

BEFORE THE ENVIRONMENT COURT

Decision No. [2014] NZEnvC 152

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of appeals under section 120 of the Act

BETWEEN KPF INVESTMENTS LIMITED

(ENV-2012-CHC-80)

PELORUS WILDLIFE SANCTUARIES
LIMITED, J & R BUCHANAN &
H T ELKINGTON

(ENV-2012-CHC-68)

Appellants

AND

MARLBOROUGH DISTRICT COUNCIL

Respondent

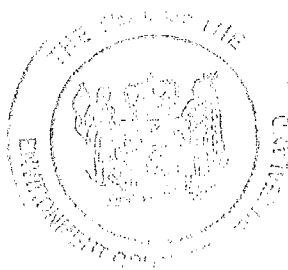
Court: Environment Judge J R Jackson
Environment Commissioner K Prime
Environment Commissioner I Buchanan

Hearing: at Blenheim on 17, 18, 19 and 20 June 2013
(Final submissions received 12 June 2014)

Appearances: M J Hunt, M Hardy-Jones and K M Lawson
for KPF Investments Limited
M Radich for Marlborough District Council
J Ironside for Pelorus Wildlife Sanctuaries and Others
and for Friends of Nelson Haven & Tasman Bay Incorporated
(s 274 party)

Date of Decision: 2 July 2014

Date of Issue: 2 July 2014



DECISION

- A: Under section 290(2) of the Resource Management Act 1991, the Environment Court cancels the decision of the Marlborough District Council in respect of coastal permit application U110519.
- B: Under section 290(1) of the Act, the Environment Court refuses the application (U110519) by KPF Investments Limited.
- C: Costs are reserved. Any application is to be lodged and served by 30 July 2014 and any reply by 27 August 2014.
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REASONS

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1. Introduction

1.1. The issue

[1] Should resource consent to farm salmon in cages at Danger Point in outer Pelorus Sound (Te Hoiere) be granted to the applicant, KPF Investments Ltd ("KPF")? If it is to be granted, what are the appropriate conditions of consent?

1.2. The proposal by KPF to farm salmon at Danger Point

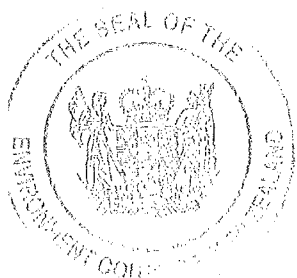
[2] The site is located at the entrance to Port Ligar and is currently developed for mussel farming so this is not a proposal for a new marine farm. Rather, KPF proposes to convert an existing mussel farm (in part) for salmon farming.

[3] Existing resource consents U041475 and U991142 for the marine farm at Danger Point (site 8080) provide for the farming of green shell mussels *Perna canaliculus*, blue mussels *Mytilus galloprovincialis*, dredge oysters *Tiostrea chilensis*, and scallops *Pecten novaezelandiae*, using conventional long line methods.

[4] KPF applied to the Marlborough District Council on 3 October 2011 for resource consents to:

- add king salmon (*Oncorhynchus tshawytscha*) and the activity of farming king salmon to the list of consented species to be farmed at the site;
- establish 11 circular marine farm cages (maximum diameter 38 metres) anchored to the seabed by screw or wedge anchor;
- discharge up to 2,500 tonnes of salmon feed;
- discharge coastal water and biodegradable organic matter associated with cleaning predator nets; and
- disturb the seabed with anchoring devices.

[5] The applications — numbered U110519 — were assessed by the Council as complete on 7 October 2011 and date-stamped on 10 October 2011.



[6] The proposal is to farm salmon in net-cages which are suspended from a torus comprised of two floating metal rings about 2 metres apart and with an internal diameter of 32 or 38 metres. The rings will be joined by a 2 metre circular walkway. The outer ring will have stanchions which will protrude above the water by 1.5 metres¹ and from which a predator net will be suspended to keep out seals and sharks. A lighter net will (if necessary) be suspended over the farm to keep out birds. The stanchions will support a net to prevent predators such as fur seals from accessing the cages.

[7] For at least the first three years of operation a maximum of 1,500 metric tonnes of feed will be introduced to the cages to feed the salmon. If certain environmental standards are met underneath and around the sites, then the feed will be increased, incrementally to a total over time of 2,500 metric tonnes per annum. Each tonne of food produces on average about 0.8 tonnes of salmon.

[8] The existing consent is not to be cancelled. The farm may revert back to mussels if that is more profitable than growing salmon.

[9] A copy of a plan showing “Existing Mussel Farm Activity and Proposed Salmon Farming”² is annexed to this decision marked “A”. This plan also shows the location of the farm between Danger Point and Beach Point at the entrance to Port Ligar.

1.3. The Council decision and the appeals

[10] The Council’s Hearings Committee granted the application³ (in part) to discharge up to 1,500 tonnes of feed per annum, to add king salmon as a species permitted to be farmed, to establish 11 polar circle cages and to undertake the activity of growing and harvesting salmon — all the consents being subject to an extensive suite of conditions.

[11] KPF, as applicant, lodged an appeal against the part of the decision concerning the quantity of food to be discharged, and the conditions on the baseline survey, structures, reporting and environmental standards.

[12] Pelorus Wildlife Sanctuaries Ltd, James Ross and Rea Buchanan, and Hori Elkington (“the appellants”) lodged an appeal⁴ against the whole of the decision. The reasons for appeal include alleged failure by the Council to apply relevant planning provisions and to make proper assessment of effects. This appeal was supported by the Friends of Nelson Haven and Tasman Bay Inc (“FNH&TB”) as a s 274 party.

¹ R B Nicolle, evidence-in-chief para 31 referring to a plan called “Indicative Cross Section of 32m diameter Polar Circle Fish Cage” [Environment Court document 8].

² T F Carter, evidence-in-chief Annexure A Sheet 3 [Environment Court document 6].

³ Resource Consent U110519.

⁴ ENV-2012-CHC-80.



1.4. The status of the applications, and the matters to be considered

[13] The applications are for discretionary activities because the site is in the Coastal Marine Zone 2 (CMZ2) of the Marlborough Sounds Resource Management Plan. Marine farming in the CMZ2 is a discretionary activity when located within 200 metres of the shore, and there is a portmanteau rule⁵ which makes all the activities applied for discretionary.

[14] Since the completed application(s) were accepted by the Council on 7 October 2011, the RMA in its form prior to the Resource Management Amendment Act 2013 applies⁶.

[15] Section 104(1) of the RMA identifies the matters we are to have regard to. Our understanding of section 104(1)(1) and the introductory words "... subject to Part 2 ..." is, as stated in *re Skydive Queenstown Ltd*⁷, that:

... the local authority, or on appeal ... , the Environment Court must make a broad judgment weighing four sets of consideration. The first two are compulsory:

- (a) any actual and potential effects on the environment of allowing the activity; and
- (b) any relevant provisions of [the listed hierarchy of statutory instruments].

The third and fourth considerations are to be considered if necessary. They are:

- (c) any other matter the consent authority considers ... relevant; and
- (d) Part 2 of the Act.

It is well-established that the words "subject to" show that Part 2 of the Act only needs to be resorted to if there is a conflict in or between any of the other three sets of considerations in section 104(1) of the Act: *Minister of Conservation v Kapiti Coast District Council*⁸ relying on an earlier decision of the Court of Appeal — *Environmental Defence Society v Mangonui County Council*⁹ (on the Town and Country Planning Act 1977) where Cooke J stated "... the qualification "subject to" [is] a standard method of making clear that the other provisions referred to are to prevail in the event of a conflict".

We consider that decision is not quite accurate. First, the reference to a "broad judgment" needs to be read subject to a recent Supreme Court decision — *Environmental Defence Society v The New Zealand King Salmon Company Limited*¹⁰ — which we discuss in some detail later in this decision. Second, we observe that a further, potentially important difference between the RMA and the earlier statute

⁵ Rule 35.4 [Sounds Plan p 35-13].

⁶ Section 434 RM Amendment Act 2013.

⁷ *Re Skydive Queenstown Ltd* [2014] NZEnvC 108 at [18] and [19].

⁸ *Minister of Conservation v Kapiti Coast District Council* (1994) 1B ELRNZ 234, [1994] NZRMA 385 at [8].

⁹ *Environmental Defence Society v Mangonui County Council* [1989] 3 NZLR 257 at 260; (1989) 13 NZTPA 202 at 197.

¹⁰ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38.



is that the "subject to" formula is now used not merely to resolve a conflict between provisions in the statutory documents, but also to resolve a conflict between section 104(1)(a) to (c) considerations if they weight on different sides of the scales. In other words the formula "subject to" now has substantive implications rather than merely instructions as to application of the relevant statutory documents.

[16] Because the applications also seek a discharge permit, we must also apply sections 105 and 107 of the RMA. Section 105 requires us to have regard to (relevantly):

- (a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
- (b) the applicant's reasons for the proposed choice; and
- (c) any possible alternative methods of discharge, including discharge into any other receiving environment.

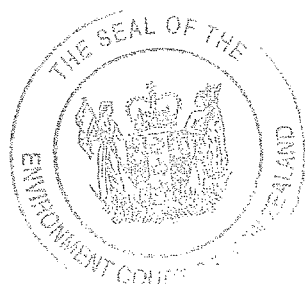
[17] Section 107 provides:

107 Restriction on grant of certain discharge permits

- (1) Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing -
 - (a) The discharge of a contaminant or water into water; and
 - ...
 - (ba) The dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant, -
if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:
 - (c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
 - (d) Any conspicuous change in the colour or visual clarity:
 - (e) Any emission of objectionable odour:
 - (f) The rendering of fresh water unsuitable for consumption by farm animals:
 - (g) Any significant adverse effects on aquatic life.
 - ...
- (3) In addition to any other conditions imposed under this Act, a discharge permit or coastal permit may include conditions requiring the holder of the permit to undertake such works in such stages throughout the term of the permit as will ensure that upon the expiry of the permit the holder can meet the requirements of subsection (1) and of any relevant regional rules.

[18] Whenever we consider adverse effects, we do so having regard to their mitigated version, i.e. assuming the volunteered or (identified) improved conditions and an adaptive management regime both apply.

[19] Finally, we must have regard to the council's decision under s 290A of the Act.



1.5. The Supreme Court decision on applications by The New Zealand King Salmon Company Limited

[20] For several years prior to October 2011, new applications for marine farms in the Marlborough Sounds and elsewhere were subject to a statutory moratorium. When that was lifted there was a small rush to make new applications. Most were for mussel farms. More relevantly, applications to allow salmon farming on eight sites (as shown on the attached plan marked “B”) in the Marlborough Sounds were made by The New Zealand King Salmon Company Limited (“NZKS”) later the same day (3 October 2011) as the application by KPF. Those applications were not to the Council, but to the Ministry for the Environment for a plan change and for consequent resource consents under the special procedure in Part 6AA of the Resource Management Act 1991 (“the Act” or “the RMA”).

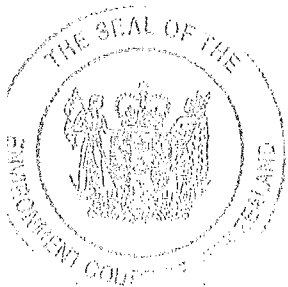
[21] NZKS needed to apply for a change to the Marlborough Sounds Resource Management Plan (“the Sounds Plan”) to allow salmon farming at some sites zoned CMZ1 in the Marlborough Sounds because marine farming is a prohibited activity in that zone. The change sought was to spot zone various sites as a new CMZ3 zone for salmon farming.

[22] The NZKS applications were heard by a Board of Enquiry (“Board”) established by the Environmental Protection Authority (“EPA”) from August to October 2012 and a “Final Report and Decision”¹¹ was issued on 23 February 2013.

[23] The outcome of the Board’s examination of the evidence (some of which was repeated to us) in relation to the five farms sought in Pelorus Sound was to decline the plan change proposals for two of the farms in Waitata Reach on the grounds that the assimilative capacity of the receiving waters and the potential cumulative effects on the foraging areas of the King Shag were uncertain, and that the cumulative effects of the Kaitira and Tapipi sites on the natural character and landscape value of the entrance to Pelorus Sound would be high. The consent application for the White Horse Rock site was denied by the Board as the cumulative adverse effects on recreational fishing, customary fishing, navigation, natural character and landscape were considered to be too high. The Board granted consents (“the EPA consents”) for farms at the Richmond and Waitata sites, recognising that some adverse effects will arise and that these effects can be adequately managed through the proposed conditions of consent.

[24] The EPA consents were granted subject to an extensive set of conditions designed to manage the adverse effects of the proposed salmon farms within acceptable environmental limits. An adaptive management approach was taken to manage effects where insufficient information was available to determine the likely extent of adverse effects with adequate certainty.

¹¹ We call this “the Board Report”.



[25] Two section 274 parties to the applications for the EPA consents appealed to the High Court. Dobson J subsequently rejected both appeals. A further appeal direct to the Supreme Court followed.

Of the three Supreme Court's decisions, two are potentially relevant:

- *Environmental Defence Society Inc v The New Zealand King Salmon Company Limited and Others*¹² (“the EDS decision”);
- *Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited and Others*¹³ (“the SOS decision”).

[26] Because of the potential importance of the Supreme Court's decisions we gave leave to the parties to make submissions on their effect. We received submissions from all parties, although, surprisingly, those for KPF did not actually refer to the EDS decision at all. That may be a subtle way of reminding us that on an application for a resource consent the consent authority and court must merely have particular regard to various statutory documents including the NZCPS. In contrast, in a plan change, the decision maker must give effect to¹⁴ the NZCPS.

2. The setting: Danger Point, the Waitata Reach and Port Ligar

2.1. The Danger Point Marine Farm in its environment

[27] The entrance to Pelorus Sound is marked by two points — Te Akaroa¹⁵ to the north and Kaitira to the south¹⁶. On the northwestern side of Pelorus Sound, the next headland is Danger Point, approximately 2.5 kilometres due west of Te Akaroa. Marine farm site 8080 is situated on the east facing side of Danger Point at the entrance to Port Ligar. This site has been the location of mussel farming activities for 15 years.

[28] Port Ligar opens to the south into the Waitata Reach; it is 4.5 kilometres deep and up to two kilometres wide. Other marine farms are located around Port Ligar — the line of farms is almost continuous except within Waterfall and Homestead Bays and on the north side of Cannon Point.

[29] The existing marine farm¹⁷ is 12 hectares in area and features navigational buoys and lighting, mussel floats and vessels. It comprises two similar sized, rectangular areas

¹² *Environmental Defence Society Inc v The New Zealand King Salmon Company Limited and Others* [2014] NZSC 38.

¹³ *Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited and Others* [2014] NZSC 40.

¹⁴ Section 67(3)(b) RMA.

¹⁵ The alternative, confusing, name is West Entry Point (confusing because it is on the North side of the entrance to Pelorus Sound).

¹⁶ This also has a confusing alternative — East Entry Point.

¹⁷ MDC site 8080.



of mussel buoys. The larger of these contains 14 backbone lines each 165 metres long and spaced 23 metres apart, and:

- the buoys at each end of the backbone line are orange with the remaining buoys coloured black;
- the outer four corners of the farm and the two inner buoys at either end of the farm (six in total) support a radar reflector and navigation light visible up to 1.8 nautical miles away.
- each backbone line is anchored to the sea floor (28 eight tonne blocks or screw anchors in total).

[30] The smaller part of the farm — near to Beach Point (Area 3) — contains 3 backbone lines, totalling 144 metres long and:

- the buoys at each end of the backbone line are orange with the remaining buoys coloured black;
- the outer four corners of the farm support a radar reflector and navigation light;
- each backbone line is anchored to the sea floor (six anchors in total).

[31] Harvesting of mussels generally occurs throughout the year with July / August being the quietest period. Harvesting usually takes 4-6 hours at a time and takes place from the 28-metre *Pelorus Image*. Routine servicing is carried out by KPF's 17 metre vessel. A variety of other vessels including smaller (6-8 metre) craft are used for the transportation of staff.

The marine environment

[32] The marine environment adjacent to and under the existing mussel farm was detailed in the Cawthron Report that accompanied the application. The seabed beneath the proposed Port Ligar site is dominated by soft mud sediments and mussel shell with inshore areas characterised by cobble / sand habitats. These habitats are dominated by sparse epifaunal communities containing species that are apparently common in the Marlborough Sounds.

[33] The site has moderate water currents¹⁸ with average velocities approximately 9cm s^{-1} and maximum water velocities in the order of $25\text{-}35\text{cm s}^{-1}$ throughout most of the water column. Water depths range from 15 to 20 metres along the inside boundary of the farm, to 30 to 36 metres along the seaward side¹⁹. The proposed cages would be — as shown on Attachment A — closer to the latter.

¹⁸ D I Taylor, evidence-in-chief para 29 [Environment Court document 4].

¹⁹ D I Taylor, evidence-in-chief para 24 [Environment Court document 4].



[34] Port Ligar is part of the habitat occupied by the endemic King Shag, a vulnerable species, as well as sundry other bird species, cetaceans and fish. The marine area around the Danger Point headland is identified in the Sounds Plan²⁰ as the Port Ligar king shag feeding habitat, thus it is an ecological site of national significance.

[35] There is an extensive rocky reef system 700 metres to the south of the site, and extending into Waitata Reach from Danger Point²¹. Many fish species, algae, ascidians and molluscs live there. In contrast, the fauna under the site is “dense aggregations of 11-armed sea stars²² ... feeding on mussels which had fallen from the lines above²³”. Inshore, on the cobble slopes small tubeworm mounds are “common²⁴ with anemones, ascidians, sponges and kina (sea urchins)²⁵”.

[36] There is an existing, operational NZKS salmon farm in the next bay to the south — Waihinau Bay. The operation of this farm alternates with another NZKS site in Forsyth Bay to allow the sites (especially the seafloor to recover). There is another salmon farm at Crail Bay but this is not currently being operated. Regular commercial boat traffic — much of it associated with mussel farms — moves past the site, as do recreational boats.

[37] We inspected the Waihinau and Crail Bay farms, in addition to the site and Port Ligar. We accept that there is definitely a working character to Waitata Reach and Port Ligar. That will be taken into account when we consider the quality of the site’s natural character.

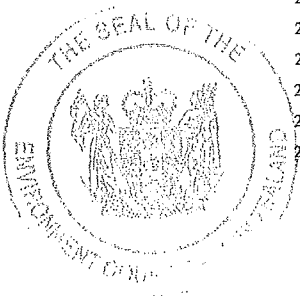
The adjacent land

[38] The land around Port Ligar is part of the Bulwer land ecosystem. The Sounds Plan describes this as follows²⁶:

Steepish dissected, climatically dry coastal hill slopes stretch fingers at random into the sea, forming many bays and coves, the landmass itself being the most submerged of the Marlborough land ecosystems. Inside these splayed fingers the sea abuts the land abruptly, with few beaches.

[39] The site is within an “Area of Outstanding Landscape Value” in the Sounds Plan. Map 74²⁷ shows this area at Danger Point extending more than 200 metres out to sea in a line parallel with the shore.

²⁰ Site 1/11 in Appendix B [Volume 2 Sounds Plan p B-2].
²¹ D I Taylor, evidence-in-chief para 27 [Environment Court document 4].
²² *Coscinasterias calamari*.
²³ D I Taylor, evidence-in-chief para 25 [Environment Court document 4].
²⁴ D I Taylor, evidence-in-chief para 26 [Environment Court document 4].
²⁵ D I Taylor, evidence-in-chief para 26 [Environment Court document 4].
²⁶ Appendix 2 [Volume 1, Sounds Plan p 28].
²⁷ Map 74 [Vol. 3 Sounds Plan].



Natural character

[40] The primary evidence on the natural character of the area came from the landscape experts — Mr T F Carter, called by KPF, and Dr M J Steven, called by the appellants. They were agreed that the land on Danger Point adjacent to the marine farm is owned by the Pelorus Wildlife Trust. It is covered in regenerating native vegetation with some wilding pines. As we have said, Port Ligar is largely ringed with mussel farms. Further into Port Ligar away from the site, there are areas of conservation land but also farms, exotic (pine) plantations, roads into the head of Port Ligar, houses, jetties and boatsheds.

[41] Mr Carter appeared to use a five point scale²⁸ on which he rated the overall coastal environment around the site as between medium and high. Dr Steven rated²⁹ the natural character of the Waitata Reach/Port Ligar landscape “... as High with respect to the marine component and Moderate-High with respect to the terrestrial component”. He also wrote³⁰ that Danger Point would, at a more local level, rate as having moderate/high natural character.

The tangata whenua and their rohe

[42] We read the evidence of Mr H T Elkington, speaking for himself and Ngati Koata. He asked³¹ that the court “first and foremost respect nga iwi tangatawhenua and nga tikanga a Tangaroa and the objectives of the Ngati Koata Iwi Management Plan”. Based on the evidence presented to this hearing the tangata whenua of this part of the Marlborough Sounds include Ngati Koata, the kaitiaki of Waitata Reach.

[43] There are at least two existing salmon farms within the rohe of Ngati Koata — the farms at Crail Bay and, in the next bay south of Danger Point, at Waihinau Bay close to the settlement of Bulwer. Two sites approved by the Board of Inquiry into the NZKS application — the Waitata and Richmond sites — are also within the rohe moana of Ngati Koata.

2.2. The landscape setting

[44] It was common ground that the site is within an Area of Outstanding Landscape Value (“AOLV”) as shown on Map 74 in the Sounds Plan. The extent of the AOLV is shown as Mr Carter’s plan, attached as “A”.

[45] Nowhere in the Sounds Plan are any specific outstanding natural landscapes expressly identified. Instead “areas of outstanding landscape value” are identified in an attempt to guide users of the plan as to where use, development and protection might be appropriate or not. Further, most of the AOLV are terrestrial, but some include a

²⁸ T F Carter, evidence-in-chief para 68 [Environment Court document 6].

²⁹ M L Steven, evidence-in-chief para 71 [Environment Court document 7] — this uses the seven point scale he referred to at his para 54, Table 2.

³⁰ M L Steven para 71 [Environment Court document 7].

³¹ H T Elkington, evidence-in-chief para 25 [Environment Court document 17].



“coastal segment”³², for example, around headlands such as Danger Point. Larger areas of sea are included³³ within the “AOLV” at Tennyson Inlet and Croisilles Harbour (and elsewhere within the Sounds).

[46] Many of the AOLV are small, as the Supreme Court observed in *Environmental Defence Society v The New Zealand King Salmon Company Limited*³⁴. However, while the Supreme Court usefully discussed the easier terms “inappropriate” and “avoid”, it avoided giving any further guidance on the more difficult terms such as “landscape”. The Supreme Court said³⁵ of “landscapes” in the Sounds Plan:

In addition, the Council assessed the landscapes in the Marlborough Sounds for the purpose of identifying those that could be described as outstanding. It noted that, as a whole, the Marlborough Sounds has outstanding visual values and identified the factors that contribute to that. Within the overall Marlborough Sounds landscape, however, the Council identified particular landscapes as “outstanding”. The Sounds Plan describes the criteria against which the Council made the assessment and contains maps that identify the areas of outstanding landscape value, which are relatively modest given the size of the region. It seems clear from the Sounds Plan that the exercise was a thoroughgoing one. (Emphasis added).

With respect to the Supreme Court, the third sentence (underlined) in that passage is not quite accurate, nor is it consistent with the other sentences in the paragraph. The Sounds Plan is rather more sophisticated (and complicated) than the Supreme Court’s decision might indicate. The district plan has not identified particular landscapes as outstanding, rather it has gone beyond that and identified the “areas of outstanding landscape value” to guide people dealing with the landscape as to where development might be more or less appropriate.

What is a “landscape”?

[47] We accept that “landscape” can be considered at various scales, depending on context — as recognised by the Supreme Court in *Environmental Defence Society v The New Zealand King Salmon Company Limited*. However, those scales cannot be so large or small that they warp the meaning of the word used by Parliament.

[48] Landscape is defined in *The Shorter Oxford English Dictionary*³⁶ as “... a prospect of inland scenery, such as can be taken in at a glance from one point of view ...”. The *NZ Oxford Dictionary* definition is (relevantly):

- 1 natural or imaginary scenery, as seen in a broad view
- 2 (often *attrib.*) a picture representing this; the genre of landscape painting.
- 3 ...

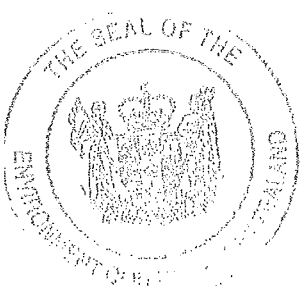
³² The phrase comes from the discussion of “landscape character” in Appendix 1 to Volume 1 [Sounds Plan Volume 1, p App One-1].

³³ Map 77 Sounds Plan [Volume 3].

³⁴ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [50].

³⁵ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [73].

³⁶ 3rd Edition, Volume 1 p 1174 (1985, OUP).



The New Zealand definition partly confuses, it seems to us, the first meaning with the second. But the sense of a broad expanse is common to the term “landscape” when it applies to an actual place rather than to an image of a (real or imagined) place.

[49] “Features” — as the word is used in section 6(b) RMA — are (usually smaller) components of landscapes. As the court stated in *Wakatipu Environmental Society Inc v Queenstown Lakes District Council*³⁷:

We consider that the words “landscape” and “feature” are used deliberately in section 6(b) and that “feature” means³⁸:

... a distinctive or characteristic part of a [landscape].

[50] In descriptions of larger landscapes such as “the Central Otago landscape” or “the Marlborough Sounds”, “landscape” means a “landscape type” or “a collection of adjacent, similar landscapes”. Given the wide definition of environment(s) in section 2 of the RMA and the other areal terms used in section 6 (the “coastal environment”³⁹, — “wetlands ... lakes and rivers”⁴⁰, “areas of significant indigenous vegetation”⁴¹, “ancestral lands, water, sites, waahi tapu ...”⁴²), we hold that Parliament did not intend “landscape” in section 6(b) to be used in the modern broader senses whether as a substitute for “environment” (which is defined⁴³ in the RMA) or as a “landscape type”.

[51] We have recognised that landscapes may be seen/assessed at various scales depending on context. However, when used of a large area the word “landscape” tends to morph into a second sense of ‘landscape type’ as discussed. Or when used of an area that is less than the viewer sees at a glance, then the area is probably a landscape unit or a feature, rather than a landscape. As between those extremes, section 6(b) of the RMA is usually concerned with the smallest scale at which we can consider a landscape⁴⁴.

[52] We hold that the word “landscape” is being used in section 6(b) primarily in the picturesque sense of an area that can be seen at a glance. We also note in passing that there is an issue — never tested — as to whether section 6(b) was ever intended to apply to the coastal environment. Parliament may have intended that a landscape is an area of inland scenery as opposed to a “seascape”. Section 6(a) and (b) could have been intended to be complementary rather than overlapping.

³⁷ *Wakatipu Environmental Society Inc v Queenstown Lakes District Council* Decision C129/2001 at [33].

³⁸ *The Concise Oxford Dictionary* (8th Edition) [OUP, 1990] — we substitute “landscape” for “thing”.

³⁹ Section 6(a) RMA.

⁴⁰ Section 6(a) RMA.

⁴¹ Section 6(c) RMA.

⁴² Section 6(e) RMA.

⁴³ Section 2 RMA.

⁴⁴ See Board Report para 600.



“Outstanding” and “natural”

[53] The Environment Court has issued a long line of cases as to the factors to consider when assessing where one landscape begins and another ends, and whether a landscape is “natural” and/or “outstanding”—see, for example, *Pigeon Bay Aquaculture Ltd v Canterbury Regional Council*⁴⁵ and *Long Bay etc. v North Shore City Council*⁴⁶. However, as we shall see, in the Marlborough Sounds, questions of naturalness are to be determined under Chapter 2 and Appendix 1 of the Sounds Plan.

[54] In fact, in this case, the landscape witnesses were agreed that the Danger Point AOLV is too small to be a “landscape”⁴⁷ within the meaning of section 6(b). They failed to consider whether it is an outstanding natural feature within the meaning of section 6(b) of the RMA. The only rational conclusion from the Sounds Plan is that it is a part of a landscape, that is, a feature. That feature is also outstanding and natural as the Council has indicated in describing it an AOLV.

What landscape contains the site?

[55] In case it is relevant we record that the landscape witnesses, Mr Carter, and Dr Steven, agreed that the site was on the boundary⁴⁸ of two different landscapes—the Port Ligar landscape⁴⁹ and a Waitata Reach landscape⁵⁰. Mr Carter candidly admitted he has changed his mind on this issue. At the Council hearing he had said⁵¹ that the site is within an outstanding natural landscape, whereas before us he said that it was not⁵². It was difficult to understand the reason for his change, and that was not improved by his answers in extensive cross-examination⁵³. We prefer the evidence of Dr Steven on this point. He considered “Waitata Reach” was one landscape, and that the KPF site was on the edge of that. That seems to be consistent with the findings of the Board Report which considered⁵⁴ Waitata Reach as the landscape setting for the Richmond and Waitata salmon farms.

[56] We also agree with the Board that⁵⁵:

... it is important in the Sounds setting to consider, as Dr Steven emphasized, the role of the sea, or at least the surface of the marine environment. It is unambiguously an integral part of all Marlborough Sounds landscapes at any scale of analysis.

⁴⁵ *Pigeon Bay Aquaculture Ltd v Canterbury Regional Council* [1999] NZRMA 209 [Environment Court document 6].

⁴⁶ *Long Bay-Okura Great Park Society Incorporated v North Shore City Council* A078/08.

⁴⁷ See, e.g. T F Carter, evidence-in-chief para 76 [Environment Court document 6].

⁴⁸ T F Carter, evidence-in-chief para 51 second bullet point [Environment Court document 6]; M L Steven, evidence-in-chief para 34 [Environment Court document 7].

⁴⁹ T F Carter, evidence-in-chief para 51 [Environment Court document 6].

⁵⁰ T F Carter, evidence-in-chief para 51 second bullet point [Environment Court document 6].

⁵¹ T F Carter, evidence-in-chief footnote 29 [Environment Court document 6].

⁵² T F Carter, evidence-in-chief para 81 [Environment Court document 6].

⁵³ Transcript pp 132 et ff.

⁵⁴ Board Report para [605].

⁵⁵ Board Report para [606].



2.3. Are the New Zealand King Salmon consents part of the environment?

[57] One unusual aspect of this case is that there are now two unimplemented resource consents for two other salmon farms in the Waitata Reach (as shown on plan 'B' annexed). Normally those would be included as part of the environment we have to consider. As Cooper J stated, giving the judgment of the Court of Appeal, in *Queenstown Lakes District Council v Hawthorn Estate Ltd*⁵⁶:

In summary, all of the provisions of the Act to which we have referred lead to the conclusion that when considering the actual and potential effects on the environment of allowing an activity, it is permissible, and will often be desirable or even necessary, for the consent authority to consider the future state of the environment, on which such effects will occur.

[58] The notional presence of the NZKS farms at the Richmond and Waitata sites is potentially important because we need to consider the accumulative effects of the KPF proposal on the environment including those two salmon farms.

[59] For KPF, Mr Hunt submitted that it would be unfair for the effects of the Richmond and Waitata farms to be considered part of the environment⁵⁷, because the KPF application was lodged first (if barely). We agree with him that does seem unfair. However, the unfairness arises from the unusual overlap of consent processes in different jurisdictions, which came into play with the introduction of the Board inquiry process into the RMA. Presumably Parliament considered that any unfairness to small players would be outweighed by the commercial advantages to bigger ones in having their applications jump the queue for consideration.

[60] Mr Hunt submitted that, in any event, the Board did take into account the KPF consent as part of the environment⁵⁸ and that there were clear indications of this in the decision. We agree that the Board considered that the KPF consented farm was part of the environment when considering some of the ecological effects of the New Zealand King Salmon applications and in terms of natural character considerations⁵⁹. However, no further references were cited to us in relation to the effects on landscape or tangata whenua values. Nor have we found any consideration of the cumulative effects of the Danger Point salmon farm in the Board's overall "Evaluation of [the] Plan Change"⁶⁰.

[61] The effects of the proposal on the marine environment will be considered within the existing environment of the full Waitata Reach (extending from Maud Island to the entry for Cook Strait) and Port Ligar. That environment includes the two EPA consented salmon farms at Waitata and Richmond.

⁵⁶ *Queenstown Lakes District Council v Hawthorn Estate Ltd* [2006] NZRMA 424 at [57].

⁵⁷ Under section 104(1)(a) RMA.

⁵⁸ M Hunt, submissions at para 27 [Environment Court document 2].

⁵⁹ Board Final Report at para [698].

⁶⁰ Board Final Report at paras [1225] et ff.



3. What are the relevant statutory documents⁶¹?

3.1. The Marlborough Sounds Resource Management Plan (“Sounds Plan”)

[62] The Sounds Plan, made operative on 28 February 2008, is a combined⁶² district, regional and regional coastal plan. It is contained in three volumes – one of objectives and policies and methods, one of rules and a final volume of maps.

[63] Volume 1 of the Sounds Plan contains 23 chapters of which five are particularly relevant. They are:

Chapter 2.0	Natural Character
Chapter 5.0	Landscape
Chapter 6.0	Tangata Whenua
Chapter 8.0	Public Access
Chapter 9.0	Coastal Marine

Natural Character (Chapter 2.0)

[64] The introduction to the Natural Character chapter explains⁶³ that it provides an “integration mechanism” for natural character and supports other sections of the Sounds Plan. The one objective simply repeats section 6(a) of the RMA. Of more assistance are the implementing policies. They are⁶⁴ to avoid the adverse effects of use or development within those areas of the coastal environment which are predominantly in their natural state and have natural character which has not been compromised (Policy 1.1); to encourage appropriate use and development in areas where the natural character of the coastal environment has already been compromised, and where the adverse effects of such activities can be avoided, remedied or mitigated (Policy 1.2); to consider the effects on those qualities, elements and features which contribute to natural character, including:

- (a) Coastal and freshwater landforms;
- (b) Indigenous flora and fauna, 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; and
- (f) Habitat of trout (Policy 1.3).

[65] The policies also promote an integrated approach to the preservation of the natural character of the coastal and freshwater environments of the Marlborough Sounds (Policy 1.5); require regard to be had to the ability to restore or rehabilitate natural

⁶¹ Under section 104(1)(b) RMA.

⁶² Sounds Plan para 1.0 [page 1-1].

⁶³ Chapter 2.0 para 2.1 [Sounds Plan p 2-1].

⁶⁴ Chapter 2.0, para 2.2 [Sounds Plan pp 2-3 and 2-4].



character in the areas subject to the proposal when considering “appropriateness” (Policy 1.6); adopt a precautionary approach in making decisions where the effects on the natural character of the coastal environment, wetlands, lakes and rivers (and their margins) are unknown (Policy 1.7); 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 Two is necessary to preserve the natural character of the Marlborough Sounds as a whole (Policy 1.8).

[66] In addition Policy 1.4 requires that:

In assessing the actual or potential effects of subdivision, use or development on natural character of the coastal and freshwater environments, particular regard shall be had to the policies in Chapters 3, 4, 5, 6, 12, 13 and Sections 9.2.1, 9.3.2 and 9.4.1 in recognition of the components of natural character.

The explanation states that Chapter 2 provides “an integration mechanism for the management of natural character”.

[67] As stated, the Sounds Plan’s description of the natural character areas of the Marlborough Sounds is contained in Appendix 2 to the volume of objectives and policies. The proposed salmon farm is contained in the Mid Pelorus Marine Character Area⁶⁵. The relatively sheltered water of this marine character area is described in the Sounds Plan as turbid and warm, and the seafloor as mostly mud with conspicuous sparse marine life fringed by narrow cobble reef⁶⁶.

Landscape (Chapter 5.0)

[68] Chapter 5 (Landscape) of the Sounds Plan recognises that the Marlborough Sounds as a whole has “outstanding visual values”⁶⁷. Areas of “outstanding landscape value” are shown on the Landscape Maps in Volume 3 and, as we have said, Map 74 describes Danger Point as such an “Area of Outstanding Landscape Value”. We consider that the *Port Gore* decision⁶⁸ of the Environment Court was wrong when the court said “there appears to have been a deliberate policy to exclude any area of water as part of those particular areas”⁶⁹. That may have been true of Port Gore, but it is not correct of the Sounds Plan’s treatment of other parts of the Marlborough Sounds.

[69] The objective for landscape in the Sounds Plan mirrors section 6(b) of the RMA with an addition emphasising the management of “... the usual quality of the sounds”.

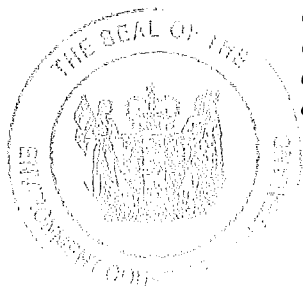
⁶⁵ Map 106 Sounds Plan Vol. 3.

⁶⁶ Appendix Two of Sounds Plan [p Appendix Two – 67].

⁶⁷ Para 5.1.1 [Sounds Plan p 5-1].

⁶⁸ *Port Gore Marine Farms v Marlborough District Council* [2012] NZEnvC 72 at [109].

⁶⁹ Elsewhere, e.g. in Tennyson Inlet, the sea is included in the area of outstanding landscape value – see Map 77 of the Sounds Plan.



Implementing policy 5.3/1.1 is the most relevant. It is⁷⁰ to avoid, remedy or mitigate adverse effects of development and use "... on the visual quality of outstanding natural features and landscapes, identified according to criteria in Appendix One". We will refer to these when considering the effects of the proposal.

[70] Chapter 5 recognises as a relevant issue⁷¹ that when deciding whether development is appropriate or not:

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

That concept is not directly reflected in the policies, but it is an evaluation matter raised indirectly by policy 5.3/1.1 (already discussed) and more directly by the evaluation matters in Appendix 1 which we will refer to in due course.

[71] The other five policies in Chapter 5.0 guide terrestrial development.

Tangata whenua (Chapter 6)

[72] Policy 6.1.2 of the Sounds Plan requires us to "recognise the role of tangata whenua as kaitiaki in the coastal marine area". The introduction to the chapter explains the significance of that⁷²:

Tangata whenua are kaitiaki (or guardians) of their coastal resources. As such they have assumed the responsibility to ensure that the mauri (or life essence) of these resources is protected. The mauri of a resource embodies a spiritual as well as a physical essence. From the Maori perspective damage to resources also carries spiritual damage.

It is possible to damage resources (e.g. through Pollution or despoliation) to the extent that they can lose their mauri entirely. Protecting the mauri ensures the maintenance of its integrity and protection of supply for future generations.

[73] The Ngati Koata Iwi Management Plan identifies Te Kawau A Toru (King Shag) as a taonga⁷³. The Management Plan states that further despoliation of coastal waters is unacceptable to Ngati Koata; rather contrary restoration and enhancement of water quality is needed⁷⁴. That is a matter which is reinforced by the NZCPS (2010) as we shall see.

⁷⁰ Policy 5.3/1.1 [Sounds Plan p 5-3].

⁷¹ Para 5.2.2, Landscape [Sounds Plan p 5-3].

⁷² Para 6.1 Tangata whenua ... [Sounds Plan p 6-1].

⁷³ Ngati Koata No Rangitoto Ki Te Tonga Trust, *Iwi Management Plan*, (10 June 2002) at [8.13]. See also Policy 6E in section [8.33].

⁷⁴ Ibid at [8.14] and [8.28].



Public access (Chapter 8)

[74] There is a single objective to maintain and enhance public access⁷⁵. The relevant implementing policy expressly states⁷⁶ that adverse effects on public access from marine farms should as far as practicable be avoided, and otherwise mitigated or remedied.

The Coastal Marine Area (Chapter 9)

[75] The first objective (of three) for Chapter 9 is⁷⁷ to accommodate appropriate activities in the coastal marine area while avoiding, remedying or mitigating the adverse effects of those activities. The relevant implementing policy 9.2.1/1.1 identifies as values to be maintained⁷⁸: conservation and ecological values, cultural and iwi values, heritage and amenity values, landscape, seascape and aesthetic values, marine habitats and sustainability, natural character of the coastal environment, navigational safety, other activities, including those on land, public access to and along the coast, public health and safety, recreation values; and water quality. All of these are at issue in these proceedings. The policy requires any adverse effects to be avoided, remedied or mitigated.

[76] Policy 9.2/1.2 requires adverse effects of development to be avoided as far as practicable and otherwise mitigated or remedied. The other relevant policy is 9.2.1/1.12 which states:

To enable a range of activities in appropriate places in the waters of the Sounds including marine farming, tourism and recreation.

The Sounds Plan explains⁷⁹ that “the extent of occupation and development needs to be controlled to enable all users to obtain benefit from the coast and its waters”.

[77] The implementing methods include zoning and rules. Under the zoning provisions (shown in Volume 3 – Maps) the coastal marine area (other than port and marine areas) is divided into three zones. In Coastal Marine Zone 1 marine farms are prohibited and in Coastal Marine Zone 2 marine farms are controlled or discretionary. Coastal Marine Zone 3 introduced by the Board on The New Zealand King Salmon Company Limited’s application provides some spot zones for salmon farms.

[78] The second coastal marine area objective⁸⁰ is to manage water quality at a level that enables shellfish gathering and cultivation. Implementing policies seek to avoid the discharge of contaminants that adversely affect significant ecological value, cultural areas, outstanding landscapes and seafood consumption. There are requirements to recognise and provide for natural character, public health, aesthetics, cultural and

⁷⁵ Objective 8.3.1 [Sounds Plan p 8-2].

⁷⁶ Policy 8.3.1/1.2 [Sounds Plan p 8-2].

⁷⁷ Objective 9.2.1 [Sounds Plan p 9-4].

⁷⁸ Policy (9.2.1)1.1 [Sounds Plan pp 9-4 and 9-5].

⁷⁹ Explanation of objective 9.2.1/1 [Sounds Plan p 9-6].

⁸⁰ Objective 9.3.2 [Sounds Plan p 9-10].



ecological matters as well as managing effects on marine farming, fishing, recreation and tourism activities.

[79] The third coastal marine objective⁸¹ relates to alteration of the foreshore and seabed. It seeks to protect the coastal environment by avoiding, remedying or mitigating any adverse effects of activities that alter the foreshore or seabed. Policy 9.4.1/1.1 identifies the same list of values as did policy 9.2.1/1.1 already listed. Policy 9.4.1/1.9 suggests that certain adverse effects can only be addressed when the relevant rules say so, which puts emphasis on the wording of the rules.

The rules

[80] Volume 2 of the Sounds Plan contains the rules implementing the objectives and policies. Chapter 35 sets out General Assessment Criteria for discretionary activities in Rule 35.4.1 and specific criteria for marine farms in Rule 35.4.2.9.

[81] The general assessment matters in Rule 35.4.1⁸², in addition to relevant plans, require consideration of the likely effects of the proposal on the locality and wider community, the amenities values of the area, any significant environmental features, and generally on the natural and physical resources of the area. Rule 35.4.2.9⁸³ requires specific assessments for marine farms of:

- an assessment of the present nature of the site, both physical and biological including the nature of the sea floor and species found in the area;
- the effect on the marine ecology of feed proposed to be added to the environment, including the type and amount of feed, and an assessment of its effect on the environment;
- consideration of navigational matters;
- consideration of aesthetic and cultural matters;
- other matters including
 - likely effect on areas used for fishing;
 - the visual effect of the farm;
 - likely effects on water quality and ecology;
 - the alienation of public space.

Our assessment of the proposal considers each of those matters.

3.2. The Marlborough Regional Policy Statement

[82] The Marlborough Regional Policy Statement (“MRPS”) became operative in 1995 and is currently being reviewed. It gives only broad guidance. The National Coastal Policy 2010 statement makes rather sharper distinctions than the MRPS does.

[83] Briefly, the MRPS includes three sections relevant to these applications. They are:

⁸¹ Objective 9.4.1 [Sounds Plan p 9-16].

⁸² Sounds Plan p 35-14.

⁸³ Sounds Plan p 35-21.



- Part 5 Protection of Water Ecosystems
- Part 7 Community Wellbeing
- Part 8 Protection of Visual Features

[84] There is a broad water ecosystems objective⁸⁴ that the natural diversity of species and the integrity of marine habitats be maintained or enhanced. There is one relevant, rather bland implementation policy⁸⁵ that gives little direction to this.

[85] The principal objective as to community wellbeing in this section is⁸⁶:

To maintain and enhance the quality of life of the people of Marlborough while ensuring that activities do not adversely affect the environment.

A relevant policy⁸⁷ on amenity values seeks to enhance amenity values.

[86] Objective 7.1.9 is also important even if it merely restates section 5(2) of the RMA. Its implementing policies include⁸⁸ (relevantly):

[enabling] appropriate type, scale and location of activities by:

- clustering activities with similar effects;
- ensuring activities reflect the character and facilities available in the communities in which they are located

- and provide some encouragement⁸⁹ for aspiring marine farmers in seeking to ensure:

That no undue barriers are placed on the establishment of new activities ... provided that ... water ... and ecosystems [are] safeguarded and any adverse environmental effects are avoided, remedied or mitigated.

[87] The policy for the allocation of space for marine farms in the Regional Policy Statement states that allocations will be "... based on marine habitat sustainability, habitat protection, landscape protection, navigation and safety, and, compatibility with other adjoining activities"⁹⁰.

[88] The RPS contains a separate chapter on "Protection of Visual Features". The one general objective⁹¹ is to maintain and enhance "... the visual character of indigenous, working and built landscapes". There are three policies to implement that objective. The first policy relates to "outstanding landscapes" and is to avoid, remedy or

⁸⁴ Objective 5.3.10 [MRPS p 44].

⁸⁵ Policy 5.3.11 (Habitat disruption) [MRPS p 44].

⁸⁶ Objective 4 7.1.2 [MRPS p 55].

⁸⁷ Policy 7.1.7 [MRPS p 57].

⁸⁸ Policy 7.1.10 [MRPS p 59].

⁸⁹ Policy 7.1.12 [MRPS p 60].

⁹⁰ Policy 7.2.10(d) [MRPS p 68].

⁹¹ Objective 8.1.2 [MRPS p 80].



mitigate⁹² “... the damage of identified outstanding landscape features arising from ... (relevantly) the erection of structures”. The Supreme Court stated of this in the *EDS* decision⁹³:

As to the outstanding landscapes policy, and the method to achieve it, the commentary indicates that the effect of any proposed development will be assessed against the criteria that make the relevant landscape outstanding; that is, the standard of “appropriateness”. ...

The second policy is to “promote the enhancement of the nature and character of indigenous, working and built landscapes by all activities which use land and water”⁹⁴. While those two policies are rather vague as to what they apply to, the third is a little clearer. It is⁹⁵ to preserve the natural character of the coastal environment.

3.3. The New Zealand Coastal Policy Statement (2010)

[89] The New Zealand Coastal Policy Statement 2010 (“the NZCPS 2010”)⁹⁶ is very important as the top document in the hierarchy of relevant statutory documents. In *Environmental Defence Society v The New Zealand King Salmon Company Limited*⁹⁷ the Supreme Court said “the NZCPS is an instrument at the top of the hierarchy” and we respectfully adopt the Supreme Court’s description of the objectives in that document.

[90] Turning to the policies in the NZCPS 2010, policy 6(2) is important⁹⁸ because, in relation to the coastal marine area, it requires recognition of:

- a. ... potential contributions to the social, economic and cultural wellbeing of people and communities from use and development of the coastal marine area, ...
- b. ... the need to maintain and enhance the public open space and recreation qualities and values of the coastal marine area;
- c. ... a functional need [for some activities] to be located in the coastal marine area, and [to] provide for those activities in appropriate places;
- ...

[91] The more general NZCPS 2010 policies 6(2)a and c are then elaborated on with a specific Policy 8 for aquaculture which is obviously important in this case:

NZCPS 2010 Policy 8: Aquaculture

Recognise the significant existing and potential contribution of aquaculture to the social, economic and cultural well-being of people and communities by:

⁹² Policy 8.1.3 [MRPS p 80].
⁹³ *Environmental Defence Society v The New Zealand King Salmon Company Ltd* [2014] NZSC 38 at [68].

⁹⁴ Policy 8.1.5 [MRPS p 81].

⁹⁵ Policy 8.1.6 [MRPS p 81].

⁹⁶ This came into force on 3 December 2010.

⁹⁷ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [152].

⁹⁸ Policy 6(2) relates to the coastal environment generally and is much less relevant to these proceedings.



- a. including in regional policy statements and regional coastal plans provision for aquaculture activities in appropriate places in the coastal environment, recognising that relevant considerations may include:
 - i. the need for high water quality for aquaculture activities; and
 - ii. the need for land-based facilities associated with marine farming;
- b. taking account of the social and economic benefits of aquaculture, including any available assessments of national and regional economic benefits; and
- c. ensuring that development in the coastal environment does not make water quality unfit for aquaculture activities in areas approved for that purpose.

We note that in this case a. is not relevant, because we are not concerned with the approval of a regional policy statement or plan.

Natural character of the coastal environment

[92] Policy 13 is (relevantly):

Policy 13: Preservation of natural character

- 1. To preserve the natural character of the coastal environment and to protect it from inappropriate use, and development:
 - a. avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and
 - b. avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; including by:
 - ...
- 2. Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as:
 - a. natural elements, processes and patterns;
 - b. biophysical, ecological, geological and geomorphological aspects;
 - c. natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;
 - d. the natural movement of water and sediment;
 - e. the natural darkness of the night sky;
 - f. places or areas that are wild or scenic;
 - g. a range of natural character from pristine to modified; and
 - h. experiential attributes, including the sounds and smell of the sea; and their context or setting.

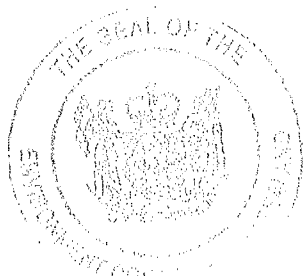
The meaning of “natural character” in section 6(a) of the RMA now needs to be read in the light of that particularisation.

[93] Because the site is in an area of outstanding landscape value (i.e. it is at least an outstanding natural feature), another very relevant policy in the NZCPS, is to the extent relevant:

Policy 15: Natural features and natural landscapes

To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development:

- a. Avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; ...
- ...



[94] As for the discharge of food and fish waste, the relevant policy is:

Policy 23: Discharge of contaminants

1. In managing discharges to water in the coastal environment, have particular regard to:
 - a. the sensitivity of the receiving environment;
 - b. the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and
 - c. the capacity of the receiving environment to assimilate the contaminants; and
 - d. avoid significant adverse effects on ecosystems and habitats after reasonable mixing;
 - e. use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and
 - f. minimise adverse effects on the life-supporting capacity of water within a mixing zone.

[95] In *Environmental Defence Society v The New Zealand King Salmon Company Limited*⁹⁹ Arnold J's decision for the majority¹⁰⁰ stated that the NZCPS:

... contains objectives and policies that, while necessarily generally worded, are intended to give substance to the principles in pt 2 in relation to the coastal environment. Those objectives and policies reflect considered choices that have been made on a variety of topics. As their wording indicates, particular policies leave those who must give effect to them greater or lesser flexibility or scope for choice. Given that environmental protection is an element of the concept of sustainable management, we consider that the Minister was fully entitled to require in the NZCPS that particular parts of the coastal environment be protected from the adverse effects of development. That is what she did in policies 13(1)(a) and 15(a), in relation to coastal areas with features designated as "outstanding". As we have said, no party challenged the validity of the NZCPS.

[96] The Supreme Court earlier stated of the application of policies 6 and 15 where the Sounds Plan identified an area as outstanding¹⁰¹:

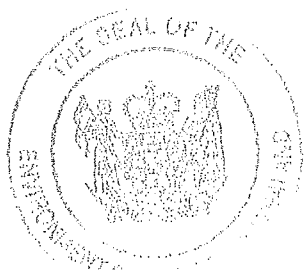
Policy 8 recognises the need for sufficient provision for salmon farming in areas suitable for salmon farming, but this is against the background that salmon farming cannot occur in one of the outstanding areas if it will have an adverse effect on the outstanding qualities of the area. So interpreted, the policies do not conflict.

That is crucially important, and we apply that approach in this proceeding.

⁹⁹ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38.

¹⁰⁰ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [152].

¹⁰¹ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [131].



4. What are the predicted effects of the proposal?

4.1. Effects on the wider community¹⁰²: profit and employment

[97] The uncontested evidence of Mr G Coates, an aquaculture consultant for KPF, was that the benefits of a salmon farm would be¹⁰³:

- production of 833 tonnes of salmon each year (from 1,500 tonnes of food)¹⁰⁴ with a potential increase to 1,388 tonnes of salmon (from 2,500 tonnes of food);
- 4-8 employees for the lower tonnage of salmon;
- 7-13 employees for the larger tonnage;
- a return from salmon production which would vary but the Applicant “at current prices ... and subject to reasonable consent conditions ... would receive a positive return on their investment and running costs”¹⁰⁵;
- an anticipated return from salmon which would exceed the return from mussels at present and likely remain so but Mr Coates acknowledged:
 - (a) that is affected by demand/supply, exchange rates and consumer tastes;
 - (b) salmon farming does require greater capital investment and there is risk;
 - (c) New Zealand aquaculture of all kinds does need to operate at a premium price point in its market;
- Sea cage employees. Based on 1 employee per 100-200 tonnes of production so at 1,500 tonnes of food there would be 4-8 employees;
- The conventional ratio is four land based employees for every salmon farm employee;
- Land based employees and contractors (in administration, production, packaging, marketing and distribution).

[98] Mr Coates acknowledged¹⁰⁶ that there will be a “small reduction in mussel production which offsets some of these gains”. We consider he has understated that. Mr Carter’s evidence¹⁰⁷ shows that of the 17 existing lines, ten of the longer lines (in Areas 1 and 2 of the marine farm) are to be displaced by salmon cages if the resource consent is exercised in full. That is more than removal of “a few mussel lines”. It follows that over 60% of the mussel production is likely to be lost.

[99] The proposal will not create any demand for services or infrastructure at a cost to the wider community. All servicing costs are to be internalised by the use of KPF’s own staff and boats. Nor will the proposal have any adverse effects on roading, traffic

¹⁰² General Assessment Criteria 35.4.1 [Sounds Plan p 35-14].

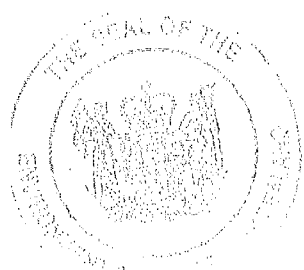
¹⁰³ G Coates, evidence-in-chief para 53 [Environment Court document 3].

¹⁰⁴ The estimated production is on the basis of a load conversion rate of 1 tonne of salmon for 1.8 tonnes of food, G Coates, evidence-in-chief para 53 [Environment Court document 3].

¹⁰⁵ G Coates, evidence-in-chief para 53 [Environment Court document 3].

¹⁰⁶ G Coates, evidence-in-chief para 53 [Environment Court document 3].

¹⁰⁷ T F Carter, evidence-in-chief Annexure A, Sheet 2 [Environment Court document 6].



movement or road safety since, apart from transporting fry to and dead fish from Havelock, all traffic will be on the water¹⁰⁸.

Pollution: potential accumulation of copper and zinc in sediments

[100] In terms of the discharge of contaminants¹⁰⁹ there is a potential risk of copper and zinc contamination near fish farms from the use of anti-fouling paints and from finfish feed respectively. This is addressed in the evidence of Dr D I Taylor, marine ecological consultant for KPF. He considered¹¹⁰ that copper accumulation will not be an issue in this case as KPF will not be using anti-fouling paint on the nets around the cages. Specific conditions are proposed for zinc monitoring against New Zealand's standards and included in the management plan called the Marine Environmental Monitoring and Adaptive Management Plan ("MEM-AMP").

[101] We are satisfied that the proposal does not create any risk to the community. It does not involve the use of hazardous substances or hazardous installations such that there shall be any risk to the environment, locality or wider community; nor does it not generate noise, dust fumes, smoke or odours which are likely to be noxious, dangerous, offensive or objectionable to any occupier of an adjoining property.

[102] It was common ground through the evidence and hearing that there would be no direct adverse effects on terrestrial amenities. There is some reservation, which we will discuss later about the effects on tangata whenua values.

4.2. What are the effects on the marine ecology?

Introduction

[103] There was a considerable amount of scientific evidence related to the actual and potential effects of marine farming in the Marlborough Sounds. This scientific evidence is essential to understand and address the effects of introducing feed to the site of the proposed salmon farm.

[104] The applicant proposes to progressively introduce up to 1,500 tonnes of feed at the initial stage. As recorded earlier, once this level has been achieved consistently for three years and the results of targeted monitoring are known the feed levels may be increased in increments of 500 tonnes to a maximum of 2,500 tonnes per year.

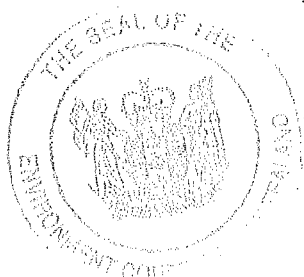
[105] A comprehensive benthic survey was undertaken¹¹¹ by the applicant to provide the baseline information for ongoing seabed monitoring, and an adaptive management framework is proposed. This framework is designed to ensure that environmental effects at the site remain within acceptable limits.

¹⁰⁸ See Rule 35.4.1.1.5.1 [Sounds Plan p 35-14].

¹⁰⁹ See Rule 35.4.1.1.5.5 [Sounds Plan p 35-15].

¹¹⁰ D I Taylor, evidence-in-chief para 49.2 [Environment Court document 4].

¹¹¹ N B Keeley, evidence-in-chief para 14 [Environment Court document 5].



Effects on the seabed

[106] Dr Taylor acknowledged that the introduction of salmon farming can have organic enrichment effects on the seabed in the immediate vicinity of the site. Excess food and fish faeces drop through the nets towards the seafloor. Dr Taylor presented the results of depositional modeling for the site that shows the water flow and depth influences, plus the proposed configuration of cages, will help mitigate the effects of deposition. He considered that most of the deposited material from the farm will be resuspended and carried away from the site to be assimilated by the wider environment of the outer Pelorus Sound.

[107] Dr Taylor's evidence was that some deposition will remain in the vicinity of the site where the predominantly silt/mud benthic habitat will be affected to some degree within what he refers to as the "primary depositional footprint". He considers that the seabed and associated macrofauna directly below the cages are likely to change, with greater numbers of enrichment tolerant species occurring.

[108] Mr N B Keeley, a marine ecologist, gave us¹¹² a general description of seven enrichment stages he has recently identified under salmon farms, differentiated for Low Flow ("LF") and High Flow ("HF") sites. They are shown in the attached schedule marked "1". Mr Keeley then proposed a zone concept to manage the development and on-going use of the KPF site for salmon farming, and recommended Environmental Quality Standards (EQS)¹¹³ based on a series of Enrichment Scores (ES) derived from empirical relationships between environmental parameters and the enrichment stages described above. He proposed that within the identified zones an ES of 5 is permitted in the zones closest to the site, with a descending level of enrichment with increasing distance from the cages. The greatest impact (ES 5) is in zones 1 and 2 which are up to 60 metres from the cages. The zone 3 boundary is 250 metres from the cages and must meet an ES of 4. Zone 4 extends from the zone 3 boundary and has an ES of less than 3 assigned.

[109] The enrichment level standards proposed by Mr Keeley acknowledge the extra effects of salmon farming at the site over the existing use as a mussel farm. These effects are unlikely to be wide ranging or irreversible.

[110] The deposition modeling relied on by Mr Keeling and Dr Taylor shows reduced effects with distance from the cages, to the extent that they predict that deposition is likely to be undetectable beyond 250 metres from the site. In their opinion, this shows that adverse effects are not likely to occur at the reef habitat that lies around 700 metres to the south east of the site.

¹¹² N B Keeley, evidence-in-chief Table 2 [Environment Court document 5].

¹¹³ N B Keeley, evidence-in-chief Table 3 [Environment Court document 5].



[111] The limits as to what is acceptable are set out in the proposed conditions, together with requirement for the MEM-AMP which will specify the monitoring and reporting requirements for the farm.

[112] Mr Keeley was cross-examined by Mr Ironside. He acknowledged the difficulties in defining recovery of sites impacted by salmon farming. His evidence in this regard focused on revised analysis techniques for monitoring results for the Forsyth Bay salmon farm site. This indicated functional recovery of a highly impacted site in a low energy environment is achieved in around five years. He also acknowledged that the benthic environment is re-impacted quite rapidly following reintroduction of salmon at the site at the same feed levels as previously.

[113] Mr Keeley's rebuttal evidence¹¹⁴ noted the differences in water flow rates between Forsyth Bay and the proposed site at Danger Point; the use of dispersed polar circle cages as opposed to concentrated box cages; and the progressive approach to feed levels at the KPF site. These factors made direct application of the Forsyth Bay monitoring results as an indication of likely recovery rates at Danger Point problematic. He also restated his confidence that any management response to observed environmental effects on the benthic environment outside the accepted standards would achieve the recovery required for continuation of the operation within the consent conditions, or full functional recovery within five years if the operation were to be terminated.

Effects on the water column

[114] Dr Taylor provided a summary of the main points covering water column effects from the AEE report for the Council hearing. This section was written by Mr B R Knight, a consultant ecologist, who also provided rebuttal evidence on water column effects for this hearing. In summary:

- (a) Oxygen depletion is not an issue due to water currents and flushing characteristics of the site.
- (b) The potential for eutrophication is the most important issue.
- (c) Water column nutrient enrichment has the potential to increase the occurrence of harmful algal blooms.
- (d) Significant nutrient enrichment in the water column away from fish farm boundaries has not been recorded in New Zealand. This is probably the result of adequate flushing and dilution.
- (e) Nutrient modeling for the Port Ligar site indicated potential for local enrichment leading to an increase in *chlorophyll-a* ("chl-a") concentrations.

¹¹⁴ N B Keeley, rebuttal evidence [Environment Court document 5A].



- (f) Data from phytoplankton monitoring has shown no evidence of increased algal biomass or the incidence of harmful algal species in the vicinity of salmon farms in the Marlborough region. This is consistent with international evidence showing effects on the water column from salmon farming are localised and usually minor.

[115] Mr R Schuckard, an ornithologist and principal of Pelorus Wildlife Sanctuaries Limited (one of the appellants) raised concerns around the interpretation of scientific studies and evidence on the potential effects of nitrogen enrichment from salmon farms influencing phytoplankton biomass (represented by *chl-a*) and harmful algal species levels. Based on his examination of scientific studies and personal turbidity measurements over one year in Port Ligar, Mr Schuckard considered¹¹⁵ that:

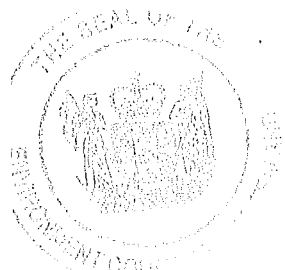
- (a) The Waitata Reach region of the outer Pelorus Sound was in a stable low nutrient trophic (oligotrophic) state.
- (b) Salmon farming in the Reach will increase nutrient levels, in particular dissolved inorganic nitrogen (“DIN”) which will in turn lead to increased abundance of phytoplankton (*chl-a*). This is “additional” *chl-a* to that expected from natural variations.
- (c) Reduced visibility resulting from elevated levels of *chl-a* will have adverse effects on important marine ecosystems and impact on the feeding range of the King Shag.

[116] Mr B R Knight, a biophysical marine scientist, provided detailed rebuttal evidence for KPF in response to Mr Schuckard’s assertions. First, Mr Knight outlined that existing data from the Pelorus system shows that this is a “variable dynamic system”¹¹⁶ where there is a wide variation of water column properties. He considers that the region is best described as low mesotrophic rather than stable oligotrophic as opined by Mr Schuckard. That is an important distinction as it suggests that organisms inhabiting this system are adapted to regular changes in the water column environment.

[117] Second, based on observed changes in DIN close to salmon farms being less than the existing variability in observed water column DIN, Mr Knight opined that new nutrients from the proposed farm will tend to be within the existing “envelope” of water column properties.

[118] Mr Knight commented on the results of modeling the estimated changes from salmon farms in DIN and *chl-a* in summer and winter. While the DIN changes closely reflect the observed changes at existing sites, the *chl-a* estimates show large changes. It

¹¹⁵ R Schuckard, evidence-in-chief para 3.2, 3.17 and 4.17 [Environment Court document 13].



was these modeling results for *chl-a* that generated Mr Schuckard's concerns. In response Mr Knight explained¹¹⁷ that the *chl-a* concentrations are derived using a scaling formula from DIN. As the model does not include a number of mechanisms that prevent nitrogen being directly transformed into phytoplankton biomass, Mr Knight considered that the *chl-a* changes predicted are overstated and extremely unlikely to be realised. Mr Knight provided support¹¹⁸ for that opinion in the conclusions of a review of salmon farming nutrient effects by Mr L Mackenzie for the New Zealand King Salmon Board of Inquiry (Board) hearing where he stated:

... there is scant evidence that chlorophyll-a concentrations (i.e. phytoplankton biomass) are enhanced by nutrient inputs from fish farm cages.

[119] In relation to water visibility associated with *chl-a*, Mr Knight opined that as large changes in *chl-a* changes are not anticipated from the proposal water clarity is not likely to be an issue.

[120] Mr Schuckard raised the issue of enrichment from salmon farms being greatest during summer months when natural nutrient levels were at their lowest. His opinion was that this could lead to an increase in harmful algal bloom species during warmer months. In response Mr Knight relied on the findings of a literature review by Mr Mackenzie quoted earlier where he concludes in relation to harmful algal blooms that:

... it is not expected that the increased nitrogen loads with their sources spread over a wide geographic area in naturally nutrient rich environments will lead to an increase in problems with HABs.

Mr Knight adopted this conclusion, which related to the much larger New Zealand King Salmon proposal, in considering whether the KPF proposal would influence the incidence of harmful algal blooms.

[121] As excessive nutrient enrichment over time can potentially alter trophic conditions, Mr Knight supported the inclusion of wider scale nutrient monitoring as a condition of consent, and inclusion of water column management in the MEM-AMP.

[122] Ms S Allan, consultant planner for the appellants, raised the issue of cumulative effects on the water column, stating¹¹⁹ "the main ecological effects of this proposal ... relate to cumulative effects of several salmon farms in the Pelorus Sound area and the Waitata Reach in particular ...". Ms Allan further opined¹²⁰ "that significant adverse effects cannot be remedied or mitigated, and that there are no guarantees that all effects

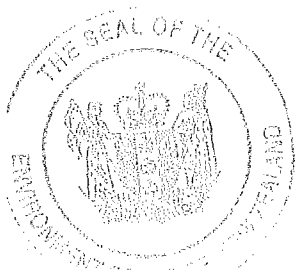
¹¹⁶ B R Knight, rebuttal evidence at para 18 [Environment Court document 10].

¹¹⁷ Ibid at para 26 [Environment Court document 10].

¹¹⁸ Ibid at para 34 [Environment Court document 10].

¹¹⁹ S Allan, evidence-in-chief at para 61 [Environment Court document 18].

¹²⁰ Ibid at para 139 [Environment Court document 18].



are reversible”.¹²¹ The supporting evidence provided to substantiate these opinions was that of Mr Schuckard outlined earlier.

[123] In response to Ms Allan’s concerns, Dr P Gillespie, a consultant ecologist for KPF, referred us to the cautious approach taken by the Board in the King Salmon case in their consideration of cumulative effects on the water column. The Board set out conditions for water column monitoring and a staged adaptive management approach to address any observed adverse effects. Dr Gillespie considered that a similar approach for the KPF proposal would enable mitigation of any unforeseen breaches of environmental standards related to nutrient enrichment potentially linked with cumulative effects from more than one farm.

[124] Dr Gillespie considered¹²² that the rapid replacement of farm affected water with Cook Strait water would result in rapid recovery of any water column enrichment effects from salmon farms in the Waitata Reach if these were detected at unacceptable levels. Dr Gillespie and Mr Knight had presented detailed evidence in support of this conclusion to the Board which had accepted it. We have no reason to differ.

Marine biosecurity, disease and parasites

[125] The applicant recognises that there are potential biosecurity and disease issues associated with marine fin-fish farming. Dr Taylor recommends that a Biosecurity Management Plan (“BMP”) is in place prior to development of the site to address recognised potential biosecurity and disease risks. The BMP is to include surveillance, husbandry, pest biomass reduction, and treatment of vessels and equipment. The utility of this approach to biosecurity and disease was not contested, and specific provision is made in the conditions of consent to minimise the risk.

Sharks and marine mammals

[126] Mr J R Buchanan, a local resident — for seven years he lived in Waihinau Bay, around Danger Point to the south — and former manager of Pelorus Wildlife Sanctuaries, whose wife is of Ngati Koata descent, provided written evidence¹²³. Part of that included a presentation¹²⁴ on the effects of salmon farming in attracting large sharks. In his opinion the proposal will increase the danger of shark attacks on kayakers and divers using the area. This issue was briefly addressed by Mr G Coates, project management consultant for KPF. His evidence was that sharks are unlikely to be an issue for salmon farms if salmon mortalities are disposed of correctly, that is, by removing them from the water quickly and storing them until removal for disposing on land.

¹²¹ Ibid at para 187 [Environment Court document 18].

¹²² P A Gillespie, rebuttal evidence para 27 [Environment Court document 11].

¹²³ J R Buchanan, evidence-in-chief [Environment Court document 16].

¹²⁴ A film recorded on a DVD.



[127] Seals are found throughout the Marlborough Sounds and were raised as an issue in this case. Dr Taylor considered that the design and operation of predator nets around the fish cages made the risk of seal entanglement minimal. In his opinion, the proposed conditions requiring the applicant to develop and operate a Marine Mammal and Shark Management Plan would minimise any probability of harm to or effects from seals and sharks at the site.

[128] We are slightly uneasy about the height of the stanchions (1.5 metres) because Dr Steven — not an expert on marine mammals — understood¹²⁵ the minimum height necessary was two metres. We had assumed that there is also a horizontal element to the predator-deterrent netting so that seals cannot simply jump onto (and break) the bird netting over the stanchions. But on reflection it appears that a seal would only have to leap 1.5 metres to clear the outer predator net and then roll or fall down the inside of the net to have access to the farm. We place no weight on that issue since it was not put to the witnesses. But it is a matter that should be addressed on future applications.

Seabirds, especially King Shags

[129] The primary focus of Mr Schuckard's evidence was the potential for the KPF salmon farm to adversely affect the trophic status of water in the outer Pelorus Sound, and in Port Ligar in particular. This nutrient increase would lead to increased *chl-a* levels, thus affecting the clarity of the water. In his opinion this would result in reducing the feeding depth range of King Shag from 52 metres to 37 metres. This reduction in feeding range in Port Ligar would have significant adverse effects on the long term sustainability of the already vulnerable King Shag population. When questioned by Mr Hunt, Mr Schuckard was unable to provide information on water depths in Port Ligar where King Shag feeding was considered to be potentially affected.

[130] The evidence provided by Dr Taylor, Dr Gillespie and Mr Knight, referred to earlier, concluded that the proposed farm was not likely to have a measurable effect or *chl-a* levels in Port Ligar, and that it was unlikely that King Shag would be adversely affected.

[131] Potential impacts on King Shag were an issue for the Board, and the Board concluded that, although it was difficult to quantify the risk to the King Shag population and this risk was probably low, any adverse effect on such a small population could be serious. Accordingly they imposed a requirement on NZKS to develop and operate a King Shag Management Plan. KPF have accepted this finding as it relates to the Port Ligar proposal and have agreed to the same conditions regarding King Shag. If NZKS have already developed a King Shag Management Plan, this is to be adopted by KPF. There would appear to be considerable merit in such a plan being developed jointly.



¹²⁵ M J Steven, evidence-in-chief para 108.3 [Environment Court document 7].

Conclusions on ecological effects

[132] We have taken from the evidence of the ecologists that seabed deposition effects from salmon farming are moderately well understood. Adverse effects are limited to a relatively small area of seabed in close proximity to the farm site. It is likely that these effects can be managed by adherence to appropriate environmental quality standards applied at zone boundaries as described by Mr Keeley. We are satisfied that outside the primary depositional zone (i.e. within 250 metres of the farm cages) the ecological effects of deposition of material (waste food and fish faeces) from the proposed farm will be no more than minor.

[133] Within the deposition zone, a comprehensive monitoring regime and the adoption of a MEM-AMP are likely to provide that the long term footprint of the proposed farm at Port Ligar on the benthic environment remains within sustainable limits. Conditions of consent to achieve this are proposed by the applicant and we accept them for the purpose of this decision, although we record that we regard them as a “work in progress”.

[134] Less well understood are the effects of salmon farming on the water column in the far field environment of the outer Pelorus Sound. This matter was examined in considerable detail by the Board decision and we do not propose to repeat that here. The Board noted¹²⁶:

... there remains considerable uncertainty as to the nature of the receiving environment, including the trends in other nutrient sources, and consequently the ability of the Sounds to adequately assimilate a significant increase in nutrients.

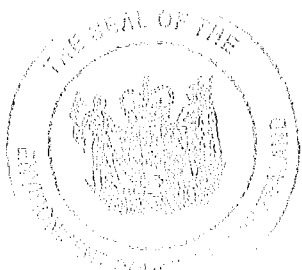
[135] The EPA consents are for significantly greater feed, and hence nutrient, discharge than that applied for by KPF for the Port Ligar site. The initial feed discharge for Waitata is proposed to be 3,000 tonnes, with a maximum discharge of 6,000 tonnes. The corresponding proposed figures for Richmond are 1,500 and 4,000 tonnes. The existing NZKS farm at Waihinau Bay feed discharge has ranged from 2,290 to 3,790 tonnes per annum since 2001¹²⁷. By contrast the KPF application is for an initial feed discharge of 1,500 tonnes, with a maximum of 2,500 tonnes.

[136] The scientific evidence indicates that, even when combined inputs of new nutrients from the Pelorus Sound farms is considered, the potential inputs would be small compared to the existing flows of nutrients at a Sound scale. Any increase in nutrient levels from the salmon farms would tend to be removed by the interchange of Pelorus Sound water with oceanic water from Cook Strait.

[137] Based on the nutrient model evidence of Mr Knight and his reported observed increases of DIN from existing sites, we are satisfied that the cumulative effects of

¹²⁶ Board Final Report at para [437].

¹²⁷ Exhibit 5.2. Cawthron Institute Report No.2274 at para 1.1.



nutrient discharges from existing and proposed new sites will be within acceptable limits. The collection of additional baseline data recommended for Waihinu Bay and Port Ligar prior to development of this site is important for ongoing monitoring and any adaptive response process under the proposed MEM-AMP.

[138] As noted by Mr Knight, changes in *chl-a* may not be dominated by the flushing process to the extent that DIN is, as discussed earlier. That is because as *chl-a* levels are affected by a wide range of ecological processes. Mr Schuckard based his concerns about *chl-a* effects from the Port Ligar farm on water clarity in Port Ligar and the wider Waitata Reach on the changes predicted by the modeling presented by Mr Knight. As noted earlier, Mr Knight's expert opinion was that the modeled changes would be "extremely unlikely to be realised"¹²⁸. We accept the evidence of Mr Knight in this regard and conclude that *chl-a* driven water clarity changes as a result of the currently proposed level of salmon farming in the Waitata reach will not be an issue. Ongoing monitoring is required to ensure that adaptive responses maintain this.

[139] Our finding on water clarity effects leads us to agree with the applicant's position that the risk to the King Shag feeding range in and around Port Ligar is low. Further, KPF is willing to participate in the development and implementation of a King Shag Management Plan and has recommended this be included in the conditions of consent. We note that the Board have directed the same approach for the NZKS consents at Waitata and Richmond.

[140] As noted earlier, the scientific evidence presented to this hearing, and in considerably more detail to the Board, does not support as likely an increase in risk from increased abundance of harmful algal bloom species. This is closely related to the issue of nutrient enrichment generally which we have covered earlier. We accept the evidence of KPF in this regard and note that baseline measurement of phytoplankton composition and inclusion in the MEM-AMP is proposed.

[141] Potential adverse effects on or from sharks, marine mammals and seabirds at the proposed site were not presented in evidence as issues of great concern. The design of the cages and the protective nets around them, together with good operational practice will minimise any potential effects. The proposed requirement for a Marine Mammal and Shark Management Plan would assist this. Similarly, the proposed development and implementation of a Biosecurity Management Plan would reduce to acceptable levels any biosecurity and disease risks associated with the farming of salmon at this site.

4.3. Effects on amenities and natural character

[142] Each of the larger proposed cages has, as we have said, a surface area of about 1134m². There are only 11 cages proposed, but each has an (above-surface) volume that

¹²⁸

B R Knight, evidence in rebuttal at para 34 [Environment Court document 10].



is more than 500 times the volume of an average marine farm buoy. We agree with the Board that a salmon farm is "... an abrupt incursion in to the natural seascape"¹²⁹.

[143] Amenity values are defined in the Act as¹³⁰;

... those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

The site is not near any residential development — so it is not greatly sensitive to noise or odour issues.

[144] Mr Buchanan, the witness for the Pelorus Wildlife Sanctuaries, described¹³¹ the unpleasant odour from the existing salmon farm in the bay where he lives — Waihinau Bay. The evidence for KPF is that its farm would be better managed and those effects will not occur. We find that there is a medium likelihood that there will be no noise or odour effects that are more than minor.

[145] It was common ground between the parties, and is accepted by the court, that consideration of natural character in the coastal environment is more than visual. It also requires consideration of sub-surface marine elements and broad scale biotic patterns that contribute to natural character. Dr Steven rated the degree of naturalness at the proposed site and in the wider landscape as moderate to high for the terrestrial component and high for the marine component. Mr Carter's corresponding rankings were moderate to high and low. The difference between the experts in this regard largely revolved around their different views on the impact of existing mussel farms on natural character.

[146] Dr Steven considered the visual impact of mussel farms to be "relatively benign" and limited to a few hundred metres¹³². He considers the erosion of natural character by the presence of a mussel farm at the KPF site to be minor and the area regarded as being "predominantly in its natural state"¹³³. Mr Carter disagreed, citing support for his assessment of the KPF site as low for natural character from a review by Boffa Miskell Ltd of natural character in the Marlborough Sounds¹³⁴. That study mapped high, very high and outstanding natural character areas. Port Ligar received a rating lower than the mapped minimum as it was affected by marine farm development.

[147] As for the effects of the KPF proposal, Mr Carter acknowledged that the proposed maximum structure height of 1.5 metres and non reflective construction

¹²⁹ Board Report para 565.

¹³⁰ Section 2 RMA.

¹³¹ J R Buchanan, evidence-in-chief para 5 [Environment Court document 16].

¹³² Dr Steven, evidence-in-chief at para 108.1.

¹³³ Ibid at para 158.

¹³⁴ Natural Character Assessment of the Coast for the Marlborough District Council. Boffa Miskell Ltd 2011.



materials had a significant influence on the visibility of the farm. However, in his opinion¹³⁵ even though the KPF site is in an area of outstanding landscape value, the visual effects of the salmon farm on those values would be no more than minor and limited to a short distance from the seaward side. Mr Carter considered that any viewers from the Te Kopi peninsula to the north and approximately two kilometers away, would see the farm in the context of similar artificial structures that are part of the existing character and perception of the landscape. In his opinion the proposal is not in a “key location”¹³⁶ at the entrance to Pelorus Sound.

[148] Mr Carter based his conclusions on visibility and visual effects on observations at the proposed site and at the Crail Bay site. He considered the zone of effects to be no more than 500 metres, beyond which the structures would not be dominant in relation to the scale and nature of the land backdrop and would not reduce the visual quality of the coastal environment. Overall, Mr Carter concluded that the proposal would have no adverse effects on the visual or aesthetic components of the natural character of the site beyond that of the existing mussel farm. Mr Coates, the aquaculture consultant for KPF, also considered the application is “very modest in scale”¹³⁷ and changes effects on “public access, landscape and visual amenity ... only by small margins”¹³⁸.

[149] In assessing the effects on natural character of salmon farms compared with mussel farms, Dr Steven opined¹³⁹ that the additional height and bulk; daily attendance by staff, behavioral changes in wildlife, and exclusive occupation of marine space by salmon farms have a greater effect on natural character, landscape and amenity than mussel farms. He assessed¹⁴⁰ the adverse visual effects of the salmon farm as extending to three kilometers from the site over water and to six kilometers over land. However that initial evidence related to his perception of the proposed KPF farm to be over two metres above the water and constructed of synthetic materials which often appear as highly reflective¹⁴¹. He accepted¹⁴² at the hearing that the maximum height of the proposed farm was to be limited to 1.5 metres, and the construction was to be in non-reflective materials. However, he did not seem to qualify his conclusions as to the effects of the proposed salmon farm on the landscape because “... I have not constrained myself to the purely visual elements of the farm ...”¹⁴³.

[150] Ms Allan, the planner called by the Society, relied heavily on the proposed site being in a “key location” at the entrance to Pelorus Sound as the basis for her opinion

¹³⁵ T F Carter, rebuttal evidence para 13 [Environment Court document 6].

¹³⁶ T F Carter, rebuttal evidence [Environment Court document 6].

¹³⁷ G Coates, evidence-in-chief para 51 [Environment Court document 3].

¹³⁸ G Coates, evidence-in-chief para 50 [Environment Court document 3].

¹³⁹ M J Steven, evidence-in-chief para 109 [Environment Court document 7].

¹⁴⁰ M J Steven, evidence-in-chief para 179 [Environment Court document 7].

¹⁴¹ M J Steven, evidence-in-chief para 108.3 [Environment Court document 7].

¹⁴² Transcript p 163 line 32.

¹⁴³ Transcript p 164 lines 23-24.



that the salmon farm would have significant adverse effects on visual components of natural character over and above that of the existing mussel farm.

[151] Our site visit included observations at Crail Bay, at varying distances from the existing mussel farm at Danger Point and from entering the Sound past Te Akaroa (West Entry Point). We also observed the operating salmon farm in Waihinau Bay. We agree with Mr Carter in his assessment that the site is not in a prominent position in relation to views from boats entering or leaving Pelorus Sound. On the other hand, it is certainly visible and is in a prominent position for boats entering Port Ligar.

[152] The assessment of the size of the farm is an important issue here. We accept that Dr Steven assessed the height of the individual circles as being higher than is proposed. However, he also assessed the overall bulk of each circle and on that we consider he is correct. A circle with a diameter of 38 metres has a surface area of 1,134m² which is larger than most contemporary urban sections, and certainly much larger than the footprint of the average house. Even at only 1.5 metres high each circle is a large structure in the environment compared with a human. We find that at a distance it will look like a very large solid disk sitting on the water. From closer there will be a definite sense of industrial farming to the activity, although it may also be apparent that the farms are not solid and can be seen into if not through.

[153] We note the finding of the Board¹⁴⁴ that:

... in comparison to mussel farms, salmon farms are a highly visible form of marine farm. As a consequence, the mere presence of salmon farms in the Waitata Reach, and their cumulative effects constitutes a substantive issue in respect of the effects of the proposal on the natural character of that Reach.

[154] We take into account that the KPF site is just outside the Waitata Reach (if that is defined from headland to headland) but its location means that its development has effects on the Waitata Reach, Port Ligar, and of course the adjacent Danger Point. We also allow for the smaller scale of the salmon cages proposed here, and the absence of a permanent barge on site. Even with those differences we find that the proposed salmon farm is likely to be visible "... within views and vistas experienced during recreational boating on ... Waitata Reach"¹⁴⁵ and thus would have a significant adverse effect on the natural character of the Waitata Reach/Port Ligar entrance.

[155] As recorded earlier, we note that when assessing the effects of the five proposed NZKS salmon farms in Port Ligar, the Board took into account the effect of the KPF site ("the Port Ligar farm"¹⁴⁶) when deciding of the NZKS proposal that "... even if only

¹⁴⁴ Board Report para [697].

¹⁴⁵ M J Steven, evidence-in-chief para 141 [Environment Court document 7].

¹⁴⁶ Board Report para [698].



one or two of these farms were consented, the effect on natural character would be high”¹⁴⁷.

4.4. Effects on the Area of Outstanding Landscape Value

[156] Mr Carter provided an evaluation of landscape effects using the criteria set out in Appendix 1 of the Sounds Plan. He considered the proposal as neutral. In his opinion the proposed structures are different from the existing structures but of a design that does not result in increased adverse visual effects or further compromise the natural character of the coastal margin or the adjacent terrestrial landscape. The structures are not incongruous in a landscape where extensive marine farming already exists and do not further reduce the coherence of that landscape.

[157] Dr Steven considered that the aesthetic characteristics and qualities of the landscape will be adversely affected by the introduction of “prominent and incongruous structural elements”¹⁴⁸, the disruption of behaviour patterns of wildlife and the disruption of aesthetic aspects on which the landscape classification is based¹⁴⁹. This last was a particularly prescient point because we have since been reminded by the Supreme Court that “inappropriate” in the NZCPS and section 6(a) and (b) of the RMA means¹⁵⁰:

... in the context of an overall objective of preservation and protection, ... the standard for inappropriateness relates back to the natural character and other attributes that are to be preserved or protected, and also emphasises that the NZCPS requires a strategic, region-wide approach. The word “inappropriate” in policies 13(1)(a) and (b) and 15(a) and (b) of the NZCPS bears the same meaning. To illustrate, the effect of policy 13(1)(a) is that there is a policy to preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development *by avoiding the adverse effects on natural character in areas of the coastal environment with outstanding natural character*. The italicised words indicate the meaning to be given to “inappropriate” in the context of policy 13.

[158] Quite apart from its incorrect application of Policy 13 of the NZCPS, the decision of the Board does not assist us directly in this regard for another reason. In the Board’s consideration of the cumulative effects of the salmon farms in the landscape, the KPF site seems to have dropped out of consideration¹⁵¹. In its conclusion on landscape the Board only refers to five farms in Waitata Reach, thus excluding the Port Ligar farm on the KPF site, presumably on the grounds it is inside Danger Point.

[159] Where the KPF site differs from all of the NZKS sites is that it is in an Area of Outstanding Landscape Value. Dr Steven was correct when he considered the site as an outstanding¹⁵² area, because the Sounds Plan says so. We prefer Dr Steven’s evaluation of the effects of the proposal and find that the KPF proposal will have significant (at the

¹⁴⁷ Board Report para [698].

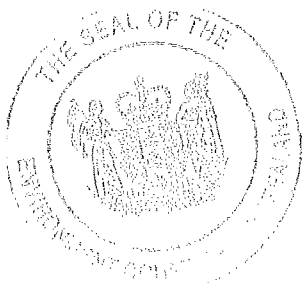
¹⁴⁸ M J Steven, evidence-in-chief para 134.1 [Environment Court document 7].

¹⁴⁹ M J Steven, evidence-in-chief para 134.3 [Environment Court document 7].

¹⁵⁰ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 para [102].

¹⁵¹ Board Report paras [701] to [713].

¹⁵² M J Steven, evidence-in-chief para 101 [Environment Court document 7].



low end) adverse effects beyond those of the existing mussel farm on the Waitata/Port Ligar landscapes.

4.5. Effects on tangata whenua

[160] Mr Elkington gave evidence on behalf of himself and Ngati Koata. He raised¹⁵³ matters of general concern to local iwi, including effects of smell, noise, navigation, sharks, disease, “water quality ... and the accumulative effects of faeces and other discards”¹⁵⁴ and damage to the environment. His evidence on those effects was echoed by Mr Buchanan¹⁵⁵. These matters are all addressed in our consideration of s104 RMA provisions related to environmental effects.

[161] The specific cultural significance of the site itself was not identified as an issue beyond reference to its proximity to a waahi tapu site. No detail of the latter was provided.

[162] Mr Davidson described the effect of a salmon farm on the seafloor as being like a compost heap. That is rather an ingenious framing simile but we consider it is misleading. It is more accurate to say that the effect of the salmon faeces and excess food on the seafloor is like a dairy shed floor with incomplete flushing so that there is a buildup of excess food and effluent on the seafloor over time. Regardless of the simile, Mr Elkington found the effect culturally offensive. He wrote that¹⁵⁶:

We were taught not to eat kaimoana in the environment of our gardens, nor to discard shells, offal or other shellfish parts in our gardens, or more correctly the gardens of Tangaroa, for to do such would eventually attract rodents, pests, disease or the like. It was put to us that nobody likes to live in a cemetery nor a sewer or the like and we understood these principles.

[163] Mr Elkington stated that he had given¹⁵⁷:

... evidence to the NZKS Board of Inquiry that the prolific number of sites applied for by King Salmon cuts against the core principles of respect for Tangaroa and his gardens, as explained above, in terms of overuse, flushing, accumulation of waste, exposure to disease and the like.

I stated that I have real concerns about scientific evidence versus cultural/customary evidence built up by generations of observation and practical experience over many lifetimes.

[164] In Mr Elkington’s view¹⁵⁸:

... the safest and the most sure way is nga tikanga a Tangaroa. For starters, do not overcrowd; clean the house and keep it clean; remove the sewage (nobody wants to live above a sewer); reduce mortality; remove the dead and treat them respectfully; farm well outside of the Pelorus

¹⁵³

H T Elkington, evidence-in-chief Environment Court document 17.

¹⁵⁴

H T Elkington, evidence-in-chief para 45(i) [Environment Court document 17].

¹⁵⁵

J R Buchanan, evidence-in-chief para 19 [Environment Court document 16].

¹⁵⁶

H T Elkington, evidence-in-chief para 14 [Environment Court document 17].

¹⁵⁷

H T Elkington, evidence-in-chief paras 20 and 21 [Environment Court document 17].

¹⁵⁸

H T Elkington, evidence-in-chief para 24 [Environment Court document 17].



especially Waitata Reach; remove and relocate salmon farms that are adjacent to and in front of residential property such as Waihinau Bay and don't allow any new farms until better ways of farming that do not destroy the mauri of our waters have been found.

[165] Mr Elkington was not cross-examined and we have no good reason to doubt his evidence. Nor do we consider he was exaggerating. We find that the likely quantities of effluent are large. Mr Schuckard quantified the emissions from this one farm as being 65 tonnes (minimum) or 108 tonnes (maximum) of nitrogen. That is equivalent to the nitrogen waste of 11,000 to 19,000 people¹⁵⁹. Further we should consider the likely accumulative effects of the New Zealand King Salmon farms too. In unchallenged evidence Mr Schuckard quantified¹⁶⁰ the accumulative impacts of four (as approved) salmon farms in the Waitata Reach as adding equivalent nitrogenous waste (untreated) of a small city (or large town) of 70,000 people or, we add, about 2,800 dairy cows¹⁶¹ to the water.

[166] It is our understanding that generally any discharge that is not of the same (or better) quality as the water into which it is discharged reduces the mauri of the water and should not be normally allowed¹⁶². It defies belief to describe that the discharge from the accumulated (consented) salmon farms together with the KPF farm is only a minor adverse effect from a Maori perspective (or from some other cultural perspectives also). We find that Mr Elkington's and Mr Buchanan's concerns are well-founded.

4.6. Effects on navigation and access

[167] The existing farm is not on any direct or designated navigation route within the Sound. Any small craft using the area for recreational or commercial purposes needs to make only a minor change in course to avoid the farm. This will not alter with the addition of salmon cages within the operational area of the farm.

[168] The proposed salmon cages are wholly within the consented area of the established mussel farm at Danger Point. Exclusive occupation of marine space is given for the not insignificant space directly taken up by the 11 new polar circle cages within the farm. We also accept Dr Steven's evidence that¹⁶³:

The exclusive occupation of marine space by salmon farms, together with the constant presence of staff, creates a strong sense of exclusive use and de facto privatization that extends beyond the physical margins of the salmon farm structure. This, in my opinion, will exert a strong sense of influence over the use of public space adjacent to salmon farms, such that the space they are perceived to occupy will be rather larger than the space occupied by the physical structures of the farms ...

¹⁵⁹ R Schuckard, evidence-in-chief para 2.11 [Environment Court document 13].

¹⁶⁰ R Schuckard, evidence-in-chief Table 1 (after para 2.9) [Environment Court document 17].

¹⁶¹ On the basis of the notorious fact that one dairy cow produces an average of the total nitrogen of 25 humans each day. But neither human waste nor dairy waste is (usually) discharged straight to water.

¹⁶² See Board Report para [890] referring to the evidence of the well-known cultural expert Mr Buddy Mikaere.

¹⁶³ M J Steven, evidence-in-chief para 108.6 [Environment Court document 7].



— with the qualification that the word “strong” should be substituted with the word “some” in the first sentence and deleted in the second.

4.7. Proposed conditions (and adaptive management)

Conditions

[169] Proposed conditions of consent, modified from earlier versions submitted in evidence, were presented to the hearing by KPF. The conditions had been prepared following discussion and agreement between the applicant, the Department of Conservation (a s274 party, now withdrawn) and the Council. The proposed conditions are modeled on the NZKS determinations but are to operate on a stand-alone basis in respect of the KPF consent.

[170] The conditions are structured to provide for:

- (a) Physical management – occupancy and extent. (conditions 3 to 6)
- (b) New Zealand King Shag (condition 7)
- (c) Engineering and navigation (condition 8)
- (d) Feed discharge and Environmental Quality Standards (condition 9)
- (e) Marine mammal and shark (conditions 10.2 – 10.3)
- (f) Biosecurity (conditions 10.4 – 10.6)
- (g) Monitoring, adaptive management and reporting (conditions 10.7 – 10.18)
- (h) Peer review (condition 10.19)
- (i) Review (condition 10.20)

[171] The conditions require that the baseline plan reports be completed prior to the establishment of the salmon farm. The conditions provide for an initial maximum annual discharge of feed of 1,500 tonnes, with ongoing monitoring and reporting. Incremental increases of feed discharge to a maximum of 2,500 tonnes can occur after three years if supported by the monitoring reports and approved by the Council.

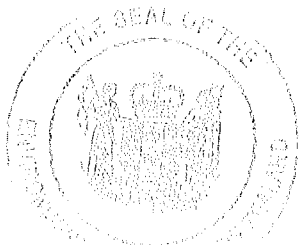
Adaptive Management

[172] KPF advanced an adaptive management approach to consent conditions as adopted by the Board for NZKS. This provides for ongoing monitoring of the effects of an activity in order to promote careful and informed environmental decision-making on the best information available.

[173] The use of adaptive management has developed through a number of Environment Court cases dealing with the impacts of proposed mussel farms¹⁶⁴. It has since been applied in a range of other cases involving complex ecological systems. The Board, in the New Zealand King Salmon case, referred to many cases where the

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Golden Bay Marine Farmers v Tasman District Council, W19/2003 and W089/2004; *Minister of Conservation v Tasman District Council*, HC Nelson, CIV 2003-485-1072.



adaptive management technique had been applied in New Zealand. Applying those, the Board considered that, before endorsing an adaptive management approach, it would have to be satisfied that¹⁶⁵:

- (a) there will be good baseline information about the receiving environment;
- (b) the conditions provide for effective monitoring of adverse effects using appropriate indicators;
- (c) thresholds are set to trigger remedial action before the effects become overly damaging; and
- (d) effects that might arise can be remedied before they become irreversible.

[174] The Supreme Court expressly endorsed that approach in the Marlborough Sounds (or at least in the relevant parts of them) in the *SOS* decision¹⁶⁶. We note that the Board's criteria for using adaptive management differ somewhat from those previously set out by the Environment Court in *Crest Energy*¹⁶⁷.

[175] The Board applied the adaptive management approach to produce a set of conditions for the Waitata and Richmond consents. KPF adapted those conditions for its Danger Point application. KPF submitted that the proposed approach satisfies all of the elements of adaptive management and that there is scientific confidence that the effects are understood and can be modeled and predicted.

[176] Ms Radich informed us¹⁶⁸ that the Council did not accept the adaptive management approach as an appropriate response to the effects that arise from salmon farming. In her submission the proposed conditions do not adequately address the consequences of breach of environmental thresholds or the environmental risk if the science on which the conditions are based is wrong.

[177] If we decide to grant consent, then it would be on the basis that, on balance, we accept the approach proposed by KPF for the purposes of this case. The scientific information is sufficiently robust for the outer Pelorus Sound, and will be even more so with the baseline monitoring required before the operation commences, to set appropriate environmental quality standards. Management to achieve these standards based on ongoing monitoring would be likely to minimise any long term environmental risks.

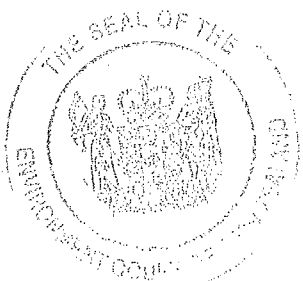
[178] The reversibility of unpredicted or unacceptable adverse effects on benthic environments and/or the water column are accepted as achievable by alteration of feed regimes or cessation of the operation in an extreme case.

¹⁶⁵ *King Salmon* (Board) Report at [181] endorsed by the Supreme Court in *Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited* SC 84/2013; [2014] NZSC 40 at [133].

¹⁶⁶ *Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited and Others* SC 84/2013; [2014] NZSC 40 at [133].

¹⁶⁷ *Crest Energy Kaipara Ltd v Northland Regional Council* [2011] NZRMA 420 (EnvC).

¹⁶⁸ Submissions for the respondent, 19 July 2003 at para 25 [Environment Court document 19].



5. Weighing the relevant factors

5.1. Section 104 RMA: the environmental effects and the planning framework

[179] Section 104 RMA requires us to have regard to the actual and potential effects on the environment of allowing the activity. We have discussed these effects and set out our predictions in part 4 of this decision and apply those findings as part of our evaluation and judgment.

[180] As set out earlier, the relevant planning instruments to be considered under section 104(1)(b) are the NZCPS, the MRPS and the Sounds Plan. All three instruments contain effects based objectives and policies. They address effects that are relevant to this application. In addition to those provisions there are also relevant strategic policy provisions, in particular NZCPS Policy 8, highlighting the importance of aquaculture for communities in appropriate locations, and Policies 13 and 15 of the NZCPS.

[181] We have found in our evaluation of environmental effects that the visual effects of the proposal on natural character and landscape are more than those already exerted by the existing consented marine farm. The increased effects are more than minor and at the lower end of “significant”. That is the salmon farms’ 34 or 38 metre diameter disks will present as much larger than the individual buoys of the mussel long-lines, although of course there will be far fewer of them. The proposal is generally consistent with the relevant planning provisions in Chapters 2 and 5 of the Sounds Plan. We accept that the KPF proposal applies the important natural character policy to place developments in areas “... where the natural character of the coastal environment has already been compromised”¹⁶⁹.

[182] However, Policies 13 and 15 of the NZCPS present more difficulties. Ms Radich submitted¹⁷⁰ that there must be significant adverse effects for the NZCPS policies to apply. That is not correct — if there are “merely” adverse effects on an ONF — which is what we have found that the Area of Outstanding Land Value is — they should still be avoided under Policy 15(a)¹⁷¹.

[183] There will be adverse effects on the water column and benthic environment limited to the immediate vicinity of the salmon cages that are greater than that of the operating mussel farm at the site. These adverse effects could be managed within acceptable limits by appropriate environmental standards in the conditions of consent. For example a comprehensive monitoring and adaptive management approach to benthic environments and water quality in the wider environment of Port Ligar and Waitata Reach would be likely to ensure that any adverse effects on marine ecosystems from the proposed salmon farm will be avoided, remedied or mitigated. This is consistent with the water quality management provisions in Chapter 9 of the Sounds Plan that give

¹⁶⁹ Policy (2.2)1.2 [Sounds Plan p 2-3].

¹⁷⁰ Final submissions May 2014 [Environment Court document 24].

¹⁷¹ Policy 15(a) [NZCPS (2010)] set out at [94] of this decision.



effect to the relevant higher order planning provisions. It will address adverse effects on non-visual elements of the natural character of the coastal environment as provided for in Policy 13 NZCPS so that they are only minor.

[184] We are satisfied there is a medium likelihood that the adverse effects on the ecology of the area will not suffer irreversible adverse effects, and that the effects on public access and navigation will be no more than minor. We find that the proposed MEM-AMP in this case is an appropriate precautionary approach under Policy 3 NZCPS in respect of ecological effects.

[185] Clearly there will be positive financial and employment effects from the proposal.

[186] We have predicted that the adverse effects of the proposal on visual amenity and natural character and, especially, on the landscape are likely to be more than minor, and at the lower end of significant.

[187] The Board of Inquiry considered that four new salmon farms in the Waitata Reach would “compromise”¹⁷² Maori values “to some extent”¹⁷³ and in particular with respect to water quality as a result of the excess food and effluent, by the like effect on customary food gathering areas, by the potential impact on kaitiakitanga, and in a diminution of their relationship with their rohe moana¹⁷⁴. In this case we had little evidence of the use of the Danger Point coastline specifically, or of the reef beyond it for customary food gathering. Mr Buchanan stated more generally that he had dived or snorkelled in the vicinity of reefs in “Waitata Bay”¹⁷⁵. However, the other three adverse effects would be likely to occur. We find that the addition of a third salmon farm in or beside the Waitata Reach (in addition to NZKS’s Richmond and Waitata farms), or a fourth if the existing Waihinau Bay farm is included, would be a serious adverse effect on the values of Ngati Koata.

5.2. Sections 105 and 107 RMA

[188] In considering the application for discharge to the coastal environment we must have regard to the matters set out in s 105 (set out earlier). The evidence satisfies us that the ecological sensitivity of the receiving environment has been taken into account in the design of the proposed conditions of consent. KPF’s reasons for selection of the site for the salmon farm within the existing marine farm at Danger Point are appropriate. The water flow dynamics of the site, together with its already modified character reduce any potential adverse effects when compared to alternative “green field” sites in the CMZ2. There are no alternative methods for feeding farmed fish than discharging feed, unless expensive land based options become viable. We are satisfied that the matters set out in

¹⁷² Board Report para [1231].

¹⁷³ Board Report para [1231].

¹⁷⁴ Board Report para [1231].

¹⁷⁵ J Buchanan, evidence-in-chief para 21 [Environment Court document 16].



s 105(b) and (c) have been adequately covered. The matters raised by section 105(a) are covered in part 5.1 of this decision.

[189] Our consideration of this application must also take into account the required tests in s 107. No issues were raised regarding this at the hearing, but we note it was dealt with at length by the Board in the NZKS case. The Board found that¹⁷⁶:

... Section 107 presents no impediment to the grant of any of the resource consents. We are also satisfied that the conditions of consent that require on-going monitoring are a safeguard to Section 107 not later being breached.

The KPF application is for the same activity as considered by the Board, and the proposed conditions mirror those applied by the Board. We agree with the finding as also applicable in this case without needing to repeat the evaluation of the Board.

5.3. The Council's decision

[190] In our consideration of this appeal we have benefited from the additional scientific evidence prepared for the Board examination of the plan change and consent applications by NZKS, and largely re-presented to us by KPF in this case. This has resulted in acceptance by us of the proposed conditions advanced by KPF that are markedly different from those in the Council decision. These conditions are modeled on those applied to NZKS by the Board and include the adaptive management approach rejected by the Council in its decision. We consider that the scientific evidence supports the adaptive approach as achieving better long term ecological outcomes than the strict standards based approach applied by the Council.

[191] The Council's decision acknowledged¹⁷⁷ the cultural importance of the area but decided that "a restricted feed regime, the removal of the adaptive management approach and a s[h]orter term of consent would allow for the potential effects to be monitored closely and understood better". That makes our decision difficult because first KPF based its case before us on an adaptive management approach, and second, because the council has, in effect, avoided making a decision on the cultural effects.

[192] The Council accepted that the site was within an outstanding natural landscape¹⁷⁸, but decided that¹⁷⁹ "any potential adverse effects on natural character and visual amenity can be adequately mitigated". The Council did not refer to the fact that the site is within an Area of Outstanding Landscape Value in its own Sound Plan. Further, the Council simply recorded¹⁸⁰ the relevant provisions of the NZCPS 2010, but did not explain how they should be applied. We of course now have the benefit of the Supreme Court's decisions on the NZKS applications.

¹⁷⁶ Board Final Report at para [1324].

¹⁷⁷ MDC decision 21 May 2012 para 80.

¹⁷⁸ MDC decision 21 May 2012 para 45.

¹⁷⁹ MDC decision 21 May 2012 para 59.

¹⁸⁰ MDC decision 21 May 2012 paras 127-130.



[193] In summary, on the three issues where the evidence raises difficulties with the proposal, the Council decision is largely silent, and therefore unhelpful. We find we can give it minimal weight.

5.4. Consideration under Part 2 RMA

Introduction: is a broad judgment required under section 104?

[194] Our evaluation under section 104 leaves us undecided. Clearly there are matters which weigh in the scales for the proposal — in particular, the potential profit for KPF, the employment benefits for the community and the fact that the naturalness of the site has been compromised to some extent already by the presence of the mussel farms. Some matters are neutral, and there are others which weigh against the proposal. The latter include minor adverse ecological effects, adverse effects on the Area of Outstanding Landscape Value at Danger Point and effects on the values of the tangata whenua.

[195] In the circumstances, section 104 obliges us to return to Part 2 of the RMA, to resolve the case.

[196] In the context of a plan change the Supreme Court stated in the *EDS* decision¹⁸¹:

Section 5 was not intended to be an operative provision, in the sense that it is not a section under which particular planning decisions are made; rather, it sets out the RMA's overall objective.

In our view that needs to read with some care in other contexts. For example, given the wording of section 104 with its reference to the evaluation being “subject to Part 2” we respectfully consider that the Supreme Court’s sentence needs to be qualified in that context. If Part 2 of the RMA needs to be considered under section 104 of the RMA — and, for reasons given earlier, that is usually the case — then it is section 5 together with the other strong directions of sections 6 to 8 of the Act which are the provisions under which the decision is to be made.

[197] We do not overlook that the Supreme Court rejected the submission that a “broad overall judgment” needs to be made under Part 2 of the Act. It stated¹⁸² that in the context of a plan change the NZCPS provided some kind of bottom line for the Marlborough Sounds. More relevantly, there is a suggestion in the *EDS* decision¹⁸³ that its comments on the “overall judgment” approach also apply to the section 104 evaluation of a resource consent. There the Supreme Court contrasted the Board’s

¹⁸¹ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [151] SC.

¹⁸² *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [175].

¹⁸³ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [138].



decision to grant a salmon farm (the Papatua farm) on the western side of Port Gore¹⁸⁴ with an earlier Environment Court decision in which it refused resource consents for three mussel farms on the eastern side of Port Gore: *Port Gore Marine Farms v Marlborough District Council*¹⁸⁵. The Supreme Court wrote about the latter decision in the *EDS* decision¹⁸⁶:

While the Court conducted an overall analysis, it was heavily influenced by the directives in policies 13 and 15 of the NZCPS, as given effect in this locality by the Marlborough District Council's CMZ1 zoning. This was despite the fact that the applicants had suggested mechanisms whereby the visual impact of the mussel farms could be reduced. There is no necessary inconsistency between the Board's decision in the present case and that of the Environment Court,¹⁸⁷ given that different considerations may arise on a salmon farm application than on a mussel farm application. But a comparison of the outcomes of the two cases does illustrate the uncertainty that arises from the "overall judgment" approach: although the mussel farms would have had an effect on the natural character and landscape attributes of the area that was less adverse than that arising from a salmon farm, the mussel farm applications were declined whereas the salmon farm application was granted.

[198] With respect to the Supreme Court, we consider that the evaluation under section 104 RMA is both wider than the plan change test for the reasons we have described, and simultaneously not quite as arbitrary as the Supreme Court suggested. The reason for the latter assertion is that the Board rewrote the provisions of the Sounds Plan so as to allow salmon farming. That was before it considered all the factors (including its rewriting) in its overall evaluation. Port Gore was largely zoned CMZ1 in which marine farming was prohibited, so the Board was requested to, and did, spot zone the Papatua site as a new CMZ3 especially for salmon farming. The Supreme Court appears to have recognised that where it wrote¹⁸⁸:

Further, the "overall judgment" approach has the potential, at least in the case of spot zoning plan change applications relating to coastal areas with outstanding natural attributes, to undermine the strategic, region-wide approach that the NZCPS requires regional councils to take to planning.

[199] In contrast the Environment Court in the *Port Gore Marine Farms* context was considering the CMZ1 zone in which marine farming is generally a prohibited activity. So the Environment Court and later the Board were considering different provisions in the statutory instruments as well as different effects and (possibly) different landscapes.

[200] We hold that in the light of the words "subject to Part 2" in section 104(1) there are no absolute bottom lines when a resource consent is being considered under

¹⁸⁴ In the outer Marlborough Sounds and facing north into Cook Strait.

¹⁸⁵ *Port Gore Marine Farms v Mackenzie District Council* [2012] NZEnvC 72 at [139].

¹⁸⁶ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [138] SC.

¹⁸⁷ The Board was aware of the Environment Court's decision in the *Port Gore Marine Farm* case because it cited it for a particular proposition: see the Board's Report at [595].

¹⁸⁸ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [138].



section 104 even if a National Policy Statement does have to be had regard to. Further, once Part 2 comes into play — as it does in most cases — the judgment does become quite broad because the decisions must achieve the purpose of the RMA (rather than of the documents made under it). That purpose is the sustainable management of the particular natural and physical resources involved in the activity by:

first managing those resources — not the “environment” — in a way or at a rate which enables people to provide for their wellbeing and to get on with their lives safely and healthily;

second “at the same time”¹⁸⁹, sustaining the potential of those resources to meet the needs¹⁹⁰ of future generations, safeguarding the life-supporting capacity of air, water, soil and ecosystems, and avoiding remedying or mitigating any adverse effects of activities on the environment; and

third:

- recognising and providing for the seven matters of national importance in section 6 of the RMA;
- having particular regard to the matters listed in section 7 RMA; and
- taking account of the principles of the Treaty of Waitangi (“Te Tiriti O Waitangi”) under section 8 RMA;

— because these are “strong directions” — *McGuire v Hastings District Council*¹⁹¹; *Environmental Defence Society v The New Zealand King Salmon Company Limited*; and

fourth applying the more definite particularisations of sections 5 to 8 matters in the relevant statutory documents under Part 5 of the Act — especially in National Policy Statements and National Standards: *Environmental Defence Society v The New Zealand King Salmon Company Limited*¹⁹².

[201] “Environment” is defined¹⁹³ as including:

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.

¹⁸⁹ This is the meaning of “while” in section 5(2) RMA: *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [24](c).

¹⁹⁰ Reasonably foreseeable needs: s5(2)(a) RMA.

¹⁹¹ *McGuire v Hastings District Council* [2001] NZRMA 597; (2002) 8 ELRNZ 14 (PC); *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38.

¹⁹² *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [102] and [152].

¹⁹³ Section 2 RMA.



If the human-centred parts of that definition are inserted into section 5(2)(c) it requires that:

... adverse effects of activities on people and communities ... and [on] the social, economic, aesthetic and cultural conditions which affect them, or ... are affected by them [should be] avoided, remedied or mitigated.

That is sometimes applied as if it writes a planning purpose of managing people and communities back into section 5 of the RMA. That is not the correct approach for two reasons. The substantive reason is that the introductory words of section 5(2) make it clear that the RMA is about managing the relevant resources to enable people and communities to provide for themselves. The procedural reason is that section 5(2)(c) imposes a burden of proof on people to provide sufficient evidence of causation of adverse effects on people and communities and of “disenablement” of their capacity to provide for themselves before local authorities should begin to contemplate interfering with rights under section 5(2) RMA.

[202] In the end we conclude that, at least for an appeal to which section 104 applies, the summary of the Planning Tribunal in *North Shore City Council v Auckland Regional Council*¹⁹⁴ (ironically a decision on a plan not on a resource consent) is still applicable. That is¹⁹⁵:

The method of applying s 5 then involves an overall broad judgment of whether a proposal would promote the sustainable management of natural and physical resources. That recognises that the [RMA] has a single purpose. Such a judgment allows for comparison of conflicting considerations and the scale or degree of them, and their relative significance or proportion in the final outcome ...

— provided it is recognised that the weight¹⁹⁶ to be given to the relevant considerations must be carefully allocated by reference to both the strong directions in sections 6 to 8 and to any particularisation of those in the statutory instruments from national policy statements down to district plans.

Matters of national importance

[203] Part 2 provisions relevant to this case are sections 6(a), 6(b), 6(d) and 6(e) where, as a matter of national importance we are required to recognise and provide for:

- (a) the preservation of the natural character of the coastal environment (including the coastal marine area) ... and the protection of them from inappropriate subdivision, use and development;

¹⁹⁴ *North Shore City Council v Auckland Regional Council* (1996) 2 ELRNZ 305 (EnvC) at 345 – 347; affirmed in *Green & McCahill Properties Ltd v Auckland Regional Council* [1997] NZRMA 519 (HC).

¹⁹⁵ *North Shore City Council v Auckland Regional Council* (1996) 2 ELRNZ 305 (EnvC) at 345 – 347; aff'd *Green & McCahill Properties Ltd v Auckland Regional Council* [1997] NZRMA 519 (HC) at 347.

¹⁹⁶ *Baker Boys Limited v Christchurch City Council* (1998) 4 ELRNZ 297 at 329.

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;

...

(d) the maintenance and enhancement of public access to and along the coastal marine area ...

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water ...

[204] Section 6(b) emphasises that protection of the AOLV at Danger Point (being an outstanding natural feature) is a matter not merely of regional but of national importance. Further, as the Supreme Court states in the *EDS* decision, the effect of the NZCPS (2010) in relation to Areas of Outstanding Landscape Value is that section 6 has been particularised in a clear-cut way, so that adverse effects are not to be avoided, remedied or mitigated, but simply avoided.

[205] In relation to section 6(d) we have found there are likely to be only minor effects on navigation or public access.

[206] In relation to section 6(e), we bear in mind the principle stated by the Court of Appeal in *Watercare Services Ltd v Minhinnick*¹⁹⁷:

While the Maori dimension, whether arising under s 6(e) or otherwise, calls for close and careful consideration, other matters may in the end be found to be more cogent when the [Environment] Court, as the representative of New Zealand society as a whole, decides whether the subject matter is offensive or objectionable In the end a balanced judgment has to be made.

We respectfully consider *Minhinnick* can be distinguished. There, section 6(e) had to be examined through the prism of section 314(1)(a)(ii) RMA. Under section 6(e) — in contrast with the standard considered by the courts in *Minhinnick* — the test is not whether the court considers the subject matter is offensive or objectionable but whether the tangata whenua claiming to be affected are being reasonable in the circumstances when they say a proposed activity is offensive to their values.

[207] Mr Nicolle, the manager of KPF's interests stated¹⁹⁸ that KPF had discussions with another iwi, Ngati Kuia, (not Ngati Koata) and that in any event the site was already used for aquaculture and that will not change if the application is refused¹⁹⁹. Mr Nicolle's evidence failed to recognise the distaste that Mr Elkington and Mr Buchanan had for fish faeces and excess food being deposited on the seabed. We accept that only a proportion arrives there — the rest is washed away — and that the salmon farm is proposed to be managed so that the seabed effects are reversible over a 10 year period once (if) salmon farming stops.

¹⁹⁷ *Watercare Services Ltd v Minhinnick* CA 221/97 [1998] NZRMA 113 at 116.

¹⁹⁸ R B Nicolle, evidence-in-chief para 54 [Environment Court document 8].

¹⁹⁹ R B Nicolle, evidence-in-chief para 54 [Environment Court document 8].



[208] In considering that issue, we accept that, as stated in *Te Kupenga O Ngati Hako Inc v Hauraki District Council*²⁰⁰:

... from a contemporary perspective, cultural responses of tangata whenua can sometimes be quite pragmatic — in the sense of adapting ancient beliefs to current conditions by actively embracing new methods and technologies designed to isolate what is “unclean” from what is “clean”, or to transform the one into the other by environmentally friendly processes. For a case illustrative of such thinking, we mention *Te Runanganui O Taranaki Whanui Ki Te Upoko O Te Ika A Maui Inc v Wellington Regional Council & Anor*²⁰¹, otherwise known as the *Wellington Bio-Solids* case ...

However, there is relatively little modern or skilful technology, as Mr Keeley acknowledged²⁰², involved in feeding salmon and managing their waste. What the currents do not wash away — and that is a considerable amount, as already discussed — simply settles on the seabed, untreated. We consider that Mr Elkington and Mr Buchanan’s concerns are well-founded and not unreasonable. They cannot reasonably be seen as inflexible or unwarrantedly “traditional” as were the appellant’s witnesses in the *Te Kupenga* case²⁰³.

[209] Another aspect which concerns us in relation to section 6(e) of the RMA is the cumulative effect of this proposal in addition to the two existing and the two approved salmon farms in the Waitata Reach and adjoining bays. At some point Ngati Koata’s mana moana would be substantially eroded if salmon farms continue to be placed in this part of Pelorus Sound. The NZBOI considered only two new farms should be allowed in the plan, and we respectfully agree. We hold that the threshold would be exceeded if consent were to be granted to the KPF application.

Matters to be had particular regard to

[210] The relevant provisions in Section 7 are:

- (b) the efficient use and development of natural and physical resources;
- (c) the maintenance and enhancement of amenity values;
- ...
- (f) maintenance and enhancement of the quality of the environment.

The Supreme Court described these as “evaluative” matters²⁰⁴, and we respectfully agree.

[211] As for section 7(b), while too much weight should not be given to considerations of efficiency — see the High Court decision in *Meridian Energy Ltd v Central Otago*

²⁰⁰ *Te Kupenga O Ngati Hako Inc v Hauraki District Council* D 10/2001 at [123].

²⁰¹ Decision W48/98.

²⁰² N B Keeley, evidence-in-chief para 47 [Environment Court document 5].

²⁰³ *Te Kupenga O Ngati Hako Inc v Hauraki District Council* D 10/2001 at [124].

²⁰⁴ *Environmental Defence Society v The New Zealand King Salmon Company Limited* [2014] NZSC 38 at [26].



*District Council*²⁰⁵ — a cost-benefit analysis under section 7(b) can be a useful way of checking that a judgment is otherwise well-balanced. However, in this case, we received no proper analysis of all the benefits and costs of the proposal. The only quantified analysis was of the financial benefits to KPF. Even that is inadequate as an assessment of the producer surplus because it is not a net figure. It does not take into account the considerable capital required to set up the salmon farm. The direct costs of nine farms in the New Zealand King Salmon proposal were estimated²⁰⁶ to be \$40 million. That is about \$4.5 million per salmon farm, so the costs are not insignificant.

[212] Potentially, a further consideration here was that if resource consent is granted it may last for much longer than the term initially sought. Section 104(2A) states:

When considering an application affected by section 124 or 165ZH(1)(c), the consent authority must have regard to the value of the investment of the existing consent holder.

Although the existing marine permits only have seven or so years to run, once approved it is more difficult to refuse their “renewal” because section 104(2A) does not regard the value of the investment as sunk costs. That appears to reinforce the importance of making the correct decision now and may also explain why the applicant did not seek a full 35 year term for the consent. However, we heard no submissions on this subsection and so place no weight on it.

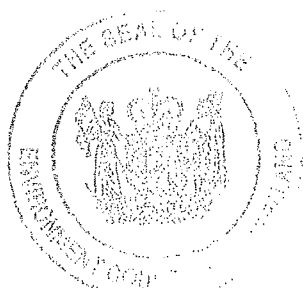
[213] In relation to amenity issues, we consider these have been adequately evaluated under the section 6(d) and (b) headings. We wish to avoid double counting and so place no extra weight on them under section 7.

6. Result

[214] The proposal would enable KPF to provide for company and community wellbeing by being able to develop a salmon farm at their marine farming site at Port Ligar. The evidence supports the conclusion that there is a medium likelihood that there will be no significant difference in effects on navigation, public access or far field marine ecosystems from that already experienced from the operating mussel farm. Adverse marine effects immediately adjacent to the site could be managed within acceptable scientific standards by compliance with appropriate consent conditions.

[215] The sticking points are section 6(b) and (e) of the RMA as particularised by the NZCPS (2010). We have found that there are likely to be adverse effects on the Area of Outstanding Landscape Value in which the site sits. We must have regard to Policy 15 of the NZCPS which states that such effects should be avoided. We remind ourselves that the High Court stated in *Foodstuffs (South Island) Ltd v Christchurch City*

²⁰⁵ *Meridian Energy Ltd v Central Otago District Council* [2011] NZRMA 477 (HC).
²⁰⁶ Board Report para [252].



*Council*²⁰⁷ that the directive “must have regard to” is not to be elevated to mean “must give effect to”, but even so we consider this is a heavy weight in the side of the scales against grant of consent.

[216] Further, we consider that the proposal fails to recognise that Mr Elkington and other tangata whenua have a traditional and continuing cultural relationship²⁰⁸ with the area of the site and its environment which has already been weakened by the four (existing or proposed) salmon farms in the vicinity. We consider the cumulative effects of this proposal on the tangata whenua also weigh quite heavily against granting consent.

[217] Placing all relevant considerations in the balance in the way we have discussed, we consider the purpose of the RMA, and the instruments made under it, is better achieved if consent is refused.

[218] The appeal of Pelorus Wildlife Sanctuaries Ltd and others should be allowed and the appeal by KPF Investments Ltd dismissed.

[219] The grant of consent by Marlborough District Council will be cancelled.



J R Jackson
Environment Judge

K Prime
Environment Commissioner

I Buchanan
Environment Commissioner

Attachments:

- A: Existing Mussel Farm Activity and Proposed Salmon Farming (T F Carter Annexure A Sheet 3).
- B: The New Zealand King Salmon Application Sites.

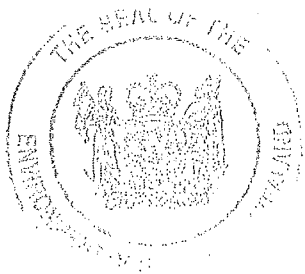
JacksofJud_Rule\d\KPF Investments Ltd & Pelorus Wildlife Sanctuaries Ltd v Marlborough DC

²⁰⁷ *Foodstuffs (South Island) Ltd v Christchurch City Council* [1999] NZRMA 481; (1999) 5 ELRNZ 308, at [314].

²⁰⁸ See NCPS Policy 2(a).

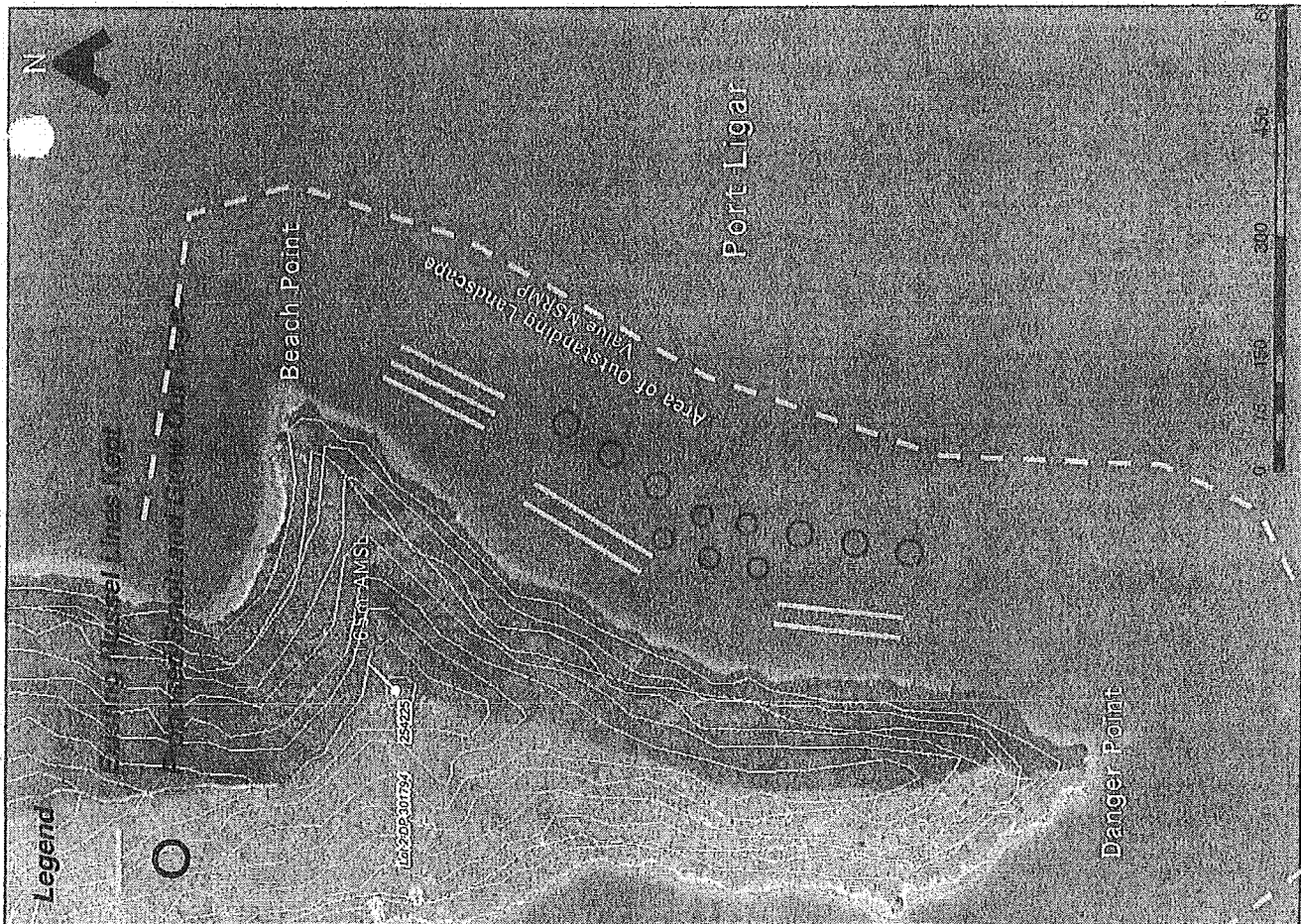
Schedule 1
Enrichment Stages for Marlborough Sounds Salmon Farms

ES	General description		Environmental characteristics
1	<i>Natural/pristine conditions.</i>	LF	Environmental variables comparable to unpolluted/un-enriched pristine reference site.
		HF	As for LF, but in fauna richness and abundances naturally higher (~2 ^x LF) and %Organic matter slightly lower.
2	<i>Minor enrichment.</i> Low-level enrichment. Can occur naturally or from other diffuse anthropogenic sources. 'Enhanced zone'.	LF	Richness usually greater than for reference conditions. Zone of 'enhancement' – minor increases in abundance possible. Mainly compositional change. Sediment chemistry unaffected or with only very minor effects.
		HF	As for LF.
3	<i>Moderate enrichment.</i> Clearly enriched and impacted. Significant community change evident.	LF	Notable abundance increases, richness and diversity usually lower than reference site. Opportunistic species (i.e. Capitellid worms) begin to dominate.
		HF	As for LF.
4	<i>High enrichment.</i> Transitional stage between moderate effects and peak macrofauna abundance. Major community change.	LF	Diversity further reduced, abundances usually quite high, but clearly sub-peak. Opportunistic species dominate, but other taxa may still persist. Major sediment chemistry changes (approaching hypoxia).
		HF	As above, but abundance can be very high while richness and diversity are not necessarily reduced.
5	<i>Very high enrichment.</i> State of peak macrofauna abundance.	LF	Very high numbers of one or two opportunistic species (i.e. Capitellid worms, nematodes). Richness very low. Major sediment chemistry changes (hypoxia, moderate oxygen stress). Bacterial mat (<i>Beggiatoa</i>) usually evident. Out-gassing on disturbance.
		HF	Abundances of opportunistic species can be extreme (10 ^x LF ES 5 densities). Diversity usually significantly reduced, but moderate richness can be maintained. Sediment organic content usually slightly elevated. Bacterial mat formation and out-gassing possible.
6	<i>Excessive enrichment.</i> Transitional stage between peak abundance and azoic (devoid of any organisms).	LF	Richness and diversity very low. Abundances of opportunistic species severely reduced from peak, but not azoic. Total abundance low but can be comparable to reference site. %OM can be very high (3-6 ^x reference).
		HF	Opportunistic species strongly dominant, taxa richness and diversity substantially reduced. Total in fauna abundance less than at sites further away from farm. Elevated organic matter and sulfide levels. Formation of Bacterial mats and out-gassing.



7	<i>Severe enrichment.</i> Anoxic and azoic; sediments no longer capable of supporting macrofauna with organics accumulating.	LF	None, or only trace numbers of macrofauna remain. Some samples with no taxa. Spontaneous out-gassing; <i>Beggiatoa</i> usually present but can be suppressed. %OM can be very high (3-6 ^x reference).
		HF	Not previously observed - but assumed similar to LF sites.







NEW ZEALAND KING SALMON
 Location of Proposed Plan Change and Resource Consent Sites
 20th September 2011 | Revision: 4
 Plan Prepared for NZ King Salmon by Boffa Miskell Limited
 brian.mcauliffe@boffa-miskell.co.nz | Checked: Sarah Dawson

Legend

- Proposed Plan Change and Resource Consent Sites
- Proposed Resource Consent Site
- Indicative Cages

N

0 2.5 km
 1:150,000 @ A3

Projection: NZTM
 Data Source:
 Topographic Map Series 303 - Crown Copyright Reserved

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