that considerable care should be taken navigating the area at night. He also notes that the *Cruising Guide* indicates there are four registered moorings and four anchorages in Forsyth Bay but nevertheless, because strong west to northwest winds curve around East Entry Point and blow with some force down the main part of the bay, its exposed nature does not encourage the area as a major recreational boating destination. It is, said Mr Tear, not a bay to choose to sail in adverse conditions[145].

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[142] Laing EIC 6.
[143] Tear EIC 9.
[144] The "New Zealand Cruising Guide", Central Area, Murray, KWJ; von Kohom, Baron R, Stephen William Publications, Wellington 1999 Edition.
[145] Tear EIC 5.

[302] We carefully note Mr Murray's evidence and conclude from the witnesses generally, that winds from both a northerly and northwesterly quarter may produce difficulties for mariners in Forsyth Bay, and that in these conditions, more sheltered navigable routes and anchorages are sought.

- *Navigational Routes/Sheltered Anchorages*

[303] Under this heading, Mr Tear relies chiefly on the analysis carried out by Mr Oxley of the navigation routes within Eorsyth Bay. This analysis is based in turn on a survey of navigation routes in Forsyth Bay undertaken by Taylor Baines & Associates during November – December 2000 and January 2001. Twenty seven out of fifty one days were surveyed from the salmon farm 1% kilometres from the proposed site. The data was extrapolated to estimate the annual number of boats which use the bay timed to indicate how levels of use vary between peak and non peak periods.

[304] Mr Tear concludes that the vast majority of vessels do not pass near or through the site of the proposed marine farm. Out of about 4,200 boats a year, about 3,500 will stay well clear of the proposed site, so that boating in the area of the proposed marine farm would be about *748* per annum[152]. Mr Oxley considers that 750 boats per year is an extremely low level of boat activity. At present levels of marine farm activity, marine farm boats make up 150 of these.

[305] Mr Tear identifies the major navigational route in the bay is between Kaitira (East Entry Point) and Allen Strait, passing to the north and east of Bird Island. Other frequently used: routes are from Kaitira to destinations in the northern part of the bay. Mr Tear considers that the [only] likely impact- of the proposed farm on each of these distinct routes is to cause boat. operators to deviate around the farm. He supports the Taylor Baines' conclusion that most recreational boaties in Pelorus Sound bypass the area of the marine farm site, as they venture to and from areas which are more attractive to boating, diving and fishing or they are transiting between destinations.

[306] Mr Tear in his evidence-in-chief, also mentions that Forsyth Bay is not one to shelter in because of its exposed nature and lack of anchorages. But Mr Wills, in contrast to Mr Tear, identifies the importance of Forsyth Bay as an area in which ships may seek shelter. He argues that the reasons why, 100 years ago, this bay was identified as ideal for setting up a base at Wakatahuri which would offer shelter, safe anchorage, deep water, and ideal conditions for a wharf and boat building facilities, are as relevant today as they were then.

[307] Mr Wills notes the importance of the route through Allen Strait for vessels transiting from Nelson to the Queen Charlotte Sounds, from Mana to the Pelorus Sounds, or vessels travelling from Picton, Waikawa, Wellington or Lyttelton to Nelson or Tasman Bay (as a safety option avoiding the treacherous tidal rips off the entrance to Pelorous Sound). The witness gives examples of when the proposed marine farm will make yachting in the area difficult, or dangerous, or both. In particular, he identifies vessels travelling from East Entry Point to Wakatahuri, at night, either as a destination to or shelter before travelling through Allen Strait.

[308] And in respect of access to the Wakatahuri anchorage, Mr Wills said this:

> *A sailing vessel tacking into a southerly gale at night from the northern entrance towards shelter at the head of Forsyth Bay would have difficulty in negotiating*

[152] Tear NOE 37.

Bird Island, the Sugarloaf and the proposed marine farm in order to reach safety at the southern head of the bay.

The preferred option, particularly at night, if under sail when heading to the southern end of Forsyrh Bay from the northern entrance, would be to stand off Bird Island and pass it to the vessel's port side which then opens up the anchorage at the head of the bay. This route avoids having to tack through and negotiate the narrow space adjacent to the Sugarloaf Rocks and Bird Island.

This preferred option would be much more difficult if the proposed marine structure was built on the indicated site.[153]

[309] Mr Wills gave evidence that prudent recreational boaties find Wakatahuri to be a sought after anchorage in Forsyth Bay and that it offers a high degree of protection from bad weather[154]. It is also Mr Wills' evidence that the most popular anchorage is at the head of Forsyth Bay at Wakatahuri where there is a jetty, boatshed and workshop. He states the most suitable anchorages in the area very quickly become occupied as vessels collectively seek shelter. It is essential therefore to ensure the availability of sufficient safe alternatives for vessels in need.

[3 10] Mr Wills also disagrees with Mr Tear on his interpretation of, and the conclusions drawn from, *The New Zealand Cruising Guide* in respect of Forsyth Bay and in particular on the subject of useful anchorages. Mr Wills suggests that Mr Tear's evidence about waves of 0.5 metres not being a safety hazard for even a small runabout, reflecting Dr Laing's evidence, appears incongruous in the light Mr Tear's own evidence. If it is considered Forsyth Bay is not hazardous for *even a small runabout* on the remaining 360 odd days per year, it might be assumed that this would qualify Forsyth Bay as *an eminently usable and safe boating area and anchorage.* This, as Mr Wills states, is precisely what the *Cruising Guide* indicates.

[3 1 1] In his rebuttal evidence, Mr Tear considered that Mr Wills' examples of vessels tacking into a southerly gale at night were somewhat hypothetical, because a sailor in such conditions would not be inclined to do so in such weather. Also sailors would seik refuge where there are other easier 'options than Forsyth Bay such as Te Puru (Camp Bay) Waihinau Bay (only 4 nautical miles away) and Waterfall, Homestead and Ketiu Bays where there are a number of club moorings. He notes Mr Wills also forgot to identify Warwick Bay as a favourable anchorage which is also mentioned in the *Cruising Guide.* Mr Tear identifies that this anchorage is closer to the main navigation route between Allen Strait and Kaitira Point. He notes that in the event of southerly gales, sailors have the option to select one of these recognised anchorages where no tacking is required, but rather a 'point of sail' that is favourable en route.

[3 12] Mr Wills does not agree with the risk assessment analysis and conclusions of Mr Oxley. He believes that the presence of the farm will increase the risk of collision where the circumstances cause vessels to merge their routes to circumnavigate an obstacle such as the proposed marine farm. He considers the proposed marine farm site would compromise the safe use of a natural aid to the mariner – ie, a sheltered passage, with anchorages en route, to the safety of a purpose-built boat club mooring at Alligator Head.

[153] Wills 'EIC 10 – 11.
[154] Ibid 11.

[3 13] Meanwhile, the area of the proposed marine farm is not seen as a suitable anchorage on its lee side by Mr Murray, who considered that as the seabed at the site would be obstructed with moorings, he would be reluctant to anchor near the marine farm. In any event, the best depth for anchorage is 10 – 15 metres whilst the area of the proposed farm is 40 metres and therefore cruising boats would find it untenable.

[3 14] Mr King, the marine farmer with an interest in a marine farm in Forsyth Bay, carries out spat management work there for himself and for other marine farmers, and gave evidence for the Friends. He estimates that over the last four years he has visited the bay on an average of once or twice a week, for both marine farming and recreational reasons. His observations are that Forsyth Bay is used extensively by people with boats, and that yachts, launches and smaller powerboats use the bay for mooring. He states:

> *I am concerned at the impact that such a large marine farm will have on navigation . . . Forsyth Bay is effectively an enclosed maritime area. People travel from all points of the bay to all other points meaning that travel is on a 360" basis. Although many vessels use the bay after or before using Allen Strait it is also true that many vessels crisscross the bay for various reasons and this includes using the Kuku Mara site. The proposed site in fact lies across an established seafarers passage between Wynens Rock and Wakatahuri. Wynens Rock is a well-known navigation mark that is recorded on the charts. ...*
>
> *... I believe that the applicants have attempted to minimise the navigation risk of a large mid bay farm. Whatever else is said there is no doubt that it will be a substantial obstruction which significantly reduces the navigation options that exist at the present time.* [155]

[3 15] Mr King was asked by the Court to point out the location of Wynens Rock and the navigational route to Wakatahuri he was referring to in his evidence. He did so stating as follows:

> *... Wynens Rock is this corner or entrance coming from Pelorus, and Wakatahuri is here. There is a wharf and 3 or 4 houses, and that is the shortest route to come through there. It's a straight line and it's the normal route for boats heading into this corner of the bay from Pelorus.* [156]

[3 16] Ms K Mead, a resident at Wakatahuri, was scheduled to give evidence at the hearing, but was unable to due to ill health. Her brief of evidence also referred to boats accessing Wakatahuri:

> *Navigational wise, it is absolutely imperative that this route remains unimpaired. Whilst being a competent sailor requires navigational skills capable of negotiating narrow waterways, an additional manmade structure compromising sea-room in a high use area such as this is unacceptable.*

[3 17] Ms Mead also talked about the need to maintain all-weather access at any time of the day or night, and referred to the lack of road access to the area.

[318] We have taken into account the fact, as counsel for Kuku Mara urged, that Ms Mead was not available for cross examination, and so give this statement little weight accordingly.

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[155] King-EIC para 22.
[156] King NOE 437.

It is interesting to note, however, that the statements support Mr King's evidence, and that there is no doubt that the farm will introduce an inconvenience which reduces the navigation options that exist at the present time.

[3 19] Recently the Maritime Safety Authority (MSA) revised its guidelines on applications for coastal permits relating to marine farming (Exhibit A). This is the first time the MSA has provided guidance for the establishment of enclosed waters marine farms (such as the Forsyth Bay site). Clause 3.1.9 of the guidelines identify *Marine farms shall not be located on recognised navigational routes.*

[320] In his evidence-in-chief, Captain A Wijngaarden, Harbour Master for the council, considers the marine farm would provide) a substantial inconvenience to those people boating to Wakatahuri. In cross-examination he was asked whether just before he produced Exhibit A, that he had mentioned the appellant's proposed farm in Forsyth Bay complied with the guidelines. He answers: *By and large that is correct yes*[157].

[321] But if it is a recognised route and it is, the answer (and the proposal) is inconsistent with the guideline.

- *Night time navigation*

[322] Captain Wijngaarden finds the proposal for lighting and marking acceptable in genera1 terms, although he sounds a note of caution in that this marine farm will not be viewed in isolation at night:

> *Even the most experienced boatie, sailing in areas where there are large numbers of marine farms, is aware that the lights on the various marine farms can in many instances cause confusion. From many angles the lights on this particular farm will be viewed with a background of other lights round the edge 'of the Bay.* [158]

[323] Captain Wijngaarden is also opposed to the two lights marking an accessway/fairway through the middle of the longlines. He considers they will operate to attract boats along the accessway in dark conditions, and he believes this would be foolhardy. In his opinion, the positioning of two navigational lights (in addition to the cardinal mark lights) at equal intervals along the northeastern and southwestern side of the farm, will adequately mark the farm. Captain Wijngaarden concludes nevertheless, that in reality a consequence of putting a marine farm out in the middle of the Bay is that essentially that bay at night will become a *"no-go area "* for the prudent boatie.

[324] Mr Oxley for Kuku Mara was questioned as to whether he too agreed that one of the effects of the congregation of marine farm lights at night is to create a *"no go area"* for prudent sailors in the area of the marine farm. He answered:

> *... yes I'd agree that the inshore farms in the perimeters of bays that at night the lights can be confusing and anyone navigating would exercise extreme caution.*
>
> *The Harbour Master goes further, doesn 't he, and says you 'd probably try not to go there at all if you can avoid it . . . I don't recall his exact evidence but I would agree with that sentiment, yes.* [159]

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[157] Wijngaarden NOE 398.
[158] Ibid EIC para 7.
[159] Oxley NOE 59.

[325] Mr Wills, for his part, an experienced sailor in the Forsyth Bay waters, considers the location of the mid bay site lights at night, would not only create a potential hazard at any particular site, but would disestablish the navigational certainty which other marine farm lights have provided around the perimeter of bays, and which has been built up with the boating fraternity because of their fixed location over the years[160].

[326] Mr Tear explains he had not marked the internal fairway because it would cause confusion with more lights. He said in particular in response to a question from the Court:

> *The reason for this* [not marking the'intemal fairway in his recommendation] *is to avoid any confusion with lighting is one of the main reasons why.*[161]

[327] Mr Tear believes it is better to have fewer, but greater quality lights around the parameters of the farm. It will be better lit than a traditional marine farm and will stand out apart from those around the shore. Mr Tear agrees that a navigator loses depth of vision at night and perceptions of distances do change. Nevertheless, he is clear that his proposed lighting system is on the safe side because the lights appear closer than they really are[162]. It is his evidence that with the diode as opposed to lume lights, the light does not scatter and perception is clearer. And Captain Wijngaarden, despite his concerns about the proposed night time lighting, accepts that the lighting provisions for the proposed farms complies with international standards for navigational aids.

Evaluation

[328] We find the statement that most of the recreational boaties bypass the site somewhat contradictory as we read from the Taylor Baines Survey itself that local recreation such as sailing, windsurfing and canoeing is generally focussed very much on Wakatahuri Bay itself, while diving, fishing and scalloping trips by locals venture further afield – across the southern end of Forsyth Bay[163].

[329] We note from Mr Oxley's diagrammatic representation of the Taylor Baines Survey that the site of the proposed farm is dissected by several lesser used navigation routes. Mr King notes that the proposed farm lies across *an established seafarers passage between Wyneris Rock and Wakatahuri.* The evidence of Messrs Wills, Murray and King, also leads us to the conclusion that the route west of Bird Island from East Entry Point to Wakatahuri is in fact a recognised navigational route by those familiar with the bay, although one not heavily used. As a result the proposed farm is inconsistent with the revised MSA guideline. It is a potential inconvenience.

[330] Otherwise, we accept that the most heavily trafficked route, from Kaitira to Allen Strait, identified in the Taylor Baines survey will not be affected by the proposal.

[33 1] Mr Tear's evidence that boats do not shelter in Forsyth Bay is inconsistent with the facts. It is clear from the evidence of Captain R A King, who is a qualified marine pilot and who gave evidence for Kuku Mara, that Allen Strait is not a shortcut between Pelorus Sounds and destinations to the east. It is a preferred route for smaller vessels *because of the shelter afforded,* compared with the alternative, a passage north of Forsyth Island[164]. Kuku Mara's own witness thus confirmed the evidence of other witnesses from the Friends, as well as the

[160] Wills EIC para 37, NOE 463.
[161] Tear MOE 54.
[162] Tear NOE 43.
[163] Tayldr Baines Survey Appendix 2 page 19.
[164] King EIC 4.

witnesses for the Environment Centre who also identified the importance of Forsyth Bay as a place to shelter.

[332] Mr Wills stated that there are very few, moorings or anchorages within 10 miles of Forsyth Bay *that offer the same degree of protection as* Wakatahuri. Mr Tear challenges this in his rebuttal evidence, with other examples of the other anchorages and moorings. Hut he did not confirm that those offered the same degree of protection as Wakatahuri in bad weather, which is what Mr Wills discusses. And we also note that Mr Wills qualifies his statement by stating the most suitable anchorages quickly become occupied as vesseis seek shelter. His concern appears to be that there is a necessity to ensure the availability of sufficient safe alternatives for vessels in need.

[333] In respect of navigating through 'the proposed marine farm, Mr King considers that while this is possible in adverse conditions with the existing inshore farms, that situation will not be the case with an open water farm. He considers that whatever else is said, there is no doubt that it will be an obstruction which significantly reduces the navigational options which exist at the present time.

[334] Whether 951 or thousands of yachts or craft, pass through the area, the issues remain the same. The evidence indicates that Forsyth Bay is an eminently usable and safe boating transit area and anchorage, if prone to strong winds from time to time. Whilst we acknowledge that for reasons of remoteness there may be fewer numbers affected, we agree with the council that this in itself does not justify diminution. of -unimpeded access.

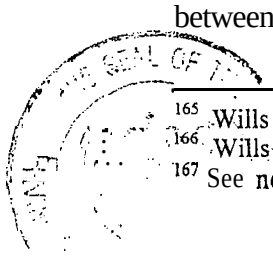
[335] We note the evidence of Mr Wills suggesting the number of private recreational craft is growing[165]. Whilst larger [cruise] ships may not anchor south of Bird Island, the proposed site poses an inconvenience for high performance keel and' cruising yachts. We acknowledge there will be a potential inconvenience which will reduce navigational options.

[336] Captain Wijngaarden urges caution in the use of results from the Taylor Baines Survey to estimate annual boating movements. He states that the weather during the survey period (Christmas/New Year 2000/2001) was most unsuitable for boating and would have prevented many small boats from safely getting to Forsyth Bay. He did not dispute the basic premise that Forsyth Bay is "lightly-trafficked" compared to other areas of the Sounds, but considers the Taylor Baines numeric calculation can be considered nothing more than a guide.

[337] We had the same reservations about the Taylor Baines Survey of navigational routes and numbers of vessels, as did others. There were a number of omissions, such as that the survey largely ran for 9 hours of the day and there was evidence of vessels traversing the bay later than that. The observers were also carrying out salmon farm duties as their first priority. And there was also evidence from Mr Wills that yacht club cruising activities were mostly in the months February – March – outside the survey timeframe[166].

[338] Mr Baines himself acknowledges the difficulties in coming to an assessment of boat numbers – given the absence of systematical1y collected data. From this we extrapolate that traffic patterns are equally difficult to assess[167].

[339] The survey is, however, an attempt to provide some quantitative data on the differences between peak and non peak use, and to give some indication of the spatial patterns and routes.



[165] Wills EIC paras 51 – 56.
[166] Wills NOE 46 1.
[167] See note 9 Taylor Baines Survey Document 2 1.

The council had been approached to see if it would undertake a regional recreational survey with so many mid bay marine farms being applied for. The council did not take up the offer, so Kuku Mara (to its credit) undertook its own (more limited) assessment. And what occurred at the hearing was that witnesses for the council, the Friends and the Environment Centre used the survey as a basis for their own evaluation, thus providing it with a status which is difficult to ignore.

[340] But the method undertaken in the survey leads to difficulties in making both numerical and spatial analyses. Mr Baines describes in his methodology that observations were made from a number of locations but it appears under cross-examination that the sitings were done only from the salmon farm. This encourages us to treat boat patterns here with caution. Wakatahuri is an area where Mr Baines' and other witnesses record a number of boating and recreational activities making it one of the high use areas (in terms of Forsyth Bay). However, very little sign of activity in the southern quadrant is shown on the boat observation charts, and we note that no mail boat was observed on Friday 6 January 2001 and that on the busiest boat day of the survey (1 January 2001) not one boat was recorded approaching or leaving Wakatahuri.

[341] With respect to the impact weather may have had on boat survey figures and levels of risk, Dr Laing states that winds from the northerly quarter occur something like 68% - 70% of the time in the bay during the survey based on readings from Brothers Island, which is where the readings were taken at the time of the survey. Mr Baines agrees that the summer in question did have a high number of northerlies, and northwesterlies 71% of the time, with winds stronger than 2 1 knots 4 1% of the time. It is Mr Wills' evidence that the Waikawa Bay Boating Club and Royal Port Nicholson Yacht Clubs do not hold races when 35 knots are forecast because such conditions are considered dangerous. All of these matters may well explain Captain Wijngaarden's statement that boating numbers were low at times of the Baines survey. He himself was boating in the outer Sounds over the Christmas/ New Year period which he described as terrible for boating. There were, it appears, periods of very strong winds and unpleasant weather day after day.

[342] But in re-examination, Mr Baines stated he had looked specifically at wind conditions in the period Christmas - 7 January 2001. He accepts that some of the time conditions were not pleasant, and he notes that on some of the days no boat movements at all were observed, and on others there were numerous ones. He acknowledges there were three days when the observer recorders showed a Beaufort Scale of 5 and 6 (indicating wind speeds of 29 - 49 kph); and on twenty four out of the twenty seven days conditions were no stronger than level 4 on the Beaufort Scale. But there were a preponderance of days when the Beaufort Scale readings were levels 1, 2 and 3 (1 - 28 kph) so he is confident that levels of boat activity typical of fair weather had been revealed by the survey[168].

[343] There is thus a clear conflict of evidence between that of Captain Wijngaarden and Mr Baines on which we are not prepared to make a finding. For in addition Mr Baines proffered the following anecdotal evidence:

> *A long-time local resident suggested to me that Wakatahuri is usually busy over the Christmas holiday period when there can be as many as one hundred people from the baches and 12-15 boats visiting. When I visited Wakutahuri in November 1999, this person estimated that at the height of summer, up to about fifty boats may pass through Allen Strait and Forsyth Bay in a day, while the moorings in Wakatahuri are popular with yachts and charter boats. The*

[168] A Survey of Boating Activity in Forsyth Bay, Marlborough Sounds, Appendix 1 page 17.

> *anecdotal estimate of up to fifty boats transiting the Bay in any single day appears marginally high, but it is clearly of the correct order ofmagnitude. He said that it is nor unusual to see larger cruising yachts and foreign yachts at anchor. There are also several club moorings just on the western side of Allen Strait, and on the east side in Annie Bay. A regular visitor to Wakatahuri told me that the Cruising Guide lists it as an anchorage.*

[344] Mr Baines goes on to say that he believes there is nothing in the survey that contradicts the picture he had previously formed from anecdotal evidence[169]. While it was clear many yachts normally gather at Wakatahuri, over the Christmas period and at other times, there was, however, no evidence to show that this was so at the time of the Baines Survey or what route they took to get there.

[345] Meanwhile we had no issue as to navigational safety during the day. Despite Mr Wills' concerns about the safety issues en route to Wakatahuri, we considered there was enough manoeuvrability around the marine farm based on the spatial evidence of Messrs Tear and Oxley[170].

[346] Further, the relatively low number of vessels accessing that anchorage makes it most unlikely there would be a collision involving two craft. And although somewhat tentative in his response, Captain Wijngaarden confirms the proposal complies with the MSA Guidelines for enclosed waters marine farms – namely it does not unduly impede navigation within the bay and the marine farm will have clearly defined navigable areas around it[171]. Thus in spite of our earlier finding in respect of MSA guidelines clause 3.1.9 – we find the proposal to be consistent with these two guidelines.

[347] Mr Tear would have concerns for structures mid bay himself, if he thought that farms would not be appropriately marked, and information regarding the farm was not disseminated to the general public. The farm will be adequately marked and information disseminated. Even so, Mr Tear considers vessels [both] with power and without power should avoid marine farms[172]. This contradicts a statement Mr Tear elsewhere made where he said that any deviation around the proposed site will be minimal and there is the option of passing through the fairway on the site or even between the lines. He reiterates this suggestion when discussing the situation if the McLab applications adjacent to Kuku Mara are approved.

[348] In respect -of night time navigation, we conclude that navigating inshore farms in the perimeters of the bays at night is a practice to be avoided. Mr Oxley did not appear in his evidence to be discussing the lighting effects of the proposed farm in conjunction with other farms. The conclusion of Captain Wijngaarden was that if the proposals go ahead, Forsyth Bay will become a "no go" area at night.

[349] The expert witnesses thus differ in their conclusions as to the safety of navigating at night in Forsyth Bay should the proposal proceed.

[350] Our view is that there is either the potential for confusion at night or there is not. We do not see the relevance of the number of boats using the routes. If Mr Oxley believes that *at night the inshore lights can be confusing* and Mr Tear agrees that *a navigator loses depth of vision at night andperceptions of distance do change,* we are inclined towards the conclusion of Captain Wijngaarden, particularly where the distance between the existing farms and the

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169. Baines RE 3, NOE 280.
170 Oxley NOE 56 – 58, 62.
171 MSA Guidelines: clauses 3.1.1 and 3.1.4.
172 Tear NOE 39.

proposed site is relatively short. Mr Wills, who is a Technical Sailing Instructor, considers that a light is a light and it does not matter if the magnitude changes or not. It will still iead some persons on the water to conclude that the iight may be from a shore based source[173].

[351] We therefore conclude that the lighting proposed for the farm will make the farm clearly visible but there is a potential for confusion at night.

[352] We considered Mr Wills' concerns that because the farm is out in the middle of the available waterway, it removes the option of having twice the navigable space on one or other side of the farm and at the same time the difficulty associated with the exposed sides of the marine farm at' least doubles. The two *"ends "* of the appellant's proposed farm become *"sides "* which open out into navigable water. The effect of this configuration in Forsyth Bay could possibly inhibit vessels in this part of the bay by the creation of four additional "lee shores" (depending upon wind direction) of 650 metres each. We note most of the expert navigation witnesses suggest this is not a difficulty. We find that at worst, the farm could prove an inconvenience in times of high wind.

[353] Captain Wijngaarden said this:

> *I accept that it is possible to go around the marine farm on both sides and to avoid the marine farm altogether by taking a passage to the east side of Bird Island. In its decision, the Council found that the position of the farm constituted an inconvenience (and in my view a reasonably substantial inconvenience to those people boating to Wakatahuri) but the position of the marine farm was not a hazard because of the availability of other routes. I accept that as a reasonable view.* [174]

[354] Froni Mr Tear's evidence, we calculate that the navigable clearances between the existing farms and Sugar Loaf west to east of the bay (south of Bird Island) is approximately 2400 metres and from the existing farms to the reef immediately south of Bird Island, at the narrowest point in the bay south of Bird Island is approximately 1500 metres. We note the distance quoted represents the situation as it is now, without the proposed farm in place.

[355] If the proposed farm proceeds, these 'distances will be reduced to 810 metres from the proposed farm to' the western-most existing farm and at 690 metres from the east of the proposed farm to Sugar Loaf. From the south of the existing farm to the closest existing farm south, would be 410 metres. The distance between the north of the proposed farm and the reef south of Bird Island would be 400 metres.

[356] Mr Oxley was asked whether boat users will now be obliged to travel closer to Bird Island than would be the case otherwise as a result of the proposed farm being implemented. He replied in the negative because if Mr Tears' Figure 1 is looked at, it can be seen that with or without the proposed farm any boats that want to pass on the west and south side of Bird Island going to Wakatahuri would pass the same distance away from Bird Island[175].

[357] It is suggested to us that the presence' of a 42.25 hectare marine farm on the proposed site will not constrain mariners to any greater degree than they already are as they navigate Allen Strait – in other words west of Bird Island and west and southwest of the proposed farm

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[173] Wills NOE 463.
[174] Wijngaarden EIC, para 5 third bullet point.
[175] Oxley NOE 63.

or south of Bird Island and north of the proposed farm mariners will not (in terms of metres) be constrained any more than they are when navigating Allen Strait.

[358] While this may be true in absolute terms, there are other considerations:

- irrespective of which route is chosen between East Entry Point and Wakatahuri mariners will be constrained more with the proposed farm than without;
- the length of the various lee shores, on either route, is considerably longer than that experienced when navigating Allen Strait;
- we have no evidence comparing the effects of adverse weather conditions on mariners between the East Entry Point/Wakatahuri route and the Allen Strait passage.

[359] Therefore this comparison on ease of navigation between the two routes does not necessarily assist.

[360] We concluded as follows:

- the Taylor Baines Survey is a snapshot in time and is to be used with caution;
- Forsyth Bay suffers from strong gales from time to time because of the geography of the surrounding hills but 'these do not generate high 'waves because of the limited fetch in the bay;
- the marine farm lies across a number of recognised navigational routes – including Kaitira to Wakatahuri (west of Bird Island) which is not heavily used: so that except in respect of MSA guidelinesclause 3.1.9, we find the proposal to be consistent with the guidelines;
- in most cases the farm will be an inconvenience rather than an obstruction because of the alternative routes surrounding the farm available for navigation;
- the risk of collisions arising from the siting of the marine farm is very low, due to the relatively low traffic volumes in the bay;
- the highest concentration of recreational boats appear to fish close to Bird Island;
- lights from the proposed farm in conjunction with lights from existing farms could exacerbate the potential for confusion for mariners at night and could render the bay southwest of Bird Island a no go area at night depending on the experience of the navigators.

Finding

[36 1] The proposal will potentially affect navigation in Forsyth Bay.

- ***Cumulative Effects***

[362] The issue of cumulative and precedent effects was raised by counsel for the parties opposed to the development, and the observations on the two issues given by the Court of Appeal in *Dye v Auckland Regional Council* and *Arrigato Investments Limited v Auckland Regional Council* was applied[176]. In these cases it was argued that granting a resource consent would create a precedent effect which would result in adverse cumulative effects on the environment from similar subdivision proposals that would likely ensue.

[176] [2002] 1 NZLR 337, [2001] NZRMA 513; [2002] 1 NZLR 323, [2001] NZRMA 481

[363] A cumulative effect is concerned with things which will occur rather than with those which may occur, that being the connotation of a potential effect"'.

[364] The Court of Appeal in *Dye v Auckland Regional Council*[178] held the terms 'potential' and 'precedent' effects do not fall within the definition of cumulative effect. The term 'precedent effect' cannot fall within s. 104(l)(a) matters because that provision focuses on the effects of an activity as it impacts on the environment. The Court held that the effect that allowing the activity might have on the fate of subsequent applications should be addressed under either s. 104(l)(d) or s. 104(l)(i).

[365] We therefore deal with any precedent effect under s.104(1)(i).

[366] Mr Kyle expresses the issue of cumulative effects as follows:

> *Such effects would generally arise from the ongoing incremental development of similar marine farms to the extent that effects on values such as natural character, ecological values and benthos, sustainability of existing farms and overall amenity values would steadily become more and more significant. The key question becomes one of determining when such development ultimately cross the threshold of concern.* [179]

Evaluation

[367] In terms of cumulative effects the Court of Appeal has held:

> *The concept of cumulative effects arising over time is one of a gradual build up of consequences. The concept of combination with other effects is one of effect A combining with effects B and C to create an overall composite effect D. All of these are effects which are going to happen as a result of the activity which is under consideration.* [180]

[368] We interpret this statement to address those effects of the activity under consideration, which in themselves may not be major and significantly adverse, but over time, and with other effects of the activity, combine to cumulatively build up into a major adverse effect which requires avoidance, mitigation or remedying.

[369] For example, in terms of the existing farms inshore, which already reduce the visual amenity values in the southwest, the proposal will have a major adverse cumulative effect in terms of visual amenity values in the southwest. A major adverse visual impact is essentially a subjective threshold, able to be measured by the experts who undertake it' [181]. In our opinion because there is such a major adverse visual amenity effect collectively identified by the experts on this occasion – the proposal markedly diminishes one aspect of the natural character values of the seascape. It is on a continuum of impact because the sphere of visual influence identified by Ms Buckland flows outwards from the inshore farms to the mid bay.

[370] We consider too that there will be another major natural character cumulative effect from the proposal – that of sedimentation. There are now 41 mussel farms covering an area in excess of 120 hectares in the southwestern sector of the bay. If that figure is added to the

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[177] *Dye v Auckland Regional Council* [2002] 1 NZLR 337,348; [2001] NZRMA 5 13,525.
[178] [2002] 1 NZLR 337, 348-350; [2001] NZRMA 513, 525-526.
[179] Kyle EIC 42 – 43.
[180] *Dye v Auckland Regional Council* [2002] l NZLR 337,349; [200 1] NZRMA 5 13,525.
[181] Kyle NOE 303.

potential area of discernible change from the Kuku Mara proposal (72.25 hectares) then a considerably greater percentage of the seabed will be subject to sediment deposition than the surface areas covered by the farms.

Section 104 1 c & d : Any Relevant Objectives, Policies, Rules and Other Provisions of the Plans and Policy Statements

- ***Zoning and, the Non-Complying Status of the Activity***

[371] Mr Kyle for Kuku Mara considers the council has a "scaling" exercise in place in respect to the zoning of marine farming in the CMZ 2. It has been given prohibited activity status within those areas in the CMZ 1 zone where it is likely to have significant adverse effects on natural character, navigation and safety, recreational opportunities, ecological systems or cultural; residential or amenity values. He considers a more permissive regulatory regime for marine farming activities is provided for within CMZ 2, where the significance of such values is not so pronounced.

[372] In thus making a clear distinction between the two coastal zones, Mr Kyle considers the council recognises the differing values inherent within them. He concludes that because the more significant areas are protected in absolute terms, this protection is an important factor to be considered in assessing the merits of the application.

[373] In spite of his emphasis on the scaling, techniques of the PMSRMP however, Mr Kyle acknowledges in cross-examination that there is nothing in the natural character section of the PMSRMP to suggest a lesser degree of protection is to be afforded the natural character qualities found in CMZ 2, as opposed to CMZ 1. He also acknowledges that natural character values have to be taken into account on a case by case as well as a zoning basis[182].

[374] Mrs Dawson considers that the fact that the non-complying activity status of marine farming (a rule) is so categorised, should make us cautious about the way we approach the provisions in the plan, particularly in relation to the mid bay location of the site. It is also suggested that the non-complying status should influence the way the Court exercises its overall discretion under s.105(1)(c) – namely, also with caution.

[375] Mrs Dawson concedes, however, that the effects of the activity, whether within the 200 metre zone or outside of it, should be evaluated in the same way. She accepts that the regulatory regime in CMZ 2 is more permissive than in CMZ 1. But in rebuttal of Kuku Mara's approach, she does not accept that the values identified (natural character, navigation, ecological systems, open space, etc) are any less pronounced in CMZ 2 than CMZ 1 [183].

[376] The Friends realistically contemplate that CMZ 2 is not a *"marine farming zone"* per se – rather it is one within which marine farming is contemplated in certain circumstances, but in conjunction and harmony with other activities.

Evaluation

[377] The status of the rule is a relevant matter to take into account in assessing the form and effects of an activity. As Mrs Dawson indicates, the PMSRMP provision signals that there is a greater level of acceptability of marine farming inside the 200 metre zone where it is

[182] Kyle NOE 306.
[183] Dawson EIC 70.

identified as discretionary. Greater care, therefore, needs to be taken to make sure a farm outside the 200 metre zone is in the right location.

[378] But care aiso needs to be taken by the council that it does not use activity status as rhe basis for locating marine farms rather than focusing on thc matters in ss. 104 and 1 OS – a point made by Kuku Mara.

[379] On this issue of the emphasis to place on the non-complying status of the proposal, the final word is with Mr Marr. He robustly addresses it *thus – to me we had higher hurdles to jump, which is fine*[184] – by which he implies confidence that Kuku Mara has adequately assessed (and passed) the tests in s. 105(2A).

- ***The Plan Provisions***

[380] There are many multi-layered provisions affecting this proposal emanating from the NZCPS, RPS[185] and PMSRMP, reflecting the considerable natural resources and landscapes/seascapes/open spaces the Sounds sustain. They have created extensive analysis for the planners in this case, as they assessed the weight which each should be given.

[381] We do not intend to address each provision individually in this decision. They are comprehensively set out in Mrs Dawson's and Mr Kyle's evidence, and reflected upon by them and Mr Nugent when points of importance or difference arose. We have read and reflected on all of those put forward carefully, and they inform our decision.

[382] We observe that 'plan provisions should form an important part of decision making. There may be a temptation to 'roll them over' because so many apply in the CMA, but they can be clear indications of how to approach complex cases such as this.

[383] From the witnesses' analysis we have distilled the following:-

Issues

[384] The issues (initially identified in the policies of the NZCPS) are as follows:

- the avoidance of sprawl/sporadic development in coastal environments with natural character;
- natural character values within and outside the location;
- a precautionary approach to development;
- the concept of intactness;
- protection of ecosystems unique to the coastal environment;
- avoidance of cumulative effects;
- habitats of indigenous flora and fauna;
- research benefits;
- protection of essential elements of landscapes/seascapes/landforms and visual amenity values;
- public access and open space issues;
- coastal marine (chapter 9);
- noise.

[184] Marr NOE 26.
[185] New Zealand Coastal Policy Statement, Regional Policy Statement.

- *Avoidance of Sprawl/Sporadic Development in Coastal Environments with Natural Character*

[385] Policy 1.1.1 (a) of the NZCPS requires, that regard be had to encouraging appropriate use and development in areas where natural character has already been compromised, and through the avoidance of sprawling or sporadic development.

[386] Objective 2.2.1 of the PMSRMP restates s.6(a) of the Act and seeks to preserve the natural character of the coastal environment from inappropriate subdivision use and development. Several policies flow from this objective. Policies 1 .1 and 1.2 restate Policy 1.1.1(a) of the NZCPS.

[387] As to the provision in the PMSRMP for natural character, Mrs Dawson makes the general point that the natural character policies in the PMSRMP requiring the preservation of natural character, are stronger and more direct than elsewhere in the PMSRMP. There was no rebuttal of that opinion. The phrase, for example, is only directly mentioned twice in Chapter *9 Coastal Marine* (Policies 1.1(f) to Objective 9.2.1 and 1.4(a) to Objective 9.3.2), which relates to the activities such as marine farming which may be carried out in the CMA.

[388] Policy 1.3 of Chapter 2 requires consideration of the effects of the proposal on a range of matters as follows:

> *To consider the effects on those qualities, elements andfeatures which contribute to natural character, including:*
>
> *(a) Coastal and freshwater landforms;*
> *(b) Indigenous flora andfauna, and their habitats;*
> *(c) Water and water quality;*
> *(d) Scenic or landscape values;*
> *(e) Cultural heritage values, including historic places, sites of early settlement and sites, of significance to iwi;*
> *(f) Habitat of Trout.*

[389] Criteria (a) – (e) are of relevance. The qualities, elements and features which contribute to natural character in this case, are seen by the community to include the coastal landforms, some in the bay rated as outstanding landscapes, an island of national importance for its intrinsic values and a scenic reserve, the indigenous fauna and their habitats, water and water quality, and generally scenic and open values.

[390] The first question to ask is whether or not this area, towards the centre of Forsyth Bay, has its natural character already compromised by the development of the surrounding land and the coastal ribbon of development of marine farms, and the second is, whether what is proposed is sprawling or sporadic development.

[391] Kuku Mara's approach to the issues of natural character raised is that where development has already compromised the margins of the CMA, then the proposed location is an appropriate one for further development. Mr Kyle considers that this farm may be viewed as further sprawl[186], in essence, cumulative upon what already exists. The context of the historical use of the bay, particularly in land use terms, Mr Kyle considers, contributes to placing the proposal in a particularly modified context. Sprawling development in this case is therefore acceptable, because it is a continuation of the existing sprawl of marine farms and

[186] Kyle NOE 301 - 302.

evidence of other development occurring aiong the margins of the shore. Sporadic/sprawling development, he emphasises, should only occur outside of areas where natural character values have already been compromised.

[392] We acknowledge that some of the inshore margins of Forsyth Bay are compromised by marine farm development. Of particular relevance in this case are the areas of the west and southwest. Those hillsides are a patchwork of pastoral and indigenous vegetation the "mosaic texture" that is common in the Bulwer system. But Mr Rackham identifies that generally apart from the marine farms, there is a relative lack of diverse built structures, buildings, roads and utilities on the landscape'*'. The only signs of human interference are thus at the coastal margins.

[393] Discussing the second part of Policy 1 .1. l(a) - the necessity to avoid sprawling development, Mr Nugent considers integration of development in the CMA to be a fundamental issue in this case, in that the haphazard selection of random blocks for marine farming, such as the Kuku Mara site, does not promote the philosophy of the NZCPS. He considers that sprawling/sporadic development should not occur in the CMA as a matter of national importance. He identifies that the limitation that has generally been adhered to in the past by the council, in restricting farms to a 50 metre - 200 metre corridor, is one form of integrated management. Whilst the concept 'may "stretch out" rather than cluster **marine** farms, it does allow it to integrate into other natural processes and activities. Mr Nugent's evidence is the one to which we have given considerable weight on this issue.

[394] When we assessed Exhibit 13 *Marine Farm Resource Consent Applications* **for Forsyth** Bay put in evidence by the **council,** there are a number of applications which may be considered infill, proximate or adjacent to the existing inshore development, and thus may not be contrary to the NZCPS provision.

[395] The proposed farm however, is approximately 575 metres at its nearest point from the shoreline and 4 10 - 8 10 metres from other farms. It cannot be considered from the maps or measurements put in evidence, that the proposed site is either proximate, contiguous or an infill to existing or past development. We consider **the farm is not** even *sprawl* **which has** been judicially recognised as *development without an edge*[188]. It is a sporadic development separated out from others. It thus may be considered 'scattered' or 'dispersed' on the waters of the CMA. Dr Bartlett confirms this, when in discussing the visual effects of the proposal, she adopts Ms Buckland's evidence as follows:

> [Ms Buckland] *considers that the introduction of a large marine farm well out from the coastal edge will have some visual effects on the open water area of the bay, but that these effects are limited to the water area around the-marine farm.* [189]
> (our emphasis)

That two key witnesses see the proposal well out from the coastal edge confirms to us the proposal is sporadic - set out on the open waters of the bay. It does not sprawl along the inshore margins physically continuing on or outwards from other farms.

[396] Ms Buckland's Photomontage VPT2 illustrates the proposed farm's visual separation from the other farms. There was no photomontage put in evidence by Kuku Mara linking the proposed development to the existing marine farms along the shore, to illustrate the concept

[187] Rackham EIC 22.
[188] *Wakatipu Environmental Society Inc v Queenstown-Lakes District Council* [2000] NZRMA 59, 116.
[189] Bartlett EIC 2 1.

of *continued development without an edge.* And nor could there be. When Mr Nugent visited the site, he told u:, the inshore marine farms are barely visible, although he acknowledges seeing the salmon farm from the site[190]. He states 'the distance from shore, means that the influence of the land character or activities in the proposed location is significanti y diminished on the application site[191]. It is a view we share.

[397] The Kuku Mara site thus does not fit the description of sprawling development. It is not an accumulation, in a physical sense, along with the inshore farms. Its 'sporadic' location was confirmed on our site visit. Its location is therefore contrary to a key provision in the NZCPS.

- *Natural Character Values Within and Outside the Location*

[398] Policy 1.1.1 (b) of the NZCPS, requires that regard be given to natural character values *both within and outside the immediate location* of the Kuku Mara site in order to preserve natural character. In our view the word *values* includes issues other than just natural character components, processes and elements such as the community's perception of natural character. Mr Kyle considers that how people see and appreciate natural character is a particularly important part of the characteristics of natural character[192].

[399] The council' is critical that Kuku Mara has ignored *the within and concentrated largely on the outside of the location* – ie the modification of the wider bay. This is disclaimed by Mr Kyle who claims that *the* scale of *the within location* has legitimately been placed in its overall context because Forsyth is a relatively large bay[193]. Mrs Dawson believes, however, that one of the reasonings behind a non-complying status in the centre of the bay requires that in landscape terms, the bay should not be viewed as a whole, particularly when they are larger bays[194]. Mr Rackham too identifies that in assessing natural character, spatial questions revolving around the scale at which natural character should be addressed is a relevant consideration. He emphasises that small highly natural areas may occur within an area of greater modification[195].

[400] We consider this an issue in this case. There is throughout Kuku Mar-a's case, the potential for diluting an effect by subsuming it into a larger area – a matter of which we are particularly mindful.

[401] Turning to the wider bay, we remind that Dr Bartlett, who gave the overview of natural character issues for Kuku Mara, states in one particularly compelling paragraph which we have already identified:

> *The large scale of the hillside surrounding Forsyth Bay, the dramatic seascape, steep topography, the sense of presence of Cook Strait and its oceanic marine influence dominate the existing natural character of Forsyth Bay. In this context, and at this scale, the presence of the existing marine farms barely registers, in either an ecological or visual sense.*[196]

[190] Nugent EIC 4, 9. See also Rackham 24.
[191] Ibid 13.
[192] Kyle 298 – 299.
[193] Ibid 303.
[194] Dawson NOE 394
[195] Rackham EIC 15.
[196] Bartlett EIC 17.

[402] We were also first made aware of the outstanding natural landscapes at the entry/exit arrival zones to the bay by Dr Bartlett who directed us to the planning maps showing areas of ecological importance and outstanding landscapes. The landscapes are confirmed in the map put in evidence by Ms Buckland attached to this decision as Appendix "D"[197].

[403] Mr Baines drew our attention to the lack of marine farms in these areas:

> *I note however that the shore line adjacent to the main east-west navigational thoroughfare through Allen Strait as far west as Sugar Loaf, and also to the northern end, near East Entry Point, has been kept clear of mussel farms.* [198]

[404] We see by the planning Maps that these arrival/exiting points are protected by a CMZ 1 zoning. Thus areas of outstanding landscape including the seascape provide natural character elements in those areas as an introductory experience for most people visiting Forsyth Bay.

[405] Nevertheless in moving around the bay the marine farms are apparent – something made clear in the cross-examination of Mr Nugent[199]. But they are dominated by the large scale and absorption factors of the terrestrial landscape and become less intrusive as the visitor moves away from inshore areas.

[406] It is well to remember that many areas of the Marlborough Sounds, such as Forsyth Bay, are already compromised by marine farms along the shore. The open space areas are therefore more valued historically, because this is where the recreational focus, interest and appreciation of natural character values exist. This proposal would bring about a major change in the public's perception to use and access the middle of the bays in the CMZ 2[200]. In that respect Forsyth Bay cannot be compared with either the Tasman Bay or Golden Bay situations in the Tasman District.

[407] In traversing the bay, Bird Island, being central to the bay, becomes a further point of focus. Discussing the journey through the Allen Strait entrance, Mr Rackham notes that Bird Island is slightly off to one side, but as the viewers are predominantly on the water, they are free to move anywhere. If they divert off that Strait trajectory between the entrance and the exit to the bay, then Bird Island quickly becomes the focus of attention[201] with the marine farm site 500 metres away.

[408] Mr Rackham in assessing the values of this area sees the birds of Bird Island as part of the visual landscape and part of its natural character as a special intrinsic value[202]. The more immediate location of the marine farm site is therefore influenced to a certain degree by the natural character values of Bird Island - in our opinion more so than the shoreline activities. Mr Kyle accepts that the Kuku Mara witnesses testify to the area's high natural character values[203].

[409] We consider the proximity of Bird Island due to its status as a scenic reserve, and its ecological status as a nationally important birdlife habitat to be of significance, and indicative of the high natural character values of the bay. Whilst not physically impacted upon by the proposal, we accept that the natural character values placed *on this area* by the community

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[197] Buckland Proposed Marine Farms Forsyth Bay: Assessment of Landscape and Visual Effects.
[198] Bains EIC 23.
[199] Nugent NOE 448.
[200] Dawson EIC 70.
[201] Rackham NOE 348.
[202] Ibid NOE 336.
[203] Kyle NOE 297.

will be greatly diminished by the proposal which is only 500 metres away and greatly utilitarian.

[4 10] In this area, the wider bay with its existing high natural character has landforms framing the seascape, and the rock stacks and islands, Sugarloaf' and Bird Island, creating focal points. We note that such features are not only rated as of regional importance in the *Overall Natural Character of the Marlborough Sounds – Terrestrial,* in the appendix to which we were referred, but that islands and rock stacks are considered *landforms* which contribute to the natural character of the region[204].

[41 1] Counsel for Kuku Mara submits that Sugar Loaf as an outstanding landscape has a marine farm only 235 metres away from it to the east, and not much was made of that feature in relation to the proposal[205]. Mr Rackham identifies Sugarloaf and its associated Peninsula as a locally significant feature – one of particular natural interest – but we consider its location and intrinsic values are not as influential on the area of the proposal as Bird Island[206]. And in relation to the marine farm 235 metres away from Sugarloaf, we note from Exhibit C put in evidence by Kuku Mara that its size is in no way comparable with that of the Kuku Mara proposal.

[412] Matters of appearance and landscape form part of natural character and how people see and appreciate the natural character of an area is an important consideration in any evaluation. This is acknowledged by Mr Kyle (although he stresses such matters are not part of intrinsic values)[207]. Mr Kyle also acknowledges that it is not entirely so that the importance of natural character in the coastal environment may be diminished or given lesser weight because it may enjoyed by a fewer number of people[208].

[4 13] Mr Nugent captures some important perceptions when he identified that the only visible life in the centre of the bay when he visited were penguins, shear-waters and shags. The farms around the edge were largely invisible and he found the level of naturalness greater there than either in Port Gore or Beatrix Bay – the latter where we understand the council has given consent to a mid-bay farm[209]. Mr Nugent says:

> *The site is presently one of outstanding natural character and with high amenity value. Development of the proposal would compromise that natural character and significantly reduce the amenity values of the area. What is presently pristine sea would have its character altered by man-made structures on and through it. The pleasantness presently derived from the openness and naturalness of the site would be replaced with a sense of being surrounded by marine farms. While some recreational fishing benefits may accrue from the development of the farm, again those would not be unique and are readily obtained from any number of existing mussel farms.*[210]

[414] Mr Nugent also states that if the proposal goes ahead:

> *I consider that the distance from existing permitted farms would mean that a visitor would gain a sense in the southern part of Forsyth Bay of being*

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[204] Volume One, Appendix 2 – 4.
[205] Somerville CS 11 1.
[206] Rackham EIC 8.
[207] Kyle NOE 305.
[208] Ibid NOE 299.
[209] Nugent EIC 13.
[210] Ibjd EIC 25.

surrounded by marine farms. While there may be 500 to 800 m separating the proposed farm from existing farms, those people on vessels will be at best 250 to 400 m from a farm in this area. In those circumstances, while the intervening waters may be natural, the perceived character will be distinctly unnatural.[211]

[415] Our site visit confirms both these aspects of Mr Nugent's evidence. We prefer it to that of Mr Kyle who visited the area in the company of Mr Sagar, depicting that the bay was pleasant and his lasting impression is that they passed a number of marine farms on the way[212]. We too passed a number of farms on the way through, but our lasting impression is that articulated by Mr Rackham[213].

[4 16] We consider that the 'dramatic' seascape identified by Dr Bartlett will be compromised by a large industrial activity - in Mr Kyle's terms – 'sprawled' across it. The scale of the proposal may be dwarfed in the context of the wider bay, but it will have a major adverse effect on the southwestern area bordered in its northern part by Bird Island. We consider the overall natural character values of the area will not be preserved. They will be modified extensively at a variety of levels.

[417] Policy 1.5 of Chapter 2 of the PMSRMP requires an integrated approach to the preservation of the natural character of the coastal and freshwater environments of the Sounds. It is Mrs Dawson's opinion that an integrated approach requires the preservation of natural character across the broad range of elements of landform, landscape and seascape, water, water quality, marine and interrestial ecosystems. Mr Nugent too emphasises the integrated management of the natural and physical resources as a method of preserving natural character values.

[4 18] Subject to what we say about Kuku Mara's approach to the protection of ecosystems elsewhere, in our opinion the concept of integrated management looks to the preservation of natural character in as holistic a sense as possible. The farm's placement in this particular area of uninterrupted seascape, is made significant by the existence of Bird Island close by with all its intrinsic values. When this land segment is factored into the seascape as well as the currently uninterrupted habits and movements of the birds and marine mammals in the area[214], we cannot agree that what is proposed is integrated management of offshore natural character issues.

[4 193 By moving the farm so far offshore, Kuku Mara has entered into a different water circulation system, benthic community and seascape punctuated by a scenic reserve and a landform which is visually and scientifically important, and a major habitat for rare and endangered bird species.

[420] Mr Kyle accepts Forsyth Island at a terrestrial level is being managed back to a greater degree of naturalness in terms of vegetation cover. And he accepts some terrestrial parts of the bay are rated as having outstanding landscape values[215]. In addition, many of the landforms surrounding the bay that have been modified by pastoral use in fact have a relatively natural appearance because they are covered with vegetation even if it is pasture.

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[211] Ibid EIC 13.
[212] Kyle NOE 305.
[213] Rackham EIC 6, 22 depending on the weather.
[214] As ndted in the evidence of many of the witnesses for the Friends and the Environment Centre.
[215] Kyle NOE 320.

[42 1] As a matter of fact therefore: we consider a large proportion of the bay sustains strong natural character values. The diminished inshore values in this case should not be used to reduce the impact of those high quality values offshore.

- *A Precautionary Approach to Development*

[422] Under Policy 3.3.1 of the NZCPS parties are required to adopt a precautionary approach to development in the coastal marine area. Policy 3.2.2 proposes that adverse effects should be avoided as far as practicable and where complete avoidance is not practicable, adverse effects should be mitigated and provision made for remedying those effects to the extent practicable.

[423] Policy 1.7 of Chapter 2 of the PMSRMP seeks to preserve natural character by adopting a precautionary approach to the management of development where effects are unknown. Mrs Dawson identifies the need to apply the precautionary approach in the following situations:

- when considering the potential effects of the proposed marine farm on the natural functions of the birds and their habitat on Bird Island;
- of the King Shags feeding in Forsyth Bay;
- to the seabed and water column ecosystems generally, where the scientific evidence has stated there remains considerable uncertainty as to the effects of the farm on the important ecological values.

[424] Kuku Mara's approach to Objective 2.2.1, the preservation of the natural character of the coastal environment, is largely a precautionary one with regard to the benthic and water column issues, allowing as it does for adaptive management techniques of the various identified natural systems, underpinned by strong. conditions attached to the consents.

[425] Mr Kyle considers that the importance of experimentation at certain stages before a project is completed is a cornerstone of the process, and represents an appropriate precautionary approach. He states it holds great attraction to decision makers. Far more can be learned he considers about the processes and impacts of marine farming in a way that has a sufficient degree of safeguard before an industry such as this can be allowed to further develop. Mr Kyle makes the point that as part of a team of scientists and planners putting together plan provisions for the Tasman District Aquaculture References, he and others concluded that the adaptive management approach is compelling, and by far the most preferable of all the methods assessed to enable the industry to proceed in the CMA[216].

[426] It is submitted by the Friends that however appropriate the frontier approach may be in today's environment, it is inappropriate in the marine environment. The NZCPS plainly says so, by requiring a different precautionary approach to management of the environment where effects are unknown, The Friends are critical that while Kuku Mara contends its approach is in fact precautionary, when looked at closely it is clearly not. Kuku Mara suggests that *by staging*, the approach may be precautionary, but the proposal identifies that the whole of the area applied for will be occupied, but merely on a less intensive basis. If the proposal is once again modified to provide for a limited area only, it will still be unacceptable, because the consent would not properly reflect the right of occupation and in such circumstances it would be inappropriate to grant a consent for 42 hectares. This will leave the opportunity for others to follow up with further applications for the same area, for which the consent was not issued.

[216] Kyle NOE 291 – 292.

[427] We consider the steps Kuku Mara has taken to protect benthic and water column issues are not contrary to what the PMSRMP requires. In terms of a precautionary approach the steps proposed are not fanciful or ill thought out. And indeed Dr James' evidence and cross-examination indicates that Kuku Mara's approach is not based on "skimpy data" from another bay. The research which has been carried out there and elsewhere is as substantial as it is necessary. Further, the thresholds of sustainability identified for Forsyth Bay are set at a lesser level than the scientists themselves believe the area can sustain[217]. Finally, as Dr Bartlett identifies, if there is an adverse impact it can be mitigated by retrenchment and if necessary removal of the farm. The benthic environment, as an example, would recover in 10 years time if there are any untoward adverse events in the interim*".

. *The Concept of Intactness*

[428] The NZCPS calls for the protection from adverse effects on the coastal environment as a whole. Policy 1.8 of Chapter 2 of the PMSRMP requires the council and developers:

> *To recognise that preservation of the intactness of the individual land and marine natural character management areas and the overall natural character of the freshwater, marine and terrestrial environments identified in Appendix 2 is necessary to preserve the natural character of the Marlborough Sounds as a whole.*

[429] In our view those areas identified as *Natural Character Areas* in the coastal environment require careful management such as the council has displayed in this case, because they contribute to wholeness of the natural character of the Marlborough Sounds.

[430] Mr Kyle considers that components' of the bay possess reasonably strong areas of modification particularly on its western margins for pastoral farming purposes. This migrates to seaward of the coastal margin, where marine farms extend out over reasonably significant parts of the smaller embayments[219].

[43 1] Mrs Dawson considers that the plan recognises the need to preserve the intactness of the individual character areas by applying non-complying status to the centre of the bays within the CMZ 2; enabling the retention of the openness and natural functioning of those parts of bays which lie outside the CMZ 1.

[432] We consider that within the bay itself, once outside the 200 metre inshore zone where marine farms are situated, the marine natural character area is largely intact, supported by and punctuated with some significant natural features. Even if the western southern-western shore is modified, the bay itself comes within the *Marine – D 'Urville Island – Northern Cook Strait* ecosystem, one of the eight marine *Natural Character Areas.* It has that system's typical characteristics of reefs, stacks, rocks and islands described. The marine area, which this ecosystem encompasses, is described as containing clear, cool oceanic waters, strong currents, offshore reefs and rich reef communities. Duffers Reef to the north, Sugarloaf, a relatively heavily vegetated island to the south[220], and Bird Island and reef in the mid bay, are examples of the latter.

[433] In terms of the terrestrial *Bulwer* ecosystem identified by Dr Bartlett *Communities & Habitats,* the PMSRMP records there is a moderately high natural biodiversity due to island

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[217] James NOE 2 13.
[218] Bartlett quoting Gillespie EIC 19.
[219] Kyle EIC 27.
[220] Nugent EIC 4.

contributions. Island communities are recorded as distinctive, rare and nationally important due to predator free status[221]. Bird Island is identified by the experts as confirming these attributes.

[434] The range and existence value of the mammal species identified earlier, under actual and potential effects, is recognised in the PMSRMP, as are the numerous seabirds which feed throughout the mid Outer Sounds, including terns and King Shags which are identified as restricted to only the few breeding sites. The area in question appears to support many of these species.

[435] The Kuku Mara environment in the area of the site thus provides a complete predominance of natural elements, patterns and- processes and features. There is high quality naturalness in all of the various habitats be it bird, reef, marine or water quality which is totally in harmony with the surrounding unencumbered seascape. The proposed farm is thus to be situated in a bay which has been large enough to accommodate inshore developments without overwhelming adverse effects, and -not to diminish the qualities, elements and features, and intactness of the natural character of the area in question. We consider that a marine farm with eventually 3,000 floats, attendant large buoys and accompanying industrial activity will modify, alter and disrupt that intactness.

[436] Mr Nugent considers the proposal is in an area not compromised by development. The effects on natural character of allowing it, would be to effectively compromise the southern part of the bay thus encouraging further development elsewhere. In terms of the proposed site and its immediate surrounds, Mr Kyle acknowledges that the overarching principle on the issue is that natural character should be retained *for its* own *sake* in the coastal environment[222].

[437] At Chapter *2.4 Anticipated Environmental Results, the* plan recognises that implementation of the policies and methods relating to natural character will result in the preservation of areas of uncompromised natural character in the coastal environment, and protection of those elements and features which significantly contribute to that natural character.

[438] We conclude from all the above analysis, the council in refusing the Kuku Mara proposal, has achieved the preservation of an area of uncompromised natural character and protection of those elements and features (rather than modification) which significantly contribute to that natural character. In so doing, it is working towards the preservation of the natural character of the Sounds as a whole in areas considered important.

- *Protection of Ecosystems Unique to the Coastal Environment*

[1] It is a national priority under Policy 1.1.2(c) NZCPS to preserve the natural character of the coastal environment by protecting ecosystems that are unique to the coastal environment. Under Policy 1.1.4 it is a national priority for the preservation of natural character of the coastal environment to protect the integrity, functioning and resilience of the coastal environment in terms of:-

- the dynamic processes and features arising from the natural movement of sediments, water and air;
- natural movement of biota;

[221] Volume One, App 2 -3 1
[222] Kyle NOE 296.

- natural substrate composition;
- natural water and air quality;
- natural bio-diversity, productivity, and biotic patterns; and
- intrinsic values of ecosystems.

[439] We consider the adaptive management and precautionary approach of Kuku Mara to the ecology of the area is a positive attempt to protect the ecological values of the bay. In this respect, we do not consider the proposal *is contrary by its very nature to* the plans' provisions.

- *Avoidance of Cumulative Effects*

[440] It is a national priority under Policy 1.1.1(c) of the NZCPS to preserve the natural character of the coastal environment by avoiding cumulative effects of uses and development in the coastal environment.

[441] We have already indicated the effect the proposed farm will have on the natural character of the Forsyth Bay area, and in particular the south western portion of the bay, with its high natural character values and in particular the highly natural and ecologically important Bird Island. We have noted that the development will constitute "sporadic" development and will in that sense, not be an accumulation of the degradation of the natural character caused by the marine farms in the coastal ribbon development. But at the wider scale and in the context of the bay, the development would further degrade natural character, which would be contrary to this policy of the NZCPS.

- *Habitats of Indigenous Flora and Fauna*

NZCPS

[442] Policies 1 .1.2 and 1.1.4 of the NZCPS apply as well as Policy 3.3.1 (the precautionary approach). It is a national priority under Policy 1.1.2 to preserve the natural character of the coastal environment by avoiding actual or potential adverse effects on areas or habitats important to the continued survival of indigenous species or areas containing nationally vulnerable species (etc).

PMSRMP

[443] Chapter 4 of the PMSRMP purports to reflect s.6(c) of the Act and Policy 1 .1.2 of the NZCPS. The *Introduction* describes some of the significant habitats within the Marlborough Sounds. As identified by Mrs Dawson, those of relevance to this application are:

- *important coastal or marine habitats include extensive mud substrate, particularly in the inner Sounds;*
- *occasional isolated reefs or outcrops are highly productive habitats featuring a high diversity of plants and animals;*
- *a large variety of indigenous species . . . a number are rare or uncommon for various reasons . . . include . . . dolphins and whales, and a variety of birdlife.*

[444] *Issue* 4.2 highlights (inter alia) the need to avoid degradation of coastal marine habitats from adverse effects arising from structures, works and activities occurring within the CMA.

Objective 43.1 goes further than s.6(c) which does not refer to the protection of habitat from use and development[223].

[445] The chapter identifies the King Shag feeding habitat in Forsyth Bay, as well as Bird Island, as being of national importance for their ecological values. The Bird Island species listed are reef heron (breeding and feeding vuinerabiej, variable oyster catcher breeding, seabirds – fluttering sheatwater, penguin nesting.

[446] Policy 1 .1 of Chapter 4 requires the identification of areas of significant ecological value. This has been partly achieved through identification on the Planning **Maps** and in Appendix B to Volume Two, *Schedule of Areas of Ecological Value.* Under *Methods of Implementation* 4.4, an information base is identified (to be developed) based on the areas identified in the' publication *Ecologically Important Marine, Freshwater, Island and Mainland areas from Cape Soucis to Ure River, Marlborough, New Zealand – Recommendations for Protection.* Duffers Reef is identified as a buffer zone for the King Shag breeding and roosting site. Under a heading *Research,* it is identified that the council will encourage ongoing research to define significant ecological areas. These areas are identified as incomplete by Dr Bartlett, Dr Lalas and Mr Schuckard, so we have to be mindful there are more feeding grounds elsewhere for the King Shag than just those identified[224].

[447] Policy 1.2 of Chapter 4 requires adverse effects on areas of significant ecological value to be avoided, remedied or mitigated. Mrs Dawson makes the point it is difficult to identify from the PMSRMP provisions what kind of avoidance, mitigation or remedy is sought in any particular case. *Anticipated Environmental Results 4.5* however specifically refer to the maintenance and enhancement of population numbers and distribution of rare and endangered species, and the maintenance of the diversity of water and land habitats.

[448] Mrs Dawson asks can any of the adverse effects identified be avoided or remedied for Bird Island in respect of:

- the nationally rare species of the variable oyster catcher and the habitat of its breeding colony;
- the white-fronted tern colony;
- biotic patterns and species diversity;
- the integrity of the more sensitive seabird communities associated with the rocky reef habitat adjacent to Bird Island.

[449] She also raises the question as to whether the integrity, function and resilience of this part of the coastal environment will/can be protected, maintained and enhanced in relation to:

- the movement and feeding patterns of the King Shags;
- the quality and productivity of the water ecosystem;
- the ecological structure of the subtidai communities and implications of this for the foodweb.

[223] We raise the question it may be ultra vires the section – but it may not be in terms of s.5: see s.5(2)(c). See also *McGuire* ***v Hastings District Council*** [2001] NZRMA 557 (PC).

[224] See note 8 ante.

Evaluation

Bird Island

[450] The existence of Bird Island with its intrinsic values and significant habitats is recognised by Kuku Mara to the extent that:

- a buffer' zone is suggested around the reef associated with the island so its sensitive ecological values will not be impaired;
- studies suggest marine farm boats will not be disruptive of the NZ white-fronted tern which inhabits Bird Island;
- marine farm boats will remain offshore the island.

We address each issue in turn.

[451] In terms of Bird Island reef a rocky reef is likely to be more affected by sedimentation from a marine farm than a deep flat mud community. We note that the toe of the reef is 100 metres only from the boundary of the farm. Whilst the currents that were measured did not necessarily flow towards Bird Island[225] Dr Gillespie states that significant sedimentation of farm generated particles would not be expected to a distance of more than 174 metres outside the farm boundaries[226].

[452] A distance of approximately 100 metres separates the site boundary from the subtidal slope region and a further 50 metres (a total distance of 150 metres) separates the site from ecologically sensitive habitats identified at <30 metres depth. Initially we considered therefore, that the sedimentation footprint would adversely affect the sensitive reef community of Bird Island.

[453] But as an amended condition of consent, Kuku Mara is now proposing restricting measurable effects of the sedimentation to 100 metres outside the boundary of the farm providing for insetting the mussel holding lines within the farm boundaries. The robustness of the conclusion that no adverse effects of sedimentation on the reef of Bird Island depends on how representative of the more general conditions throughout the year the 6 days of acoustic doppler profiling for currents is. But Kuku Mara can pull back its lines even further if required, under the conditions of consent.

[454] In terms of potential disruption to the Bird Island species created by noise and lights and boats, studies were carried out by Mr Sagar, and Mr Hegley, noise consultant. We find no identifiable adverse effects in respect of these issues.

[455] Kuku Mara is critical that there is no recommended buffer zone (such as it suggests) around Bird Island, but we query the need for one if it is not disturbed. Current marine farm activity is well inshore and Mr Schuckard states that to land on Bird Island is almost impossible . . . *it is known as Razorblade Rocks which come vertically out of the sea . . . mountaineering skills are necessary to scale them*[227]. Further, the Taylor Baines Survey indicates a number of recreational fishing vessels fishing the reef but the number is not significant. The current isolation of the site, in fact, reinforces its very highly natural state. Meanwhile the marine farm boats are unlikely to come closer than 250 metres.

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[225] James EIC 236.
[226] Gillespie EIC 13 Figure 2.
[227] Schuckard NOE 424.

King Shag

[456] Kuku Mara maintains a possible switch from witch flounder to another prey species is not seen as a problem for the King Shag, should the marine farm trigger any adverse effects on the existing food chain in the area (which is denied).

[457] As to whether the King Shag may switch prey from witch to spotties (as an example) if adversely affected by the farm, this is an issue. The habitat of Forsyth Bay despite its overall muddy substrate, appears (somewhat unusually) to provide witch for the King Shag as a preferred diet. Quite how this has come about is unknown, as witch prefer a rocky substrate and the shags appear to forage in the muddy substrate as well as in and around coarser sediments. We look at this issue more closely under s.6(c) in Part II Matters.

[458] The proposed site is part of the general habitat of significant fauna (the King Shags) and is proximate immediately to an area notified in the PMSRMP as of significant ecological value. Whilst these areas are not seen to be exhaustive by the scientists, if Forsyth Bay is one of the places nationally where King Shags pursue witch flounder as part of their diet, then we conclude that the preservation and protection of its existing habitat as it is without prey switching will maintain *the diversity of King Shag habitats* which is seen as one of the *Anticipated Environmental Results* in this section of the plan[228].

[459] In a provision in the PMSRMP however, Introduction 1 .10 *Monitoring and Review* Table 1.1 Monitoring Factors: habitats of indigenous fauna: Anticipated Environmental Result: rare & endangered species diversity of habitats, *the Monitoring Factor* is listed as:

- species number;
- distribution**'.

[460] We consider therefore after careful reflection that the conditions proposed by Dr Lalas for the King Shag are not contrary to the provisions of the PMSRMP.

- *Research Benefits*

[461] Under the heading s.105(1)(c) *Value of Knowledge*, Kuku Mara submit that the value of research undertaken by the company of the marine ecosystem can be taken into account in terms of s.5(2) and s.7(b) in granting consent. Such research may more generally provide a scientific basis upon which the other factors in Part II of the Act may be assessed. Reliance in this regard was placed on *Bleakley v Environmental Risk Management Authority* where the Court accepted that scientific research undertaken under the scheme of the Hazardous Substances and New Organisms Act 1996 (HASNO) added to a pool of knowledge which was capable of leading to downstream economic and health advantages[230]. In terms of s.5 of that Act (we are told somewhat similar to s.5 RMA)) it was held that research is an activity which is to be recognised and provided for and the Authority did not err in taking it into account in its decision[231]. The appellant is concerned to stress the information benefits that may accrue to other parties and consent authorities as a reason for the Court's approval. Only by carrying out the activity, it is submitted, will the parties be able to understand its impact on, for example, the King Shag.

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[228] See under Chapter 4.5.
[229] PMSRMP Volume One, 1 – 11.
[230] Somerville CS 40 – 46, [2001] 3 NZLR 213,270 (HC).
[231] [2001] 3 NZLR 213,271 (HC).

[462] Mr Dwyer, for the council, submits that despite the Court's interest in the extent of the scientific knowledge and input provided by the applicant, perusal of the information on the Court's appeal files wouid show that information of the type provided by the appellant commonly forms part of the information now provided in support of the large scale offshore mid bay applications. The Kuku Mara project is, therefore, not unique. It is urged upon us that because long established and comprehensive monitoring programmes have been established in Beatrix Bay, which will have established parameters, baselines and a history of seasonal factors, that area will be more appropriate to advance in terms of mid-bay farms than the four Forsyth Bay applications.

[463] The Friends congratulate Kuku Mara for recognising the desirability of such an approach, but they say the appellant's position is necessity driven. They say the application is not a genuine research project and the information is a by-product of the exercise, not a purpose. The Friends consider that the potential benefits of learning new information about the impacts of marine farming are outweighed by the costs to the environment, and the community, of obtaining that information based on present knowledge. But they submit no amount of benefit gained from the proposed activity would justify any "impressionable harm" to an endangered species such as King Shag. While it would be useful to the community to have this information, it must not be at the risk to the species.

[464] The Friends also submit that all monitoring will produce in such circumstances, is historical information, that is, post-impact, while 'any remedial action proposed will fall short of full removal. Further conditions requiring removal will defeat the purpose of the consent and be invalid. And it is reasonable to assume that having undertaken such a substantial capital investment ($1 million) in the case of Kuku Mara, the prospect of a removal will be unacceptable to the applicant and would be resisted at all costs.

[465] Finally the Friends say, there is simply insufficient baseline information to determine what impacts the activity in isolation from other marine farms will have on the environment generally. Information gathering will be ad hoc. There is doubt useful information will be gained as it will not have a coherent purpose. Certainly one of Mr Schuckard's concerns is that any baseline study on the King Shag would have to encompass the bay as a whole and not be simply for the Kuku Mara site.

Evaluation

[466] We have a number of difficulties with Kuku Mara's approach to urging us to take into account Kuku Mara's extensive research in the exercise of our discretion under s. 105(l)(c).

[467] Firstly, whilst counsel for Kuku Mara identified the need for research in opening submissions, *Bleakley* was not cited in time for scrutiny by the other parties. We are reluctant to interpret decisions related to and make findings on other legislation not before the Court.

[468] Secondly, under the heading *Adoption of a Precautionary Approach to Activities with Unknown but Potentially Significant Adverse Effects* Chapter 3.3 of the NZCPS, Policy 3.3.2 requires that *local authorities should share information and knowledge gained by them about the coastal environment, particularly where it relates to coastal processes and/or to activities with previously unknown or little known effects.* This policy relates therefore to the sharing of knowledge between councils.

[469] In the RPS *Allocation* of *Coastal Space* 7.2.1 G(d) requires:

> *Allocution of space for aquaculture in the coastal marina area will be based on marine habitat sustainability, habitat protection, landscape protection, navigation and safety, and compatibility with other adjoining activities.*

The explanation to that policy states:

> *It is acknowledged that there is little information to assess the effects of aquaculture on the sustainability of the marine habitat. The allocation of space for aquaculture requires research into the effects of aquaculture on the nutrient availability for marine habitats. It could be many years before meaningful research is completed. In the interim the allocation of marine space will be undertaken in a precautionary manner. This will place an onus on applicants to provide a detailed assessment of the effects of their proposal.*

[470] Under the *RPS Methods 7.2.11* (d), the council is required to:

> *Support research into defining the effects of aquaculture on the sustainability of the marine habitat.*

[471] The explanation to the policy however identifies:

> *Aquaculture is a significant industry which relies on the use and development of public resources. Research into the effects of aquaculture on the sustainability of the marine habitat should be a co-operative venture between the industry and the community.*

[472] This is different from the wording in the *RPS 7.2.3 Allocation of Water 7.2.4(c)* which requires *the council* to promote research into the natural processes associated with surface water.

[473] In the PMSRMP Chapter *4 Indigenous Flora and Fauna and their Habitats 4.4 Methods of Implementation* the council is required to encourage ongoing research to define significant ecological areas.

[474] In *Coastal Marine Issue 9.2* restriction of public access to the CMA due to the private occupation of coastal space, the provision recognises that ongoing research is being undertaken as to other means of aquaculture production involving species other than mussels, which may have lesser effects on the environment.

[475] These very general plan provisions on the matter of research are, therefore, very different from what is proposed in Kuku Mara's submissions in this case.

[476] Instead, the emphasis in the plans is on the *precautionary manner* in which the allocation of marine space should be undertaken – something which the applicant has proposed or volunteered in any case.

[477] We see Kuku Mara's approach to research as no different from mann industries which put-aside a proportion of their budget each year to fund ongoing research . And in that the

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[232] *Golden Buy Marine Farmers and Others v Tasman, District Council* Environment Court Decision W 42/01, 43.

community is already contributing via the Public Good Science Fund to the issue, there is at least the foundation of a co-operative venture between the industry and the community already underway in Beatrix Bay. The resuits of this are supporting the scientists' approach to predictions for Forsyth Bay. Finally, whilst Kuku Mara is funding Dr Laias to research some matters to do with the King Shag, the conditions are required in the PMSRMP as we have identified above, and are not exclusive to Kuku Mara. As we understand its case, Kuku Mara has applications in most of the bays where the King Shags **forage** and **the** monitoring conditions will apply in those areas also – as they will to others of the iadustry.

[478] This approach may seem unappreciative of the very considerable and commendable efforts Kuku Mara has gone to in this case, but it is not meant to be.

[479] The statute is essentially an enabling one. It is for the Court to decide whether an applicant's adaptive management regime supported by an extensive monitoring regime and conditions, is appropriately precautionary in this part of the CMA. This is determined on matters of fact. If research which benefits members of the industry, the community and the environment is a by-product of that caution, then that will prompt on-going availability of sea space to the industry without impairment if the results are successful. Positive outcomes from research will provide a win/win situation for those involved in the alienation of what, is after all, public open space.

. *Protection of Essential Elements of Landscape/Seascape/Landforms and Visual Amenity Values*

[480] The NZCPS (Policy 1.1.3) requires that:

> *It is a national priority to protect the following features, which in themselves or in combination, are essential or importantelements of the natural character of the coastal environment.-*
>
> *(a) landscapes, seascapes and landforms, including:*
> *(i) significant representative examples of each landform which provide the variety in each region;*
> *(ii) visually or scientifically significant geological features;*
> *(iii) the collective characteristics which give the coastal environment its natural character including wild and scenic areas.*
>
> *(b) characteristics of special spiritual, historical or cultural significance to Maori identified in accordance with tikanga Maori; and . . .*

Issues

[481] Two of the issues as identified by Mrs Dawson arising from the various policy documents are as follows:-

- Are there any outstanding natural features or landscapes adversely affected by this proposal, at a national, regional or local level?
- Will there be any adverse effects on the visual qualities which underpin amenity values of visitors to, or recreational users, of the Bay?

Natural Features and Landscapes

RPS

[482] The landscape and visual amenity objectives and policies of the RPS focus on visual character or visual amenity values, on the one hand, and outstanding landscape features, on the other. It recognises that the dynamic landscapes and seascapes of the coastal environment are among the most important components 'of natural character and amenity values in the Sounds, both requiring provision for their preservation. Policies 7.1.7 *Amenity Vaiues* and *7.1.10* Type, *Scale and Location of Activities* promote the enhancement of the amenity values provided by the unique character of Marlborough's locations and suggest that one of the ways of achieving an appropriate type, scale and location of activities is by clustering activities with similar effects. Objective 8.1.2 and Policy 8.1.5 *Protection of Visual Features* also address visual quality or visual amenity and seek the maintenance and enhancement of the visual character of the elements that create different landscapes within the region. Policy 8.1.3 concentrates on outstanding landscapes, which are recognised as regionally, nationally or internationally outstanding, through avoiding, remedying or mitigating damage of identified landscape features.

[483] We note that under the RPS dynamic landscapes and seascapes are considered amongst the most important components of natural character and amenity values in the Sounds. This is a different emphasis than that placed by Mr Kyle who considers that landscape and ecological values are the most important component elements. Meanwhile the proposal does not meet Policy 7.1.10 in that it is not clustered with, other marine farms. Neither do we consider that the proposal maintains or enhances the visual elements which contribute to the landscape of the bay. Nor does the proposal meet the Objective 8.1.2 and its related policies because of the visual infringement of an area of unspoiled natural character.

PMSRMP

[484] Chapter 5 of the PMSRMP deals with *Landscape. The Introduction* includes the following statements about the landscapes of the Marlborough Sounds, which put into perspective the importance of landscape/seascape issues:

> *the dynamic landscape and seascapes of the coastal environment are among the most important components of natural character and amenity values in the Sounds, both requiring provision for their preservation (Sections d(a) and 7(c) of the Act). Many areas with the outstanding landscape values are also areas of high natural character. The visual and scenic qualities of coastal landscape and seascape also contribute to amenity, recreation, and tourism values and thereby enhance the social and economic wellbeing of the community.*
>
> *The Marlborough Sounds has landscapes which are unique in New Zealand and are valued for their semi-wilderness aspects, scenic beauty, recreational capability and their social, economic and cultural utility.*

[485] *Assessment Criteria* for discretionary activities in the CMZ 1 and CMZ 2 are contained in Appendix 1. *Areas of Outstanding Landscape Value* are identified on the Landscape Maps la – 4. *Issue 5.2* discusses *The adverse effects of inappropriate subdivision use or development on outstanding natural features and landscapes* but the *Explanation* identifies other areas valued. for landscape or visual reasons. It records structures may have the

potential to intrude and compromise the natural quality of the landscape[233]. Ms Buckland provided us with the outstanding landscape planning map and Dr Bartlett the map showing ecological values.

[486] At a broad scale, the PMSRMP states that the whole of the Marlborough Sounds area has outstanding visual values. At a more specific scale, it includes in Appendix I to Volume One, criteria for the selection of areas of outstanding landscape value. The provisions of the chapter again make it clear that although the objective and policies of that chapter are intended to apply specifically to areas identified as having outstanding landscapes, they also apply to all other areas where substantial activities such as this are being considered. Landscape values are stated as underpinning the rules and zoning pattern of the plans.

[487] The plan then goes on to discuss at 5.1 .1 *Identification of Outstanding Natural Features and Landscapes* and states :

> *In its entirety, the landscape of the Marlborough Sounds Plan area has outstanding visual values. It displays a broad range of types of visual landscape andfeatures which are often of greater value for their collective contribution than for their individual value.*

[488] Chapter 5.1.1 also notes some of the visual features of the Sounds which contribute significantly to its outstanding natural character. They include: *island landforms set with a skyline backdrop: a complex mosaic of vegetation patterns which gives rise to a range of textures and colours in the landscape: the uninterrupted sequence from hilltop to seafloor.* In Appendix 1 to Volume One is listed a number of attributes a good example of a Sounds landscape might include – *none or very few structures: very distinct natural character: the coastal segment is unforgettable and remains distinct in the memory: highly visible or easily seen from waterways, scenic areas, recreation areas.*

[489] Many of these aspects are confirmed by the witnesses in the context of Forsyth Bay. The presence of natural character features/outstanding landscapes contributes to identifying Forsyth Bay as an example of the Bulwer ecosystem which is in the process of restoration of landscape with some areas undisturbed. Mr Kyle is of the opinion that consideration must be given to elements which represent significant examples of natural character values[234].

[490] Objective 5.3.1 *is to manage* the visual quality of the Sounds and to protect outstanding landscapes and natural features from inappropriate subdivision use and development.

[491] Policies 1.1 and 1.2 to Objective 5.3.1 indicate various ways in which management of the visual quality of the Sounds should occur. The visual quality of outstanding natural features and landscapes is the focus. The general theme is mitigation of short term effects, and avoidance, remedying or mitigation of long term effects.

[492] After discussing the effects of structures on land, the PMSRMP specifically addresses under *5.2.2 Structures on Water* recognising:

> ... *the siting, bulk and design of structures and equipment. located on the surface of the water can interrupt the consistency of seascape values and detract from the natural seascape character of a bay or wider area.*

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[233] PMSRMP Volume One 5 – 2.
[234] Kyle EIC 12.

[493] Ms Buckland identifies that the proposal would only affect two visual components of the bay – namely the water surface of the bay and the sense of openness within the wider bay.

[494] A relevant *Anticipated Environmental Result* seeks minimum intrusion into the landscape by inappropriate water based activities and their structures. Despite identifying the island and rock features in the bay, Ms Buckland ignores Bird Island in the landscape assessment[235]. In an area which is not compromised by structures we do not consider what is to occur offshore is minimum intrusion on the natural seascape character and seascape values of the area. It will be major and adverse.

[495] The various Tables in Appendix One of the PMSRMP give criteria for *Landscape Quality (Overall Landscape Unit)* and *Coastal Segments* but we are unclear whether these were addressed or not.

Adverse Effects on the Visual Qualities Which Underpin Amenity Values

[496] Table 3 of Appendix One to the landscape provisions of the PMSRMP gives *Examples of Typical and Significant Sounds Landscapes Characteristics* and identifies islands (such as Bird Island) as an example of such characteristics[236] stating under *Reasons for Significance* that smaller landforms and associated features within the waterscape occur as positive features which add detail to landscape and are focal points which are of significant visual interest. Ms Buckland describes Bird Island as a significant (visual) feature of Forsyth Bay and also confirms that the greatest potential visual impact within 500 metres of the island are marine farm structures (which disturb form and line)[237].

[497] The visual proximity of a structure at this distance to Bird Island is acknowledged by all parties, but debate remains as to its visibility by those in boats. We conclude that the visible effect, whilst not detailed as the greater distances were in the photomontages, is clearly that both the marine farm and Bird Island could be seen together as indicated in our analysis of Visual Amenity Effects[238]. It will therefore interrupt a coherent seascape containing what we consider to be an outstanding natural feature[239].

[498] Meanwhile Ms Buckland identifies the assessment criteria relating to landscape and visual matters in Volume Two of the PMSRMP[240] and concludes the amenity values of the surrounding area will be maintained. The proposal will not detract from any public view or vista which contributes to the aesthetic coherence of the area with the nearest holiday house 1.3 kilometres away. Accordingly, the marine farm will not conflict with any of the provisions of the PMSRMP.

[499] But the opinion that this proposal will not detract from any public view or vista which contributes to aesthetic coherence is not substantiated in evidence. Ms Buckland only' provides the one public viewpoint 1.5 kilometres from the farm. But boats are not stationary and other significant views were ignored.

[500] Mr Kyle agrees with Dr Bartlett that visual impact and perceptions of visual impact are one of the matters which make up natural character values. Nonetheless, he concludes the site

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235 Buckland EIC 22.
236 Volume One, Appendix 1 – 10.
237 Buckland NOE 205.
238 Kyle NOE 305.
239 Bartlett NOE 167.
240 EIC 31 Coastal Marine: Section 3.1 Assessment Criteria: Matters for Assessment 3.1.1.5.1: 3.2.9.1.4: 3.2.9.1.6.

is a suitable one for development. Nevertheiess he agrees that the 225 hectare footprint/zone of visual effect is significant in terms of its close proximity to Bird Island, but maintains that all the values and natural character elements that attach to it, gradually diminish out to the existing farms. And he suggests that people's appreciation of Bird Island and its intrinsic values is somehow diminished by the marine farms encountered on the way through Pelorous Sound and 'into Forsyth Bay.

[501] Dr Bartlett acknowledges that from some perspectives Bird Island will be seen across a large number of floats and we consider that must have an adverse effect. It is established that the proposed site is to be situated in a part of the bay with the least visual absorption capacity. Ms Buckland gives considerable weight to the absorption capacity of the sea when it is darkened by the weather conditions[241]. It is established that this is likely to occur where the sea was shaded around the edges of the bay due to what Mr Kyle described as *"steep and hilly landforms that rise relatively sharply from the foreshore"*. It is recognised that this attribute cannot be accommodated by a mid bay farm. Mr Rackham says this:

> ... *it is important that my understanding that marine farms seen from the water are visible from several kilometres at approximately one and a half kilometres distance they become really quite easy to see and when you get to within 500 metres they become a very dominant element on the seascape.* [242]

We consider therefore the proposal is a major adverse visual effect.

[502] This is not a case of isolating the seascape' per se, and saying that the proposed marine farm will adversely affect it. Both the council and the Friends identify that the concept of *"landscape "* contemplates some element of land being present. In this case, Bird Island is part of the closer visual landscape. The only evidence of amenity for Kuku Mara was given by Ms Buckland from two viewing platforms, one in Allen Strait and one onshore. We do not see how the witness could possibly make a judgement which leaves out the intrinsic visual amenity and scenic values of Bird Island as seen -from throughout the bay.

[503] It is our conclusion the council has managed the visual quality of the mid bay efficiently by refusing consent to protect landscapes and features. It is not practicable for the adverse visual effects for viewers on the water adjacent to this site to have their views avoided, remedied or mitigated by cutting back on the size of the farm. The fact that Forsyth Bay has a number of marine farms within it may demonstrate the community has been generally tolerant of inshore visual amenity effects in the past (or had no choice under the Marine Farming Act), but the reaction of the various general public recreational users to this proposal, suggests that the Kuku Mara proposal on this site is one too many in the bay.

[504] We conclude that there would be adverse visual effects for recreational users and visitors, which may include views from 1500 metres (in fine weather) to those close proximity to the site and its surrounding areas.

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[241] Buckland NOE 199.
[242] Rackham NOE 347.

. *Public Acre.3 and Open Space Issues*

Chapter 8 – Public Access

[505] Chapter 8 deals with *Public Access. The* effects of structures in the CMA *Introduction* are specifically referred to:

> *Within the coastal marine area, some structures compromise the right of access, while others may change its nature. ... Other activities, such as marine farming, while having the potential to bring economic benefits to the district, not only physically impede access over water, but may also have a psychological effect in limiting people 's interest in accessing an area for recreational purposes.*

[506] Mrs Dawson points out that this discussion recognises that it is not just solid structures completely alienating public access that is the *Issue* for the Marlborough Sounds. It is also structures which impede access or, in the case of marine farms, which reduce people's interest in using part of the CMA and, thereby reducing their enjoyment of use of that area.

[507] The witness also points out that the *Introduction* to the chapter also refers to the RPS directive, that the continued recreational use of marine resources is essential to the continued social wellbeing of the community. There is thus a theme which underlies the zoning and the rule structure of the plan which should be given priority.

[508] Objective 8.3.1 of the PMSRMP restates s.6(d) of the Act. Policy 1.2 requires that the adverse effects caused by the erection of structures and of marine farms on public access be avoided as far as practicable.

[509] Mr Kyle accepts that s.6(d) goes beyond a safety issue. He agrees that it applies to the concept of access to and along the CMA *for, its own sake* and that this access should be available for all users.

[5 10] The phrase *"as practicable "* in Policy 1.2 implies that there may be difficulties extant in navigation around marine farms, but because they may be considered an appropriate activity in the CMA in suitable locations, then some inconvenience is acceptable. It is an issue therefore as to the degree of that inconvenience.

[51 1] In this regard Kuku Mar-a's lighting provisions are clearly a commendable potential exercise in mitigation of potential adverse navigational effects. But in our view if the proposal creates *"no go areas"* at night, which we conclude it will, then that is an inconvenience of the night time aspect of the proposal. As to amending the direct route from Kaitira Point to Wakatahuri to accommodate the marine farm on its site, then because of the low numbers of boats using this part of the bay we conclude, as did Mr Kyle, that boat passage around the farm could continue safely.

[512] Otherwise, there was no evidence from Kuku Mara that this-is the only site in which it can locate-its marine farm. Mrs Dawson makes the point that this is a bay used by a range of people who go all over the bay at different times of the year and that sometimes points of the bay are quite popular[243]. We consider the retention of public open space is an issue in this bay.

[243] Dawson NOE 370.

Chapter 19 – Water Transportation[244]

[513] Under this heading, the general role of the Sounds' waters in providing access to properties and work related activities is referred to, as well as the fact that the waters are used for a diverse range of recreational and tourist purposes. The strategic significance of the waters of the Sounds in terms of water transport is noted.. *Issue* 19.2 requires the need to manage the adverse effects of water transportation and provide fox the maintenance and enhancement of navigational safety. Objective 19.3.1 seeks safe, efficient and sustainably managed water transport systems. Policy 1 .1 'requires that adverse effects of activities and structures on navigation and safety within the CMA are avoided, mitigated or remedied.

[5 14] We consider from the evidence that the location of the farm will not have any adverse effect on navigational safety. But safety lighting which may assist the mitigation of potential adverse effects also has the potential to cause navigation confusion at night for those using the Kaitira Point to Wakatahuri route.

- *Coastal Marine*

[5 15] Chapter 9 *Coastal Marine* is the principal chapter containing objectives and policies relating to activities in the CMA. It builds on the other specific topic-related chapters in relation to the CMA. It contains some of the key provisions of the plan which may guide decisions regarding the location of new marine farms.

Issues

[5 16] Four issues emerge from Chapter 9, namely:

(i) There is a presumption in the provisions that marine farming has a favoured activity status in the CMZ 2 zone;
(ii) The private occupation of coastal space, and the adverse effects that this may have on the values of the CMA, particularly on the restriction of access;
(iii) The potential effects of activities on the quality of coastal marine water;
(iv) The 'potential for adverse effects from activities that alter the foreshore and/or seabed and the implications of this for the protection of the coastal environment.

[5 17] The *Introduction* to Chapter 9 states that the council has the role of allocating the right to occupy space in the coastal marine area, that is, allocating the use of public resources for private benefit. It states that this carries the onus of ensuring that these resources, and the qualities associated with them, remain available for the use, enjoyment and benefit of future generations. It records that the restrictions on people's use of land are considerably less than that which applies to the coastal marine area (due to the different presumptions under the Act as between s.9 and s. 12).

[5 18] The chapter provides for a range of activities with the emphasis, in some provisions, on the primacy of public access and recreational use. It is an *Issue* 9.2 in the Sounds that public access to the CMA is restricted due to the private occupation (and resulting benefits) of coastal space. The contribution that the marine farming industry makes to the economy of the region and its need to utilise the CMA for its activities is recognised. Marine farming may accordingly be given appropriate activity status under certain circumstances.

[244] Dawson EIC 49. This provision is closely related to Public Access in Chapter 8.

[5 19] 'The plan recognises, however, that being able to develop the public resources of the CMA is a privilege, and throughout the policies, there is an emphasis of control on the erection of structures to enable all users to have the benefit of coastal waters. There is a rider in the *Explanation to Issue 9.2* that there are no inherent development rights within the CMA. Mrs Dawson places particular weight on the fact that in are& like Forsyth Bay, where the open water has historically been used for public boating access and navigation, even though the shorelines have been developed for marine farming, the statements relating to the primacy of public access and recreational use are particularly important.

[520] Objective 9.2.1 identifies that appropriate activities are allowed in the CMA while avoiding, mitigating and remedying adverse effects. Mr Nugent considers the concentration of the objective on matters arising from s.5(2)(c) of the Act is an often repeated one and does not adequately reflect s.5(2)(a) and (b). He considers the objective contrary to Part II matters.

[52 1] Policy 1.1 simply lists all values in the CMA upon which the adverse effects of use and development are to be remedied, avoided, mitigated. It is stated in the *Explanation* that it is intended to reflect NZCPS Policy 3.2.2 which provides a 'hierarchy' whereby adverse effects should be avoided as far as practicable in the first instance, and where they cannot be avoided, they must be mitigated and remedied to the fullest practicable extent.

[522] Of the range of policies Mr Nugent considers only Policy 1.2 noteworthy but it is an objective not a policy. That requires that exclusive occupation of the CMA or occupation which effectively excludes the public, will only be allowed to the extent reasonably necessary to carry out an activity. Mrs Dawson emphasises the necessity for the exclusion and the adverse effects arising are matters to take into account.

[523] Meanwhile Policy 1.5 requires the authorities to ensure that recreational interests retain a dominant status over commercial activities which require occupation of coastal space. Policy 1.6 refers to avoiding adverse effects from the occupation of coastal space in or around recognised casual mooring areas. Policy 1.8 refers to identifying and enabling the use of water transport corridors. Mrs Dawson considers the access route to Wakatahuri may need to be considered in the light of this policy.

[524] Policy 1.12 provides some guidance by stating that the surface water activities may be provided as long as they do not have a significant adverse effect on the coastal environment. Policy 1.15 continues the theme of different activities being provided for in the Sounds by identifying that a range of activities be enabled in appropriate places, including marine farming, tourism, and recreation. Mrs Dawson considers this policy to be of little assistance in our evaluation, being vague and general[245].

[525] Mr Kyle considers that Issue 9.2 provides some expectation that marine farming can occur outside of the areas already utilised and that this is borne out by the *Methods* already in place such as the existence value of the CMZ 2 zone where marine farming is contemplated as a non-complying activity. The council could have prohibited marine farming beyond the 200 metre boundary but has not done so.

[526] Mr Kyle also emphasises the significance value to the nation of the marine farming industry, citing in support Issue 9.2 Restriction of Public Access to the CMA due to the private occupatio: of coastal space, where the attributes of marine farming are set out. He adds in an oral interpolation, that in applying the precautionary principle to the activity, the

[245] Dawson.

onus on an applicant is to show how they are to manage the actual- and potential adverse effects of the activity. His inference is that Kuku Mara carries out the onus satisfactorily.

[527] Mr Kyle also considers that within Objective 9.2, there is the presumption that marine farm resource consents may be renewed and that there is some expectation that marine farming can now occur outside those farms.

[528] *Issue* 9.3 relates to the adverse effects on the natural and physical resources of the CMA. It notes that rigid controls are necessary in the CMA as this is the ***"environmental sink"*** where the effects of all activities impact.

[529] Objective 9.3.2 deals with management of water quality so as to allow the gathering and cultivating of shellfish for human consumption. The ***Discussion*** in relation to the *Issue* refers to nutrient enrichment and waste from marine farms as examples of potential sources of contamination. The relevant policies, however, go beyond that objective and seek to (inter alia):

- avoid discharges which would modify damage or destroy any significant ecological value;
- recognise and provide for the need to preserve natural character;
- protect visual aesthetics;
- protect sites of significance to Maori;
- avoid, remedy or mitigate adverse effects on habitats important to the continued survival of indigenous species;
- avoid, remedy or mitigate adverse effects on ecological systems including natural movement and productivity of biota, natural biodiversity and other adverse effects on certain areas[246].

[530] *Issue* 9.4 Objective 9.4.1 and policies concern the significant adverse effects of alterations to the foreshore and seabed. Protection is to be achieved through avoidance, remedial works or mitigation. Concerns relate 'to the destruction of benthic aquatic life and changes[247] to natural water and sediment movement. ***The*** *Explanation* to the policies recognises that some alterations to the seabed are necessary to enable the continuation of normal coastal marine activities. The policies seek to provide for their continuation while controlling potentially significant adverse effects. Policy 1.14 seeks that significant adverse visual or ecological effects of particular farms be addressed. The rules expressly provide for this policy[248]. Mrs Dawson considers the policies of particular relevance to seabed disturbance on the feeding habitat and health of the King Shag community at Duffers Reef.

[53 1] The degradation of coastal water quality and alteration to the foreshore and seabed are singled out as the causes for environmental effects.

[532] Overall Mr Kyle acknowledges that the objectives and policies supporting marine farming in the Sounds in the CMZ 2 are to be balanced against the use of the Sounds for a range of other activities (often competing). But the needs of the range of uses such as marine farming are of particular importance and should be taken account of.

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[246] Dawson EIC 35.

[247] PMSRMP Volume One 9 – 16.

[248] Dawson EIC 39. The word "significant" in the objectives has subsequently been deleted and a Consent Order signed off after this case was appealed. We therefore have not taken the order of its provisions into account.

[533] In several places in the *Explanation* cited to us, the primacy of public access and recreational use is stressed. Mrs Dawson is of the opinion that where the open water has historically been used freely for public boating access, enjoyment, and navigation, whilst the shorelines have been extensively developed for marine farming, further development is not consistent with enabling the range of activities envisaged by the plan.

[534] The *Anticipated Environmental Results* identify relevant criteria for considering any marine farm or proposal. Of those we consider the most applicable in this case are:

- efficient use being made of the coastal marine area;
- the adverse effects of occupation of coastal space are to be avoided, remedied or mitigated to the fullest extent practicable;
- the recreational values of the coastal marine area are to be maintained and enhanced;
- the avoidance of a proliferation of structures;
- the continuation of activities which do not significantly or adversely alter the foreshore or seabed.

Evaluation

[535] We consider most of the policies to Objective 9.3.2 are met by the proposal with the exception of those pertaining to visual aesthetics and we have addressed those.

[536] Of the four issues identified above, we only address the first two, because the latter are met by the proposed conditions, etc.

A Presumption in Favour of Marine Farming?

[537] We are satisfied from the cross-examination of the planning witnesses that it is accepted that in appropriate places in the CMZ 2 zone, provision needs to be made for significant industries in Marlborough including marine farming.

[538] But there is no presumption for expansion in the Chapter 9 provisions. Objective 9.2 does not promote the identification in *Issue* 9.2 that it is essential for resource consents to be able to be renewed, and it does not contain a presumption for marine farming expansion into the CMZ 2 zone. Mr Kyle acknowledges that this is the case, accepting that Objective 9.2 is neutral in that regard. Mr Kyle *goes* on to say *presumption is perhaps too strong a word, after' all any party with aspirations to develop a marine farm beyond 200 metres from the shore must of course obtain a resource consentfor a non-complying activity*[249].

[539] What the explanation to *9.4.1 Objectives and Policies* does recognise, is that some alteration to the foreshore and seabed is necessary to enable the continuation of normal coastal marine activities. The policies there identified are to provide a guide for the marine farm continuation while controlling significant adverse effects.. Section *9.4.2 Methods of Implementation* provides Rules, Assessment Criteria and Monitoring to achieve that end[250].

[540] Forsyth Bay is clearly a bay that attracts all the interests identified in Chapter 9. It already has 41 marine farms and a salmon farm within the 200 metre zone and extensions are proposed and we have considered their existence very carefully. But equally there is evidence from the various witnesses for the council, the Friends and the Environment Centre, of

[249] Kyle:NOE 3 11.
[250] PMSRMP Volume One 9 – 18.

increasing tourism and recreation in the bay centred around the ecological vaiues of and inherent in Duffers Reef and Bird Island, fishing, general boating, and kayaking as well as the utilisation of Wakatahuri as a safe and attractive anchorage.

[541] In terms of Policy 1.1 and the avoidance, remedy and mitigation of adverse effects, many of the issues identified are able to be accommodated but some are not. The application of Policy 1.2 requires a preliminary assessment as to whether the southwestern area Forsyth Bay is an appropriate location or not for further commercial activity.

[542] On our analysis of actual and potential effects under s.104(1)(a), the site is appropriate in terms of its managed ecological risks and navigational risks. But it is inappropriate in terms of its size, the creation of sporadic development, and effects on some natural character values and visual amenity. Navigation at night is also of concern. Further, Forsyth Bay is the significant habitats of rare bird species which give the bay a distinction contributing greatly to the quality of its natural character and its overall intactness.

The Private Occupation of Navigable Space?

[543] As Mr Tear observes, the farm is of such a size, it is almost impossible not to notice[251]. A marine farm of this size will be greatly utilitarian. It is not such a large bay that it can be overlooked. The boating fraternity are already required to keep well clear of the line of marine farms along the shore and in the embayments on the western shore. Navigators under the Kuku Mara proposal will be required to-travel for a considerable distance within the 300 metres of the boundaries of the farms and the new'proposal in some areas.

[544] Mrs Dawson had this to say:

> *I accept that the presence of a marine farm does not completely prevent the public from passing through or using the water space. I understand that marine farms can be used for recreational fishing for some species and there would be large areas of the Bay remaining available for free public passage. However, I consider that the presence of a large number of buoys and the likelihood that these will frequently be boats working some part of the site, will give the impression of public* [sic] *occupation of a large area of public water space in this part of the Bay and will deter and detract from enjoyment of its public use.*
>
> *Given the presence of existing marine farms around the shoreline of the Bay, and the potential for other applications for large mid bay farms to come forward I consider that particular regard should be had to retaining this spaciousness, the freedom of boating passage and the potential for ongoing recreational enjoyment of the centre of this Bay.*[252]

[545] In this case, after a great deal of deliberation, we consider that private occupation of a large area of public water space in this area of the bay is not appropriate. We consider it will detract from the public's enjoyment of such a natural area.

- *Noise*

[546] Chapter 22.0 refers to potential adverse effects on environmental and amenity values due to disturbance, disruption or interference.

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[251] Tear EIC 12.

[252] Dawson EIC 62. We think the witness meant "private".

[547] As mentioned, Mr Hegley was persuasive that the noise from the marine farm would not have an adverse effect on the environmental values identified, namely the bird life.

[548] We have no issue as to noise.

Finding

[549] On balance we find the proposal meets some of the plan provisions, but is not well accommodated by the application of many others. In particular as against the generaiist provisions of Chapter 9 we find the proposal:

- a sporadic development;
- one where the intactness of natural character elements is not preserved;
- one where the intrinsic values of Bird Island are not recognised in the landscape;
- one where visual amenity values are downgraded in an area of high natural character;
- is contrary to what other provisions of plans require.

Other Relevant and Reasonably Necessary Matters – s.104(1)(i)

- ***Scenic Reserve Classification***

[550] It is suggested by the council that we should take account of the fact that Bird Island has been given a scenic reserve classification[253] as a matter relevant to our s. 104(l)(i) deliberations. We note Kuku Mara's reference to our decision in *Director General of Conservation v Marlborough District Council*[254] where we held that the fact of the scenic reserve status of the adjoining land is not in itself a sufficient reason, however, to decline those applications. The decision gives other reasons as well.

[551] The Department of Conservation which administers such reserves does so under s.19(1)(a) of the Reserves Act 1977 which describes the purpose of such a classification as being:

> *For the purpose of protecting and preserving in perpetuity for their intrinsic worth and for the benefit, enjoyment and use of the public, suitable areas possessing such qualities of scenic interest, beauty, or natural features or landscape that their protection and preservation are desirable in the public interest:*

[552] It is self evident that the scenic reserve status of the island is *another matter* to take into account in assessing the impact of the proposal on the area of the proposed farm. The fact that another authority outside of the Court has assessed the values of the island in the terms of its own legislation and found it meets most of the criteria there Iisted confirms the Court's opinion of the island – and that of Mr Rackham who addresses it in terms of a natural feature, and Mr Schuckard who sees it as a nationally important significant feature for ecological reasons.

[553] Mr Rackham as an expert landscape witness describes the island as a feature *with qreat charm and significance*[255]. Ms Buckland makes no relevant analysis while Mr Kyle[256]

[253] VI Exhibit 9 NZ Gazette 1982, 2579.
[254] Somerville CS 39 citing Environment Court Decision W 89/97.
[255] Rackham NOE 2 1.
[256] Kyle NOE 304.

considered that the designation was a little incongruous with its real importance – that it is not so important for its scenic but ecological value. But in cross-examination he acknowledges that the island has elements of both values, because it has attracted the designation in the first place.

[554] We further address the issue of Bird Island under s.6(c) and there discuss matters of intrinsic worth, scenic interest, natural features, publicly suitable areas and benefit and enjoyment of the island to the public. The' conclusion we come to there largely reflects to all intents and purposes that of the Department of Conservation.

[555] Nevertheless, we emphasise, as we did in *Director-General of Conservation,* that the scenic reserve status of Bird Island in itself is not be reason enough to refuse this application.

. ***Precedent Effect***

[556] Counsel for the Friends refers to the 'tsunami' of further marine farm applications which will follow if the Kuku Mara application is granted, thus creating cumulative effects which the council will be unable to control. We understood counsel in fact to be raising an issue as to the' *"precedent"* effect granting this application might have on consideration of other similar applications waiting to be considered or under appeal.

[557] The Court of Appeal in *Dye v Auckland Regional Council*[257] considered the concept of precedent effect in the context of a subdivision application in a "'peri-urban" setting. The Court of Appeal held:

> *The granting of a resource consent has no precedent effect in the strict sense. It is obviously necessary to have consistency. in the application of legal principles, because all resource consent applications' must be decided in accordance with a correct understanding of those principles. But a consent authority is not formally bound by a-previous decision of the same or another authority. Indeed in factual terms no two applications are ever likely to be the same; albeit one may be similar to another. The most that can be said is that the granting of one consent may well have an influence on how another application should be dealt with. The extent of that influence will obviously depend on the extent of the similarities.* [258]

[558] The evidence establishes that there are already 41 approved farms in Forsyth Bay. At the time of the hearing there were 13 additional marine farms applied for which would occupy a further 73 hectares. In addition, there are 3 sites under appeal covering 62 hectares including the 42.25 hectares Kuku Mara site[259].

[559] Mr Kyle makes the point that a critical consideration is that two resource consents for a non-complying activity are necessarily different if the second consent ever comes into existence, because it does so in the context of the existing (first) consent. Any potential effects would therefore need to be viewed in this context.

[560] In the council's opinion, a grant of consent to this application may establish a principle that will make it difficult for it to fairly and reasonably refuse consent to the subsequent marine farms if the first is granted in certain locations. Mrs Dawson expresses concern with the difficulties in distinguishing large areas of relatively undifferentiated open water space. It

[257] [2002] 1 NZLR 337, [2001] NZRMA 513 (CA).
[258] [2002] 1 NZLR 337,347; [2001] NZRMA 513,523.
[259] Dawson EIC 68.

may be difficult to distinguish the grant of one application from the grant of others in nearby areas – she identifies the *like should be treated alike* principle as a matter which is of concern to the council. There will be the same or similar effects which wiil accumulate. Mrs Dawson gives some indication *that* consent is favoured by the council for marine farm extension in embayments where there is ah-eady a big difference in natural character, as compared with a mid bay site; and where there is less public use less enjoyment of the open spaces of the wide open sea[260]. But if other applications in mid-bay are approved, then there will be an adverse accumulation of that sprawl/sporadic development. by placing the farms sufficiently far away from the inshore farms.

Evaluation

[561] As Mr Kyle points out, and we agree, each proposal will differ in terms of natural character issues, amenity values and ecology although they may have some characteristics in common. The scale and nature of the farms will differ. The time sequence of the applications relative to the others will also differ[261]. The habitats will differ, the evidence demonstrating there are a number in the bay[262].

[562] Looking at Exhibit 14 and with no detailed knowledge of the other application and appeal sites, we see that those identified in the southern sector, prima facie, may have different implications from those immediately adjacent to and on either side of Bird Island. For example, they may be discretionary activities but also be part of the inshore circulation systems identified by Dr James. And those in the northern sector in and around Orchard Bay, may have quite different effects again. As submitted by counsel for Kuku Mara, the discretion of the hearing body is not fettered in the circumstances of this case, as there are different effects for different sites in the CMA of Forsyth Bay. And this indeed is confirmed to some extent by Mr Nugent when taken by counsel for. Kuku Mara through the various sites in Exhibit 14 in cross-examination[263].

[563] We note that the first mid-bay farm in any bay may create a precedent in terms of a diminution in natural character that may encourage further development alongside or elsewhere mid-bay, but in general terms, every new application will have different individual and cumulative effects, that when considered in the context of the bay concerned will make any application to a large extent unique.

[564] We find that granting this application for a mid bay farm in Forsyth Bay (even if it is the first) will not create a precedent effect.

Part II Matters

[565] Issues under Part II of the Act, ss.6, 7 and 8, apply from different perspectives and in different combinations as amongst each other. They also apply to different perspectives from our analysis of 'effects' under s. 104(l)(a). We consider that none may be considered to be *"double counted"* for that reason[264], particularly as s.5 matters identify the purpose of the Act, and ss.6, 7 and 8 issues qualify or inform that purpose more specifically.

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260 Dawson NOE 356.

261 Kyle EIC 43.

262 Gillespie NOE 264.

263 Nugent NOE 455 – 457.

264 *Wakatipu Environmental Society Inc v Queenstown Lakes District Council* [2000] NZRMA 59, 89.

- ***Mutters of National Importance: The Preservation of the Natural Character of th e Coastal Environment and its Protection from Inappropriate Use and Development: s.6(a)***

- *Introduction*

[566] In achieving the purpose of the Act, the Court is required under s.6(a) to recognise and provide for as a matter of national importance. *the preservation* of *the ncturai character* of the coastal environment and its *protection* from *inappropriate use and development.*

[567] The words *'use '* and *'development '* have been held to constitute activities which contemplate physical interference with the natural character of the coastal environment in *Marlborough District Council v NZ Rail Ltd*[265].

[568] The term *natural character* is not defined in the Act or the PMSRMP. The RPS in its explanation to Policy 8.1.6 *Natural Character of the Coastal Environment* requiring preservation of the natural character of the coastal environment notes:

> *... natural character includes the land and water ecosystems of the coast, and the interactions. within and between those ecosystems. . . .*
>
> *Open space plays an important role in the natural character of Marlborough 's coastal environment. Natural character includes the qualities which give the Marlborough coast a recognisable 'character. ...*[266]

[569] Dr Bartlett considers that the term derives 'from the presence of natural elements with a natural distribution, arrived at as a result of natural processes rather than human activities[267]. She accepts that there is a presumption in terms of favouring *the 'preservation of natural character* as a matter of national importance in s.6(a)[268] and that the term means preserving the processes and functions of the environment.

[570] The location and scale of a development in the CMA will assist in determining the appropriateness or otherwise of a development on any given site because mar&farming is an activity which may only be carried out in that location[269].

Issues

- is the area in question already affected by the loss of natural character?
- is the natural character of the environment preserved and protected despite the development?
- is the location and scale of the proposal on this site appropriate?

Is the Area in Question Already Affected by Loss of Natural Character?

[571] Kuku Mara believes its proposal on the identified site is justified, particularly when marine farms are prohibited in the CMZ1 Zone. As noted earlier the Kuku Mara witnesses approach the siting of the marine farm by reference back to a bay-wide scale, in which there is seen to be sufficient modification overall, and therefore further room for development. Mr Kyle considers that while the bay has an upper limit to the number of mid bay farms it

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265 [1995] NZRMA 357,371.
266 RF5 81.
267 Bartlett NOE 162.
268 Ibid EIC 4.
269 *Golden Bay Marine Farmers & Ors v Tasman District Council* Environment *Court* Decision W 42/01, 130.

could sustain in terms of natural character, in his opinion the Kuku Mara proposal does not cross any adverse natural character thresholds, some of which will be subjective, some of which are more scientifically derived[270].

[572] Mr Rackham accepts that the context of the broader bay is one reasonable perspective from which to consider the scale and nature of Kuku Mara's development. He concludes if the whole of Forsyth Bay from Duffers Reef right down to Wakatahuri is viewed overall, then there is significant modification including the marine farm fringe all the way up the west coast, and across the south and parts of Forsyth Island. In that wider context, a further marine farm will have less effect on the natural character of the bay. His ultimate opinion, and that of Mrs Dawson, is however, that the proposal would have significant adverse effects on the natural character of the mid/southwestern quadrant of the bay, thus separating out that open space area from the inshore margins. Dr Bartlett accepts the undisturbed central portion of the bay' is one of the scales from which to consider whether natural character is preserved or not[271]. In our opinion what will occur from the Kuku Mara proposal is sporadic development in an area which has little connectedness with the inshore region.

[573] Mr Rackham observes that one of the reasons for' being conscious of the consequences of approving a marine farm in the particular area of the Kuku Mara site, is that it does adversely affect existing natural character, in effect reducing it. Any approval therefore, contributes to having less natural character in the bay in the future, making the bay even more susceptible to further development. He states:

> *Natural character occurs along ,a continuum. Some places have greater naturalness and are less modified than others. A continuum of naturalness can be considered in terms of elements, appearance andprocesses.*
>
> *The environments with the greatest natural character are entirety composed of natural elements. In the inshore coastal environment this will mean that the sea, shoreline and adjacent land area are free of buildings and structures. Natural environments composed of indigenous communities that have not been modified by exotic introductions can be seen as having the greatest natural character.*
>
> *Natural character can be considered in terms of the level of modification to the appearance of naturalness. This will usually be expressed in terms of visual patterns – greatest naturalness where organic shapes occur such as on a natural water surface . . . and least naturalness where there are artificial or utililtarian patterns such as occur with buoys on a marine farm . . . In natural character terms (not landscape or amenity) these patterns are independent of the Iikelihood of viewers experiencing them.*[272]

[574] Apart from our agreement with the experts that much of the natural character of the inshore region is modified, our judgment is that Kuku Mara has moved offshore into an entirely natural area, the significance of which is greatly enhanced by the natural character values of Bird Island, and the presence of the King Shag Ecological Areas throughout the bay (and these even now are not comprehensively identified).

[575] We have noted Mrs Dawson's point that the natural character of the *Character Areas* contributes to sustaining the overall natural character of the Marlborough Sounds. In relation

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[270] Kyle NOE 303.
[271] Bartlett NOE 162.
[272] Rackham EIC 16.

to that statement, we consider that this large farm on this particular site will begin a process of unacceptable diminution of natural character, in the D'Urville Island - Northern Cook Strait Marine Character Area. This is achieved chiefly through a sporadic development which has significant visual amenity effects. Currently the area is characterised by open space, defined by a nationally important natural feature.

[576] As seen under our evaluation of natural resources earlier, the 'interruptions' and interactions of the inshore region, do not apply to the habitats of the site, or, if they do, are so insignificant that they can be discounted. Mr Kyle accepts that natural character is one of the issues which is pivotal in this appeal[273] and he accepts too that the overreaching principle in s.6(a) is that natural character *should be retainedfir its own sake.* And he accepts that Dr Bartlett's and Ms Buckland's and' Mr Rackham's evidence, and the scientists' detailed ecological evidence suggest that the elements of the locality of the marine farm (the site and the area surrounding) have a high degree of that character[274].

[577] Bird Island and all its intrinsic values, the resources of the area, including the outstanding landscapes relatively close by[275], make natural character distinctive in this area of open water. The quality of the character is significantly high in terms of elements, processes and systems. This is in sharp contrast to the Australian Barrier Reef to which Dr Bartlett alludes and which is so damaged despite its appearance[276].

Is the Natural Character of the Area Preserved and Protected Despite the Development?

[578] The proposal is not intended to adversely affect the functioning of the marine ecosystem, namely the water column and benthic issues because they are to be adaptively managed. On the evidence too it will not physically harm the mammals and birds. It will not physically affect Bird Island or its reef. 'But it will not *preserve* the natural character of that area of the coastal environment in a holistic sense, modifying the natural character of the seascape to an unacceptable degree because of the pristine nature of the site and because the proposed farm is so large.

[579] Every possible offshore natural character attribute cited by the parties we find, indicates a process, value or element of natural character, many of them significant and most of them without modification. In our opinion, a farm of this size in this location will shift the natural character of the area adjacent to Bird Island too far along the continuum from the almost pristine -and at a greatly larger scale.

[580] This is a very large farm in the context of a bay which has a special intrinsic values – because of the mammal species it supports, the island, the reefs, and the bird life, the islands and waters surrounding it. The considerable intrinsic values of the area are worth preserving for their current *intactness.*

Is the Location and Scale of the Proposal on this Site Appropriate?

[581] The answer to this question is no. It is our conclusion that in refusing the consent the council has recognised and provided for, as a matter of national importance, the preservation of Forsyth Bay's natural character and open space in the marine environment. It has correctly deemed the proposal inappropriate in this case, because of the farm's location and scale.

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[273] Kyle NOE 296 – 297.
[274] Ibid.
[275] Appendix D to this decision.
[276] Bartlett EIC 4.

- ***Section 6(b): The Protection of an Outstanding Natural Feature/Landscape – Bird Island***

[582] It is necessary in achieving the purpose of the Act to recognise and provide for, as a matter of national importance, the protection of outstanding natural features and landscapes from inappropriate use and development.

Issues

- Is Bird Island an outstanding natural feature?
- Is Bird Island protected from inappropriate use and development?

Is Bird Island an Outstanding Natural Feature?

[583] Mrs Dawson refers specifically to *the Natural Character Areas* described in Appendix Two Volume One of the PMSRMP. Mr Rackham attached it to his evidence as Appendix 1[277]. Appendix Two is recorded as to be referred to in the assessment for all consents across all zones. Under the Bulwer ecosystem island communities are recorded as distinctive, rare and nationally important due to predator free status. They are seen as vital to. endangered biota. Such islands contribute to moderately high natural biodiversity. Under the Marine - D'Urville Island -- Northern Cook Strait characteristics, it is recorded offshore reefs support rich and abundant reef communities[278].

[584] There was some discussion as to whether Bird Island is an outstanding landscape/feature or not. Apparently it was originally designated as an outstanding landscape within the D'Urville Island – Northern Cook Strait Character Area, in the PMSRMP Volume 3 – Maps notified in 3 1 July 1 995[279], but was deleted from the PMSRMP without, it seems, submissions seeking that it should be. Mr Kyle was unaware of this as was Mr Rackham[280].

[585] Counsel for Kuku Mara submits that Ms Buckland did not have the question of whether Bird Island could be seen as an outstanding natural feature put to her[281]. Mr Rackham gives evidence however that Ms Buckland does not directly address issues of many recognised aspects of landscape such as natural character, outstanding natural features and landscapes, amenity values and the specific natural features of importance at the local level. Her emphasis, he maintains, is chiefly on visual amenity and he considers it does not adequate1 y address the relevant natural character landscape issues in respect of the proposed farm[282]. Mr Kyle confirms that Ms Buckland dealt solely with visual impact issues[283]. Mr Rackharn did address questions of outstanding landscape and features in his evidence-in-chief.

[586] Ms Buckland who identified Bird Island as a feature in the centre of the bay, was asked by the *Court what kind offeature.* Her reply was that it is a landscape island feature (one of a number) and the birds in flight were a significant part of that feature[284] so we do not accept the question was not put to her.

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277 Dawson EIC 14, Rackham EIC 7.
278 Appendix 2 – 28, 65.
279 S Browning EIC 8.
280 Kyle NOE 3 19: Rackham NOE 342.
281 Somerville CS 110.
282 Raclcham NOE 349.
283 Kyle NOE 298.
284 Buckland NOE 205.

[587] Of the other islands, we note Sugarloaf, one of these, is smaller than Bird Island without its intrinsic values, but it is considered an outstanding landscape. As to Duffers Reef, Mr Kyle was surprised that it did not attract values such as ecological in the planning maps and could only assume that this is a mapping error[285]. Given the importance placed on islands and reefs throughout the PMSRMP, we conclude there may have been a mistake over Bird Island also.

[588] Mr Rackham identifies that the PMSRMP landscape assessment is a relatively superficial, largely visual assessment concentrated on broad landscape features and as such has its deficiencies[286]. He states that *the results are useful as long as it is understood that they did not address many of the recognised values* ***now*** *attributed to the landscape by the Court*. Mr Rackham considers it is the smaller scale subtleties of this landscape and seascape which would undoubtedly be recognised as very special, were the bay not surrounded by even more spectacular landscapes, by which we 'consider he intimates that he accepts their characterisation in the PMSRMP.

[589] Mr Rackham observes, however, that had Bird Island been identified as an outstanding landscape it would have affected his opinion of the proposal to the extent it would have been one of the considerations he' would have taken into account in determining whether the area was outstanding or not. It would have, for example, placed the nearest outstanding landscape 500 metres away from the site - instead of 700 metres at Sugarloaf[287].

[590] As Kuku Mara point out, the Environment Court in *Chance Bay Marine Farms Limited v Marlborough District Council* held that despite Chance Bay not being marked in the PMSRMP as an outstanding, landscape, it is still open to the Court to make this finding as one of fact[288], and that this finding was upheld on appeal[289]. Counsel considers that that conclusion would appear to be consistent with the wording of s.104 of the Act which provides that all matters be considered, including plans; subject to Part II. Counsel reiterates the resource management regime, as opposed to previous planning legislation, has an effects based rather than a planning focus. Mr 'Kyle confirms some plans have made genuine mistakes in respect of the identification of outstanding landscape features. He confirms too that issues of fact come before the Court sometimes allowing it to identify whether or not the landscape is outstanding[290].

[591] Rather than broad areas of the highest quality, Mr Rackham considers that the Forsyth Bay landscape value lies in the small natural features that punctuate the area - Kaitira Point, Piripaua, Duffers Reef, Allen Strait, Bird Island and Sugar Loaf - features having great charm and significance. These are, he considers, small natural features described as *locally outstanding*. He confirms that Forsyth Bay typifies much of the D'Urville Island - Northern Cook Strait marine description having the typical characteristics of reefs,. stacks. and islands. He considers that the proposed farm will not have an adverse effect on the physical qualities of these places as special natural features because of distance[291]. And despite its special qualities, which he describes *as a small but highly significant island in the centre of the bay,* he considers Bird Island does not meet the criteria of an outstanding natural feature. Although outstanding in terms of its ecological values, its diminutive size and relative isolation he considers make it only of local rather than regional significance. He considers

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[285] Kyle NOE 321.
[286] Rackham EIC 2 1.
[287] Ibid NOE 342.
[288] [2000] NZRMA 3, 37.
[289] Doogue J, 15/3/00, HC Wellington, AP 2 10/99.
[290] Kyle NOE 330 – 331.
[291] Rackham NOE 343.

that it would be unusual for a natural feature to be deemed outstanding if it had no aesthetic qualities or other recognition in what could broadly be termed a "landscape" sense. If its material features can be based on its physical nature, then again in his view while extremely interesting, it lacks anything sufficiently strong to separate it out from the broader qualities of the Sounds. Generally speaking, he states, *the* phrase *natural outstanding features and landscapes* is a phrase more related to scale than to different qualities or landscapes"'. He identifies that outstanding natural features have generally been accepted as smaller parts of the landscape that are often experienced from beyond their boundaries, rather than being experienced from within – a lake or hilltop comes to mind.

Evaluation

[592] Mr Rackham accepts that Bird Island could properly be considered to be a natural feature within the meaning of s.6(b) 'of the Act[293]. Counsel for Kuku Mara set out the definition of a feature as held by the *Court* in *Wakatipu Environmental Society v Queenstown-Lakes District Council* as a ***distinctive*** *or characteristic part of a* ***landscape***[294]. Counsel then goes on to identify that in the first Queenstown-Lakes landscape decision, the Court there identified various criteria for the assessment of landscape[295].

[593] Counsel notes that in the second *Wakatipu* landscape decision[296] the Court records the landscape witness for the council as stating when assessing if a part of the landscape is an outstanding natural feature, natural science factors and Iegibility landscape criteria should be given weight over all other criteria[297]. Counsel identifies that in its decision, the Court there confirmed its preference for the evidence of the council witness.

[594] Kuku Mara submits that Mr Rackham argues that Bird Island does not qualify as an outstanding landscape by applying the assessment provisions in the PMSRMP and in counsel's opinion it should not be so classified. This is not quite how Mr Rackham proceeds as we analyse his evidence.

[595] Mr Rackham identifies the outstanding landscape/feature criteria ***identified*** *throughout the case* to be:

- tangata whenua value;
- legibility;
- expression of its formation;
- popular recognition by the population;
- aesthetic;
- transient values (there one day and not the next)
- ecological[298]

[596] The criteria do not appear to be very different from those identified in the first *Wakatipu* decision. In Mr Rackham's view the island does not quite meet some of the criteria to be identified as a regionally outstanding natural feature. But he judges his assessment of the island's outstanding qualities to be extremely' borderline – *at the top end of the scale* –

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[292] Ibid NOE 334.
[293] Ibid NOE 333.
[294] Environment Court Decision C 129/2001, page 12: Somerville CS 110 – 113.
[295] *Wakatipu Environmental Society Inc v Queenstown-Lakes District Council* [2000] *NZRMA 59.*
[296] *Wakatipu Environmental Society Inc v Queenstown-Lakes District Council* Environment Court Decision c 129/01.
[297] Ibid, page 12.
[298] Rackham NOE 346.

acknowledging that the Court may think otherwise when considering all the facts and came to a different conclusion[299].

[597] On noting that natural character is an intrinsic state, the witness agrees that Bird Island makes a natural character difference to an area of open water in the bay. He agrees that the island has a special intrinsic value which he calls *"the bird factor "*, clearly part of the natural character and an ecological component contributing a vital component to the nature of the bay[300]. He considers an that it is extremely interesting because of its mid bay location. It is most notable when it has the sea horizon behind it[301]. And because of its position it can be seen from most parts of the bay. What stands out, he states, *is a mid bay island which is quite unusual for the Sounds and its silhouette is often the most dominant characteristic ...* [302]

[598] We therefore reapplied the criteria to decide this issue of-fact, including the geological/ topographic distinction added in *the* second *Wakatipu* decision. We do so by incorporating some of the attributes identified by the other experts on natural character issues.

Natural Science Factors (ecological and dynamic natural components)

. *Ecological*

- it supports an abundance of biodiversity - at least 9 bird species on a small island seen as an outstandin characteristic in these terms for this confined area of the Marlborough Sounds[343];
- it is the only island within the confines of the Pelorous Sound surroundings with such a diversity of seabirds[304];
- it is an island refuge for a nationally threatened species[305];
- it is important for its special intrinsic value -the bird factor[306];
- it is sustained by a dramatic (dynamic) seascape[307];
- it is important not only in terms of the birds it currently sustains and its predator free habitat, but also because it is a structure (stacks) which lends itself to nesting and other matters of behaviour by certain bird species[308];
- it has transient values (birds in flight) contributing a vital component to the nature of the bay[309];
- its reef is of such ecolo gical value that it attracts a recommended buffer zone by the Cawthron scientists[310].

- *Geologically and Topographically Distinct*

  - it is an obvious terrestrial remnant of one of the most submerged parts of the Marlborough Sounds[311];

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299 Ibid NOE 345.
300 Ibid NOE 336.
301 Ibid NOE 333.
302 Ibid NOE 339.
303 Schuckard EIC 34.
304 Ibid 37.
305 Sagar EIC 7 and Schuckard EIC 36.
306 Rackham NOE 336.
307 Bartlett EIC 17.
308 Kyle NOE 304 quoting Sagar.
309 Rackham NOE 345.
310 Somerville CS 76.
311 Rackham EIC 7.

- the small rocky stacklets in the wider open marine environment comprise a natural area of great significance[312];
- it is made up of a reef and stacks considered to be one of the landforms contributing to the natural character of the area, and seen to be visually and scientifically important[313];
- it has self-evident, definable boundaries.

- *Aesthetic Values*

  - it has attracted a designation (Scenic Reserve) under the Reserves Act 1977, a designation identifying it as a feature of scenic interest or beauty, and natural feature or landscape of such, significance that its protection' and preservation is desirable in the public interest;
  - it is notable when it has the sea horizon behind it[314];
  - it is located in a dramatic (dynamic) seascape[315].

- *Memorability*

  it is a mid bay island which is unusual for the Sounds and can be seen from all parts of the bay – it stands out in certain conditions and its silhouette is often the dominant characteristic[316].

[599] We conclude that through the application of these criteria Bird Island is anoutstanding natural feature.

[600] In making these findings we hasten to accept Bird Island is not a large natural feature of great beauty; rather its diminutive size may be 'seen as introducing a 'David' factor to the 'Goliath' outstanding landscape seen in the background in Photomontage VPT 2.

[601] At the outset of his evidence, Mr Rackham records an extract from *"The Story of the Marlborough Sounds Maritime Park"* published by the Marlborough Sounds Maritime Park Board which records as follows:

> *It is the only large land area that is at present sinking and not rising from the seas, though it is not just this fact which creates their spectacular appeal. These are young mountains, a continuation of the Richmond range to the south, that have been tipped untimely into the ocean. Ridges rise from the sea through razor-back reefs that lead to crested parks, while quiet tongues of water become labyrinths of shimmering sea until all the land at times appears to be nothing more than a series of peaked islands.*[317]

[602] Mr Schuckard, we note, identifies that razor-back rocks are a'feature of Bird Island. And the story otherwise (depending on the 'weather) is reflected in both Mr Rackham's and Mr Schuckard's photographic evidence[318]. Mr Rackham's photograph is taken from the application area.

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312 Schuckard EIC 37 – 38.
313 PMSRMP App 2 – 4.
314 Rackham NOE 339.
315 Ibid Photographic Evidence Viewpoint 1, King EIC para 13.
316 Rackham NOE 334.
317 Ibid EIC 6.
318 Rackham Viewpoint I/Forsyth Bay Approximate Photographic Viewpoint: Schuckard: Exhibit B Photo 4(a).

[603] We conclude that Bird Island is an ouistanding natural feature set in a landscape which is outstanding depending where it is seen from. Being an outstanding natural feature 200 metres closer to the site of the proposed farm, in our view, Bird Island strongly reinforces the natural character cf the site in its present state. if the proposal goes ahead depending where the island feature is viewed from, ii will be seen across, or together, with a sea of floats.

Is Bird Island Protected From Inappropriate Use and Development?

[604] The reef is 'potentially protected: The birds are largely protected.' Only the visual amenity of the island is not protected.

. ***Section 6(c): The Protection of Areas of Significant Habitats of Indigenous Fauna: A Matter of National Importance: The King Shag Habitat in Forsyth Bay***

[605] Counsel for the council draws attention to'the fact that s.6(c) requires 'protection' from the activity as an imperative. It is not qualified by the words *inappropriate subdivision use and development* so the appropriateness of an activity or otherwise does not enter into the discussion as it does in s.6(a) and (b).

[606] A consideration of some importance is whether the proposed marine farm would impinge, either in operation or ecological effects, on the habitat of the King Shags in Forsyth Bay.

Issues

[607] The following issues became clear from submissions and evidence:

- is Forsyth Bay a significant habitat for the King Shags?
- will the changes caused by the marine farm represent a failure to *recognise and provide for* the protection of the King Shag habitat as required under s.6(c)?
- what are the consequences if they do [319]?

. *Is Forsyth Bay a Significant Habitat* ***for*** *the King Shag?*

[608] The definition of the word *habitat* in the Definitions section of the PMSRMP states:

> ***Habitat*** *means an area where an organism or population normally occurs.*[320]

[609] The provision in s.6(c) therefore requires protection of an area where the King Shag normally occurs.

[610] In *Minister* ***of*** *Conservation v Western Bay* ***of*** *Plenty District Council*[321] the Court there considers criteria for determining whether a habitat is significant or not. Counsel have not had the opportunity to evaluate that decision so we have proceeded on the facts of this case, considering that these facts are not far removed from the criteria set out in *Minister* ***of*** *Conservation.*

[319] Nugent E I C 10.
[320] PMSRMP Definitions 5.
[321] Environment Court Decision A 71101

[61 1] It is helpful to revisit Mr Melville's expansion on the criteria for inclusion of the King Shag in the IUCN "redlist" as a vulnerable species:

- the population size is estimated to number fewer than 1,000 mature individuals;
- populations have a very restricted area of occupancy (tjjpically less than 20 square kilcmetres) or number of locations (typically 5 or fewer);
- it is prone to the effects of human activities or stochastic events within a very short term period in an uncertain future;
- it is thus capable of becoming *Critically* ***Endangered or*** even ***Extinct*** in a very short time period[322].

[612] From the evidence we conclude that Forsyth Bay is a significant habitat for the King Shag. Duffers Reef at its entrance is the only breeding colony in the bay. It ***is*** estimated as supporting approximately 204 birds out of a population of 650 in New Zealand. That figure comprises 30 – 34 breeding pairs at Duffers Reef with a recruitment of 25 – 30 fledglings. On Mr Schuckard's figures, Duffers Reef appears to have the highest number of fledglings, accounting for almost half the number of chicks which could be noticed per annum in the study period[323].

[613] Up to 2 kilometres away from Duffers Reef, the fledglings are seen swimming in Forsyth Bay and adults often take a bath prior to leaving *for* a *feed*[324]. Further, Figure 2 of Dr Bartlett's evidence, attached as Appendix B to this decision, taken from the PMSRMP. and however inadequate, shows King Shag feeding (ecological) areas throughout the bay[325]. In addition, King Shags have been seen feeding in and around Bird Island and once in the site of the proposed marine farm[326]. Dr Lalas acknowledges that, for whatever reason, the proposed farm is in one 'of the more preferred feeding areas in terms of dives per square kilometre[327]. About 30% of King Shags feed within 6 kilometres of Duffers Reef and Forsyth Bay is included within the range[328].

[614] Dr Lalas states however that Forsyth Bay is not a major feeding habitat for the King Shag[329]. Beatrix Bay provides a greater attraction. Kuku Mara submit, that the higher quality feeding grounds are more important to the shags than feeding grounds closer to the colony[330].

[615] In our opinion, it is not the issue as to whether Forsyth Bay or Beatrix Bay has the better feeding ground. Forsyth Bay is a feeding habitat with a breeding site included (one of the few), and Beatrix Bay is another habitat with feeding grounds. Comparisons of one habitat as against another are not helpful in this context. Dr Lalas, as a biologist, agrees that all species need a specialist habitat[331].

[616] Duffers Reef also appears to support the highest number of fledglings. There is some acknowledgement from Dr Lalas that the best birds are those that are likely to raise chicks: that those that can supply the best food quantitatively and qualitatively are likely to be the most successful birds: that the birds that do this are likely to be those that have the most

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322 Melville EIC 6.
323 Schuckard EIC 12 – 13.
324 Ibid 16.
325 Bartlett EIC Fig 2.
326 Lalas NOE 77.
327 Ibid NOE 78.
328 Ibid NOE 73.
329 Rackham EIC :
330 Lalas NOE 83 and Somerville CS 53
331 Ibid NOE 88.

efficient method or success rate in getting food[332]. Forsyth Bay may therefore be significant in that regard – but we do not know.

[617] We conclude Forsyth Bay is a significant habitat for the King Shag.

. *Will the Changes Caused by the Marine Farm Represent a Failure to Recognise and Provide For the Protection of the King Shag Habitat?*

[618] The issue is whether the area where the King Shags occur is sufficiently protected as a result of the effects of the activity which will encompass, the distribution area as well as the qualities which sustain the King Shags within it.

[619] Dr Lalas has suggested introducing breeding platforms in Beatrix Bay to encourage distribution of the King Shags. This has been done in Otago Harbour with some success. There is another school 'of thought that if the marine farm does cause the King Shags to switch prey (which is denied given the location and scale of the farm and the protection of the Bird Island reef) then prey such as is available to and used by the King Shags on the Trio Islands will compensate.

[620] Mr Schuckard estimates each 40 hectare marine farm to constitute 0.5% of the total feeding area, assuming all the water space between 20 and 40 metres in the feeding *range* is being utilised. Counsel for Kuku Mara uses Mr Schuckard's figures to extrapolate a possible reduction of birds given the reduction of feeding area caused by the farm placement under a worst case scenario, concluding that the farm would cause a reduction in the population size of 0.32 birds[333].

[621] We have some difficulty with counsel's calculation of a possible (worst case scenario) reduction in King Shag population of 0.32 birds[334]. We understand the 75% figure used in this calculation to be Mr Schuckard's estimate of the number of birds leaving from and arriving at Duffers Reef in particular directions; and not a percentage of birds feeding in a particular area. Further, we understand the 240 square kilometres to be the size of the area visited and are unclear how it relates to the 75% figure referred to above.

[622] For the reasons outlined and because the calculation was not put to the expert witnesses, we set this calculation to one side.

[623] Dr Lalas considers that mussel farms can provide a new and additional food source other than witch for King Shags[335], whilst Dr Barlett considers the possible ability of King Shag to switch prey is an adaptation of King Shag which, should it happen in the area of the proposed farm,, would, indicate that its habitat is indeed *preserved*, and that clearly species other than witch flounder must be a part of their diet[336] Dr Lalas notes specifically that before the Lalas and Brown study of 1998, witch had not been recorded as the prey of King Shags -they essentially fed on reef fishes[337].

[624] Any activity which causes the King Shag to switch prey does not seem to us to preserve an element of the habitat, which is the strong imperative of s.6.

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[332] Ibid NOE 98.
[333] Somerville CS 58.
[334] Somerville CS 58.
[335] Lalas EIC 22.
[336] Bartlett NOE 166.
[337] Lalas NOE 101.

[625] The King Shag feed, it seems, over a muddy substrate in water 21 – 40 metres deep, which is not generally known to sustain the witch flounder. Witch normally favour coarse substrate such as is demonstrated by the reef at Bird Island. Mr Schuckard considers that the outer Sounds have a less muddy substrate compared with the inner Sounds[338]. Dr Gillespie considers the muddy substrate to be typical of the Sounds[339]. If this is so, why are witch feeding randomly/selectively over a muddy substrate in Peiorous Sound as identified in the evidence of the scientists? Mr Schuckard considers that before the habitat is preserved the question to be answered is what percentage of the feeding habitat between 4-10 kilometres away from Duffers Reef is coarse substrate, and what is more muddy? He concludes the foraging areas are reasonably discrete and somewhat localised suggesting habitat requirements. There are possible changes of patches where King Shags feed. The Kuku Mara site might be important today but not tomorrow[340] (and vice versa).

[626] Dr Lalas states:

> . *we don't know whether they are going to a particular site with the site selection, and eating what is there, which happens to be witch, or whether they are going to places where they know witch is. The two are different. But in a context ofconservation management, which of those is correct does not matter.*

[627] In being asked whether, or not feeding grounds for the King Shag are where witch flounder are most commonly found, Dr Lalas states:

> *In trying to answer this I am bemused because the seafloor in this 20 to 40 metre range is mud and from Livingston's study of flat fish in Wellington Harbour, she found that the preferred bottom type for witch was coarse sediment so the two don't fit together.*[341]

[628] Dr Lalas also acknowledges that neither he nor Mr Schuckard have established why the King Shags are going to particular locations to feed. But in discussing the Stewart Island Shags, he states their diet, to some extent, represents what is available[342].

. *What are the Consequences if the Changes Represent a Failure To Recognise and Provide For The Protection of the King Shag?*

[629] We do know that the Duffers Reef King Shag population has remained stable after the introduction of marine farms (850 metres away). We note that these farms are all around the perimeter of the bay and quite likely to be located above the coarser substrates favoured by witch flounder[343]. In a worst case situation, the King Shag could switch prey.

[630] The Department of Conservation which is responsible for overseeing conservation programmes for rare and endangered species was not represented at this hearing. If there is anything other than the two conditions proposed, which should further recognise and provide for the protection of the habitat, then we are unclear as to what they should be.

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338 Schuckard EIC 27.
339 Gillespie EIC 9.
340 Schuckard NOE 419.
341 Lalas NOE 103 citing Livingston: see note 88.
342 Ibid NOE 96.
343 Gillespie EIC 8.

Evaluation

[631] In terms of King Shag selection as to where they forage, and in particular the feeding location we were left unclear.

[632] On some issues we found Dr Lalas and Mr Schuckard agreeing, and in others this was not the case. We found some statements' of both witnesses contusing and possibly at one point contradictory.

[633] But in his suggestions to mitigate against any adverse effects which might arise from marine farm development, Dr Lalas considers:

[a] monitoring of King Shags should be undertaken before and during the development and operation of the farm;
[b] annual monitoring of nest numbers and diet in all King Shag colonies should be undertaken.

[634] Dr Lalas considers comparisons between nest numbers and diet would highlight any anomalies which might be attributed to'the new farms and results would be applicable not only to Kuku Mara, but to all new farms in the Marlborough Sounds. Dr Lalas considers that his recommended monitoring will detect any significant changes in the King Shag population. These, Dr Lalas states, would need to be interpreted against any distribution increases resulting from the use of the proposed nesting platforms[344].

[635] The evidence demonstrates that the Pelorous Sound Shag population has been stable for some time. The witnesses acknowledge some movement between colonies over that period but not a significant change in total numbers. Mortality and recruitment are in balance. Both Dr Lalas and Mr Schuckard see this situation as remarkable. Neither have an explanation, and both agree that this is one of the areas 'which requires further study.

[636] The fundamental question therefore posed: by both Dr Lalas and Mr Schuckard is why a population of only 650 birds is able to stay stable and maintain itself over such a long period of time?

[637] In a discussion which followed his evidence, Mr Schuckard was asked what information was required to understand the potential, impact of a marine farm on the feeding habitat of the King Shag. The following points arise:

- a study concentrating on the breeding period and the rearing of chicks and why such a small proportion of the total population is participating in this exercise -an identified bottleneck for the survival of the King Shag;
- a study to identify whether the feeding area is evenly used by breeding and non-breeding birds;
- a study to understand if the activity in and around the proposed farm will push the King Shag to a higher flight level – possibly causing the birds to miss out on Beatrix Bay as a feeding ground;
- particular studies focussing on the ecology of the prey species;
- a study to determine the randomness or otherwise of King Shag foraging.

[638] Mr Melville also discusses the lack of knowledge of King Shag acknowledging that even for what is perhaps one of the most fundamental issues, feeding distribution within

[344] **Lalas EIC 22.**

Forsyth Bay, there is a lack of information. He notes the dangers of using snapshot studies (such as those used to determine King Shag feeding areasj as the basis for certain planning guidelines in the area as it may provide a false sense of security regarding areas where shags are not recorded by Schuckard.

[639] Dr Lalas, while agreeing that gaps existed in the knowiedge base cautions the Court on the need to differentiate between knowledge which is important *for* [conservation] *managemenf and that which is merely of interest to ail ornithologists, so we need to distinguish between what is pure science hnd what in this case would be applied science.*

[640] The Court has, in this example, some difficulty in clearly identifying the boundaries between the two forms of knowledge and where the baseline studies identified by Mr Schuckard might fall. In view of the increasing pressure on Pelorous Sound from the industry (much of it in identified King Shag feeding grounds) and in view of the unreliability of the data of the distribution of the King Shag population in Forsyth Bay, we remain concerned.

[641] In respect of the studies suggested by Kuku Mara as conditions of consent, Mr Schuckard was asked whether that sort of information might not be useful. He replies:

> *. I would endorse any study done, prior to the establishment of a marine farm because I never said that I'm against this farm. If the outcome of the study shows it's not detrimental to the King Shag.*

[642] Mr Schuckard further states:

> *... Therefore I am not feeling comfortable with slicing up what I call prime feeding habitat and see in these small parts what's happening. I like to have the overall picture.*[345]

[643] From these statements, several considerations arise. First of all, Dr Lalas' statements do not appear to relate to studies undertaken prior to commencement of consent. The conditions suggested by Dr Lalas also fall well short of what is envisaged by Mr Schuckard. We note that the issue of adaptive management or, conversely, the requirement for extensive baseline studies prior to commencement of the consent was not put directly to Dr Lalas. From his ultimate conclusion, however, (quoted below), we can only assume that Dr Lalas is comfortable with the approach of adaptive management – as the farming develops.

[644] On the other hand, Dr Lalas who comes to the conclusion he does that the proposed farm *will 'not have a significant effect on the King Shagpopulation,* does suggest monitoring of King Shag should be undertaken before and during the development and operating of the proposed farm. Dr Lalas must, by implication, be confident that there is sufficient baseline data to commence marine farming at this site.

[645] Further, as the conditions agreed to by Kuku Mara are foreshadowed in the PMSRMP and are likely to be imposed on other marine farm applicants, could the various issues raised by Mr Schuckard, be studied by Kuku Mara (and others), once consent has been granted but prior to its commencement?

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345 Schuckard NOE 418.

[646] The Court is mindful that there are few King Shags left worldwide and that such a large number of those remaining birds inhabit Duffers Reef. We conclude it is important we do not introduce any development that puts this population at risk.

[647] It is Kuku Mara's position that until the marine farm was actually in the water, how is it possible to show any adverse effects – in counsel's words *it is difficult to prove a negative.*

[648] We consider this hypothesis to be valid only when a number of preliminary questions can be satisfactorily answered. These questions include:

- Is there enough base data to satisfactorily determine the effects (adverse or otherwise) of the proposed activity?
- If adverse effects do arise from the activity, are they likely to be *serious?*
- If the. activity is modified or discontinued, are any adverse effects able to be reversed over time?

[649] Kuku Mara consider that any effects on King Shags, identified after farming commences, may be mitigated by adapting (probably by reducing either the size or the intensity of) the farming operation. This may be an adequate response if this particular farm was the only mid bay farm to occupy King Shag feeding areas. From the maps supplied to us by the council, however, and from Figure 2 appended to Dr Bartlett's evidence, we note several other marine farms (either under application or granted and under appeal) are either sited in, or adjacent to, the King Shag feeding areas identified by Dr Bartlett.

[650] We have not been told who all applicants are[346], but it is reasonable to assume that they are not all the Kuku Mara Partnership and we. have no idea whether they are likely or unlikely to agree to reduce the scale/intensity of their marine farming operation if the King Shag population shows signs of stress. We do not know either, if these other applicants are likely to adopt adaptive management techniques arid conditions.

[65 1] Furthermore, we anticipate difficulties in being able to attribute any adverse effects on King Shags to a particular marine farm site and difficulties in differentiating between site specific effects and accumulated effects from any other farms that may impinge on King Shag feeding areas.

[652] Mr Melville had similar reservations:.'

> *Whilst regular monitoring of the breeding population is clearly desirable it remains unclear to me how any changes in numbers, either up or down, might be related to musselfarming activities,, even if a wide range of other parameters such as water quality were monitored over a wide area, not just within farm.. Should mussel farms have a detrimental impact on King Shags it is more likely that this will be a cumulative impact, rather than the result of a single operation.* [347]

[653] Notwithstanding what we have already said in respect of actual or potential effects on King Shags from this Kuku Mara site, we find that in keeping with the precautionary principle, which applies in the CMA under the NZCPS, it would be prudent that these studies (identified above) be done as baseline studies, prior to the commencement of any mid bay marine farming in Forsyth Bay.

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[346] Apart from Sanfords in Orchard Bay and McLab which has an interest in the Bird Island sites
[347] Melville EIC IO.

[654] While Stewart Island Shags have prospered alongside busy shipping lanes, we note that the Duffers Reef colony of King Shag has chosen an isolated place *to live* and breed and have chosen witch flounder as its predominant prey. We were cautioned by Dr Lalas not to attribute human logic to the King Shags and are mindful of his caution[348].

[655] Dr Gillespie makes the point that the farm may change the food web by enhancing different predators so that links in the food web may be changed, but there may be an overall adaptation – *it's* very *complex*. Any change to the food web may be inconsistent with the imperative of s.6(c) but we had no direct evidence on the issue or submissions on the issue.

[656] We do know that a consenting authority's ability to adequately recognise and provide for the preservation of such a significant habitat would be greatly enhanced by the completion of adequate baseline studies prior to the commencement of mid bay marine farming close to King Shag feeding areas.

Finding

[657] We make no finding on this occasion and the issue of the protection of the King Shag is not one we intend to take into account in the exercise of our discretion under s. 105(l)(c).

[658] We have analysed the issue as carefully as possible given the evidence and whilst there are many unanswered questions, there are no identifiable adverse effects.

[659] Already this hearing has advanced knowledge of the King Shag. It may be that by the next hearing of related appeals that knowledge will have advanced even further and will answer some of the questions we raise.

[660] We consider the Department of Conservation, the council and the industry should address the issue collectively, given the *concerns* raised and because of the uncertainties we have established.

- ***Sections*** *6(e), 7 and 8: Cultural and Treaty Issues*

[661] Under s.6(e) as a matter of national importance, in achieving the purpose of the Act, consent authorities, are required to recognise and provide *for* the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

[662] In addition, under s.7(a), consent authorities shall have particular regard to kaitiakitanga which is defined under s.2 as:

> *kaitiakitanga means the* exercise *of guardianship by the tangata whenua of an area in accordance with tikanga Maori in relation to natural and physical resources; and includes the ethic of stewardship:*

[663] Further, under s.8, in achieving the purpose of the Act, consent authorities shall take into account the principles of the Treaty of Waitangi. The principles are undefined but have been submitted by Kuku Mara to include 'partnership, which in this case we were told found expression in dealing with the tangata whenua in good faith, making a genuine effort to

[348] Lalas NOE 72, 95, 98.

consult and see the other perspective[349]. Recognition of the protection of rangatiratanga is another principle addressed as is another, mutual benefit.

[664] It was explained that Forsyth Bay is within the *rohe* known as the *Te Tau Ihu O Te Waka* A *Maui* – The Prow of Maui's Canoe. Within the rohe there are a number of iwi groups, including Ngati Koata, Ngati Kuia, Rangitane, Ngati Rarua, Ngati Tama, and Ngati Toa.

[665] Evidence was given by Mr J Elkington; a member of the Ngati Koata iwi and a member of the Kuku Mara Partnership. He states' that the *rohe* of Ngati Koata, includes the islands and waters around *Rangitoto ki te Tonga* (D'Urville Island) in the western Sounds, and extends to the east to the outer Sounds, including Forsyth Bay. Ngati Koata acknowledge the relationship that other iwi have with the area, but firmly hold the belief that they hold the *mana* whenua, the right to speak, for the related Forsyth Bay lands and waters.

[666] Mr Elkington recognises that all iwi 'within Te Tau Ihu have lodged claims with the Waitangi Tribunal as to the' ownership of the foreshore and seabed in the region. He explains in recognition of these claims, that Kuku Mara Partnership has drawn up a written Statement of Intent for implementation in respect of all its marine farming applications, including those in Forsyth Bay. This document:

- identifies consents should be for a limited period of 10 years which could allow issues such as completing claims to be resolved; and
- puts in place an ongoing consultation process with affected iwi.

[667] Kuku Mara consider as a result that there is no reason why, from, the tangata whenua perspective, the consents applied for should not be granted.

[668] Evidence on the cultural and treaty issues raised by relevant iwi was also given for Kuku Mara by Mr B Mikaere, consultant on environmental and' cultural projects to the partnership. He gives his support to the application. It is Mr Mikaere's opinion that the partnership in dealing with the tangata whenua in good faith has made a genuine effort to consult, which constitutes an accepted methodology for the expression of the partnership *"treaty principle"* in action. He understands *to6* that the partnership has made provision for iwi participation in its operations and that some iwi have, in fact, taken up the offer.

[669] Mr Mikaere makes the point that no evidence has been produced by any of the iwi groups as to the exact nature of the customary use rights for Forsyth Bay. For example; if it has been a traditional fishing or *kai moana* gathering ground, like all Maori resource areas it would have had a specific name and attached traditions and the Kuku Mara site does not have these. It is Mr Mikaere's conclusion that iwi issues had been dealt with in a proper and effective manner and there is no cultural reason why the consents sought should not be granted.

[670] The Ngati Kuia iwi was represented by Mr J H (Uncle Jim) Walker. Ngati Kuia objects to the proposal on the basis that it claims tino rangatiratanga in the area. Mr Walker gave evidence of his ancient people living at Wynens Point where the sailing ships and boats coming from England moored close to the access to Forsyth Bay. He identified that Forsyth Bay – the Titirangi area-the whole of the bay and the offshore islands are important to Ngati Kuia. The area of Forsyth Island, for example, is known to Ngati Kuia as *Titirangi – a sky full of birds,* which creates evocative imagery for the area punctuated by Bird Island.

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[349] Mikaere EIC 8.

[671] Mr Walker takes his spirituality from Mt Stokes (*Owere*). He and his family were raised a? Anakoha Bay and went to school there. Fishing the area and gathering shellfish throughout the region were a significant part of their life in this region, because *thot 's where the fish* were. His people were also located at Guards Pass/Alien Strait, to supply the sailing ship captains with timber from the surrounding hills. The family camped at *Tipuru, a beautiful beach* on their journeys around. Mr Walker holds dear every memory of his life in the Forsyth Bay area.

[672] Mr Walker is not comfortable with Mr Elkington's claim to Forsyth Bay as part of Mr Elkington's iwi. He states Mr Elkington's great uncle came into the area, so he is part of Mr Walker's *huia* – ie Ngati Kuia. Cross-examination of Mr Elkington confirms that through whakapapa, he can link to Ngati Kuia. Mr Elkington sees Ngati Koata and Ngati Kuia as intermixed sharing their resources with each other[35]

[673] But Mr Elkington gave evidence that as recently as November 1994, in the settlement of the Ngati Koata Treaty of Waitangi claim to *Takapaurewa* (Stephens Island), the Crown acknowledges Ngati Koata's *tangata whenua* and *mana whenua* status 'for the *rohe* area he describes. This includes Forsyth Bay.

Evaluation

[674] Mr Walker was the only member of an iwi to appear in opposition to the proposal. He asserts rangatiratanga status for Ngati Kuia in the area, but in contradiction to that assertion, we have Mr Elkington's statement that Ngati Koata is recognised in a relatively recent Crown Deed as having the right to speak for Forsyth Bay.

[675] In being, questioned by Mr Browning, Mr Mikaere states that if Ngati Kuia have some land-based kaitiaki concerns to do with an occupation and lookout site on adjoining land, it does not impinge *on* the site of this marine farm application because *there is no use of land based facilities in Forsyth Bay*[351]. This is not rebutted by Mr Walker who gave evidence after Mr Mikaere. In addition, Mr Elkington' makes mention that Ngati Toa, Rangitane, Ngati Rarua and others also believe that they too have *mana whenua* status in the bay – a statement which raises questions about the Deed of Settlement 1994 and its determination of the *rohe* of Ngati Koata. We conclude, whilst very respectful of Mr Walker's case, that as a rangatira he has the right to speak. But so does Mr Elkington as mana whenua.

[676] Thus none of the evidence advances Ngati Kuia's case very far. Generalised statements about rangatiratanga status in Forsyth Bay do not assist. There are no claims to or traditions in respect of any fishing locations in the bay that may be associated with the iwi, even without landbased activities. We find no evidence of ahi kaa by Ngati Kuia in this bay. There is no evidence that Ngati Kuia exercises any traditional rights in the area, unlike Anakoha Bay[352].

[677] On the other hand, the Kuku Mara Partnership has put out a positive solution to what the company is prepared to do as against the day when the conflicting claims to the foreshore and seabed are resolved – namely the consent is limited to a period of ten years. In the meantime Kuku Mara signal that if it has to deal with a traditional owner instead of the Crown, it will enter into new negotiations with whoever is appropriate in terms of new lease arrangements.

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350 Elkington NOE 127.
351 Mikaere NOE 129.
352 Elkington EIC. Statement of Intent 3.

Findings

[678] We find that Ngati Kuia has not made out a case against the Kuku Mara proposal in the context of this particular case.

- ***Section 7: Other Matters -Amenity and Quality of the Environment***

[679] Section 7 requires the Court to have particular **regard** to:

> ...
> **(c) The maintenance and enhancement of amenity values:**
> ...
> **(f) Maintenance and enhancement of the quality of the environment:**

[680] The *Court* in *Golden Bay Marine Farmers*[353] endorsed the Court's finding in the *Wakatipu Environmental Society Inc* case[354] that visual amenity landscapes are an issue to be addressed because they are important in respect 'of identified amenities or because there may be modification to an area of otherwise outstanding **natural** character/landscape which brings them more precisely withinthe provisions of s.7.

[681] We have concluded under our assessment of visual amenities that the proposal will have an actual and potential effect on visual amenity values. Here we conclude it will be major and adverse. The proposal will not maintain or enhance amenity values or the quality of the environment and it cannot be mitigated. It needs to be avoided altogether.

- ***Achieving the Purpose of the Ad:, Section 5 Issues***

- *Enabling Further Economic Wellbeing*

[682] Mr J Marr, Managing Director of Aqua, 'King Limited and a partner in Kuku Mara Partnership, who has been marine farming for: 12 years gave evidence on economic issues as they affect the Partnership. He expects'yield at full development from the proposed site to be approximately 2,600 tonnes of green shell mussel per year. This will create a substantial increase in the company's workload and, will lead directly to further employment at the Okiwi Bay Aqua King based operation. Approximately 50 per cent of the total estimated production from the Forsyth Bay will be processed in Marlborough.

[683] Mr A Talley, a Director of Talley's Fisheries Ltd also gave evidence on behalf of the appellant. His company currently operates two mussel processing plants whose annual combined production is approximately 7,000 tonnes. All of the company's mussels are sourced from the Marlborough Sounds. The company's smaller plant is located in Motueka and concentrates on the production of marinated mussel. That plant employs a total of 21 people per shift and operates, depending on the season, either one or two eight-hour shifts per day. The largest factory is located in Blenheim and can be operated 24 hours a day, six days a week, and employs a total of 42 people per shift. When operating at capacity a total of 84 persons are employed at the factory per day. The Blenheim factory has a maximum daily capacity of 60 tonnes and the Motueka factory has 20 tonnes.

[684] Mr Talley identifies that both of the company's factories generally run at less than the design capacity and therefore have the ability to process more mussels than are currently being processed.

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[353] **Environment Court Decision W 42/01, page 13 1.**
[354] [2000] **NZRMA 59, 101.**

[685] Mr P Lupi, Executive Officer for the New Zealand Mussel Industry Council, gave generalist evidence in support of the appellant. It is his evidence that the mussel industry seems only to be limited by the ability to produce mussels. because export demand is constantly increasing. A foresight strategy produced in 1998 by tie industry council indicates that by 2010, based on an annual increase of 7 per cent, the industry will earn NZ$250 million from exports and a further NZ$35 million from the domestic market. Mr Lupi concludes that while the industry could increase by 7 per cent annually over at least the next 10 years, one of the biggest challenges will be to provide enough product to meet the demand.

[686] Mr G Butcher, a consulting economist to Kuku Mara, provides an assessment of the likely economic impacts of the proposed inane farm on both the Marlborough and New Zealand economies. It is his evidence that the shortage of product. has only been one of the factors leading to recent price rises (returns to growers have risen from around $500 per tonne in 1998 to in excess of $1,000 per tonne in 2001 figures), with exchange rates, surplus processing capacity and market perception of the product also of importance. Given the expected decline in the international *"wild"* fish supply, the industry could expect an upward long-term price trend for mussels. The factor most likely to lead to a decline in mussel prices is not growth of domestic production, but changes in international consumer taste, any decline in product quality, and production of competing product.

[687] Mr Butcher's initial estimate of the economic effects arising from Kuku Mara's project suggests that operation of the proposed farm is expected to generate directly 8 jobs and $2.1 million per year of added value in the region, while processing will generate directly 3 1 jobs and $1.2 million of added value in the region. With the inclusion of downstream effects, the total regional effect of farming and processing is expected to be 54 jobs and $4.2 million per year of added value ($3.4 million if the price to growers is $700 rather than $1,000 per tonne). The total effect on New Zealand is expected to be an increase of 122 jobs and $7.9 million per year of added value for the farm ($7.1 million if the price to growers is $700 per tonne).

Evaluation

[688] It is clear from the economic evidence, that mussel farming. and processing is a significant part of the Marlborough economy, (around two-thirds the size of grape growing and wine making). It has the potential to become an even more significant component.

[689] It is Mr Butcher's evidence that the significant increase in employment generated by the' proposal suggests that the Kuku Mara project will assist the community to provide for its social and economic well being.

[690] No witness disagrees with the economic evidence and flow-on effects estimated by Mr Butcher. On the other hand the council does not accept that the establishment of this particular farm on this particular site is necessary to promote the economic wellbeing of the Marlborough region. Mr Butcher readily acknowledges in cross-examination that the economic benefits referred to in his evidence, are able to be achieved from any farm of this size in Forsyth Bay, and could be achieved in a number of other locations where farm technology is similar.

[691] Further, Mr Butcher's economic projections for the Forsyth Bay farm are based on a Marlborough Sounds average and not what is being produced in Forsyth Bay itself. He acknowledges that there had been very little increase in mussel production in Forsyth Bay in the last two or three years despite an increase in lines in the water.

[692] Whilst Mr Butcher's analysis was based on a Marlborough Sounds' average, subject to wha? we say below about the sustainability of the inshore regions, we concluded that as this site is offshore, in an area receiving a major source of new nutrients[355], the on-growth of mussels from this site is likely to generate economic and consequently some social advantage to the people of Marlborough

. *Sustaining the Potential of Resources to Meet the Reasonably Foreseeable Needs of Future Generations*

The Kuku Mara Site

[693] In Mr Marr's opinion, expansion in the 200 metre coastal zone *is* not as efficient a use of the resource as the Kuku Mara Partnership proposal in mid bay. It is his evidence that if the number of lines in the 200 metre zone is increased, the growth time will increase as the quality of the product decreases.

[694] Mr Marr identifies one of the problems facing marine farmers is rainfall closure which causes considerable downstream problems to the processing industry. Whereas a few years ago the industry required a few hundred tonnes to get it through a week's closure of the other areas, it now requires over 1,000 tonnes a week to keep the factories running.

[695] Mr Marr believes that his proposal will. be unique in its ability to supply product to factories when the bulk of the industry is closed through rainfall effects. Because of its steep catchment and low stock density, it is a growing area which has the most lenient harvesting restrictions in the Sounds Quality Assurance' Progr-e.

[696] Mr Butcher identifies that unreliability of supply is not only bad for the markets, but it has significant social implications because it means that employees (who are generally. employed on a casual basis), have unreliable hours of work and income. He therefore supports the location of Kuku Mara's proposed operation.

The Inshore Areas

[697] Messrs King and J A Jessep and other, farmers, witnesses for the Friends, gave evidence of their fears of the effects of the proposal on the sustainability of near-shore areas in relation to marine farming. Both are experiencing difficulty in achieving adequate returns from their farms in Forsyth Bay. Their concerns revolve around:

- the need for protection of the sustainability of the 200 metre inshore zone as against the introduction of large bay marine farms offshore in terms of the benthic effects, nutrient depletion and water deflection;
- the need to protect current interests by seeking seaward extensions to their existing farms;
- depletion of productivity of inshore farms over recent years in Forsyth Bay;
- overstocking of some of the inshore areas;
- Forsyth Bay is, only a modestly successful location for marine fartns;
- the cause for dramatic decline in productivity is a reduction in the availability of nutrients;
- the dubious validity of the Beatrix Bay model being applied to the Forsyth Bay scientific assessments;
- inconsistent measurements related to current flows;

[355] James EIC 11.

- concerns about the dispersion of sediment and its effect on the benthic environment;
- the impact of a large marine farm on species diversity and population numbers;
- issues surrounding staged development and the proposed monitoring regime;
- dismay at the proliferation of offshore farms despite their non-complying status in the PMSRMP.

- *Thresholds of Sustainability*

[698] Dr James reminds us that whilst there are opportunities offshore for marine farming, these too are limited, which is why NIWA has come up with a threshold well below what the organisation thinks the threshold will be:

- whilst it is not yet possible to determine a threshold for sustainable development in Forsyth Bay, a conservative precautionary threshold (not an exact one) based on existing knowledge and model outputs for Beatrix Bay is possible;
- NIWA's assessment identities the precautionary threshold based on production carrying capacity which provide the best estimates for the ecology is 100 hectares of development (or 6000 tonnes), in addition to the current farms, which is sustainable;
- further development past 100 hectares or a total stocking level of 6000 tonnes should only take place when further work is carried out and results from monitoring the initial farms has been appraised;
- in respect of potential unacceptable environmental harm, activities could be scaled back, and adverse effects on phytoplankton and nutrient carrying current would be avoided in a short timeframe, through careful monitoring[356].

[699] Dr James concludes:

- on its own, Kuku Mara is unlikely to affect the sustainability of other farms or the wider ecosystem;
- there are opportunities offshore for further marine farm development but they must be limited.

Evaluation

[700] We have no issues in respect of the sustainability of the benthic and water column environments as a result of the Kuku Mara proposal.

[701] As to the sustainability of the inshore farms, we accept in part Kuku Mara's submission that the anecdotal, reports from the marine farmers have limited evidential value compared to the quantitative and qualitative assessment which NIWA and Cawthron have undertaken and the informed statements and responses of Drs James and Gillespie to issues raised. The responses and statements, nevertheless, require a careful analysis because of the importance of sustainability issues overall in the CMA, both inshore and offshore to meet the reasonably foreseeable needs of future generations. Whilst questions of trade competition arise in relation to the concerns of marine farmers inshore, they were not pursued by Kuku Mara. We conclude therefore that the overall importance of the inshore ecological systems to the CMA generally outweigh issues of potential trade competition. Dr Gillespie identifies there is a benthic continuum to the Kuku Mara site and we consider the issue of inshore sustainability requires addressing in overall ecological terms. Dr Gillespie is concerned that the sensitive

[356] James NOE 230.

shoreline area is currently being progressively developed to an extent when cumulative effects could occur[357].

[702] Dr James notes that currently, there is a comprehensive study by NIWA about the decline in production of levels of the inshore regions partly funded by the MIC. One focus is climate change and changes in farming practice and how both may affect mussel growth in that location. He explains the scientists are looking closely at climatic patterns detailing good and bad conditions and how these may impact on productivity levels.

[703] Dr James identifies that the work NIWA is undertaking on some of the inshore farms, currently indicates that there are problems for their productivity with water currents and food supply (nutrients). Both he and Dr Gillespie express concerns that the inshore region is close to sustainable thresholds now and cumulative effects could occur[358].

[704] Mr Marr for Kuku Mara, is an experienced long term marine farmer. He identifies a number of factors which may contribute to the fact that the farms within the 200 metre zone are experiencing a stagnation in productivity over the past few seasons but in particular an increase in the number of lines in order to bring about better production, and the growing of spat instead of mussels[359].

[705] Mr King states that it takes 2 years to grow crop to an average of 100 millimetres on his Forsyth Bay farm as opposed to 100 millimetres within 12 – 18 months normally. But we note in cross-examination he acknowledged that his Wakatapui site has low water flows (nutrient supply) and the inshore region suffers from overcrowding[360].

[706] Dr James considers Mr King's growth cycle is of lengthy duration, but it would depend where the farm is situated, and he considers that the variation in productivity between years also needs to be identified. Farm management and spat supply issues as well as climate variability need to be taken into account[361].

[707] Dr James observes that NIWA has years of data gathered elsewhere than Forsyth Bay. The levels and seasonality that NIWA is experiencing in Forsyth Bay is consistent with the organisation's understanding of these other processes. As an example, there is considerable inter-annual variability in phytoplankton biomass between the years that high levels were recorded (1995/1996), but they have been low since then (at the Beatrix Bay site) so phytoplankton biomass may be generally low across both bays.

[708] Even with 41 marine farms along all of the inshore region on the western side of the bay extending out varying degrees to 200 metres, Dr James does not consider there would be a problem for the sustainability of the inshore farms from what Kuku Mara proposes – for a number of reasons.

[709] A key finding on inshore/offshore issues is that Dr James states that much of the water carrying nutrients in the middle of the bays never goes near the edge (inshore) – there is partial isolation of the inner bay. It is therefore unlikely that with the distances to the shoreline and existing farms depleted water would have any significant impact on the intertidal or inshore region. The witness observes there is some exchange, but much of the

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[357] Gillespie NOE 245.
[358] James 218.
[359] Marr NOE 6 – 7.
[360] King NOE 431 – 432.
[361] James NOE 215,228.

water offshore is "new ". The Kuku Mara farm therefore differs from the existing farms in that it is located further offshore in deeper water[362].

[710] Further, after assessing the effects of the proposed farm on water current and circulation, Dr James concludes any effects are likely to be localised and not have a significant effect on the overall circulation patterns in the bay. There is unlikely to be phytoplankton depletion because the total extraction of phytoplankton should be much less than resupply. In the example given ,of a Golden Bay case, phytoplankton recovery took place within 200 – 500 metres of farm boundary. This suggests from the Kuku Mara site, which is quarter the size of the Golden Bay farm, any depletion will have recovered within a few hundred metres of the farm boundary.

[71 1] The point is made by Dr James 'too, that because there is a decline in inshore productivity, it does not follow that altering margins outwards on the old farms will address the problem. He considers that new farms (rather than infill) are better offshore, where much of the water carrying nutrients never reaches the inshore region.

[712] As to the existing farms, Dr Gillespie acknowledges in benthic terms there is a relationship between potential cumulative benthic effects of the offshore and the near shore farms. But he is quite clear that by using the staged approach and detailed monitoring that adverse cumulative effects from one to the other could be avoided. He states this inrelation to the issue:

> *. the shoreline sites are within the shore slope region which has a different community structure in general than the central bay mud flat sites.*
> *Is that completely correct . . well it is a continuum and it will vary from place to place. The seabed environment of all of those coastal sites will not be the same and there will be different textural characteristics for them, but in general that area of the seabed between 50 and 200 metres from shore is of a different ecological type than the offshore mudflats.*[363]

[713] Dr Gillespie also makes the point the farms presently in Forsyth Bay were developed under a totally different regulatory regime (the Marine Farming Act) to what is being proposed by Kuku Mara. Those farmers are not required to develop a baseline assessment or, to monitor effects – an issue we consider should cause concern amongst all parties given the inter-tidal ecological values inshore -and issues of sustainability.

[714] On the question of the overall threshold of sustainability for further marine farm development in Forsyth Bay however, including the existing farms and the Kuku Mara site, we accept the evidence of the Kuku Mara scientists.

[715] The Friends consider that the reality is that Dr James' assessment of the carrying capacity threshold for' Forsyth Bay is made on a series of assumptions which are not backed by hard data. Dr James acknowledges this is so for carrying capacity, where certain assumptions have been made. Dr James identities, however, that the carrying capacity estimates are based on mussel growth and that is the best estimate Kuku Mara has of something that would integrate part of the water column system and changes included for Kuku Mara. He accepts there is no benchmark to work from. But he makes the point that while there is currently a level of uncertainty, it is based on current information and workshops with hydrodynamics experts – and that *what the scientists have done is used all*

362 James NOE 218.
363 Gillespie NOE 264.

the information available to make their complex and dynamic assessments. In addition the models used have been adapted or modified from models used in overseas systems[364].

[716] Dr James accepts that to run the Beatrix Bay carrying capacity model for Forsyth Bay will require comprehensive siudies and a long time series of food and nutrient availability studies. Based on the comparison of the two bays however, Dr James is able to assess a conservative precautionary threshold based on the knowledge and model outputs for Beatrix Bay. He predicts that 100 hectares additional farming could take place without adversely affecting the natural ecosystem.

[7 17] Dr James was questioned over the validity of his assumption that the carrying capacity of Forsyth Bay is at least equal to that of Beatrix Bay. One of the differences between the two bays is that Forsyth Bay has a greater flushing of nutrients as it is close to the open waters of Cook Strait. Additionally, the food levels data NIWA had collected in the last 18 months in both Beatrix and Forsyth Bays have been similar.

[718] Dr James and Gillespie's conclusions on conditions and the mitigation of any effects proposed included observations that:

- a cautious approach to large offshore farms is imperative;
  a detailed baseline assessment of benthic conditions should be carried out, prior to stocking of mussel lines, and 'repeated at predetermined intervals in conjunction with the harvest schedule;
- there should be a precautionary staged approach to development consisting of lower final stocking density: if monitoring results indicate that increased stocking densities are appropriate, the spacings will be reduced from 40 metres between the backbones in the first stage, to 20 metres in the second and final stages of development (most existing farms have 10 – 15 metre spacings);
- a protective buffer of 200 metres adjacent to the marine'farm is recommended to avoid adverse effects to the reef habitat (Dr Gillespie considers this could be scaled back on the northern side of the farm because no current flows to Bird Island)[365];
- the recommended benthic and water column sustainability monitoring as conditions of consent will provide a means of minimising any site-specific adverse effects through responsive farm management;
- food web response can be addressed through adequate monitoring linked with responsive management;
- the initial reduction in stocking densities due to the staged development will create wider buffer areas of lower impact providing havens for more sensitive species and preventing geneialised impacts over the whole site;
- the site's benthic characteristics, the reduced stocking density, and precautionary staged development will not threaten the ecological 'integrity of the benthic habitat.

[719] For the water column, NIWA has proposed fortnightly monitoring, over a six month period and then at two and four years. Dr James is confident that the monitoring programme imposed will detect significant adverse effects on the water column. Any control sites are well away from the Kuku Mara site and he states that a cautious approach to the large area of

364 James NOE 213.
365 Gillespie NOE 260.

marine farms is imperative. Dr James further notes that any unforeseen effects are not irreversible in terms of currents as they would return to normal in a couple of days[366].

[720] Finally, Dr James makes the point tha? the conditions proposed are the most comprehensive he has seen anywhere in New Zealand – a point of which we took particular notice. The monitoring proposed does not rely on one particular measure to assess change but a sweep of measures of indicators which all relate to the degree of enrichment and for sedimentation from the farm.

[721] While a review condition cannot require complete removal of marine farming structures and processes, it can reduce the scale if it can be shown the scale causes an adverse effect on the environment: see s.128 RMA for circumstances when consent conditions can be reviewed. Other than that the term of the consent is only for ten years – another factor of which we took particular note.

[722] We consider therefore that Kuku Mara have put before the Court the best scientific evidence available. We consider that the adaptive management techniques proposed are sufficient to address the issues of water column and benthic sustainability. If the benthic baseline studies are completed after the consent is granted and before the lines go in, then that approach too meets the necessary concerns. There would need to be an amendment to the conditions to accommodate that concern

. ***General Conditions in Mitigation***

[723] Dr Mitchell; Environment Consultant to Kuku Mara, provided the Court with a list of updated conditions in mitigation which addressed many of the identified concerns. We have assessed those carefully in the light of our findings above and consider they are entirely appropriate to address the management of a large mid-bay farm except in the areas where we have identified (significant) adverse effects.

Finding

[724] The proposal as set out sustains the potential of many of the natural resources of Forsyth Bay to meet the reasonably foreseeable needs of future generations.

. ***Adverse Effects***

[725] In the earlier part of this decision, we made findings as to the actual and potential effects of this proposal. The question to address now is whether those effects are major.

Ecological

- the effect of the proposal on water column and benthic issues will be no more than minor if adaptively managed in the way proposed;
- the potential effect on the reef of Bird Island is able to be managed in a way that the effects will be no more than minor;
- the potential effect of the proposal on the habitat and birds of Bird Island is not identified as major and adverse although we acknowledge that the foraging and playing grounds of the birds from that island were not identified and the site could possibly be in the middle of those;

[366] James NOE 211.

- the potential effect on the habitat of the King Shag cannot be identified as adverse on the information provided;
- there are no adverse effects on the mammals of Forsyth Bay which we are able to identify.

Navigation and Navigational Safety:

- the lighting proposed complies with the MSA guidelines;
- there is unlikely to be risk of collision due to the placement of the farm;
- there will be no major adverse effects on navigation and navigational safety except at night;
- there will be an adverse effect on navigation and public access at night to that affected area of the bay which we consider to be major.

Natural Character

- There will be a major adverse effect from the placement of structures and buoys on the seascape of Forsyth Bay which is an element of its natural character.

Visual Amenity

- There will be a major adverse effect on visual amenity values in and around the area of the site and Bird Island.

Landscape

- There will be a more than minor adverse landscape effect centred on Bird Island and the area around it.

*The **Non-complying** Tests: **s.105(2A)(a) and** (b)*

[726] Section 105(2A) states:

> **(2A) Notwithstanding any decision made under section 94(2)(a), a consent authority must not grant a resource consent for a non-complying activity unless it is satisfied that-**
>
> **(=) The adverse effects on the environment (other than any effect to which section 104(6) applies) will he minor; or**
>
> **(b) The application is for an activity which will not be contrary to the objectives and policies of,-**
>
> **(i) Where there is only a relevant plan, the relevant plan; or**
>
> **(ii) Where there is only a relevant proposed plan, the relevant proposed plan; or**
>
> **(iii) Where there is a relevant plan and a relevant proposed plan, either the relevant plan or the relevant proposed plan.**

[727] A non-complying activity which is actually opposed by its nature to the objectives and policies must be *"contrary"* for the purposes of s.105(2A)(b).

[728] The council, supported by its planning witness, Mrs Dawson, considers the proposed activity is not contrary to the overall objectives and policies of the plans. Both she and Mr Kyle make the point that a broad judgment is to be made[367]. Such judgment requires more than just isolating out one or two policies the activity might be contrary to. Because of the

[367] Dawson NOE 355. Kyle NOE.

generality of some of the policies and their wide ranging topic mailer, Mrs Dawson is not confident to say that the application in principle is contrary to objectives and policies as a whole.

[729] Mrs Dawson observes there is continued reference in the PMSRMP (in Chapter 9) to needing to ensure provision is made for a wide range of activities even outside the CMZ 1 zone: Policies in the plan apply to inshore as, well as offshore. The most that may be said of them is that some policies (such as those to do with natural character) give more guidance than others.

[730] Mr Nugent considers that if granting a consent in a non preferred area precludes the future development of a preferred area, then this would go to the heart of resource management and sustainable management 'of the resources. He considers that if the Court was to hold that a proposal passed the "*non complying activity* test " then it calls into question why the council bothered to make a distinction between discretionary and non-complying activities[368].

[73 1] We conclude from the evidence that the council may have considered that by making marine farming a non-complying activity in 'mid bay locations, it has prepared a strategy whereby it purposefully indicates it prefers them to go into certain [other] locations. But whatever the history behind marine farming in the CMZ 2 zone, there is no suggestion in the relevant resource management documents that as a matter of policy, marine farms should not be located in the CMZ 2. Chapter 9 which is the specific chapter relating to marine farms is neutral in that regard.

[732] As identified by Mrs Dawson, the PMSRMP does not come, out and make any clear statement about what non-complying status is seeking to achieve[369]. The specific reasons for the differentiation between the discretionary, non-complying status have become lost and are not set out in the explanation for the zoning and the rules in the PMSRMP. Also the plan is not clear in indicating how applications beyond the 200 metre limit should be considered by comparison with applications within it.

Findings

[733] In terms of s.105(2A)(a) and our analysis under "adverse effects" above, we find that some adverse effects of the proposal (natural character, landscape, navigation at night and visual amenities) are cumulatively major. The first test is therefore failed

[734] We further find that whilst the application is contrary to some of the more specific objectives and policies of the plans, it is not to others which are of a more general nature.

[735] Exercising a broad judgment, the proposal is not contrary to the objectives and policies identified overall. We move to the exercise of our discretion.

[368] Nugent NOE 458.
[369] Dawson EIC 10, NOE 359.

Exercise of Discretion s.105(1)(c)

[736] The exercise of the discretion is described in *Baker Boys Ltd v Christchurch City Council*[370] as follows:

> *As for our discretion under s105(1)(c) we have to make an overall judgment to achieve the single purpose of the Act. This is arrived at by:*
> - *Taking into account all the relevant matters identified under s104*
> - *Avoiding consideration, Of any irrelevant matters such as those identified in s104(6) and 104(8)*
> - *giving different weight to the matters identified under s104 depending on the Court 's opinion as to how they are affected by application of s5(2)(a), (b), (c) and ss6-8 of the Act to the particular facts of the Case, and then*
> - *in the light of the above, allowing for comparison of conflicting considerations, the scale or degree of them, and their relative significance or proportion in the final outcome.*

[737] We apply the Court's findings in that case to this. We conclude that:

- whilst there will be some positive economic effects flowing *to* the community from this proposal, there was no evidence to indicate the proposal is imperative on the site;
- because the inshore regions: of Forsyth Bay particularly the western shore is so modified, it is important to retain the high natural character values offshore in their intact state;
- because the proposal constitutes a sporadic development in the bay, it affects a key provision in the NZCPS.;
- because the area of the site includes an outstanding natural feature, Bird Island, we consider adjacent areas should not be developed for'industrial activities;
- because the natural character values overall in the bay are higher than those identified by Kuku Mara particularly offshore, it is important they are not reduced by development;
- because visual amenity values in the area will be diminished so significantly by the proposal;
- because the proposal will adversely affect navigators traversing the inshore Wakatahuri route at night, it will diminish historic open space values;
- because the bay, whilst not heavily trafficked, sustains so many amenities valued and identified by the community –

we consider the proposal should not proceed on this site.

Costs

[738] The issues identified in this decision are finally balanced. We do not consider this an appropriate case for costs.

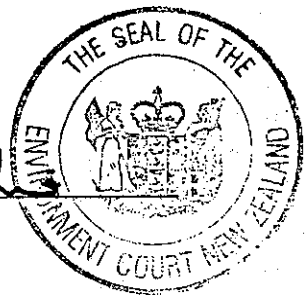
370 [1998] NZRMA 433,462

Determination

[739] Accordingly for all the above reasons, the appeal is declined and the decision of the council upheld.

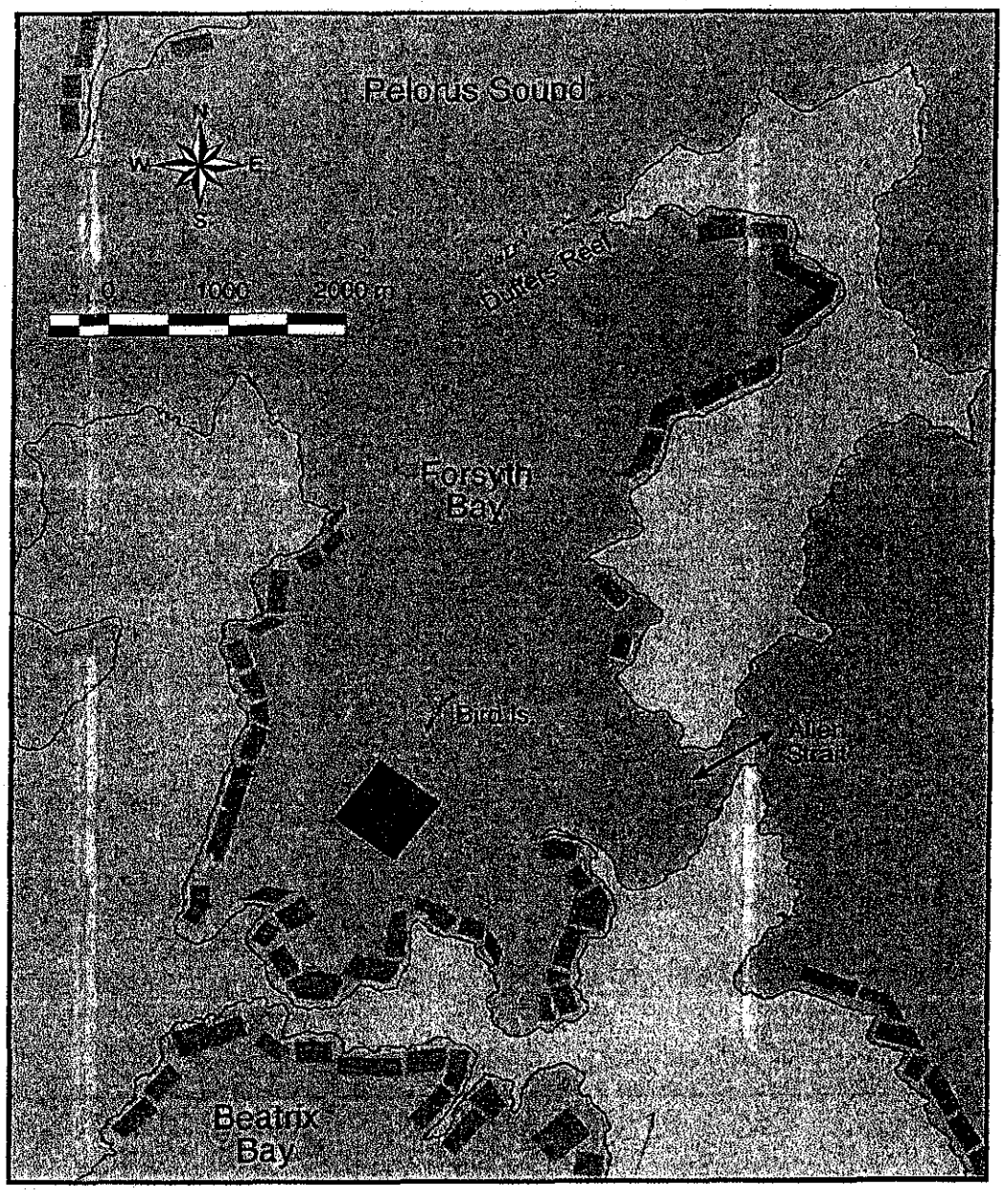
For the Court:

DATED at WELLINGTON this 16th day of July 2002



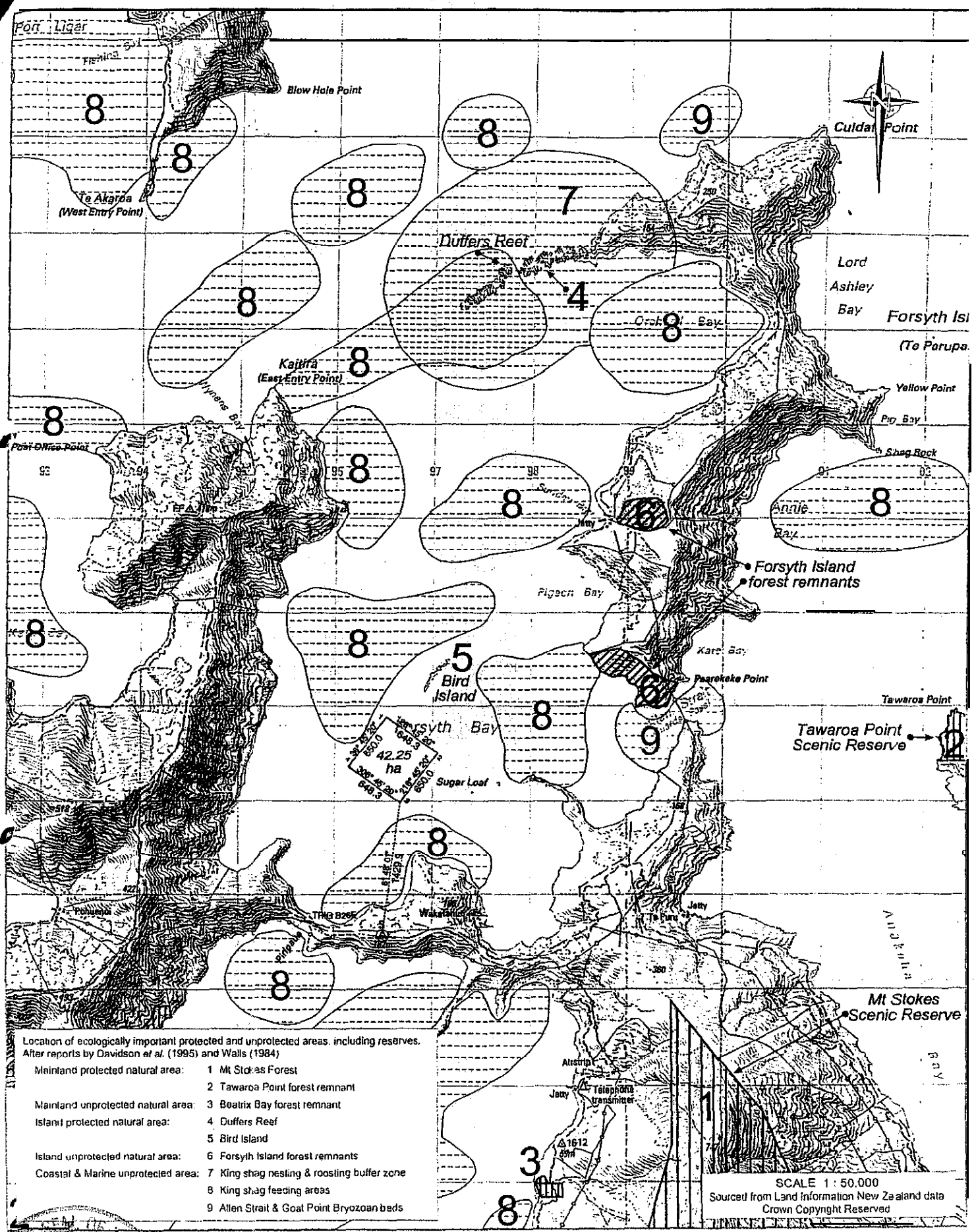
S E Kenderdine
Environment Judge

Appendix A



Figiire 1. The proposed marine farm at Forsyth Bay, Marlborough Sounds. Existing coastal, marine farms marked in pink, and the proposed Kuku Mara Partnerships farm site marked in red.

Appendix B



Location of ecologically important protected and unprotected areas, including reserves.
After reports by Davidson *et al.* (1995) and Walls (1984)

Mainland protected natural area:	1	Mt Stokes Forest
	2	Tawaroa Point forest remnant
Mainland unprotected natural area:	3	Beatrix Bay forest remnant
Island protected natural area:	4	Duffers Reef
	5	Bird Island
Island unprotected natural area:	6	Forsyth Island forest remnants
Coastal & Marine unprotected area:	7	King shag nesting & roosting buffer zone
	8	King shag feeding areas
	9	Allen Strait & Goat Point Bryozoan beds

Figure 2: Location of the proposed Forsyth Bay marine farm showing ecologically important areas

Appendix C