

IN THE SUPREME COURT OF NEW ZEALAND

SC 84/2013 [2014] NZSC 40

BETWEEN	SUSTAIN OUR SOUNDS INCORPORATED Appellant
AND	THE NEW ZEALAND KING SALMON COMPANY LIMITED First Respondent
	ENVIRONMENTAL DEFENCE SOCIETY INCORPORATED Second Respondent
	MARLBOROUGH DISTRICT COUNCIL Third Respondent
	MINISTER OF CONSERVATION AND DIRECTOR-GENERAL OF MINISTRY FOR PRIMARY INDUSTRIES Fourth Respondents

19, 20, 21 and 22 November 2013

Elias CJ, McGrath, William Young, Glazebrook and Arnold JJ

Hearing:	M S R Palmer and K R M Littlejohn for Appellant D A Nolan, J D K Gardner-Hopkins, D J Minhinnick and A S Butler for First Respondent
Court:	D A Kirkpatrick, R B Enright and N M de Wit for Second Respondent
Counsel:	C R Gwyn and E M Jamieson for Fourth Respondents P T Beverley and D G Allen for the Board of Enquiry
Judgment:	17 April 2014

JUDGMENT OF THE COURT

**A The appeal with regard to the Waitata, Richmond and
Ngamahau sites is dismissed.**

B Costs are reserved.

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Introduction

[1] New Zealand King Salmon applied to establish nine new salmon farms in the Marlborough Sounds. Under the Marlborough District Council's combined Regional, District and Coastal Plan (the "Sounds Plan"),¹ the Coastal Marine Area in the Marlborough Sounds is divided into two zones: Coastal Marine Zone 1 where marine farms are prohibited and Coastal Marine Zone 2 where marine farming is usually a discretionary activity. With regard to eight of the sites, the application asked for a plan change so that these sites would be re-zoned to a new zone, Coastal Marine Zone 3, where the farming of salmon would be a discretionary (rather than prohibited) activity. Resource consents for the salmon farms at those eight sites were also sought. In addition, there was a separate resource consent application for the White Horse Rock site, which was situated in Zone 2.

[2] King Salmon's requested sites for spot zoning changes were in three different areas of the Sounds. Four were in Waitata Reach in Pelorus Sound: Waitata, Kaitira, Tapipi and Richmond. The White Horse Rock site was also in Waitata Reach. King Salmon requested its largest site, referred to as Papatua, in Port Gore in the outer Sounds. In Queen Charlotte Sound, the requested sites were at Kaitapeha and Ruaomoko. The final site was on the western shores of the Tory Channel, at Ngamahau.²

Marlborough District Council *Marlborough Sounds Resource Management Plan* (2003).

For further details, see *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZHC 1992, [2013] NZRMA 371 [*King Salmon* (HC)] at [21].

The Minister of Conservation deals with proposals of national significance relating to the coastal marine area, the Minister of the Environment with other proposals of national significance: see Resource Management Act 1991 (RMA), s 148.

Pursuant to ss 147(1)(a) and 147(2) of the RMA. The Minister considered the proposals to be of "national significance".

This is allowed through an application under the RMA, s 165ZN. This section, and the other sections under subpart 4 of Part 7A of the RMA were introduced by the Resource Management Amendment Act (No 2) 2011.

The purpose of these changes was to streamline planning and consent processes in relation to, among other things, aquaculture activities. For a full description of the background to this legislation, see Derek Nolan (ed)

² *Environmental* *and*

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(Papatua, Ngamahau, Waitata and Richmond). This meant that salmon farming became a discretionary rather than prohibited activity at those sites.¹ Resource consents were also granted for those four sites, subject to detailed conditions of consent that were designed to monitor and address adverse effects under an adaptive

management approach. The application for consent for the White Horse Rock site was declined.

[4] Sustain Our Sounds Inc (SOS) appealed to the High Court against the Board's decision on all four sites, primarily on issues relating to water quality. That appeal, and an appeal by the Environmental Defence Society (EDS) in relation to the Papatua and Waitata sites only, was dismissed by Dobson J on 8 August 2013.² Both SOS and EDS were granted leave to appeal to this Court³ against Dobson J's decision⁴ and the appeals were heard together. In a judgment on the EDS appeal, released at the same time as this judgment, the EDS appeal with regard to the Papatua site in Port Gore has been allowed.¹² In practical terms, this means that the SOS appeal now relates to the¹³ three remaining sites.

¹ Board of Inquiry *New Zealand King Salmon Requests for Plan Changes and Applications for Resource Consents*, 22 February 2013 [*King Salmon* (Board)].

² *King Salmon* (HC), above n 2.

³ Section 149V(6) of the RMA gives the ability for a party to apply to the Supreme Court for leave to bring an appeal on a question of law against a determination of the High Court. In terms of s 149V(7), if the Supreme Court refuses to give leave, but considers that an appeal against the High Court determination is necessary, it may remit the proposed appeal to the Court of Appeal. If remitted to the Court of Appeal, in terms of s149V(8), that decision cannot be appealed to the Supreme Court.

⁴ *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZSC 101. We have contemporaneously issued a separate judgment (*Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 41) setting out our reasons for granting leave. That judgment also deals with the submissions made by the Board, which have not been considered.

[5] As indicated, SOS challenges the Board's decision with regard to all four sites. This is on the basis that there was inadequate information on water quality issues before the Board to enable it to grant the applications for plan changes at all and particularly at the maximum feed levels. Although there had been modelling of the effects on water quality at the maximum initial feed levels, there had been none at the maximum feed levels. (The application envisaged a process whereby feed levels could be raised over time up to a ceiling maximum feed level.) Even at the initial feed levels, however, it is submitted that there was insufficient baseline information to rely on the modelling of the maximum initial feed levels, without rectifying the information deficit. In addition, SOS submits that the Board was wrongly influenced by the adaptive management measures contained in the resource consents in deciding to make the plan changes and that, even if an adaptive management approach was available, the parameters of that approach should have been in the plan and not the resource consents.

[6] The SOS submissions therefore raise three broad issues:

- (a) whether the adaptive management approach that the Board took was available;
- (b) whether the Board's decision on the plan changes was wrongly predicated on the consent conditions; and
- (c) if an adaptive management approach was available, whether that should have been contained in the plan as against the consents.

The water quality issue

[8] The trophic state of bodies of water is indicative of their biological productivity (that is, water quality). The quantities of particular nutrients in water, including nitrogen, are the primary determinants of a body of water's trophic state. The five trophic states are microtrophic (least productive), oligotrophic, mesotrophic, eutrophic and hypertrophic.⁵ Typical water column characteristics for the different trophic states,

Lake Ecosystem Restoration New Zealand "Trophic State" <www.lernz.co.nz>. The Trophic Level Index is the recommended index for trophic level assessments by the Ministry for the Environment and has been adopted for the New Zealand Lakes Water Quality Monitoring Programme. The scale referred to by the Board in its decision contained only four trophic states

as measured by total nitrogen, total phosphorus, water clarity and chlorophyll-a, were set out by the Board in its decision.⁶

[9] The classifications of trophic level are broad and there had been discussion among the expert witnesses as to the proper classification of the Sounds as a whole.⁷The concentrations of nitrogen in the Sounds are currently at the oligotrophic end of the spectrum, while chlorophyll-a levels are within the levels indicative of a mesotrophic state. It appears, too, that there may be seasonal variations in trophic levels, due to natural fluctuations in nutrient inputs and flushing.¹⁷

[10] It was accepted by the Board that a change from the current trophic state of the Sounds from a oligotrophic/mesotrophic to an eutrophic state "would represent an ecological disaster with significant implications for recreation and tourism, natural character, cultural values and other primary production operators within the Sounds".⁸

[11] The issue with the proposed salmon farms is that the feed given to salmon introduces a new nutrient source to the water, mostly through fish waste. The salmon process fish pellets and excrete ammonia/nitrogen and faeces into the receiving waters.⁹ The concentration of nutrients is higher in close proximity to salmon farms but there is also a cumulative effect from all farms in the Sounds.

(oligotrophic to hypertrophic): *King Salmon* (Board), above n 6, at [361]. *King Salmon* (Board), above n 6, at [361].

At [427].

At [456].

¹⁹ At [1311].

Increased nutrient concentration can lead to enhanced growth of phytoplankton and, potentially, an increase in harmful algal blooms.²⁰

[12] The main concern with regard to the Sounds and the proposed salmon farms is nitrogen level increases.²¹ In this regard, salmon farming is not the sole source of nitrogen. Nitrogen additions also occur naturally from ocean exchange and from land runoff from farming and forestry.²² By contrast, nitrogen is removed through mussel farming.²³ The estimated sources and sinks of nitrogen are set out by the Board for the three regions where the plan changes were sought.²⁴

[13] The Board considered that the salmon farms "could very well become the dominant source of 'new' nitrogen into the Sounds".²⁵ It said that the "oceanic exchange of nitrogen can be regarded as part of the natural background" and considered that the inputs from rivers are "almost certainly significantly elevated due to farming and forestry operations" but are mitigated to a large extent by the mussel farms which remove nutrients.¹⁰

The statutory framework

[14] We have discussed the statutory framework and the hierarchy of instruments in the principal judgment under the EDS appeal. We do not repeat that analysis here but merely summarise the relevant sections of the RMA.

[15] Under ss 67(3)(b) and (c), a regional plan must give effect to any New Zealand coastal policy statement and any regional policy statement. Under s 66(1), a

At [353]. The danger of increased algal blooms is that some algal species can cause mass mortalities of marine flora and fauna, contaminate shellfish and kill fish in sea cages. Degraded coastal water quality can promote the development and persistence of such blooms: see [413]. At [375]. At [378].

At [377] and [378].

At [377]. At [384].

At [384].

regional council,¹¹ when changing any regional plan, must do so in accordance with its functions under s 30, the provisions of Part 2, any direction given under s 25A(1),

³⁵ The Board, under s 149P(6)(c) of the RMA, in exercising its functions to change any regional plan must act as if it were a regional council.

its duties under s 32 and any regulations. It must also have regard, among other things, to the Crown's interests in the coastal marine area.

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[16] In addition to the matters required under ss 66 and 67, s 32, as it was at the relevant time,¹² sets out the framework for evaluations required to be carried out for changes to regional plans. The evaluation framework, according to the heading of the section, is to ensure the consideration of alternatives, benefits and costs by the relevant decision-maker. Under s 32(3), the evaluation must consider the extent to which the objectives of the proposals are the most appropriate way to achieve the purpose of the RMA and whether, having regard to their efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives. The evaluation must also take into account the benefits and costs of

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policies, rules or other methods and the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.¹³

[17] Section 87A sets out various classes of activities. For the purposes of this appeal, the relevant classifications are discretionary activities and prohibited activities. Discretionary activities require resource consent. A consent authority

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may decline the consent or grant the consent with or without conditions. The activity "must comply with the requirements, conditions, and permissions, if any, specified in the [RMA], regulations, plan or proposed plan".¹⁴ Where an activity is prohibited, no application for a resource consent may be made for the activity and the consent authority must not grant a consent for it.

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[18] When considering an application for a resource consent under s 104(1), the consent authority must, subject to Part 2, have regard to any actual and potential effects on the environment of allowing the activity, to any relevant provisions of a

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Section 66(2)(b).

30 Section 32 was replaced on 3 December 2013 by s 70 of the Resource Management Amendment

31 Act 2013.

32 RMA, s 32(4)(a).

33 Section 87A(4).

34 Section 87A(6).

New Zealand coastal policy statement, a regional policy statement or plan and to any other relevant matter.

[19] Finally, s 15(1)(a) of the RMA allows the discharge of contaminants into water as long as the discharge is expressly allowed by either a national environmental standard or other regulations, a rule in a regional plan¹⁵ or a resource

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consent. Salmon feed meets the statutory definition of a "contaminant". **The**

New Zealand Coastal Policy Statement

[20] Objective 1 of the Coastal Policy Statement is to "safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems" by, among other things, "maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural

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condition".

[21] Objective 6 relates to enabling "people and communities to provide for their social, economic and cultural wellbeing and their health and safety, through subdivision, use, and development", recognising, among other things, that the "protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits".

⁴⁰ As well as a rule in a proposed regional plan for the same region (if there is one).

[22] Turning now to the policies of particular relevance to this appeal, Policy 3 requires the adoption of "a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse".¹⁶ In particular, a precautionary approach must be adopted to the use and management of coastal resources vulnerable to climate change.¹⁷

[23] Policy 8 recognises "the significant existing and potential contribution of aquaculture to the social, economic and cultural well-being of people and communities". Regional policy statements and regional plans are required to provide for aquaculture in appropriate places, recognising that relevant

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considerations may include the need for high water quality for those activities. Policy 8 also requires that the social and economic benefits, both national and regional where assessments exist, of aquaculture are taken into account.¹⁸ It also requires ensuring that development in the coastal environment does not make water quality unfit for aquaculture in areas that are approved for that purpose.¹⁹

[24] Policy 12 relates to the control of activities that could have adverse effects on the environment through the release or spread of harmful aquatic organisms.²⁰ Policy 21 relates to the enhancement of water quality. This requires priority to be given to the enhancement of water quality where it has deteriorated to the extent that "it is having a significant adverse effect on ecosystems, natural habitats or water based recreational activities or where it is restricting existing uses".

[25] The management of the discharge of contaminants into water is required under Policy 23. Particular regard must be had to the sensitivity of the receiving environment, the risks if the concentration of contaminants is exceeded and the capacity of the receiving environment to assimilate the contaminants.²¹

Salmon feed and resultant waste was treated as a contaminant by the Environment Court in *New Zealand King Salmon Co Ltd v Marlborough District Council* [2011] NZEnvC 346. Department of Conservation *New Zealand Coastal Policy Statement 2010* (issued by notice in the New Zealand Gazette on 4 November 2010 and taking effect on 3 December 2010). Policy 3(1).

Policy 3(2).

Policy 8(b).

Policy 8(c).

Policy 12(1).

Policy 23(1)(a), (b) and (c).

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Marlborough District Council *Marlborough Regional Policy Statement* (1995). This was promulgated in 1995 before the Coastal Policy Statement.

The Marlborough Regional Policy Statement

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[26] The Marlborough Regional Policy Statement, after a discussion of the statutory framework, sets out a number of principles. These are stated to be "an attitude of the Council rather than an achievable target with supporting policies and

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methods". One of the principles is to "[incorporate into resource management policy and plans the concepts within Agenda 21²² relevant to the sustainable management of natural and physical resources".²³ The Regional Policy Statement also provides that, where there is insufficient information about actual or potential adverse effects, "a precautionary approach to the use and development of resources" will be taken "to ensure there are no adverse effects on the environment".²⁴

[27] The Regional Policy Statement then identifies five regionally significant issues for Marlborough. Three of particular relevance to this appeal are the protection of water ecosystems, enabling community wellbeing and control of waste.

[28] Part 5 of the Regional Policy Statement deals with the protection of water ecosystems. The issue is identified as being that the "function of the marine

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ecosystem is disrupted by effects from land and water based activities". It is recognised that small local effects of contamination and disruption can aggregate to have significant effects on the functioning of the ecosystem and that discharges, including from marine farming, can "cause disturbance to the natural marine ecosystem".⁵³

[29] In order to deal with that issue, the Regional Policy Statement sets an objective of maintaining water quality in the coastal marine area at a level which provides for the sustainable management of the marine ecosystem.²⁵ A number of policies are then set out to achieve this objective. Of particular relevance to this appeal is the policy to "avoid, remedy or mitigate the reduction of coastal water quality by contaminants arising from activities occurring within the coastal marine area".²⁶ In terms of methods,

At [3.1].

See *Agenda 21: Programme of Action for Sustainable Development*, UN GAOR, 46th Sess, Agenda Item 21, A/Conf.151/26 (1992). Agenda 21 was adopted by the Earth Summit in Rio de

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At [3.6.1].

At [5.3.1].

the incorporation of "controls to avoid, remedy or

mitigate the effects of water from water based activities [including marine farming], on marine ecosystems" is required in resource management plans.²⁷

[30] The Regional Policy Statement also provides that discharge controls are required "to reduce the discharge of contaminants into coastal water and allow for
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the safe consumption of plants and fish from the water". In addition, research into the cumulative effects of water based activities on water quality must be supported. This applies in particular to marine farming:²⁸

Particular reference needs to be made to the cumulative or long term effects of water based activities on water quality, especially marine farming. Little is known about the cumulative or long term effects of marine farming on existing natural stocks and ecosystems.

[31] Part 7 of the Regional Policy Statement deals with community wellbeing and includes policies and objectives relating to the subdivision, use and development of the coastal environment in a sustainable way. It is recognised that the coastal marine area is "used for a wide variety of purposes to meet the commercial, economic, social and recreational needs of the people who use the area"²⁹ and that these purposes include marine farming.³⁰ The aim is to "provide for the continued use and development of these resources but sustainably manage those resources to minimise adverse effects, conflicts between users and ensure efficient and beneficial use".³¹ It is recognised that "[appropriate subdivision, use and development of the coastal environment enables the community to provide for its social, economic and cultural wellbeing".³²

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At [5.3.6(a)].

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At [5.3.6(c)].

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At [7.2.7].

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At [7.2.10(d)].

⁶²

At [7.2.7].

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At [7.2.8].

[32] Resource management plans are required to identify criteria to indicate where subdivision, use and development will be appropriate. Criteria to indicate where subdivision, use and development is inappropriate may include issues relating to water quality.³³ Allocation of space for aquaculture in the coastal marine area "will be based on marine habitat sustainability, habitat protection, landscape protection,

navigation and safety, and compatibility with other adjoining activities."³⁴ It is acknowledged that there is little information to assess the effects of aquaculture on the sustainability of the marine habitat and that it could be many years before meaningful research is completed. This means that, in the interim, allocation of space for aquaculture will be undertaken in a precautionary manner. Applicants must therefore provide "a detailed assessment of the effects of their proposal".³⁵

The Sounds Plan

[33] The Sounds Plan is in three volumes. Volume one deals with objectives, policies and methods. Volume two deals with rules and volume three contains maps. The introduction to the plan, in chapter 1, explains that a comprehensive range of assessment criteria are included in the second volume. These criteria are included to enable "an applicant for a resource consent to understand how any particular activity will be assessed".³⁶

[34] Chapter 9 of the plan (in volume one) deals with the objectives, policies and methods for the coastal marine area. It is recognised that the private occupation of coastal space may be required to allow use of that space, including for aquaculture. One of the objectives is to accommodate appropriate activities, while avoiding, remedying or mitigating the adverse effects of those activities, including adverse effects on water quality.³⁷

[35] In order to implement this policy, the coastal marine area is divided into two zones. Zone 1 identifies those areas where marine farms are prohibited, being areas "identified as being where marine farming will have a significant adverse effect on navigational safety, recreational opportunities, natural character, ecological systems, or cultural, residential or amenity values".³⁸ In Zone 2, marine farms are normally a discretionary activity.³⁹

At [7.2.10(d)].

At [7.2.10(d)].

Sounds Plan, above n 1, vol 1 at [1.8].

At [9.2.1] (Objective 1, Policy 1.1(l)).

At [9.2.2].

There were grand-parenting rules for marine farms that were already in existence when Zone 2 was set up.

[36] Section 9.3 of the Sounds Plan deals with the adverse effects of activities on the natural and physical resources of the coastal marine area. It is explained that the Marlborough Sounds are large, drowned river valleys. Queen Charlotte Sound is approximately 45 km long and has many small bays and coves. Pelorus Sound is more complex with a maze of large inlets, bays, coves and islands. It is said that, to a large extent, activities on land determine the environmental quality of the coastal marine area. Rigid controls are necessary as the coastal marine area "is the 'environmental sink' where the effects of all coastal and land-based activities

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impact". Marine ecosystems depend on "uncontaminated seawater, undisturbed seabed or foreshore and healthy land and freshwater ecosystems adjacent to the coast".⁴⁰

[37] Environmental effects in the area are felt in two ways: degradation of coastal water quality and alteration to the foreshore or seabed. Marine farming is one of the activities that both affects and depends on the quality of the coastal marine area. The objective is to manage the effects of activities so that water quality in the coastal marine area is at a level which enables the gathering or cultivating of shellfish for human consumption. It is explained that shellfish are a good water quality indicator species because of their filter feeding characteristics and their accommodation and

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[38] Chapter 35, in volume 2 of the Sounds Plan, sets out the more detailed requirements for Zones 1 and 2. Marine farming is usually a discretionary activity in

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Zone 2 and, with certain exceptions, prohibited in Zone 1. There are general assessment criteria set out which must be applied to all discretionary activities involving the coastal marine area. These include taking into account any relevant objectives, policies and rules of the plan and the Coastal Policy Statement. The criteria also include taking into account the significant environmental features (including ensuring that any proposal does not compromise the integrity of any

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⁷⁴ At [9.3].

terrestrial or marine ecosystem)⁴¹ and taking into account the protection of natural

⁸⁴ Sounds Plan, above n 1, vol 2 at [35.4]. At [35.4.1.1.5.3(b)].

and physical resources so that any proposal maintains the future use potential of any
renewable resource and does not reduce water quality beyond a reasonable zone of
mixing.

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[39] In terms of standards for marine farms in Zone 2, no part of any farm can be
located closer than 50 m to the mean low water mark and no part of any farm can be

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located further than 200 m from the mean low water mark. In terms of assessment
criteria applying to marine farms, the "effect on the marine ecology of feed proposed to
be added to the environment, including the type and amount of feed and an

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assessment of its effect on the environment" must be provided, as well as likely

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effects on water quality and ecology. Permits may be granted for a period of up to

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20 years only.

Plan change approved by the Board

[40] The plan change, as approved by the Board, added a third zone, where marine
farms and marine farming would be discretionary activities to the extent they

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complied with the standards specified. These include limiting the farming to king

At [35.4.1.1.5.4(b)]. At

[35.4.1.1.5.4(e)]. At

[35.4.2.9]. At [35.4.2.9]. At

[35.4.2.9.1.2]. At

[35.4.2.9.1.6(c)]. At

[35.4.2.9.2].

In amended rule [35.4.2.10] as set out in *King Salmon* (Board), above n 6, at Appendix 3. In the rule, the terms
"marine farms" and "marine farming" are deemed to include all structures and activities in the coastal marine
area, all discharges to water or air associated with the farms and the taking and use of coastal water associated
with the farms. Their scientific name being *Oncorhynchus tshawytscha*.

In the amended rule, as set out in *King Salmon* (Board), above n 6, at [35.4.2.10(g)]- [35.4.2.10(i)].

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that "[t]he annual feed discharge may exceed the relevant maximum feed discharges by up to 15%; provided that over any continuous 3 year period, the average annual feed discharge does not exceed the relevant maximum feed discharges".⁸⁵

[41] Specific assessment criteria are also set,⁴² covering a range of matters,

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including effects on marine mammals and seabirds. The assessment criterion that is specifically related to discharges to coastal water provides:

g) Assessment of any adverse effects from the discharges to coastal water, including:

The effects from seabed deposition and changes to water quality;

Ecological effects, including cumulative effects, relating to the proximity of ecologically important marine habitats;

Environmental standards against which the ecological, water quality and bed deposition effects of the discharges are monitored and evaluated;

- Provision for staged increases in the scale of feed discharges and for monitoring of the effects of each stage against environmental standards, in particular for Papatua; [and]
- Adaptive management approaches to the management of effects from seabed deposition and changes to water quality[.]

Evidence and findings on water quality

[42] The Board heard from a number of experts on water quality. These experts

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caucused and produced a joint statement dated 27 August 2012. Following caucusing, the experts were agreed that the unavailability of baseline data had introduced uncertainty to the interpretation of modelling results and that baseline

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In the footnote to [35.4.2.10(g)]- [35.4.2.10(i)]. At [35.4.2.10.3].

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⁸⁶ At [35.4.10.3(f)] and [35.4.10.3(j)]. *King Salmon*

⁸⁷ (Board), above n 6, at [360]. At [370].

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surveys would need to begin as soon as possible after the issuing of any consent. The Board agreed that there was a paucity of data presented on the existing water

quality of the Marlborough Sounds.⁴³ The trend of increasing nutrient additions from the land and the lack of robust research as to the impact of existing land based activities added to the Board's concerns about the characterisation of the existing environment.⁹¹

[43] An expert for King Salmon (Mr Knight) had presented three models relating to water quality in his evidence before the Board: a mass balance model, a flushed aspatial model⁴⁴ and a spatially explicit model, the SELFE model.⁴⁵ These models had been modified following a peer review process initiated by the Board and it was the revised models that were considered by it.⁴⁶

[44] The Board concluded that the first two models are a useful first check on the impact of the proposed salmon farms on the Sounds as a whole:⁴⁷

They provide an overview of the various sources and sinks of nitrogen and put the input from the farms into the context of the natural background variability, the nitrogen inputs from the land and the removal of nitrogen by mussel farming. These models demonstrate that the introduced nitrogen is a significant addition to the Sounds ecosystem but unlikely to cause a major shift or perturbation in the function of the ecosystem as a whole. The extensive mussel farming in Pelorus Sound acts as a buffer to further nutrient additions.

[45] As to the third model, the Board noted that improvements made during the review process had led the experts to agree that the "results are satisfactory except in the very short term (less than two to four weeks) and at a detailed scale of impact (minor embayments)". The experts were also agreed that "the [total nitrogen] increments will be conservative (that is overestimated) for the scenarios modelled". This is because the model ignores the removal of nitrogen by biological and physical processes.⁹⁷

At [373]. The Board noted that additional data did exist but had not been available to the experts. Discussed at [393]-[403].

At [380].

At [404].

⁹⁸ At [405].

[46] The Board expressed concern, however, that the scenarios modelled did not include the maximum feed discharge set out in the proposed conditions. The Board said:⁴⁸

The scenarios modelled are for the "maximum *initial* feed discharge" in the proposed conditions of consent. While these levels are increased by 50% to demonstrate the impact of summer loadings Mr Knight has not modelled the "maximum feed discharge" also set out in the proposed conditions. He explained that these levels may never be reached and the intention was to take an adaptive management approach. *We are somewhat astounded and cannot understand why these maximum discharges were not modelled to give the truly worst case scenario for nutrient additions and the potential effects at both local and Sounds wide scale. Such modelling would not have precluded an adaptive management approach.*

[47] The Board said that the lack of spatial modelling of the maximum feed discharges made it "extremely difficult to come to a finding on the nature or magnitude of the effects of this discharge".⁴⁹ The Board, however, said that it was satisfied that the SELFE model "is an adequate tool to determine the potential impacts of the salmon farms on water quality."⁵⁰

[48] It had been suggested in evidence that a full food web model should have been produced.⁵¹ The Board agreed that a more sophisticated biogeochemical model would have assisted with the prediction of effects, particularly related to potential biological changes. However, it accepted evidence that such modelling would not necessarily provide any more certainty when attempting to quantify those effects. It said that such a model would be a major research project of considerable assistance in the overall management of the Sounds and the sources and sinks for nutrients. However, it did not consider such a model to be "the sole responsibility of King Salmon or any other individual stakeholder."¹⁰²

[49] The Board then went on to discuss the possible effects on water quality of the proposed salmon farms, beginning with the possibility of harmful algal blooms, the cumulative impact and potential for eutrophication and the issue of mitigation, before coming to its overall conclusion on the water column.

At [406] (emphasis added).

At [407].

At [412].

Discussed at [408]-[410]. At

¹⁰² [411].

Harmful algal blooms

[50] As to the potential for harmful algal blooms, it had been explained in evidence before the Board that blooms (a high biomass) of plankton in coastal waters are a natural and essential ecosystem process. However, some algal species can

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cause mass mortalities in the marine environment. Such harmful algal blooms are usually natural events, although degraded coastal water quality can promote the development and persistence of blooms.⁵²

[51] The Board, while recognising that the development of harmful algal blooms is not easily predictable, accepted that the salmon farms "are unlikely to materially affect the frequency, duration or extent of such blooms".⁵³ There is the potential for localised changes in some bays but the availability of nutrients from the farms was but one driver. The Board agreed that ongoing monitoring, including of potentially affected bays, is necessary.⁵⁴

Cumulative effects

[52] Turning to cumulative effects, the experts were agreed (with the exception of Dr Henderson) that, at a Sounds-wide scale, there is unlikely to be a change in the water column from oligotrophic/mesotrophic to eutrophic from the establishment of the salmon farms. The experts were also agreed that changes may occur at a smaller scale and the greatest potential for adverse effects, such as harmful algal blooms,

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exists in side embayments close to the farms and off the main channels. The Board accepted the majority opinion on the point but did not rule out the possibility of more subtle ecosystem changes in response to the increased nutrients from the farms.⁵⁵

[53] Dr Henderson, an independent expert, considered that the intense production systems of the proposed salmon farms would lead to further eutrophication of the Sounds that might be difficult to reverse.⁵⁶ Dr Gillespie, an expert called by King Salmon, "expected the rapidly flushed environment of the Sounds to ensure easy

⁵² Discussed at [413]-[420].

⁵³ At [421].

⁵⁴ At [421].

⁵⁵ At [431].

⁵⁶ At [428].

reversibility and a rapid return to the trophic condition pre-development following the closure of the salmon farms".⁵⁷ The Board did not make any explicit finding on this conflict of evidence but, given its rejection of Dr Henderson's concerns on the issue of the dangers of trophic change, may have done so implicitly.

[54] The Board accepted that Mr Knight "has quite correctly modelled the cumulative effects of the existing farms, this proposal and other consented salmon farms."⁵⁸ However, the Board noted that little information had been presented on the trends in nitrogen from the land. The possibility of more subtle and long term effects due to climate change were also noted, although there was not enough information to predict whether this would be positive or negative with respect to nutrient inputs. The Board also noted that the conclusions of the experts are based on the present day conditions of the Sounds. It said that:

Increases in riverine inputs and/or conversions of shellfish to finfish farms would further add to the nitrogen load and have to be factored into the consideration of cumulative effects. That is the baseline is shifting and there is an important question around the assimilative capacity of the Sounds as a whole, given the likely trend of increasing nutrient loads from both land and sea based activities.

Mitigation

[55] There were a number of matters put forward as mitigation. These included possible improvements in feed, farm management and fish breeding to reduce the nitrogen emission rates. Dr Broekhuizen, an expert appointed by the Board, agreed that such improvements were plausible.⁵⁹ The Board did not make an explicit finding on those matters. The Board did, however, reject the notion that the location of the farms in high flushing environments was a form of "natural mitigation". It said that the "careful site selection is more correctly characterised as choosing a receiving environment where rapid mixing and dilution limit the intensity of the immediate effects on the water column and on the benthos [seabed]".⁶⁰

Overall conclusion on effects on the water column

⁵⁷ At [429].

⁵⁸ At [430].

⁵⁹ At [434].

⁶⁰ At [436].

[56] The overall conclusion of the Board as to the effects on the water column was, in agreement with the experts, that "the data and information on water quality, that had been presented" is not an "adequate description of the existing environment given the scale of the proposed increase in finfish farming and consequential release of nutrients into the marine environment".⁶¹ Some of the uncertainty was to be remedied by the conditions of consent related to baseline monitoring and some through monitoring already under way by the Marlborough District Council. However, the Board considered that there remained considerable uncertainty "as to the nature of the receiving environment, including the trends in other nutrient sources" and consequently in the ability of the Sounds to assimilate a significant
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increase in nutrients adequately.

[57] The Board accepted that the modelling of the nutrients introduced to the water column is conservative. However, the scenarios presented were generally for the initial feed rates for each farm and in some cases for the higher summer loadings. The Board noted that the applications for each salmon farm seek almost double this feed level and that the approach taken was in marked contrast to the modelling of effects on the benthos which were at the maximum feed levels. The Board commented again that this "astonishing gap in the prediction of effects on the
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environment cannot be explained away by emphasising that the modelling is
conservative". Nor could it "be simply filled by invoking adaptive management".

⁶¹ At [437].

[58] The Board went on to repeat its concerns as to the lack of modelling at the maximum feed levels, saying that this was a "fundamental failing in the assessment of effects on the environment that we would not expect to see in a project of this magnitude and importance".⁶² This meant that the Board could only consider granting consent for "these graduated increases in feed discharge levels with any increases based on a more robust monitoring and adaptive management regime than that presented in the proposed conditions".

Board's approach to the plan change

[59] The Board began its discussion of the plan change by saying that Part 2 of the RMA is "the framework against which we must exercise our decision-making". The Board then outlined the statutory provisions and instruments applicable to its consideration of the plan change and addressed a number of matters that it saw as being of particular relevance. One of these was the compliance with statutory directions in relation to planning instruments, including the Coastal Policy Statement. We have discussed the problems with the Board's analysis in this regard and the "overall broad judgment" approach the Board adopted in the principal judgment on the EDS appeal and do not repeat that analysis here. The Board also discussed the definition of "most appropriate". We are not to be taken as commenting on that discussion as it was not the focus of argument before us. The Board did say, however, that its findings on the many contested issues "is effectively an evaluation of the various costs and benefits". It said that its conclusion on the contested issues forms the basis for the evaluation.

[60] The contested issues discussed included the economic costs and benefits, the salmon farms and their effects on the seabed,⁶³ water column, biosecurity, marine

⁶² At [438].
At [439]. At [1156]. Set out at [1227]. At [1197]—[1199].
As required by s 32(4)(a) of the RMA. *King Salmon* (Board), above n 6, at [1209].

¹²⁷ See [304]-[322]. The main concern with regard to the seabed is the potential for reduced biodiversity and

mammals, seabirds, natural character and navigation. In relation to the water column, the Board acknowledged "the uncertainty that exists with regards to the ability of the Sounds marine ecosystem to assimilate the nutrient loadings that would eventuate should all the zone locations be approved, thus creating the ability for

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¹²⁸ significant changes in the sediment chemistry of the seabed underneath the farms and beyond. At [1212].

consents to be considered and granted". The Board said that this was particularly critical in the Pelorus Sound and the approval of only two of the four zone locations sought in the Waitata Reach was "partly underpinned by our recognition of the (unresolved) uncertainty and risk that exists with regards to the water column effects should all the zonings be approved and consents granted".¹²⁸

[61] Overall, the Board considered that the additional policies and associated rules that were to be introduced into the plan "are efficient and effective in terms of the provision of space for salmon farming. They address this resource management issue and are most appropriate with respect to the settled objectives of the Sounds Plan." After this summary, the Board discussed the various matters in more detail. It said that it had to "apply our findings of fact to the balancing exercise we must now do".¹²⁹ If this is a reference back to the need to evaluate the various "costs and benefits" of the proposed plan changes, then this accords with s 32 of the RMA.¹³⁰

[62] The Board said that the effects have been described and evaluated at a site, region (or reach) and whole of Sounds scale. The Board, for convenience, however, in its report discussed the plan changes at the regional (or reach) scale, given the¹³¹

clustering of the proposed plan change sites within three distinct regions.

Port Gore

[63] With regard to the proposed Papatua site (Port Gore), the finding with regard to water quality was that there would be "localised increases in total nitrogen and, consequently, phytoplankton growth within Port Gore".¹³² The Board considered, however, that the open nature of the site, being adjacent to Cook Strait, "reduces the potential for cumulative effects to arise over time". The Board also considered the likelihood of changes in the frequency or duration of algal blooms to be very low.¹³³

At [1212].

At [1225].

See [59] above.

King Salmon (Board), above n 6, at [1226]. At

¹³³ [1239]. At [1239].

Waitata Reach

[64] With regard to the four sites proposed in the Waitata Reach area and water quality, the Board said that "[n]itrogen is considered to be the primary limiting nutrient for phytoplankton production in the Pelorus Sounds". Even with the extensive mussel farming removing nutrients from the water, intensive salmon farming would "be a substantial net addition".⁶⁵

[65] In the absence of a sophisticated biogeochemical or "food web" model for Pelorus Sound, the Board considered it difficult to be sure of the outcomes of the salmon farms for the wider ecosystem. It said that, while "some expansion of salmon farming seems able to be accommodated (as indicated by the 'critical
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nutrient loading rate') the assimilative capacity for an expansion of this scale has not been demonstrated".⁶⁶

[66] The "cumulative additions of nitrogen, increases in phytoplankton and consequential reduction in water clarity" were also potentially of significance for the King Shag foraging habitat. This merited a precautionary approach, given the
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threatened status and limited geographic range of the King Shag.

[67] In its overall assessment with regard to this region, the Board said:
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After careful consideration of all the balancing factors, we conclude that the siting of four proposed farms in this Reach would not be appropriate. The assimilative capacity of the receiving waters and the potential cumulative effects on the foraging areas of the King Shag are uncertain. The cumulative effects of the Kaitira and Tapipi [farms] on the natural character, landscape and seascape qualities of the entrance to the Sounds would be high. Further, Tapipi lies in the path of a traditional waka route - a taonga to Ngati Koata. It would also be in the vicinity of recorded sites of significance to Maori.

[68] The Board considered that granting all the plan changes sought in this area "would not give effect to the statutory provisions in respect of natural character, landscape, Maori, or ecological matters. The overall cumulative effects would be high." The Board accordingly granted the request with respect to Waitata and Richmond, but declined the request with respect to Kaitira and Tapipi.⁶⁷

At [1245].

¹³⁸ "nutrient loading rate which cannot be exceeded without loss of ecosystem integrity". At [1245]. At [1246]. At [1252].

[69] For the Queen Charlotte Sounds, there is no specific mention of water quality issues. The plan change request with regard to Kaitapeha and Ruaomoko was declined for other reasons.⁶⁸ As to the Tory Channel site, Ngamahau, again there is no specific mention of water quality but, apart from effects on cultural values, ecological features and the effect on local residents, the effects of the farms at the site were considered to be less than minor. The Board approved that plan change.⁶⁹

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Assessment approach

[70] After having outlined its decisions in relation to the three regions, the Board discussed its "Part II Assessment". It said that it considered it had "struck the right balance ... between providing for the social and economic well-being of the community and achieving sustainable management of the natural and physical resources of the Sounds".⁷⁰ That statement is not the correct approach and King Salmon did not attempt to defend it. The purpose of the Act is set out in s 5 of the RMA as being to promote sustainable management of natural and physical resources. It would be contrary to this purpose to balance economic and social wellbeing against that purpose. In any event, the "overall judgment" approach, based on s 5, does not take proper account of the hierarchy of instruments, such as the Coastal Policy Statement and the Regional Policy Statement.⁷¹

[71] In this case, any "balancing" approach that led to water quality being compromised would be inconsistent with those instruments. Objective 1 of the

At [1253].

At [1254].

At [1265]-[1267].

At [1275].

At [1276].

¹⁴⁵ The approach of the Board to Part II and the overall judgment approach is discussed in more detail in *Environmental Defence Society Inc v The New Zealand King Salmon Company Ltd*, above n 12, particularly at [106]-[149].

Coastal Policy Statement requires, among other things, water quality to be maintained. Policy 21 relates also to water quality and the management of discharges is dealt with in Policy 23. Further, Policy 8, dealing with aquaculture, specifically recognises the reliance of aquaculture on proper water quality.⁷² Similar themes arise in the Regional Policy Statement, which recognises the importance of water quality being kept at a level that provides for sustainable management of the marine ecosystem and the importance of avoiding, remedying or mitigating adverse effects from the discharge of contaminants.

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[72] Further, any compromise to water quality would be inconsistent with the Sounds Plan. The plan changes instituted by the Board left most of the Sounds Plan intact. One of the objectives of the Sounds Plan is to allow development, subject to avoiding, mitigating or remedying adverse effects on water quality. The importance of uncontaminated seawater and the maintenance of water quality is stressed in the Sounds Plan.⁷³

[73] In King Salmon's submission, however, the Board did not undertake any such balancing exercise in relation to the water column effects. The Board recognised that it had to be satisfied that the life supporting capacity of the water and its ecosystems are adequately safeguarded.⁷⁴ King Salmon contends that the adaptive management approach adopted achieved that aim.

See [23] above.
and policy [5.3.5].

See [34] and [36] above.

¹⁵⁰ *King Salmon* (Board), above n 6, at [1277(c)].

[74] We accept King Salmon's submission that the Board did not in fact apply the incorrect balancing approach to the decision on water quality and that the Board, when discussing the adaptive management conditions, implicitly accepted that water quality would be adequately protected by those measures.⁷⁵ The real issues in this appeal therefore are whether the Board was entitled to accept an adaptive management approach and the other two issues relating to the relationship between the plan and the consents that were identified at the beginning of this judgment.⁷⁶ Before turning to those issues, we discuss the Board's decision on the consents.

The consents

[75] As noted above, the Board granted resource consents for the farms at the four sites that had been the subject of the plan changes. The consent conditions originally proposed by King Salmon underwent modification during the course of the hearing and the conditions that were imposed by the Board are intended to create an adaptive management regime. Objectives involving qualitative standards are set in the conditions, along with a process for developing quantitative standards. The consents provide for monitoring in accordance with those standards and remedial action if required. This process is to be monitored by an independent expert peer review panel.

Modification of consent conditions in course of hearing

[76] In its initial application, King Salmon had suggested detailed conditions for an adaptive management approach. There were extensive modifications made over the course of the hearing to these conditions. The Board set out in detail the reasons for these changes. We do not summarise all of this discussion but do summarise the matters of principle discussed by the Board.

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[77] One of the most important additions, in response to the concerns expressed by submitters, was the introduction of a series of objectives, expressed in narrative form, designed to maintain the environmental quality of the Sounds. Dr Gillespie explained that specific quantitative thresholds or management triggers were not recommended "at this stage" because of the wide natural variability in nutrient levels.

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¹⁵⁴ At [454]-[460].
See [6] above.

After three years of monitoring, however, thresholds could be defined for specific indicators or for an integrated trophic index.⁷⁷

[78] That approach had been considered by the experts during caucusing and various amendments to the water quality objectives were agreed. At the close of the hearing, King Salmon proposed the recasting of the objectives as "qualitative water quality standards" and at the same time "outlin[ed] the process for developing the quantitative standards and responses".⁷⁸

[79] The Board accepted that it was not able to make a decision on quantitative water standards at this stage. However, it said that the thresholds to be set through the water quality standards are simply a mechanism to achieve the agreed water quality objectives. It pointed out that "the peer review panel is tasked with reviewing the baseline information and the quantitative water quality standards which in turn are to be approved by the Council".⁷⁹ It went on to say that the objectives "are robust and would ensure the quantitative water quality standards would be sufficiently constrained to be effective". It noted that, in the end, there had

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been little dispute as to the setting of the objectives.

[80] Dr Gillespie proposed that both qualitative and quantitative standards should continue to be used in a "holistic approach". Any breach of a threshold would trigger more intensive monitoring to establish cause and effect and then decisions as

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to whether or not to cut back on production. The Board agreed with Dr Gillespie's holistic approach.⁸⁰ It said that it saw the qualitative standards as "objectives for an adaptive management approach to water quality (and the wider ecosystem)". It noted that some of the objectives are able to be stated reasonably precisely "but others are broad and involve a measure of professional judgment." The requirement for a peer review panel was therefore necessary and appropriate.⁸¹

At [444].

⁷⁸ At [448].

⁷⁹ At [1288].

⁸⁰ At [454].

⁸¹ At [455].

[81] The Board was concerned that any shift in trophic state needs to be expressed in terms of an "increase" or "shift towards" rather than a full scale change in state. As noted above, the Board considered that a change from today's oligotrophic/mesotrophic conditions to a eutrophic state would represent an

ecological disaster.¹⁶¹ It said that preventing "such an extreme scenario is hardly an appropriate safeguard, something less must trigger action". It went on to say that what represents a material or significant shift (with respect to magnitude, temporal and spatial extent) must be left to the judgement of the peer review panel in the light of all of the information from the monitoring programme. The Board approved a wording change to make it clear that "avoiding a significant movement along the scale is the objective".¹⁶² The Board also said that it favoured adding an integrated trophic index to the list of quantitative water quality standards, while recognising that it may be some time before such an index can be reliably "calibrated" for the Sounds. The Board believed the creation of an enrichment index for the locations would be a useful indicator for monitoring changes and provide a trigger for an adaptive management response.¹⁶³

[82] The Board said that it must make the decision, based on the evidence presented, as to the levels of acceptable change. It said:¹⁶⁴

While we are not able to make a decision as to the appropriate water quality standards the thresholds must relate to the agreed objectives as modified by this decision. And the conditions must clearly set out the process and timelines for setting these standards. We are satisfied that the proposed conditions provided by King Salmon in closing are adequate in this regard. The Peer Review Panel is tasked with reviewing the baseline information, the quantitative water quality standards, the management responses and the supporting monitoring programme.

[83] The Board had also been concerned that any breach of the water quality standards in the original proposals required, first, the gathering of further information and, if that indicated an issue, an "action plan" to be formed. The Board said that it did not entirely disagree with this approach but, if the standards are exceeded greatly, then this should result in more immediate action.¹⁶⁵ There were modifications made to the process originally proposed to ensure that this was the case.

See [10] above.

King Salmon (Board), above n 6, at [456].

At [432]. The creation of an enrichment index was imposed as a condition in each of the resource consents granted: see Appendices 8-11. At [460]. At [459].

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Overall decisions on consents

[84] In its overall decision on the resource consent applications, the Board said that on balance the concurrent resource consent applications for Papatua, Waitata, Richmond and Ngamahau should be granted, subject to the Conditions of Consent. The Board said:¹⁶⁶

While some adverse effects will arise, particularly in respect to the water quality, the seabed, Maori values, natural character and landscape, and amenity values: these effects can be adequately managed through the proposed conditions of consent.

Any adverse effects need to be balanced with the need to provide for the economic and social well-being of the community. We reiterate, that providing for these four farms, this will strike the right balance.

[85] The terms of the consents were set at 35 years.¹⁶⁷ The Board said that, in setting this term, it had taken into account the level of financial investment that the consent holder has made in achieving their resource consent and the ongoing costs. A 35-year term would enable the minimum necessary return on investment threshold to be achieved. By contrast, a 20-year term would significantly reduce the return by a factor of 25 per cent.

[86] The Board did express concern with a 35-year term in relation to the potential effect on the water quality, scientific uncertainty as to the ecosystem response and customary values of the Sounds environment.¹⁶⁸ It said, however, that the adaptive management approach and a robust set of conditions applied to the issued consents "gives certainty to the near field operation of the farms".¹⁶⁹ However, the "far field and Sounds-wide effect of the farms in combination with yet to be fully understood natural variation and trends in sources of nutrients entering the Sounds from the ocean, land and other activities leave a higher degree of uncertainty beyond a 20 year period".¹⁷⁰ The Board considered, however, that this could be addressed, if

King Salmon
(Board),
above n 6, at

¹⁶⁶ [1341]-

¹⁶⁷ [1342]. At

¹⁶⁸ [1340]. At

¹⁶⁹ [1337]. At

¹⁷⁰ [1338]. At

¹⁷¹[1338].

At [1338]. Sections 128 and 129 of the RMA specify when consent conditions can be reviewed by a consent authority. The resource consents granted by the Board contained a condition

[87] The Board then went on to consider and reject the White Horse Rock application because of adverse effects on recreational fishing, customary fishing, navigation, natural character and landscape. When considered cumulatively with the existing farms and the other consents, the adverse effects "would be sufficiently high

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to tip the balance against granting the application."

Consent conditions

[88] The consent conditions imposed a requirement for a "baseline plan" to be created by an independent person specifying how the monitoring and analysis is to

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be undertaken to establish baseline information. A peer review panel (the composition of which is approved by the Council) will review the plan and provide recommendations and a report to the consent holder. The "baseline plan" must be approved by the Council. Prior to any structures being placed on the farms, a "baseline report", prepared by an independent person, containing the results from monitoring and analysis undertaken in accordance with the "baseline plan", must be

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provided to the peer review panel for its review and assessment.⁸² The peer review panel is required to review the baseline report, including the recommended water

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quality standards and integrated trophic index,⁸³ and make a recommendation to the Council for its approval.⁸⁴

[89] Importantly, if the "baseline plan" is not approved by the Council, then the

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consent will lapse after three years from the date of the consent's commencement. If the resulting "baseline report" is not approved by the Council, no structure(s) can

example, see condition [80] of the Waitata consent at Appendix 9. For simplicity, subsequent pinpoint references to consent conditions are with reference to the Waitata consent (Appendix 9).

¹⁷⁷ At [1356]—[1357].

be placed on the marine farms.⁸⁵ Therefore, if the analysis and monitoring of the baseline information shows that the development of a marine farm would be inappropriate, the Council can effectively halt any further development of the marine farms by not approving the report.

[90] In addition to the baseline review before the farms are stocked, the Board set out numerous conditions for the ongoing monitoring of the farm to provide a detailed feedback-loop on the effects on the benthos and water quality. For example, in the Waitata Farm consent,¹⁷⁹ the conditions of consent set an initial maximum feed level and maximum increases allowed per annum. Before any increase in the feed levels can be implemented, the farm must have operated at the current maximum

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level for at least three years, the results must indicate that the enrichment stages⁸⁶ are not statistically significantly more than the enrichment stages from the previous year and that the marine farm complies with all the environmental quality standards

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set in the consent and does not exceed the relevant standards for each zone. These environmental quality standards include various chemical and ecological measurements.¹⁸³

[91] Any increase in the tonnage of feed must be recommended in the "annual report", which is prepared by an independent person, providing details on the monitoring of results from the previous year, an analysis of those results and recommendations for changes to the monitoring and marine farm management actions for the following year.¹⁸⁴ The peer review panel will review this report and

recommendation of the peer review panel: at [465].

⁸⁶ granted (referred to as an "integrated trophic index" in the conditions): see condition [44(a)]. An

Condition [60]. At
Appendix 9.
Condition [35].

The various enrichment stages are described in table 5 of the conditions of the consents in the appendices to the Board's decision. The enrichment stages provide seven levels of enrichment from enrichment stage one which is described as "natural/pristine conditions", to enrichment stage seven which is where there is "severe enrichment".

See condition [37].

See conditions [37(c)] - [44].

See conditions [56(d)] and [67(e)].

See condition [68(b)].

See condition [60].

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[92] If and when the farms are stocked and monitoring detects that the enrichment stages are above those allowed under the environmental quality standards for the various zones, then, depending on the extent to which the enrichment stages exceed the environmental quality standards, the amount of feed must be reduced, or in more serious circumstances, stock must be removed from the farms until compliance is achieved.¹⁸⁷

[93] In essence, the above conditions require the gathering of baseline information for the assessment as to whether the marine farm can be built and stocked. If the marine farm is built and stocked, the conditions mandate extensive monitoring and provide remedial mechanisms if water quality is compromised.

The issues

[94] We now discuss the three issues identified at the beginning of the judgment:

- (a) whether an adaptive management approach was available;
- (b) whether the plan changes were improperly predicated on the consent conditions; and
- (c) whether the parameters of the adaptive management regime (if available) should have been contained in the plan rather than through consent conditions.

Adaptive management

[95] We propose to discuss the question of whether an adaptive management approach was available to the Board under the following headings: the parties' submissions; the precautionary approach under the Coastal Policy Statement; the Board's consideration of the precautionary approach and adaptive management; the guidance notes on the Coastal Policy Statement; international commentary; and caselaw on adaptive management from New Zealand, Australia and Canada. We then assess whether the requirements for an adaptive management approach were met in this case.

The parties' submissions

[96] SOS submits that there was a threat of serious damage to water quality in the Sounds. Scientific uncertainty meant that the Board could not assess the effects of the proposal on water quality. It was thus contrary to its statutory function to

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approve the plan changes. SOS relies on *Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development* to support the proposition that a consent authority can classify an activity as prohibited when it considers it has

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insufficient information, even if further information may later become available. As an alternative, SOS submits that the Board's decision was inconsistent with the only reasonable conclusion from the evidence.⁸⁷

[97] In particular, SOS submits that:

- (a) there was insufficient baseline information available to the Board. This means that, even at minimum initial feed levels, the plan changes cannot be justified; and
- (b) the Board had found that there was a "fundamental failing" in the modelling exercise in that there had been a failure to model the effects of the maximum feed discharge on water quality. As this was the case, the Board could not justify the plan changes allowing stocking over time to the maximum level.

[98] King Salmon submits that, under the RMA, discretionary activity status simply allows a person to apply for a resource consent. The change from prohibited to discretionary status for the salmon farms in Zone 3 therefore has no environmental effects in itself. As to the resource consents, it is submitted that the Board had

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⁸⁷ *Edwards (Inspector of Taxes) v Bairstow* [1956] AC 14 (HL).

sufficient information on all contested issues, including water quality, for consents to be granted up to the initial feed levels (and that is all that was to be allowed initially). The modelling for those initial feed discharge limits was accepted by the Board as having been undertaken on a conservative basis.

[99] In *King Salmon's* submission, the Board applied a proper precautionary approach in that it declined four of the eight plan change sites, as well as consent for the White Horse Rock site. It also adopted a robust adaptive management regime with regard to the four sites that were approved so that no increases in feed levels could occur unless it was safe to do so. It is submitted that the SOS contentions amount to a submission that there must be perfect (or near perfect) scientific knowledge of all the potential and actual effects of an activity before it can be classified as other than prohibited. It is submitted that there is no statutory support for such a proposition.

Precautionary approach under the Coastal Policy Statement

[100] Policy 3 of the Coastal Policy Statement requires a precautionary approach to managing activities in the coastal environment when the effects of those activities are uncertain but potentially significantly adverse.¹⁹¹

See [22] above. The Marlborough Regional Policy Statement, above n 47, also emphasises the need for the precautionary approach and the uncertainty as to the long term effects of marine farming: see [26] and [30] above.

King Salmon (Board), above n 6, at [461].

See [10] above.

Therefore, the approach taken by the High Court that it was open to the Board to assess the weight to be given to the precautionary approach was incorrect: see *King Salmon* (HC), above n 2, at [85].

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Board's consideration of the precautionary approach and adaptive management

[102] Despite being required to give effect to the Coastal Policy Statement, the Board did not refer to Policy 3 when it specifically discussed the precautionary approach.⁸⁸ However, the Board did accept that it was required to take a precautionary approach, which it said is inherent in the structure of the RMA.⁸⁹

[103] Turning to the adaptive management approach, the Board said that this arose, at least in part, from the precautionary approach. Under adaptive management, ongoing monitoring of the effects of an activity are required and the Board said that this "provides a pragmatic way forward, enabling development while securing the ongoing protection of the environment, in complex cases where there are ecological or technological uncertainties as to the effects of the proposal".¹⁹⁷

[104] The Board noted that in this case three adaptive management approaches were proposed by King Salmon:¹⁹⁸

- (a) **Staged development** - Sites are proposed to be developed in a staged manner, with expansion contingent on compliance with pre-defined seabed and environmental quality standards (EQS to be specified in the consent conditions) and on regular reviews of wide-scale water column and wider eco-system monitoring result;
- (b) **Tiered approach to monitoring** - Monitoring effort is proposed to increase if and when sites approach or exceed the EQS or in response to other identified environmental issues. Likewise, monitoring intensity may decrease with evidence of sustained compliance and stability;
- (c) **Ongoing adaptive management** - The farms are proposed to be managed adaptively long-term, in response to environmental monitoring results. Any breaches of the consent condition standards will be addressed and management responses implemented to ensure the farm becomes compliant. Any other adverse effects identified through monitoring, including from the wide scale water column and wider ecosystem monitoring, can also be addressed by adaptive management approaches.

King Salmon (Board), above n 6, at [173]—[182], although Policy 3 is referred to in a quote from one of the experts. However, the Board did refer to Policy 3 when outlining the contents of the Coastal Policy Statement: see [85], [283] and [975].

¹⁹⁸ At [175]-[178]. We are not to be taken as making any comment on that discussion or on whether the cases discussed correctly state the legal position. At [179]. At [54].

[105] The Board referred to a number of cases where the adaptive management technique had been applied in New Zealand.⁹⁰ On the basis of those cases, the Board considered that, before endorsing an adaptive management approach in this case, it would have to be satisfied that:⁹¹

- (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.

(e) The Board considered that it had appropriately applied the precautionary principle by in some cases refusing consent and in others by the adoption of "the

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strong proposed adaptive management conditions of consent".

Guidance notes on the Coastal Policy Statement

(f) The guidance note to Policy 3 of the Coastal Policy Statement prepared by the Department of Conservation deals with the precautionary approach and adaptive

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management. It is said that it will be a matter for local authorities to decide on a case-by-case basis whether the activity should be avoided until sufficient study has

See *Golden Bay Marine Farmers v Tasman District Council* EnvC Wellington W19/2003, 27 March 2003; *Minister of Conservation v Tasman District Council* HC Nelson CIV-2003- 485-1072, 9 December 2003; *Golden Bay Marine Farmers v Tasman District Council* EnvC Wellington W89/2004, 3 December 2004; *Lower Waitaki River Management Society Inc v Canterbury Regional Council* EnvC Christchurch C80/2009, 21 September 2009; *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A47/2006, 13 April 2006; *Crest Energy Kaipara Ltd v Northland Regional Council* EnvC Auckland A132/2009, 22 December 2009; *Biomarine Ltd v Auckland Regional Council* EnvC Auckland A14/2007, 13 February 2007; and *Clifford Bay Marine Farms Ltd v Marlborough District Council* EnvC Christchurch C131/2003, 22 September 2003.

King Salmon (Board), above n 6, at [181]. At [1278].

Department of Conservation *NZCPS 2010 Guidance Note - Policy 3: Precautionary approach*.

been done into its likely effects, or whether an activity is allowed, but subject to "complex and detailed conditions and a programme of specified testing and monitoring (as in adaptive management)". It said that adaptive management recognises that:⁹²

... knowledge about natural resource systems is uncertain and that some management actions are best conducted as experiments or "learning by doing". A key issue in implementing an adaptive management approach is to ensure that conditions clearly specify the level of effect that is anticipated. If monitoring shows this threshold to have been reached, then the condition (in the case of a resource consent) should provide for the activity to be adjusted.

[108] The commentary goes on to say that an adaptive management approach must provide for monitoring of issues of concern and will not be appropriate where adaptive management cannot remedy the effects before they become irreversible.

International commentary

[109] In 2007, the International Union for Conservation of Nature (IUCN)⁹³ approved a set of guidelines on the application of the precautionary principle. These included a guideline on using an adaptive management approach, which it is said should be used unless strict prohibitions are required. Any such approach should include the following core elements:

⁹² At 7-8.

⁹³ The IUCN is an international environmental organisation founded in 1948. The IUCN is comprised of more than 1,200 member organisations (government and non-governmental organisations), six commissions and a secretariat of over 1,000 people in more than 60 countries. IUCN's main aims are targeted at ensuring biodiversity conservation, the use of nature based solutions and related environmental governance. See <www.iucn.org>.

- (a) monitoring of impacts of management or decisions based on agreed indicators;
- (b) promoting research, to reduce key uncertainties;
- (c) ensuring periodic evaluation of the outcomes of implementation, drawing of lessons and review and adjustment, as necessary, of the measures or decisions adopted; and
- (d) establishing an efficient and effective compliance system.

[110] In its commentary on this guideline, the IUCN said that an adaptive management approach is:⁹⁴

... particularly useful in the implementation of the Precautionary Principle as it does not necessarily require having a high level of certainty about the impact of management measures before taking action, but involves taking such measures in the face of uncertainty, as part of a rigorously planned and controlled trial, with careful monitoring and periodic review to provide feedback, allowing amendment of decisions in the light of such feedback and new information.

[111] It is recognised that the precautionary principle may require prohibition of activities. This may be the case, for example, where urgent measures are needed to avert imminent potential threats, where the potential damage is likely to be irreversible and where particularly vulnerable species or ecosystems are concerned.⁹⁵

[112] Where adaptive management is suitable, monitoring and regular review are required. In some cases, further information and research may lead to the precautionary measure no longer being needed. However, it could lead to the conclusion that the threat is more serious than expected and that more stringent

measures ²¹² are required.

⁹⁴ At 10.

⁹⁵ At 10.

[113] As indicated by the Board, the concept of adaptive management has been discussed and implemented in a number of Environment Court decisions. We propose to discuss three of these. The first is *Clifford Bay Marine Farms Ltd v Marlborough District Council*, which involved the granting of resource consent for the proposed implementation of a large mussel farm in a "prime Hector's dolphin

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habitat", with uncertainty as to the effects of the farm on the dolphins. The Environment Court granted a resource consent for a small marine farm, following a two year intensive survey, research and monitoring program regarding Hector's

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dolphins, allowing a cautious adaptive management strategy. As noted by the Court:⁹⁶

The two options open to us are to decline consent, or to grant it in such a way that if any adverse effects on the use Hector's dolphin make of the habitat arise, they are limited, and measures to reverse them speedily can be implemented. The probability of undetected adverse effects of significance occurring unrelated to, and unaccompanied by, other existing adverse effects are of sufficiently low probability that they should not lead us to decline the application altogether.

[114] In *Crest Energy Kaipara Ltd v Northland Regional Council*, the Environment Court said that the concept of adaptive management had been developed through a number of decisions of the Court.⁹⁷ The Court said that it should not put an applicant in a position of anticipating and researching all hypotheses before making

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an application. However, the applicant "must establish sufficient of a case to persuade the court to grant consent on the basis of allowing the adaptive

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management processes to be embarked upon".

Clifford Bay Marine Farms Ltd v Marlborough District Council, above n 199. The High Court (*Director-General of Conservation v Marlborough District Council* [2004] 3 NZLR 127) remitted the case back to the Environment Court for reconsideration in light of issues surrounding unlawful delegation espoused by the High Court. In the subsequent Environment Court decision (*Director-General of Conservation v Marlborough District Council* EnvC Christchurch C113/2004, 17 August 2004) the conditions surrounding the monitoring of Hector's dolphins were slightly modified.

Clifford Bay Marine Farms Ltd v Marlborough District Council, above n 199, at [157]. *Crest Energy Kaipara Ltd v Northland Regional Council*, above n 199, at [224] with reference to *Golden Bay Marine Farmers v Tasman District Council*, above n 199; *Clifford Bay Marine Farms Ltd v Marlborough District Council*, above n 199; and *Lower Waitaki River Management Society Inc v Canterbury Regional Council*, above n 199.

²¹⁸ At [228], with reference to the Environment Court decision in *Director-General of Conservation v Marlborough District Council*, above n 214, at [40]. At [229].

[115] The Court said that it is important in such plans for baseline knowledge to be collected on which management plans can build in "an on-going and cycling
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process". Plans should set reasonably certain and enforceable objectives, plan and design a process for meeting those objectives, establish a monitoring regime and a process for the evaluation of monitoring results leading to the review and refinement of hypotheses. After that point, the process will often start again at the design and planning level.⁹⁸

[116] In *Lower Waitaki Management Society Inc v Canterbury Regional Council* the Environment Court said that the Court "always has to be careful to ensure that the objectives for the adaptive management are reasonably certain and
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enforceable." In that particular case, the Court said that the management plans
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needed more detail.

Australian cases

[117] The concept of adaptive management has also been discussed in a number of Australian decisions. In *Telstra Corporation Ltd v Hornsby Shire Council*, the New South Wales Land and Environment Court (Preston CJ) held that the type and level of precautionary measures required depends on the combined effect of the degree of seriousness and irreversibility of the environmental threat and the degree
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of uncertainty. The more significant and the more uncertain the threat, the greater
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the degree of precaution required.

[118] The Judge also said that prudence would suggest that some margin for error
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At [226].

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At [226].

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Lower Waitaki Management Society Inc v Canterbury Regional Council, above n 199, at [381]. At [555].

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Telstra Corporation Ltd v Hornsby Shire Council [2006] NSWLEC 133, (2006) 146 LGERA 10 at [161].

At [161]. At [162].

should be retained. One means of ensuring this is through an adaptive management approach, whereby the development is expanded as the extent of

uncertainty is reduced.⁹⁹ The Judge said that an adaptive management approach

might involve the core elements we set out at [109] above. ²²⁷

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[119] In *Environment East Gippsland Inc v VicForests* the plaintiff sought to restrain logging in an area of old growth forest, which was significant both ecologically and as a source of timber resources. One of the main contentions was that logging would breach the precautionary principle in respect of habitat preservation for endangered species. The Victorian Supreme Court said that the

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precautionary principle does not require avoidance of all risks. The degree of precaution will depend upon the combined effect of the seriousness of the threat and the degree of uncertainty.²³⁰ It also held that uncertainty may in some circumstances be adequately remedied by an adaptive management approach.²³¹ The test set out by the Court was as follows:²³²

- (a) Is there a real threat of serious or irreversible damage to the environment?
- (b) Is it attended by a lack of full scientific certainty (in the sense of material uncertainty)?
- (c) If yes to (a) and (b), has the defendant demonstrated the threat is negligible?
- (d) Is the threat able to be addressed by adaptive management?

At [163].

At [164]. The elements listed by the Court are identical to those set out in the IUCN Report, above n 207. The *Telstra* judgment was released prior to the IUCN report and the Court sourced the elements from a leading textbook on sustainability: Rosie Cooney and Barney Dickson (eds) *Biodiversity and the Precautionary Principle, Risk and Uncertainty in Conservation and Sustainable Use* (Earthscan, London, 2005).

Environment East Gippsland Inc v VicForests [2010] VSC 335.

At [203].

At [204].

At [205].

At [212].

- (e) Is the measure alleged to be required proportionate to the threat in issue?

[120] It is significant that the Victorian Supreme Court considered that, before adaptive management could be considered, the threat had to be shown to be negligible, but this may not have been intended as a general statement of principle. It may have been a requirement arising out of the facts of the particular case and the seriousness of the risk of environmental harm.

[121] In *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council*,²³³ a case involving a consent for a limestone quarry, Preston CJ made²³⁴ some further comments on adaptive management. He said that:

Adaptive management is a concept which is frequently invoked but less often implemented in practice. Adaptive management is not a "suck it and see", trial and error approach to management, but it is an iterative approach involving explicit testing of the achievement of defined goals. Through feedback to the management process, the management procedures are changed in steps until monitoring shows that the desired outcome is obtained. The monitoring program has to be designed so that there is statistical confidence in the outcome. In adaptive management the goal to be achieved is set, so there is no uncertainty as to the outcome and conditions requiring adaptive management do not lack certainty, but rather they establish a regime which would permit changes, within defined parameters, to the way the outcome is achieved.

Canadian cases

[122] Adaptive management has also been discussed in Canada. The case of *Canadian Parks and Wilderness Society v Canada (Minister of Canadian Heritage)*²³⁵

involved the construction of a winter snow road through a national park. It was held by the Federal Court of Appeal that any environmental harm from the road was likely to be of limited significance because of the mitigation and adaptive management measures and the high degree of reversibility of the project.¹⁰⁰ The Court had earlier said that adaptive management responds to the difficulty of predicting the environmental effects of a project and counters "the potentially paralysing effects of the precautionary principle on otherwise socially and economically useful projects". It was said that the precautionary principle states that a "project should not be undertaken if it *may* have

²³⁶ At [105]-[107].

serious adverse environmental consequences, even if it is not possible to prove with any degree of certainty that these consequences will in fact materialise".²³⁸

[123] The case of *Pembina Institute for Appropriate Development v Canada*

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(*Attorney General*) involved an iron sands mine project in Alberta. Tremblay-Lamer J referred to *Canadian Parks* and said that adaptive management allows projects to proceed, despite uncertainty and potentially adverse environmental impacts, "based on flexible management strategies capable of adjusting to new information regarding adverse environmental impacts where sufficient information regarding those impacts and potential mitigation measures already exists".¹⁰¹

Was an adaptive management approach available in this case?

[124] The issue for the Court is when an adaptive management approach can legitimately be considered a part of a precautionary approach. This involves the consideration of the following: what must be present before an adaptive management approach can even be considered and what an adaptive management regime must contain in any particular case before it is legitimate to use such an approach rather than prohibiting the development until further information becomes available.

[125] As to the threshold question of whether an adaptive management regime can even be considered, there must be an adequate evidential foundation to have reasonable assurance that the adaptive management approach will achieve its goals of sufficiently reducing uncertainty and adequately managing any remaining risk. The threshold question is an important step and must always be considered. As Preston CJ said in *Newcastle*, adaptive management is not a "suck it and see"

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At [24]. This paralysing effect is discussed in Cass R Sunstein *Laws of Fear - Beyond the Precautionary Principle* (Cambridge University Press, Cambridge, 2005) at 13-34. At [24]. It is unnecessary to decide whether the Canadian approach is the proper articulation of the precautionary principle in the New Zealand context.

Pembina Institute for Appropriate Development v Canada (Attorney General) 2008 FC 302. At [32].

¹⁴⁵ See [121] above. See also the comments of Tremblay-Lamer J quoted at [123] above; the explicit consideration of the two options in *Clifford Bay Marine Farms Ltd v Marlborough*

approach. The Board did not explicitly consider this question but rather seemed to assume that an adaptive management approach was appropriate. This may be, however, because there was clearly an adequate foundation in this case.

[126] The Board had before it modelling showing that water quality would not be compromised at the initial maximum feed levels for all nine locations. The Board accepted that the modelling of the nutrients introduced to the water column was conservative.²⁴² The experts were agreed too that the results of the modelling were²⁴³ satisfactory except in the very short term and for minor bays. Although there was no modelling for the maximum feed levels, as King Salmon points out, there is no guarantee that these levels will actually be reached.¹⁰² Under the consent conditions,²⁴⁵ they will only be reached if water quality (and the seabed) will be protected.

[127] Indeed, as also pointed out by King Salmon, the total maximum discharge levels that could ever be enabled under the approved plan changes were less than half of what was sought and were contained within three separate areas. Further, in the Waitata Reach, the combined maximum feed levels for the two farms¹⁰³ that were approved (10,000 tonnes per annum) are less than the combined initial maximum²⁴⁷ feed levels (12,000 tonnes per annum) for the five farms that were proposed in the Waitata Reach. Of course those levels are concentrated in two farms and this may mean that a linear calculation may not adequately capture the risk but it does, as King Salmon submits, illustrate the extent of the precautionary approach applied by the Board in the Waitata Reach where it refused two of the plan changes and consent for the White Horse rock site, partly because of water quality concerns.

District Council, above n 199, at [113]; and the threshold question discussed in *Crest Energy Kaipara Ltd v Northland Regional Council*, above 199, at [229].

See [57] above.

See [45] above.

See [90] above.

Waitata and Richmond. The initial feed levels (in tonnes per annum) for the Waitata and Richmond farms are 3,000 and 1,500, respectively. The maximum increase in feed discharge (in tonnes per annum) for the Waitata and Richmond farms is 1,000 and 500, respectively. The maximum feed discharge ceiling (in tonnes per annum) for the Waitata and Richmond farms is 6,000 and 4,000, respectively.

²⁴⁷ Waitata, Richmond, Kaitira, Tapihi and White Horse Rock. The maximum initial feed discharge levels (in tonnes per annum) for each of these farms proposed were 3,000, 1,500, 3,000, 3,000, and 1,500, respectively.

[128] The Board also accepted evidence that the incidence of harmful algal blooms was unlikely to be affected by the salmon farms, apart from localised changes in

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some bays. Further, the Board also accepted the evidence of the majority of the experts that a trophic shift in the Sounds was unlikely.¹⁰⁴ While recognising the

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potential for less disastrous shifts, this was to be dealt with in the conditions.

[129] The secondary question of whether the precautionary approach requires an activity to be prohibited until further information is available, rather than an adaptive management or other approach, will depend on an assessment of a combination of factors:¹⁰⁵

- (a) the extent of the environmental risk (including the gravity of the consequences if the risk is realised);
- (b) the importance of the activity (which could in some circumstances be an activity it is hoped will protect the environment);
- (c) the degree of uncertainty; and
- (d) the extent to which an adaptive management approach will sufficiently diminish the risk and the uncertainty.

The overall question is whether any adaptive management regime can be considered consistent with a precautionary approach.

[130] In this case with regards to [129](a) above, the gravity of risk if realised

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²⁵¹ *King Salmon* (Board), above n 6, at [421]. At [431].

While we have summarised the discussion referring to adaptive management in New Zealand, Australian and Canadian case law and in commentaries, we are not to be taken as having endorsed the approach taken in those cases or commentaries, except to the extent specifically indicated in this section of the judgment at

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[124]-[134]. See [10] above.

(ecological disaster) was grave. The extent of the risk is difficult to assess because of the uncertainties as to the baseline information and the lack of modelling for

maximum feed levels. However, on current information, the majority of the experts considered that a change in trophic level of the Sounds was unlikely.²⁵³

[131] With regards to [129](b) above, the importance of marine farming is outlined at Policy 8 of the Coastal Policy Statement. It provides that aquaculture is important to the social, economic and cultural well-being of people and communities and thus requires that the social and economic benefits of aquaculture be taken into account in

²⁵⁴ decision making. The Board was also satisfied that these particular projects were individually and collectively of economic benefit at the local, regional and to a lesser extent, the national level.²⁵⁵

[132] With regards to [129](c), the uncertainty, particularly as to baseline and increased feed levels, was high. The modelling that had been done could be seen as having reduced the uncertainty somewhat, subject to the limits of modelling. As the Board noted, however, quoting Mr Knight, models "can never perfectly simulate what effects will transpire under real world conditions", or, quoting another witness, "all models are wrong, but some models are useful".¹⁰⁶

[133] The vital part of the test is contained within [129](d) above. This part of the test deals with the risk and uncertainty and the ability of an adaptive management regime to deal with that risk and uncertainty. We accept that, at least in this case, the

²⁵⁷ factors identified by the Board are appropriate to assess this issue. For convenience, we repeat these here:

- (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.

¹⁰⁶ At [380].

[134] It is unfortunate that the Board did not return to discuss the factors it had identified explicitly. We must therefore assess the extent to which the findings of the Board as to the measures put in place meet those tests.

[135] Looking first at the question of baseline information under [133](a), normally one would expect there to be sufficient baseline information before any adaptive management approach could be embarked on (as against prohibition until any deficiency in baseline information is remedied). All the experts were agreed that

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there was a lack of baseline information with regard to water quality. That deficiency will, however, be remedied before the farms are stocked and no structure

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can be placed on the farms if the Council does not approve the baseline report. Further, the Board had before it the modelling results and the opinions of the experts we have just discussed at [126] to [128] above. The approach of the Board was in these circumstances available to it. In addition, in this case, the baseline information that will be collected will be of use in the managing of the Sounds generally, and in particular provide more understanding of the effects, not just of marine farming but also of land based activities. This is consistent with the various methods in the Regional Policy Statement that encourage research to further the various policies.¹⁰⁷

[136] With regards to [133](b), the Board was of the view that the consent conditions provided effective monitoring of adverse effects and that appropriate thresholds were set.¹⁰⁸ The environmental quality standards set were agreed to by the experts with little debate as to the content. These standards are to continue to be used in a holistic approach with the quantitative standards that are to be developed.¹⁰⁹ The qualitative standards provide an overarching framework. The baseline report and the ongoing monitoring reports are to be prepared by an independent person, monitored by the peer review panel and have to be approved by the Council.¹¹⁰

[137] As to [133](c), any significant shift in trophic state will lead to remedial action by either reducing the amount of feed, or in serious circumstances, removing fish from the farm until the trophic state improves.¹¹¹ SOS expressed concern about the efficacy in

¹⁰⁷ See [30] above.

¹⁰⁸ *King Salmon* (Board), above n 6, at [1277](b).

¹⁰⁹ At [454].

¹¹⁰ See [88] and [89] above.

practice of the monitoring and remedial measures but it is not an error of law for the Board to rely on the measures being properly implemented.

[138] As to [133](d), although it did not explicitly make findings that the effects could be remedied before they became irreversible, this is implicit from its acceptance of the conditions as complying with a precautionary approach.¹¹²

[139] The answer to the overall question from [129](d) of whether risk and uncertainty will be diminished sufficiently for an adaptive management regime to be consistent with a precautionary approach will depend on the extent of risk and uncertainty remaining and the gravity of the consequences if the risk is realised. For example, a small remaining risk of annihilation of an endangered species may mean an adaptive management approach is unavailable. A larger risk of consequences of less gravity may leave room for an adaptive management approach.

¹¹¹ See [92] above.

¹¹² See [53] above for a discussion as to expert evidence on reversibility.

[140] In this case, while a change in trophic state would be grave, the experts were agreed it was unlikely. Further, the information deficit is effectively to be remedied before the farms are stocked and before feed levels are increased. Remedial action will be taken if there is any significant shift in water quality. The Board was thus entitled to consider that the four factors it had identified were met. In this case, given the uncertainty will largely be eliminated and the risk managed to the Board's satisfaction by the conditions imposed, it was open to the Board to consider that the

adaptive management regime it had approved, in the plan and the consent conditions, was consistent with a proper precautionary approach.

Relationship between the plan change and consent applications

The parties' submissions

[141] In SOS's submission, while the plan changes and the consent applications could be heard together, they remain separate processes with a different focus (the planning role as against a quasi-judicial role for consent applications).²⁶⁶ The 2011 amendments to the RMA, which allowed the two to be heard together, were not intended to make a substantive change to the nature of the planning and consent processes or the relationship between them.²⁶⁷ SOS submits that the Board made its decision on the plan change and the consent applications as an integrated whole and that its plan change decision was improperly predicated on the consent conditions it intended to impose.

[142] In response to this submission, King Salmon's position is that the Board's decision was not predicated on the conditions it proposed to impose at the consenting stage. It says that the Board repeatedly reminded itself of the statutory direction in
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relation to the sequencing of the matters for decision before it. The Board followed the correct sequence by first considering the requested plan changes²⁶⁹ and
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then the five remaining resource consent applications. The Board noted, when

Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development, above n 189, at [16] and [22].

Section 149P(8) of the RMA necessitates that a board of inquiry, when dealing with a plan change and a concurrent application, must first determine the matters in relation to the plan change request and then determine the matters in relation to the concurrent application.

King Salmon (Board), above n 6, at [73(e)] and [101]-[102].

At [1156]—[1279].

At [1280]-[1342].

²⁶⁶ At

[1277(b)].

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Discussion

[143] We accept that the Board outlined its decision on the plan changes before its decision on the consent applications. We also accept that the Board was aware of the different statutory provisions that governed plan changes and consent applications. However, the influence of the consent conditions on the Board's decision on the plan change is evident from the structure of the report. The modifications to the consent conditions originally proposed by King Salmon were discussed by the Board after it had made findings on the contested effects and before the consideration of the plan changes.

[144] It is quite clear, too, that the Board would not have granted the plan change request in the absence of the detailed consent conditions. The Board referred on more than one occasion to the uncertainty relating to baseline levels and the fundamental failure to model maximum feed levels. The consent conditions require the gathering of baseline information, which had to be done before the farms were stocked. The consent conditions also require ongoing monitoring to ensure that, if water quality becomes at risk of being compromised, then appropriate remedial action can be taken. It is thus the consent conditions that address the uncertainties that the Board had identified and contain the adaptive management regime which is
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an essential component of the Board's decision.

[145] The issue then is whether it was improper for the Board to take into account the consent conditions when deciding on a plan change to make salmon farming a discretionary activity in Zone 3. We do not consider that it was. If a relevant authority considering a plan change request could not conceive of a consent being granted for an activity no matter what the conditions, then the activity could not be designated as a discretionary activity. If, however, an activity could have significant adverse effects but these effects could be eliminated by a simple consent condition, then it would be irrational to require a planning authority to ignore the fact that such a condition could be imposed. All that occurred in this case is that the Board considered the actual conditions that would ultimately be imposed, rather than

The Board explicitly noted, at [439], that it could only consider granting consent if there was a more robust monitoring and adaptive management regime than that presented in the proposed conditions by King Salmon.

hypothetical conditions. This is legitimate given that the hearing, and the subsequent decision, covered both plan changes and consent conditions.

[146] It is nevertheless important for the plan change process and the consents to be considered separately, with the different statutory provisions and the different roles of the decision maker firmly in mind: as a planning authority (for plan changes) and as a hearing authority with a quasi-judicial role (for consents). We consider that the Board in this case did consider the plan changes and the consents separately and was well aware of the different roles and statutory provisions when considering water

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quality issues. It also took a proper regional approach to the issue of water quality, considering the effect of the farms on water quality on a Sounds-wide basis.¹¹³

[147] We recognise that there could be dangers when a planning authority has regard to anticipated consent conditions where the consents are for only one activity, while the plan change covers a variety of activities. A planning authority must have regard to the full range of activities that a proposed plan change could subsequently permit. In this case, however, both the plan changes and the consent conditions related only to salmon farming.

What should have been contained in the plan?

The parties' submissions

[148] SOS submits that, if the Board could identify conditions that would enable

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salmon farming to continue consistently with the RMA, then these conditions should have been in the plan and specified in rules and standards. That would have given the community certainty about what is allowed to enable people to "order their lives under it with some assurance".¹¹⁴ SOS acknowledges that there were assessment criteria in the plan but points out that these are guidelines only. Further, it points out that the Board could not even set water quality standards in the resource conditions as it lacked sufficient information to do so. Instead, it imposed a monitoring regime and a means of

See *Environmental Defence Society Inc v New Zealand King Salmon Co Ltd*, above n 12, at [170].

Of course, the primary submission of SOS is that no such conditions would adequately safeguard water quality, in light of the lack of information before the Board.

²⁷⁶ *Discount Brands Ltd v Westfield (New Zealand) Ltd* [2005] NZSC 17, [2005] 2 NZLR 597 at [10] per Elias CJ.

setting water quality standards to be approved by the Council. This did not give proper assurance that the adaptive management regime, as envisaged by the Board, would be complied with. ²⁷⁷

[149] In addition, if the adaptive management regime had been specified as rules and standards in the plan, SOS says that any future resource consent application would almost certainly be notified and the community could have participated in decisions relating to resource consent applications in the future that would be made on the basis of the newly gathered monitoring information. Public participation is integral to the RMA.

[150] In response, King Salmon submits that the standards, assessment criteria and the existing provisions of the Sounds Plan, together with all of the relevant higher order planning documents (such as the Coastal Policy Statement), provide specific direction and guidance for conditions of consent to be imposed on any subsequent resource consent application. In its submission, no future consent could be granted without properly providing for the maintenance of water quality. Further, water quality objectives were set as conditions of consent. As to public participation, King Salmon submits that the public has had a proper opportunity to be heard during the Board process.

Discussion

[151] Under s 87A(4), if a resource consent is granted for a discretionary activity, the activity must comply with the requirements, conditions and permissions, if any, of the RMA, regulations, plan or proposed plan. It is common practice for regional plans to include assessment criteria for determining whether a discretionary activity should be granted a resource consent. If such criteria exist, the consent authority must give effect to them. However, the law does not require in all circumstances comprehensive assessment criteria setting out when resource consent may be granted for discretionary activities.

[152] As to the discharge of contaminant levels, s 15(1)(a) of the RMA allows for the discharge of contaminants into water as long as the discharge is expressly allowed by either a national environmental standard or other regulations, a rule in a regional plan,¹¹⁵

As well as a rule in a proposed regional plan for the same region (if there is one).

or a resource consent. Thus in the current case, the discharge levels of fish feed could be set either in the regional plan or in the individual consents.

[153] If, however, a consent for a particular activity would only be granted on certain conditions, then it would certainly be good practice (and may in some circumstances be a requirement) that this be made clear in the plan, either as standards or as assessment criteria. Otherwise consent applications may not address relevant criteria and a future consent authority may risk making a decision on a basis that was not contemplated by the planning authority.

[154] The structure of the Sounds Plan is to have rules and standards but also to have assessment criteria relating to resource consent applications. Assessment criteria are designed to give guidance to those applying for consents as to the types

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of information and analysis that will be required of applicants. They also give the community information on how such consents will be assessed. Although the assessment criteria are not said to be binding, a reasonable consent authority would have to take them into account, to the extent that they were relevant.

[155] In this case, we accept King Salmon's submission that no future consent for Zone 3 could be granted without properly providing for the maintenance of water quality. This is because of what is contained in the Coastal Policy Statement and the Regional Policy Statement on water quality, along with the general requirements of the Sounds Plan on that topic, as well as the specific standards and assessment

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criteria relating to Zone 3, including the requirement to assess the adverse effects of any discharge to coastal water, the provision for staged and monitored increases in

²⁷⁹ See [33] above.

²⁸⁰ See [40] and [41] above.

feed discharge and the necessity for adaptive management approaches to the

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management of the seabed and water quality.

[156] As to the submission of SOS relating to the inability of the Board to set water quality standards, it is true that the Board could not set quantitative standards but it did set comprehensive qualitative ones in the consents.

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[157] We accept that public participation is a key tenet of decision making under

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the RMA with many public participatory processes. As noted by Keith J in *Discount Brands Ltd v Westfield (New Zealand) Ltd*, the purpose of these processes is to recognise and protect the particular rights of those who are affected and to

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enhance the quality of the decision making. With regard to the current case, the hearing before the Board was eight weeks long. The Board heard from 181 witnesses and 1221 submissions were received. Therefore, in this case, there was a significant amount of public participation in the process.

Conclusion, result and costs

[158] The Board was entitled to consider that the adaptive management regime, reflected in both the plan and the consent conditions, was consistent with a proper precautionary approach. The plan changes were not improperly predicated on the consent conditions and there was no need for the plan to contain more than it did on water quality, the plan containing in particular a reference to an adaptive management regime and to controls for water quality.

See [41] above. The amended rule [35.4.2.10.3] set out in *King Salmon* (Board), above n 6, at Appendix 3, also includes a requirement to assess the effects from seabed deposition and changes to water quality, ecological effects and environmental standards in which effects of discharges can be monitored and evaluated.

The submissions of SOS contained a number of other complaints about the consent conditions (including the 35-year term of the consents) and also complaints relating to other matters such as the assessment of economic benefit. These matters did not explicitly come within the terms of the leave sought or given and were just noted to support the main grounds of appeal. As such, we have not found it necessary to deal with them. To the extent they were dealt with in the judgment of Dobson J, we are not to be taken as making any assessment of his findings relating to those matters.

For example, under s 165ZT of the RMA, an accepted plan change request and a concurrent application for coastal permits needs to be publicly notified in accordance with that section.

Discount Brands Brands Ltd v Westfield (New Zealand) Ltd, above n 276, at [46].

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[159] The appeal with regard to the Waitata, Richmond and Ngamahau sites is dismissed.

[160] If costs cannot be agreed, the parties have leave to file memoranda on or before 2 June 2014.

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[3] The applications for the plan changes and the consents were referred by the Minister of Conservation to a Board of Inquiry chaired by retired Environment Court Judge Whiting on 3 November 2011⁴ and were heard and considered at the same time.⁵ The Board granted plan changes in relation to four of the proposed sites

Resource Management Law (looseleaf ed, LexisNexis) at [5.71] and following.

⁷ At [1341]. A map showing the location of the sites that were approved and those that were not is set out in *King Salmon* (HC), above n 2, at Appendix A.

⁸ An appeal from a Board of Inquiry to the High Court is available as of right, but only on a question of law: RMA, s 149 V

¹² *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38. In this Court, only the Papatua site was challenged by EDS.

¹³ Although this Court's judgment in the EDS appeal renders the SOS appeal with regard to Papatua unnecessary, we still include discussion on that site in this judgment as the Board's comments on that site are relevant to its approach to water quality issues.

[7] In order to put these issues and the SOS submissions in context, we first explain the water quality issue in more detail and then set out the statutory framework applicable to this appeal, including the relevant provisions of the New Zealand Coastal Policy Statement, the Marlborough Regional Policy Statement and the Sounds Plan. After this, we give more detail on the plan change approved by the Board, outline the evidence before and the findings of the Board on water quality and summarise the Board's approach to the plan change. We then summarise the decision on the consent applications, set out the conditions of consent for the four sites that were approved and discuss the modifications made in the course of the hearing to the consent conditions as originally proposed by King Salmon.

At [362].

Section 32(4)(b).

Section 87A(4)(a).

Section 87A(4)(b).

The Board also discussed s 107 of the RMA in its decision and rejected the submission that it was engaged: see *King Salmon* (Board), above n 6, at [1300]-[1325]. That finding is not challenged before us.

Under s 2 of the RMA a "contaminant" is defined as a substance that, when discharged into water, changes or is likely to change the physical, chemical, or biological condition of the water.

Policy 8(a).

Janeiro in 1992.

Marlborough Regional Policy Statement, above n 47, at [3.3.1].

At [5.3.8].

At [9.3].

At [9.3.2].

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salmon from roe sources in New Zealand. There are standards on cage size, height and boundaries and also standards relating to feed barges, lighting and noise. Most relevantly for our purposes, the maximum initial annual discharge of fish feed within each site is set, together with annual maximum increases in the annual tonnage of

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fish feed discharge up to a total maximum annual discharge of fish feed. For example, for the Waitata site, the maximum initial annual discharge of fish feed within the site is 3000 tonnes. The maximum annual increase is 1000 tonnes up to a maximum annual discharge ceiling of 6000 tonnes. There is provision in the rules

At [374]. We were told at the hearing that the reference to existing farms in this paragraph was a reference to land based farms and not marine farms.

Discussed at [385]-[388].

Discussed at [389]-[392].

103 At [413].

107 At [427].

112 At [430].

113 At [433].

117 At [437].

118 At [438].

The definition of a critical nutrient loading rate was explained by the Board, at [385], as the At [1255]-[1264].

See [29] above. See Marlborough Regional Policy Statement, above n 47, at objective [5.3.2]

The section of the Board decision dealing with the modifications to the proposed conditions of consent preceded the discussion regarding the plan changes. *King*

Salmon (Board), above n 6, at [444].

157 At [1291].

158 At [450].

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necessary, by the Council through the review process.

dealing with the ability of the Council to review the conditions of consent. The condition specifies the times at which the Council may review the various conditions of consent. For

The duration of the baseline monitoring varies between the farms from one to two years, and in the case of the farms with the testing duration of merely one year, can be extended on the

Condition [68(a)].

The creation of an enrichment index was imposed as a condition in each of the resource consents enrichment index is a means of assessing the trophic condition of a body of water (by calculating various nutrient and chemical levels of water) over time and provides a robust indicator of a water column ecosystem: at [426].

At [1287].

Condition [1].

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make recommendations and then it must be submitted to the Council. Only upon the approval of the "annual report", including the aspects as to an increase in the tonnage of feed, may there be an increase in feed levels.¹⁸⁶

¹⁸⁷ See conditions [40(a)]-[40(c)].

¹⁸⁸ In arguing this, SOS relies upon ss 5, 12, 15(1), 32(2)(c), 66, 69, 70, 105, 107 and 149P(6) of the RMA.

¹⁸⁹ *Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development* [2007] NZCA 473, [2008] 1 NZLR 562 (Glazebrook, O'Regan and Arnold JJ) at [34(a)] and [36].

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[101] The Board accepted that there was a lack of baseline information. Further, while modelling of initial feed levels had been undertaken, there had been no modelling at the maximum feed levels. The Board also said that, if there were a change in trophic level of the Sounds resulting from nitrogen introduced into the

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coastal waters through the salmon farms, then this would be an ecological disaster. This means that the requirements set out in Policy 3 for uncertainty and potentially significant adverse effects were met and a precautionary approach was required.¹⁹⁴

²⁰³ At 7.

²⁰⁵ At 8.

²⁰⁷ International Union for Conservation of Nature "Guidelines for applying the precautionary principle to biodiversity conservation and natural resource management" (as approved by the 67th meeting of the IUCN Council 14-16 May 2007) [IUCN Report].

²⁰⁸ Guideline 12 at 9-11. This was said in the context of the precautionary principle at international law. In that context, rather than being concerned with taking precautionary measures in allowing development, the term is more often used for advocating precautionary measures to protect the environment. For example, in the IUCN Report, it is noted that "[a]n element common to the various formulations of the Precautionary Principle is the recognition that lack of certainty regarding the threat of environmental harm should not be used as an excuse for not taking action to avert that threat": at 1. For a discussion on the precautionary principle in international law, see also: Philippe Sands and Jacqueline Peel *Principles of International Environmental Law* (3rd ed, Cambridge University Press, Cambridge, 2012); Nicolas de Sadeleer *Environmental Principles: From Political Slogans to Legal Rules* (Oxford University Press, Oxford, 2002); World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) *Report of the Expert Group on the Precautionary Principle of the World Commission on the Ethics of Scientific Knowledge and Technology* (UNESCO COMEST, March 2005); and 1992 *Rio Declaration on Environment and Development A/Conf/151/26* (Vol I) (1992).

²⁰⁹ IUCN Report, above n 207, at guideline 12.

²¹² At 10.

²³³ *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council* [2010] NSWLEC 48.

²³⁴ At [184].

²³⁵ *Canadian Parks and Wilderness Society v Canada (Minister of Canadian Heritage)* 2003 FCA 197, [2003] 4 FC 672.

See [46] above.

At [431] and [432]. See [88]-[93] above.

²⁵³ See [52] above.

²⁵⁴ See [23] above.

²⁵⁵ *King Salmon* (Board), above n 6, at [263]-[268].

²⁵⁷ See [105] above.

²⁵⁸ See [42] above.

²⁵⁹ See [89] above.

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considering the plan changes, that it did so "aware of" the conditions proposed, but in King Salmon's submission, the decision was not "predicated on compliance with the proposed

conditions of consent". In any event, the proposed conditions of consent cannot be an irrelevant factor for the Board to take into account.

See *King Salmon* (Board), above n 6, at [406] and [427].

²⁷⁷ SOS did not, however, pursue in this Court its earlier argument that the Board had improperly delegated its decision to the independent expert, the peer review panel and the Council. In *King Salmon* (HC), above n 2, the High Court dealt with this submission at [114]—[128]. We make no comment on this issue.