

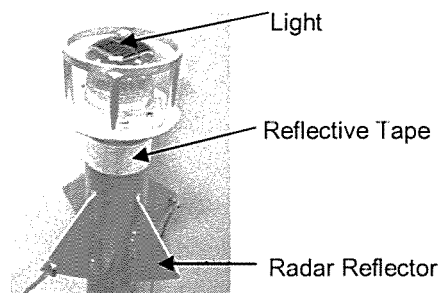
Marine Site Name Kopāua

Request from New Zealand King Salmon 23 May 2016 to rename the Richmond site 'Kopāua'. Pronounced Kor pa wa.

Marine Farm Lighting and Marking Plan – U140295 (Site no.8633)

I, Alexander van Wijngaarden, Harbourmaster of Marlborough District Council, hereby approve, under Maritime Delegation from the Director of Maritime New Zealand pursuant to Sections 200, 444(2) and 444(4) of the Maritime Transport Act 1994, the lighting and marking associated with coastal permit U140295, (Site no.8633), located in Richmond Bay, Outer Pelorus as follows:

1. That each end of each longline display an orange buoy, as shall the middle of each of the seawardmost and landwardmost longlines.
2. That a yellow light, radar reflector and a band of reflective tape 50 millimetres in width be displayed in the positions marked 'A' on the attached structures plan. The lights shall be solar powered and shall have the following characteristics: F1 (5) Y (20 secs) 1m 1M.



3. That radar reflectors and a band of reflective tape be displayed in the positions marked 'B' on the attached structures plan.
4. That a band of reflective tape 50 millimetres in width be displayed in the positions marked 'C' on the attached structures plan.

Interpretation:

Light - a yellow light, group flash 5 every 20 seconds (minimum flash length not less than 0.5 seconds), height of light not less than 1 metre above the water, range at least 1 nautical mile.

Radar reflector – to be set at not less than 1 metre above the waterline with a band of reflective tape set above this. The radar reflector should be visible on radar at a range of at least 500 metres.

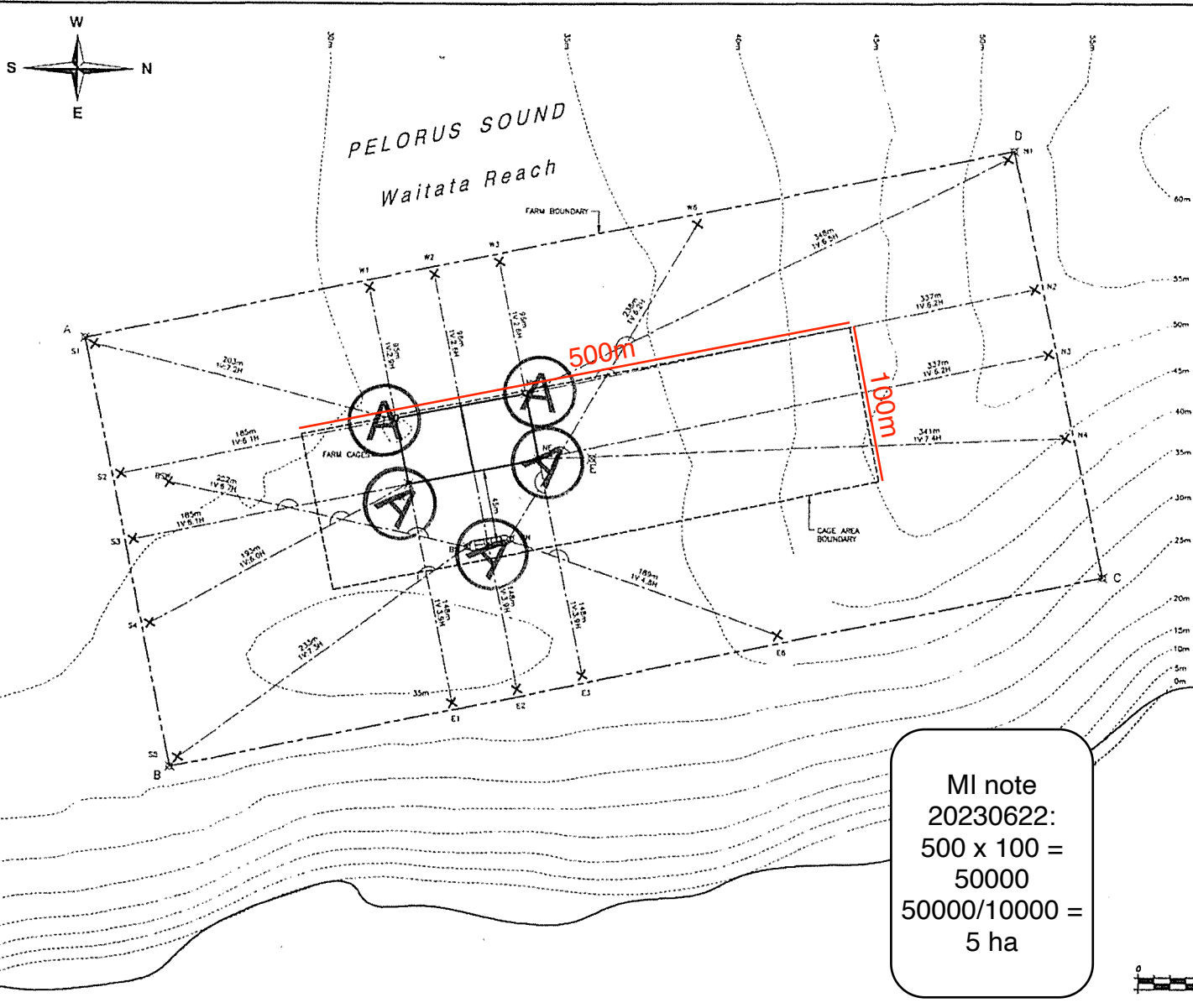
Reflective tape – should be at least 50 millimetres in width and placed around the circumference of the support tube; the tape should be visible by torchlight at a range of at least 50 metres. Alternative reflectors may be substituted for reflective tape, provided that they are mounted where they are visible by torchlight from at least 50 metres all round.

5. Each end of the most landward and most seaward longlines shall carry the name of the consent holder, and the site number issued by Marlborough District Council (e.g. #8405), displayed in bold clear letters in such a manner that they can be clearly read from a distance of 10 metres.

Given under my hand this 13th day of April 2016



ALEXANDER VAN WIJNGAARDEN

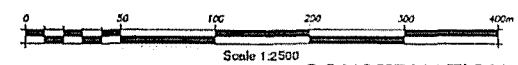


FARM COORDINATES				
POINT	NZTM		WGS84 (DD MM,mmm)	
	EASTING	NORTHING	LATITUDE	LONGITUDE
A	1,680,942	5,460,999	40° 59' 36.00" S	173° 57' 24.30" E
B	1,681,212	5,461,052	40° 59' 36.05" S	173° 57' 23.67" E
C	1,681,094	5,461,641	40° 59' 42.97" S	173° 57' 28.73" E
D	1,680,825	5,461,586	40° 59' 44.43" S	173° 57' 25.55" E
E	1,681,010	5,461,320	40° 59' 41.69" S	173° 57' 29.56" E
NW	1,680,929.3	5,461,266.2	40° 59' 45.1" S	173° 57' 26.06" E
NE	1,681,020.8	5,461,276.2	40° 59' 44.05" S	173° 57' 28.00" E
SE	1,681,036.5	5,461,192.6	40° 59' 43.51" S	173° 57' 28.09" E
SW	1,680,995.4	5,461,185.7	40° 59' 43.96" S	173° 57' 28.06" E
N'	1,680,830.3	5,461,587.0	40° 59' 36.64" E	173° 57' 25.97" E
NE	1,680,912.0	5,461,585.6	40° 59' 36.99" E	173° 57' 24.78" E
N:	1,680,953.1	5,461,602.1	40° 59' 33.21" E	173° 57' 24.71" E
NA	1,681,005.7	5,461,617.8	40° 59' 33.60" E	173° 57' 28.45" E
E1	1,681,171.4	5,461,231.3	40° 59' 43.9" S	173° 57' 20.57" E
E2	1,681,162.9	5,461,272.5	40° 59' 41.7" S	173° 57' 20.94" E
E3	1,681,134.0	5,461,312.6	40° 59' 40.5" S	173° 57' 20.90" E
E5	1,681,129.6	5,461,438.4	40° 59' 41.33" S	173° 57' 20.45" E
S1	1,680,945.9	5,461,094.9	40° 59' 38.70" S	173° 57' 24.67" E
S2	1,681,027.7	5,461,021.0	40° 59' 38.94" S	173° 57' 20.49" E
S2	1,681,068.9	5,461,029.0	40° 59' 37.30" S	173° 57' 20.42" E
S4	1,681,121.6	5,461,039.4	40° 59' 36.73" S	173° 57' 20.17" E
S5	1,681,205.0	5,461,056.8	40° 59' 35.07" S	173° 57' 20.17" E
W1	1,680,910.7	5,461,179.2	40° 59' 38.36" S	173° 57' 22.02" E
W2	1,680,902.7	5,461,220.5	40° 59' 37.83" S	173° 57' 21.42" E
W2	1,680,934.7	5,461,261.7	40° 59' 36.91" S	173° 57' 20.81" E
W5	1,680,871.3	5,461,320.4	40° 59' 38.89" S	173° 57' 20.95" E
BSW	1,681,032.9	5,461,051.7	40° 59' 36.88" S	173° 57' 20.04" E
BN	1,681,060.8	5,461,068.3	40° 59' 34.45" S	173° 57' 20.32" E
DS	1,681,073.8	5,461,241.1	40° 59' 33.92" S	173° 57' 20.81" E

MI note
20230622:
500 x 100 =
50000
50000/10000 =
5 ha

NOTE:
1 HYDROGRAPHIC INFORMATION HAS BEEN SOURCED FROM CANTONMENT INSTITUTE DEPTHS ARE BELOW MEAN SEA LEVEL

LEGEND
7.1m LENGTH OF WARP FROM BOTTOM OF SCREW ANCHOR (ASSUMED INSTALLATION DEPTH 6m) TO CAGE
1V:2.0H SLOPE OF ANCHOR WARP
X SCREW ANCHOR
--- FARM BOUNDARY
- - - CAGE BOUNDARY
- - - ANCHOR WARP



CONSTRUCTION

DO NOT SCALE FROM DRAWING												This drawing and its content is the property of OCOL CONSULTANTS NZ LIMITED. Any unauthorised use or reproduction of it is forbidden.		NEW ZEALAND KING SALMON LIMITED RICHMOND, WAITATA REACH, PELORUS SOUND PROPOSED 40402 FARM LAYOUT		Scale (A3) 2500 ACAD Filename 051103-051103-0713	
SCALE CHANGED TO 1:2500, NORTH ROTATED 90 CLOCKWISE	13	19/02/16	RYE	CONSTRUCTION	G. TEAR		Drawn	RYE									
BARGE ANCHOR COORDS ADDED	12	19/02/16	RYE	CONSTRUCTION	G. TEAR		Checked										
ANCHOR COORDS ADDED	11	02/02/16	RYE	CONSTRUCTION	G. TEAR		Traced										
COORDS IN TERMS OF WGS84 ADDED	10	05/08/14	RYE	PRELIMINARY	G. TEAR		Approved										
Amendments	Rev'n	Date	Drawn	Issued for	Checked	Approved	Date										

Page 2 of 2

13/4/16

IN THE SUPREME COURT OF NEW ZEALAND

**SC 82/2013
[2014] NZSC 41**

BETWEEN ENVIRONMENT DEFENCE SOCIETY
INCORPORATED
Appellant

AND THE NEW ZEALAND KING SALMON
COMPANY LIMITED
First Respondent

SUSTAIN OUR SOUNDS
INCORPORATED
Second Respondent

MARLBOROUGH DISTRICT
COUNCIL
Third Respondent

MINISTER OF CONSERVATION AND
DIRECTOR-GENERAL OF MINISTRY
FOR PRIMARY INDUSTRIES
Fourth Respondents

SC 84/2013

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

Hearing: 16 October 2013

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

Counsel: D A Kirkpatrick, R B Enright and N M de Wit for
Environmental Defence Society Incorporated
D A Nolan, A S Butler and D J Minhinnick for The New
Zealand King Salmon Company Limited
M S R Palmer and K R M Littlejohn for Sustain Our Sounds
Incorporated
P A McCarthy for Minister of Conservation and Director-
General of Ministry for Primary Industries
S F Quinn for Marlborough District Council
P T Beverley and D G Allen for the Board of Inquiry

Judgment: 17 April 2014

JUDGMENT OF THE COURT

- A. The application under s 149V of the Resource Management Act 1991 by the Environmental Defence Society for leave to appeal the decision of the High Court dated 8 August 2013 is granted. The questions of law for determination on the appeal are:**
- (a) Was the Board of Inquiry’s approval of the Papatua plan change one made contrary to ss 66 and 67 of the Act through misinterpretation and misapplication of Policies 8, 13, and 15 of the New Zealand Coastal Policy Statement? This turns on:**
- (i) Whether, on its proper interpretation, the New Zealand Coastal Policy Statement has standards which must be complied with in relation to outstanding coastal landscape and natural character areas and, if so, whether the Papatua Plan Change complied with s 67(3)(b) of the Act because it did not give effect to Policies 13 and 15 of the New Zealand Coastal Policy Statement.**
- (ii) Whether the Board properly applied the provisions of the Act and the need to give effect to the New Zealand Coastal Policy Statement under s 67(3)(b) of the Act in coming to a “balanced judgment” or assessment “in the round” in considering conflicting policies.**

(b) Was the Board obliged to consider alternative sites or methods when determining a private plan change that is located in, or results in significant adverse effects on, an outstanding natural landscape or feature or outstanding natural character area within the coastal environment? This question raises the correctness of the approach taken by the High Court in *Brown v Dunedin City Council* [2003] NZRMA 420 and whether, if sound, the present case should properly have been treated as an exception to the general approach. Whether any error in approach was material to the decision made will need to be addressed if necessary.

B. The application under s 149V of the Resource Management Act 1991 by Sustain Our Sounds Incorporated for leave to appeal the decision of the High Court dated 8 August 2013 is granted. The question of law for determination on the appeal is:

Was the conclusion of the Board of Inquiry that the key environmental effects of the plan change in issue would be adequately managed by the maximum feed discharge levels set in the plan and the consent conditions it proposed to impose in granting the resource consent to King Salmon one made in accordance with the Act and open to it?

REASONS

[1] On 18 October 2013, this Court granted leave to appeal against a judgment of Dobson J¹ to the Environmental Defence Society Inc (EDS) in SC 82/2013 and to Sustain Our Sounds Inc (SOS) in SC 84/2013.² Dobson J had dismissed an appeal on questions of law from a decision of a Board of Inquiry, which had granted plan changes and resource consents to the New Zealand King Salmon Company Ltd in relation to four salmon farms in the Marlborough Sounds.³ The questions on which leave to appeal to this Court were granted are set out above.

[2] The appeals were heard together from 19 to 22 November 2013 and judgments have been issued today in *Environmental Defence Society Inc v The New*

¹ *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZHC 1992, [2013] NZRMA 371.

² *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZSC 101.

³ Board of Inquiry *New Zealand King Salmon Requests for Plan Changes and Applications for Resource Consents*, 22 February 2013.

*Zealand King Salmon Co Ltd*⁴ (the “EDS appeal”) and *Sustain our Sounds Inc v The New Zealand King Salmon Company*⁵ (the “SOS appeal”).

[3] As indicated in our judgment on the EDS appeal,⁶ this judgment deals with:

- (a) the reasons leave was granted; and
- (b) why the Court did not hear oral submissions from the Board of Inquiry and took no account of its written submissions.

Reason for grant of leave

[4] Leave to this Court was granted after applications were made by EDS and SOS under s 149V of the Resource Management Act 1991 (RMA) to appeal against the decision of the High Court. The relevant parts of s 149V are as follows:

149V Appeal from decisions only on question of law

...

(5) No appeal may be made to the Court of Appeal from a determination of the High Court under this section.

(6) However, a party may apply to the Supreme Court for leave to bring an appeal to that court against a determination of the High Court and, for this purpose, sections 12 to 15 of the Supreme Court Act 2003 apply with any necessary modifications.

(7) If the Supreme Court refuses to give leave for an appeal (on the grounds that exceptional circumstances have not been established under section 14 of the Supreme Court Act 2003), but considers that a further appeal from the determination of the High Court is justified, the court may remit the proposed appeal to the Court of Appeal.

...

(9) Despite any enactment to the contrary,—

...

⁴ *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38.

⁵ *Sustain Our Sounds Inc v The New Zealand King Salmon Company Co Ltd* [2014] NZSC 40.

⁶ *Environmental Defence Society Inc v New Zealand King Salmon Co Ltd* above n 4, at [4] and [6].

- (b) the Supreme Court or the Court of Appeal, as the case may be, must determine an application for leave, or an appeal, to which this section applies as a matter of priority and urgency.

[5] As indicated s 149V(6) provides that ss 12 to 15 of the Supreme Court Act 2003 apply with any necessary modifications. Section 12(1) of the Supreme Court Act provides that appeals to this Court are to be heard only with the Court's leave. Under s 13(1), this Court must not give leave unless it is satisfied that it is necessary in the interests of justice for the Court to hear and determine the proposed appeal. Section 13(2) provides that it is in the interests of justice for this Court to hear an appeal if it involves a matter of general or public importance⁷ or a matter of general commercial significance.⁸

[6] Section 14 provides that, where an appeal is to be made directly against a decision of a Court other than the Court of Appeal, in addition to being satisfied that it is necessary in the interests of justice to hear the appeal, the Court must be satisfied that there are exceptional circumstances justifying the direct appeal.

[7] In the context of s 149V, we consider that ss 13 and 14 of the Supreme Court Act mean that, where this Court is satisfied that it is in the interests of justice to hear a proposed appeal, it would normally remit the proposed appeal to the Court of Appeal unless satisfied that exceptional circumstances exist that mean this Court should hear the appeal.

[8] In both the EDS and the SOS appeals, leave was granted to appeal to this Court, rather than remitting the issue to the Court of Appeal under s 149V(7). In both cases, the appeals concerned a major aquaculture development that had been determined by the Minister of Conservation to involve matters of national significance and referred to a Board of Inquiry.

[9] In relation to the EDS appeal, the proposed appeal concerned an important issue as to the relationship between Part 2 of the RMA, (and s 5 in particular) and the hierarchy of instruments provided for in the RMA, including the New Zealand

⁷ Section 13(2)(a).

⁸ Section 13(2)(b).

Coastal Policy Statement.⁹ This issue has not been previously considered by this Court and it has the potential to affect all decisions under the RMA.

[10] In terms of the SOS application, the proposed appeal concerned the appropriate response of decision-making bodies when presented with scientific uncertainty and the interrelationship between the precautionary principle (as recognised in Policy 3 of the New Zealand Coastal Policy Statement) and an adaptive management approach. This also was a matter of major significance and one that has not been considered before by this Court.

[11] The above factors satisfied us that leave to appeal should be granted and that exceptional circumstances existed to require that appeal to be heard by this Court.

The Board's submissions

[12] The Board of Inquiry filed submissions covering both the EDS and SOS appeals. A decision maker cannot appear before this Court as of right¹⁰ and generally, any assistance that could be rendered by a decision maker will be of little value. This is because all the issues will be adequately developed by the respective parties.

[13] In rare cases a decision maker may be of assistance, for example, where there is a need for a contradictor or where it is important that the Court have a wider perspective than the parties may be able to provide. If a decision maker does appear, it should as far as possible act in a non-partisan fashion.¹¹

⁹ 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).

¹⁰ Under r 20.17 of the High Court Rules, the decision maker is entitled to be represented and heard at the hearing of an appeal on all matters (unless the decision maker is a District Court, or the Court directs otherwise). Under r 1.4(2)(b), that rule does not apply to appeals to this Court. Even in the High Court, the authorities indicate that the right of a decision maker to take active steps in an appeal should be exercised sparingly: for example, see *Fonterra Co-operative Group Ltd v Grate Kiwi Cheese Co Ltd* (2009) 19 PRNZ 824 (HC) and *Attorney-General v Howard* [2010] NZCA 58, [2011] 1 NZLR 58.

¹¹ *Attorney-General v Howard*, above n 10, at [145]; *NZ Paper Mills Ltd v Otago Acclimatisation Soc* [1992] 1 NZLR 400 (CA) at 403.

[14] With regard to the current case, we did not call on counsel for the Board to be heard orally and we did not take its submissions into account.¹² All issues were fully argued by the respective parties to the two appeals. Further, while the Board claimed that its submissions were non-partisan and there merely to assist the Court, numerous parts of the Board's submissions appeared to be entering the fray.

Solicitors:

DLA Phillips Fox, Auckland for Environmental Defence Society Incorporated

DLA Phillips Fox, Wellington for Marlborough District Council

Russell McVeagh, Wellington for The New Zealand King Salmon Company Limited

Dyrberg Drayton, Wellington for Sustain Our Sounds Incorporated

Crown Law Office, Wellington for Minister of Conservation and Director-General of Ministry for Primary Industries

Buddle Findlay, Wellington for Board of Inquiry

¹² However, we do acknowledge that the Board in one respect provided helpful submissions pointing out a statutory provision on its function to which the Court's attention had not been directed (s 149J(2) of the Resource Management Act 1991, as amended by s 25 of the Resource Management Amendment Act 2013).

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

Hearing: 19, 20, 21 and 22 November 2013

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

Counsel: M S R Palmer and K R M Littlejohn for Appellant
D A Nolan, J D K Gardner-Hopkins, D J Minihinnick and A S
Butler for First Respondent
D A Kirkpatrick, R B Enright and N M de Wit for Second
Respondent
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.

REASONS

(Given by Glazebrook J)

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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, Tapiipi 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

[3] The applications for the plan changes and the consents were referred by the Minister of Conservation³ 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

¹ Marlborough District Council *Marlborough Sounds Resource Management Plan* (2003).

² 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].

³ 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.

⁴ Pursuant to ss 147(1)(a) and 147(2) of the RMA. The Minister considered the proposals to be of "national significance".

⁵ 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) *Environmental and*

(Papatua, Ngamahau, Waitata and Richmond). This meant that salmon farming became a discretionary rather than prohibited activity at those sites.⁶ 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.⁷ The application for consent for the White Horse Rock site was declined.

[4] Sustain Our Sounds Inc (SOS) appealed to the High Court⁸ 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 2013.⁹ Both SOS and EDS were granted leave to appeal to this Court¹⁰ against Dobson J's decision¹¹ 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 the three remaining sites.¹³

[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

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

⁶ Board of Inquiry *New Zealand King Salmon Requests for Plan Changes and Applications for Resource Consents*, 22 February 2013 [*King Salmon* (Board)].

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 149V.

⁹ *King Salmon* (HC), above n 2.

¹⁰ 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.

¹¹ *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.

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.

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.

[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.

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.¹⁴ Typical water column characteristics for the different trophic states, as measured by total nitrogen, total phosphorus, water clarity and chlorophyll-*a*, were set out by the Board in its decision.¹⁵

[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.¹⁶ The 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".¹⁸

[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.¹⁹ 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.

¹⁴ 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 (oligotrophic to hypertrophic): *King Salmon* (Board), above n 6, at [361].

¹⁵ *King Salmon* (Board), above n 6, at [361].

¹⁶ At [427].

¹⁷ At [362].

¹⁸ 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.²⁶

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 regional council,²⁷ 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),

²⁰ 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].

²¹ At [375].

²² At [378].

²³ At [377] and [378].

²⁴ At [377].

²⁵ At [384].

²⁶ At [384].

²⁷ 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.²⁸

[16] In addition to the matters required under ss 66 and 67, s 32, as it was at the relevant time,²⁹ 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 policies, rules or other methods³⁰ 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.³¹

[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.³² A consent authority may decline the consent or grant the consent with or without conditions.³³ The activity "must comply with the requirements, conditions, and permissions, if any, specified in the [RMA], regulations, plan or proposed plan".³⁴ 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.³⁵

[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

²⁸ Section 66(2)(b).

²⁹ Section 32 was replaced on 3 December 2013 by s 70 of the Resource Management Amendment Act 2013.

³⁰ RMA, s 32(4)(a).

³¹ Section 32(4)(b).

³² Section 87A(4).

³³ Section 87A(4)(a).

³⁴ Section 87A(4)(b).

³⁵ 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 plan³⁶ or a resource consent.³⁷ Salmon feed meets the statutory definition of a “contaminant”.³⁸

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 condition”.³⁹

[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”.

[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”.⁴⁰ In particular, a precautionary

³⁶ As well as a rule in a proposed regional plan for the same region (if there is one).

³⁷ 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.

³⁸ 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. 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.

³⁹ 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).

⁴⁰ Policy 3(1).

approach must be adopted to the use and management of coastal resources vulnerable to climate change.⁴¹

[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 considerations may include the need for high water quality for those activities.⁴² Policy 8 also requires that the social and economic benefits, both national and regional where assessments exist, of aquaculture are taken into account.⁴³ 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.⁴⁴

[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.⁴⁵ 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.⁴⁶

The Marlborough Regional Policy Statement

[26] The Marlborough Regional Policy Statement,⁴⁷ after a discussion of the statutory framework, sets out a number of principles. These are stated to be “an

⁴¹ Policy 3(2).

⁴² Policy 8(a).

⁴³ Policy 8(b).

⁴⁴ Policy 8(c).

⁴⁵ Policy 12(1).

⁴⁶ Policy 23(1)(a), (b) and (c).

⁴⁷ Marlborough District Council *Marlborough Regional Policy Statement* (1995). This was promulgated in 1995 before the Coastal Policy Statement.

attitude of the Council rather than an achievable target with supporting policies and methods”.⁴⁸ One of the principles is to “[i]ncorporate into resource management policy and plans the concepts within Agenda 21⁴⁹ relevant to the sustainable management of natural and physical resources”.⁵⁰ 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”.⁵¹

[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 ecosystem is disrupted by effects from land and water based activities”.⁵² 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.⁵⁴ 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”.⁵⁵ In terms of methods, the incorporation of “controls to avoid, remedy or

⁴⁸ At [3.1].

⁴⁹ 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 Janeiro in 1992.

⁵⁰ *Marlborough Regional Policy Statement*, above n 47, at [3.3.1].

⁵¹ At [3.6.1].

⁵² At [5.3.1].

⁵³ At [5.3.1]. It is also recognised that land based activities affect the marine ecosystem.

⁵⁴ At [5.3.2].

⁵⁵ At [5.3.5].

mitigate the effects of water from water based activities [including marine farming], on marine ecosystems” is required in resource management plans.⁵⁶

[30] The Regional Policy Statement also provides that discharge controls are required “to reduce the discharge of contaminants into coastal water and allow for the safe consumption of plants and fish from the water”.⁵⁷ In addition, research into the cumulative effects of water based activities on water quality must be supported. This applies in particular to marine farming:⁵⁸

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”⁵⁹ and that these purposes include marine farming.⁶⁰ 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”.⁶¹ It is recognised that “[a]ppropriate subdivision, use and development of the coastal environment enables the community to provide for its social, economic and cultural wellbeing”.⁶²

[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.⁶³ Allocation of space for aquaculture in the coastal marine area “will be based on marine habitat sustainability, habitat protection, landscape protection,

⁵⁶ At [5.3.6(a)].

⁵⁷ At [5.3.8].

⁵⁸ At [5.3.6(c)].

⁵⁹ At [7.2.7].

⁶⁰ At [7.2.10(d)].

⁶¹ At [7.2.7].

⁶² At [7.2.8].

⁶³ At [7.2.9(a)].

navigation and safety, and compatibility with other adjoining activities.”⁶⁴ 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”.⁶⁵

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”.⁶⁶

[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.⁶⁷

[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”.⁶⁸ In Zone 2, marine farms are normally a discretionary activity.⁶⁹

⁶⁴ At [7.2.10(d)].

⁶⁵ At [7.2.10(d)].

⁶⁶ Sounds Plan, above n 1, vol 1 at [1.8].

⁶⁷ At [9.2.1] (Objective 1, Policy 1.1(l)).

⁶⁸ At [9.2.2].

⁶⁹ 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 impact”.⁷⁰ Marine ecosystems depend on “uncontaminated seawater, undisturbed seabed or foreshore and healthy land and freshwater ecosystems adjacent to the coast”.⁷¹

[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 harbouring of contaminants.⁷²

[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 Zone 2 and, with certain exceptions, prohibited in Zone 1.⁷³ 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 terrestrial or marine ecosystem)⁷⁴ and taking into account the protection of natural

⁷⁰ At [9.3].

⁷¹ At [9.3].

⁷² At [9.3.2].

⁷³ Sounds Plan, above n 1, vol 2 at [35.4].

⁷⁴ At [35.4.1.1.5.3(b)].

and physical resources so that any proposal maintains the future use potential of any renewable resource⁷⁵ and does not reduce water quality beyond a reasonable zone of mixing.⁷⁶

[39] In terms of standards for marine farms in Zone 2,⁷⁷ 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 located further than 200 m from the mean low water mark.⁷⁸ 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 assessment of its effect on the environment” must be provided,⁷⁹ as well as likely effects on water quality and ecology.⁸⁰ Permits may be granted for a period of up to 20 years only.⁸¹

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 complied with the standards specified.⁸² These include limiting the farming to king salmon⁸³ 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 fish feed discharge up to a total maximum annual discharge of fish feed.⁸⁴ 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

⁷⁵ At [35.4.1.1.5.4(b)].

⁷⁶ At [35.4.1.1.5.4(e)].

⁷⁷ At [35.4.2.9].

⁷⁸ At [35.4.2.9].

⁷⁹ At [35.4.2.9.1.2].

⁸⁰ At [35.4.2.9.1.6(c)].

⁸¹ At [35.4.2.9.2].

⁸² 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.

⁸³ Their scientific name being *Oncorhynchus tshawytscha*.

⁸⁴ 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)].

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,⁸⁶ covering a range of matters, including effects on marine mammals and seabirds.⁸⁷ 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 caucused and produced a joint statement dated 27 August 2012.⁸⁸ Following caucusing, the experts were agreed that the unavailability of baseline data had introduced uncertainty to the interpretation of modelling results and that baseline surveys would need to begin as soon as possible after the issuing of any consent.⁸⁹ The Board agreed that there was a paucity of data presented on the existing water

⁸⁵ In the footnote to [35.4.2.10(g)]– [35.4.2.10(i)].

⁸⁶ At [35.4.2.10.3].

⁸⁷ At [35.4.10.3(f)] and [35.4.10.3(j)].

⁸⁸ *King Salmon* (Board), above n 6, at [360].

⁸⁹ At [370].

quality of the Marlborough Sounds.⁹⁰ 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,⁹² a flushed apatial model⁹³ and a spatially explicit model, the SELFE model.⁹⁴ 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.⁹⁵

[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.⁹⁶

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

⁹⁰ At [373]. The Board noted that additional data did exist but had not been available to the experts.

⁹¹ 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.

⁹² Discussed at [385]–[388].

⁹³ Discussed at [389]–[392].

⁹⁴ Discussed at [393]–[403].

⁹⁵ At [380].

⁹⁶ At [404].

⁹⁷ 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:⁹⁸

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”.⁹⁹ 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.”¹⁰⁰

[48] It had been suggested in evidence that a full food web model should have been produced.¹⁰¹ 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.

⁹⁸ At [406] (emphasis added).

⁹⁹ At [407].

¹⁰⁰ At [412].

¹⁰¹ Discussed at [408]–[410].

¹⁰² At [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 cause mass mortalities in the marine environment.¹⁰³ Such harmful algal blooms are usually natural events, although degraded coastal water quality can promote the development and persistence of blooms.¹⁰⁴

[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”.¹⁰⁵ 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.¹⁰⁶

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, exists in side embayments close to the farms and off the main channels.¹⁰⁷ 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.¹⁰⁸

[53] Dr Henderson, an independent expert, considered that the intense production systems of the proposed salmon farms would lead to further eutrophication of the

¹⁰³ At [413].

¹⁰⁴ Discussed at [413]–[420].

¹⁰⁵ At [421].

¹⁰⁶ At [421].

¹⁰⁷ At [427].

¹⁰⁸ At [431].

Sounds that might be difficult to reverse.¹⁰⁹ Dr Gillespie, an expert called by King Salmon, “expected the rapidly flushed environment of the Sounds to ensure easy reversibility and a rapid return to the trophic condition pre-development following the closure of the salmon farms”.¹¹⁰ 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.”¹¹¹ 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.¹¹² The Board also noted that the conclusions of the experts are based on the present day conditions of the Sounds. It said that:¹¹³

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.¹¹⁴ 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

¹⁰⁹ At [428].

¹¹⁰ At [429].

¹¹¹ At [430].

¹¹² At [430].

¹¹³ At [433].

¹¹⁴ At [434].

receiving environment where rapid mixing and dilution limit the intensity of the immediate effects on the water column and on the benthos [seabed]”.¹¹⁵

Overall conclusion on effects on the water column

[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”.¹¹⁶ 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 increase in nutrients adequately.¹¹⁷

[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 environment cannot be explained away by emphasising that the modelling is conservative”. Nor could it “be simply filled by invoking adaptive management”.¹¹⁸

[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”.¹¹⁹ This meant that the Board could only consider

¹¹⁵ At [436].

¹¹⁶ At [437].

¹¹⁷ At [437].

¹¹⁸ At [438].

¹¹⁹ At [438].

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”.¹²⁰

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”.¹²¹ 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 adopted¹²² in the principal judgment on the EDS appeal and do not repeat that analysis here. The Board also discussed the definition of “most appropriate”.¹²³ 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”.¹²⁴ It said that its conclusion on the contested issues forms the basis for the evaluation.¹²⁵

[60] The contested issues discussed included the economic costs and benefits, the salmon farms and their effects on the seabed,¹²⁶ water column, biosecurity, marine 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 consents to be considered and granted”.¹²⁷ The Board said that this was particularly

¹²⁰ At [439].

¹²¹ At [1156].

¹²² Set out at [1227].

¹²³ At [1197]–[1199].

¹²⁴ As required by s 32(4)(a) of the RMA.

¹²⁵ *King Salmon* (Board), above n 6, at [1209].

¹²⁶ See [304]–[322]. The main concern with regard to the seabed is the potential for reduced biodiversity and significant changes in the sediment chemistry of the seabed underneath the farms and beyond.

¹²⁷ At [1212].

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 the clustering of the proposed plan change sites within three distinct regions.¹³¹

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

¹²⁸ At [1212].

¹²⁹ At [1225].

¹³⁰ See [59] above.

¹³¹ *King Salmon* (Board), above n 6, at [1226].

¹³² At [1239].

¹³³ 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”.¹³⁴

[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 nutrient loading rate’¹³⁵) the assimilative capacity for an expansion of this scale has not been demonstrated”.¹³⁶

[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 threatened status and limited geographic range of the King Shag.¹³⁷

[67] In its overall assessment with regard to this region, the Board said:¹³⁸

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

¹³⁴ At [1245].

¹³⁵ The definition of a critical nutrient loading rate was explained by the Board, at [385], as the “nutrient loading rate which cannot be exceeded without loss of ecosystem integrity”.

¹³⁶ At [1245].

¹³⁷ At [1246].

¹³⁸ At [1252].

high.”¹³⁹ The Board accordingly granted the request with respect to Waitata and Richmond, but declined the request with respect to Kaitira and Tapipi.¹⁴⁰

Queen Charlotte Sounds and Tory Channel

[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.¹⁴¹ 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.¹⁴² The Board approved that plan change.¹⁴³

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”.¹⁴⁴ 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.¹⁴⁵

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

¹³⁹ At [1253].

¹⁴⁰ At [1254].

¹⁴¹ At [1255]–[1264].

¹⁴² At [1265]–[1267].

¹⁴³ At [1275].

¹⁴⁴ 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.¹⁴⁶ 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.¹⁴⁷

[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.¹⁴⁸

[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.¹⁴⁹ King Salmon contends that the adaptive management approach adopted achieved that aim.

[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.¹⁵⁰ 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

¹⁴⁶ See [23] above.

¹⁴⁷ See [29] above. See Marlborough Regional Policy Statement, above n 47, at objective [5.3.2] and policy [5.3.5].

¹⁴⁸ See [34] and [36] above.

¹⁴⁹ *King Salmon* (Board), above n 6, at [1277(c)].

¹⁵⁰ At [454]–[460].

the plan and the consents that were identified at the beginning of this judgment.¹⁵¹ 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.¹⁵²

[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.¹⁵³ 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. After three years of monitoring, however, thresholds could be defined for specific indicators or for an integrated trophic index.¹⁵⁴

¹⁵¹ See [6] above.

¹⁵² The section of the Board decision dealing with the modifications to the proposed conditions of consent preceded the discussion regarding the plan changes.

¹⁵³ *King Salmon* (Board), above n 6, at [444].

¹⁵⁴ At [444].

[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”.¹⁵⁵

[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”.¹⁵⁶ 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 been little dispute as to the setting of the objectives.¹⁵⁷

[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 to whether or not to cut back on production.¹⁵⁸ The Board agreed with Dr Gillespie’s holistic approach.¹⁵⁹ 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.¹⁶⁰

[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

¹⁵⁵ At [448].

¹⁵⁶ At [1288].

¹⁵⁷ At [1291].

¹⁵⁸ At [450].

¹⁵⁹ At [454].

¹⁶⁰ At [455].

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.

¹⁶¹ See [10] above.

¹⁶² *King Salmon* (Board), above n 6, at [456].

¹⁶³ At [432]. The creation of an enrichment index was imposed as a condition in each of the resource consents granted: see Appendices 8–11.

¹⁶⁴ At [460].

¹⁶⁵ At [459].

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 necessary, by the Council through the review process.¹⁷¹

¹⁶⁶ *King Salmon* (Board), above n 6, at [1341]–[1342].

¹⁶⁷ At [1340].

¹⁶⁸ At [1337].

¹⁶⁹ At [1338].

¹⁷⁰ At [1338].

¹⁷¹ 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 to tip the balance against granting the application.”¹⁷²

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 be undertaken to establish baseline information.¹⁷³ 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 provided to the peer review panel for its review and assessment.¹⁷⁴ The peer review panel is required to review the baseline report, including the recommended water quality standards and integrated trophic index,¹⁷⁵ and make a recommendation to the Council for its approval.¹⁷⁶

[89] Importantly, if the “baseline plan” is not approved by the Council, then the consent will lapse after three years from the date of the consent’s commencement.¹⁷⁷ If the resulting “baseline report” is not approved by the Council, no structure(s) can

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 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).

¹⁷² At [1356]–[1357].

¹⁷³ 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 recommendation of the peer review panel: at [465].

¹⁷⁴ Condition [68(a)].

¹⁷⁵ The creation of an enrichment index was imposed as a condition in each of the resource consents granted (referred to as an “integrated trophic index” in the conditions): see condition [44(a)]. An 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].

¹⁷⁶ At [1287].

¹⁷⁷ Condition [1].

be placed on the marine farms.¹⁷⁸ 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.¹⁸⁰ Before any increase in the feed levels can be implemented, the farm must have operated at the current maximum level for at least three years, the results must indicate that the enrichment stages¹⁸¹ 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 set in the consent and does not exceed the relevant standards for each zone.¹⁸² 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 make recommendations and then it must be submitted to the Council.¹⁸⁵ 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

¹⁷⁸ Condition [60].

¹⁷⁹ At Appendix 9.

¹⁸⁰ Condition [35].

¹⁸¹ 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”.

¹⁸² See condition [37].

¹⁸³ See conditions [37(c)] – [44].

¹⁸⁴ See conditions [56(d)] and [67(e)].

¹⁸⁵ See condition [68(b)].

¹⁸⁶ See condition [60].

[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

¹⁸⁷ See conditions [40(a)]--[40(c)].

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 approve the plan changes.¹⁸⁸ 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 insufficient information, even if further information may later become available.¹⁸⁹ As an alternative, SOS submits that the Board's decision was inconsistent with the only reasonable conclusion from the evidence.¹⁹⁰

[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

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].

¹⁹⁰ *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

[101] The Board accepted that there was a lack of baseline information.¹⁹² 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 coastal waters through the salmon farms, then this would be an ecological disaster.¹⁹³ 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

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.

¹⁹² *King Salmon* (Board), above n 6, at [461].

¹⁹³ See [10] above.

¹⁹⁴ 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].

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.¹⁹⁵ 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.¹⁹⁶

[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.

¹⁹⁵ *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].

¹⁹⁶ 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.

¹⁹⁷ At [179].

¹⁹⁸ At [54].

[105] The Board referred to a number of cases where the adaptive management technique had been applied in New Zealand.¹⁹⁹ 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:²⁰⁰

- (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] 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 strong proposed adaptive management conditions of consent”.²⁰¹

Guidance notes on the Coastal Policy Statement

[107] The guidance note to Policy 3 of the Coastal Policy Statement prepared by the Department of Conservation deals with the precautionary approach and adaptive management.²⁰² 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

¹⁹⁹ 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.

²⁰⁰ *King Salmon* (Board), above n 6, at [181].

²⁰¹ At [1278].

²⁰² 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)”.²⁰³ It said that adaptive management recognises that:²⁰⁴

... 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.²⁰⁵

International commentary

[109] In 2007, the International Union for Conservation of Nature (IUCN)²⁰⁶ approved a set of guidelines on the application of the precautionary principle.²⁰⁷ These included a guideline on using an adaptive management approach, which it is said should be used unless strict prohibitions are required.²⁰⁸ Any such approach should include the following core elements:²⁰⁹

²⁰³ At 7.

²⁰⁴ At 7–8.

²⁰⁵ At 8.

²⁰⁶ 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>.

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*

- (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:²¹⁰

... 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.²¹¹

[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 are required.²¹²

Declaration on Environment and Development A/Conf/151/26 (Vol I) (1992).

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

²¹⁰ At 10.

²¹¹ At 10.

²¹² At 10.

New Zealand cases

[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 habitat”, with uncertainty as to the effects of the farm on the dolphins.²¹³ 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 dolphins, allowing a cautious adaptive management strategy.²¹⁴ As noted by the Court:²¹⁵

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.²¹⁶ The Court said that it should not put an applicant in a position of anticipating and researching all hypotheses before making an application.²¹⁷ However, the applicant “must establish sufficient of a case to persuade the court to grant consent on the basis of allowing the adaptive management processes to be embarked upon”.²¹⁸

²¹³ *Clifford Bay Marine Farms Ltd v Marlborough District Council*, above n 199.

²¹⁴ 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.

²¹⁵ *Clifford Bay Marine Farms Ltd v Marlborough District Council*, above n 199, at [157].

²¹⁶ *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.

²¹⁷ At [228], with reference to the Environment Court decision in *Director-General of Conservation v Marlborough District Council*, above n 214, at [40].

²¹⁸ 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 process”.²¹⁹ 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.²²⁰

[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 enforceable.”²²¹ In that particular case, the Court said that the management plans needed more detail.²²²

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 of uncertainty.²²³ The more significant and the more uncertain the threat, the greater the degree of precaution required.²²⁴

[118] The Judge also said that prudence would suggest that some margin for error should be retained.²²⁵ One means of ensuring this is through an adaptive management approach, whereby the development is expanded as the extent of

²¹⁹ At [226].

²²⁰ At [226].

²²¹ *Lower Waitaki Management Society Inc v Canterbury Regional Council*, above n 199, at [381].

²²² At [555].

²²³ *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133, (2006) 146 LGERA 10 at [161].

²²⁴ At [161].

²²⁵ At [162].

uncertainty is reduced.²²⁶ The Judge said that an adaptive management approach might involve the core elements we set out at [109] above.²²⁷

[119] In *Environment East Gippsland Inc v VicForests*²²⁸ 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 precautionary principle does not require avoidance of all risks.²²⁹ 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?
- (e) Is the measure alleged to be required proportionate to the threat in issue?

²²⁶ At [163].

²²⁷ 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).

²²⁸ *Environment East Gippsland Inc v VicForests* [2010] VSC 335.

²²⁹ At [203].

²³⁰ At [204].

²³¹ At [205].

²³² At [212].

[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 made some further comments on adaptive management. He said that:²³⁴

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)* involved the construction of a winter snow road through a national park.²³⁵ 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.²³⁶ 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

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.

²³⁶ At [105]–[107].

economically useful projects”.²³⁷ It was said that the precautionary principle states that a “project should not be undertaken if it *may* have 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 (Attorney General)* involved an iron sands mine project in Alberta.²³⁹ 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”.²⁴⁰

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” approach.²⁴¹ The Board did not explicitly consider this question but rather seemed to

²³⁷ 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.

²³⁸ At [24]. It is unnecessary to decide whether the Canadian approach is the proper articulation of the precautionary principle in the New Zealand context.

²³⁹ *Pembina Institute for Appropriate Development v Canada (Attorney General)* 2008 FC 302.

²⁴⁰ At [32].

²⁴¹ 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*

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 were satisfactory except in the very short term and for minor bays.²⁴³ 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.²⁴⁴ Under the consent conditions, they will only be reached if water quality (and the seabed) will be protected.²⁴⁵

[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 farms²⁴⁶ that were approved (10,000 tonnes per annum) are less than the combined initial maximum feed levels (12,000 tonnes per annum) for the five farms²⁴⁷ 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].

²⁴² See [57] above.

²⁴³ See [45] above.

²⁴⁴ See [46] above.

²⁴⁵ See [90] above.

²⁴⁶ 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, Tapipi 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 some bays.²⁴⁸ Further, the Board also accepted the evidence of the majority of the experts that a trophic shift in the Sounds was unlikely.²⁴⁹ While recognising the potential for less disastrous shifts, this was to be dealt with in the conditions.²⁵⁰

[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:²⁵¹

- (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 (ecological disaster) was grave.²⁵² The extent of the risk is difficult to assess because of the uncertainties as to the baseline information and the lack of modelling for

²⁴⁸ *King Salmon* (Board), above n 6, at [421].

²⁴⁹ At [431].

²⁵⁰ At [431] and [432]. See [88]–[93] above.

²⁵¹ 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 [124]–[134].

²⁵² See [10] above.

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 decision making.²⁵⁴ 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”.²⁵⁶

[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 factors identified by the Board²⁵⁷ 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;

²⁵³ See [52] above.

²⁵⁴ See [23] above.

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

²⁵⁶ At [380].

²⁵⁷ See [105] above.

- (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.

[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 there was a lack of baseline information with regard to water quality.²⁵⁸ That deficiency will, however, be remedied before the farms are stocked and no structure can be placed on the farms if the Council does not approve the baseline report.²⁵⁹ 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.²⁶⁰

[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.²⁶¹ 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

²⁵⁸ See [42] above.

²⁵⁹ See [89] above.

²⁶⁰ See [30] above.

²⁶¹ *King Salmon* (Board), above n 6, at [1277](b).

developed.²⁶² 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.²⁶³

[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.²⁶⁴ SOS expressed concern about the efficacy in 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.²⁶⁵

[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.

[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

²⁶² At [454].

²⁶³ See [88] and [89] above.

²⁶⁴ See [92] above.

²⁶⁵ See [53] above for a discussion as to expert evidence on reversibility.

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 relation to the sequencing of the matters for decision before it.²⁶⁸ The Board followed the correct sequence by first considering the requested plan changes²⁶⁹ and then the five remaining resource consent applications.²⁷⁰ The Board noted, when considering the plan changes, that it did so "aware of" the conditions proposed,²⁷¹ 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.

²⁶⁶ *Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development*, above n 189, at [16] and [22].

²⁶⁷ 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.

²⁶⁸ *King Salmon (Board)*, above n 6, at [73(e)] and [101]–[102].

²⁶⁹ At [1156]–[1279].

²⁷⁰ At [1280]–[1342].

²⁷¹ At [1277(b)].

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 an essential component of the Board's decision.²⁷²

[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

²⁷² 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 quality issues. It also took a proper regional approach²⁷³ to the issue of water quality, considering the effect of the farms on water quality on a Sounds-wide basis.²⁷⁴

[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 salmon farming to continue consistently with the RMA,²⁷⁵ 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”.²⁷⁶ SOS acknowledges that there were assessment criteria in the plan but points out that these are guidelines only. Further,

²⁷³ See *Environmental Defence Society Inc v New Zealand King Salmon Co Ltd*, above n 12, at [170].

²⁷⁴ See *King Salmon (Board)*, above n 6, at [406] and [427].

²⁷⁵ 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.

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 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

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.

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,²⁷⁸ 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 of information and analysis that will be required of applicants.²⁷⁹ 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 criteria relating to Zone 3,²⁸⁰ including the requirement to assess the adverse effects of any discharge to coastal water, the provision for staged and monitored increases in

²⁷⁸ As well as a rule in a proposed regional plan for the same region (if there is one).

²⁷⁹ See [33] above.

²⁸⁰ See [40] and [41] above.

feed discharge and the necessity for adaptive management approaches to the management of the seabed and water quality.²⁸¹

[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.²⁸²

[157] We accept that public participation is a key tenet of decision making under the RMA with many public participatory processes.²⁸³ 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 enhance the quality of the decision making.²⁸⁴ 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.

²⁸¹ 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.

²⁸² 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.

²⁸³ 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.

²⁸⁴ *Discount Brands Brands Ltd v Westfield (New Zealand) Ltd*, above n 276, at [46].

[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.

Solicitors:

Dyhrberg Drayton, Wellington for Appellant
Russell McVeagh, Wellington for First Respondent
DLA Phillips Fox, Auckland for Second Respondent
DLA Phillips Fox, Wellington for Third Respondent
Crown Law Office, Wellington for Fourth Respondents

**BOARD OF INQUIRY
NEW ZEALAND KING SALMON REQUESTS FOR PLAN CHANGES AND
APPLICATIONS FOR RESOURCE CONSENTS**

IN THE MATTER of the Resource Management Act 1991 (the RMA)

AND

IN THE MATTER of a referral to a Board of Inquiry under Section 147 of the Act of requests for plan changes and applications for resource consents by The New Zealand King Salmon Company Limited

The Board of Inquiry

Retired Environment Judge Gordon Whiting (Chairperson)

Environment Commissioner Helen Beaumont (Board Member)

Mr Edward Ellison (Board Member)

Mr Mark Farnsworth (Board Member)

Mr Michael Briggs (Board Member)

For the Board: Retired Environment Judge/Chairman Gordon Whiting,
sitting alone

Date: 14 March 2013

MINUTE NO. 8 OF THE BOARD DATED 14 MARCH 2013

[1] In the Final Report and Decision of the Board of Inquiry, dated 22 February 2013, the Board made the following determination regarding the concurrent resource consents for the four sites where the Plan Change request was approved:¹

5. Because of the complexity of the Conditions of Consent and the number of iterative changes that have occurred since the commencement of the hearing, leave is given to the Marlborough District Council to apply within one week from receipt of this decision for amendments to correct any minor mistakes or defects.

¹ Final Report and Decision, at B.5

[2] Following the issue of the Decision, the Marlborough District Council (the **Council**) carried out a review of the consent conditions. During its review the Council identified a number of matters that it considered were of a minor nature that they considered required amendment.

[3] The changes sought to the consent conditions for each site were outlined in attached tables to a Memorandum of Counsel for the Council dated 7 March 2013. The table contained a brief explanation as to the reason why the respective changes were sought.

[4] I, as Chairman of the Board, have been delegated authority from the Board to consider the proposed amendments, and if appropriate, make them. I considered the tables attached to the Memorandum of Counsel dated 7 March 2013 and made all the amendments sought as they clearly fell within the ambit of minor mistakes or defects and were appropriate to make. These amendments were contained in an Addendum dated 13 March 2013.

[5] Late on 13 March 2013, and received by me on 14 March 2013, I received a 35th Memorandum of Counsel from New Zealand King Salmon (NZKS). That memorandum had attached to it a reproduction of the Council tables but with NZKS's comments in red.

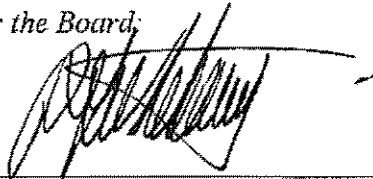
[6] It is my view that the Board became functus officio when it issued its Final Report and Decision on 22 February 2013, save for the window of opportunity offered to the Council to seek amendments to correct any minor mistakes or defects of the conditions of consent.

[7] Accordingly, the 35th Memorandum of Counsel for NZKS will not be considered by the Board.

DATED at AUCKLAND this

14th day of March 2013

For the Board:



R G Whiting
Retired Environment Judge/Chairman

**BOARD OF INQUIRY
NEW ZEALAND KING SALMON REQUESTS FOR PLAN CHANGES AND
APPLICATIONS FOR RESOURCE CONSENTS**

IN THE MATTER of the Resource Management Act 1991 (the RMA)

AND

IN THE MATTER of a referral to a Board of Inquiry under Section 147 of the Act of requests for plan changes and applications for resource consents by The New Zealand King Salmon Company Limited

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Mr Edward Ellison (Board Member)

Mr Mark Farnsworth (Board Member)

Mr Michael Briggs (Board Member)

For the Board: Retired Environment Judge/Chairman Gordon Whiting,
sitting alone

Date: 13 March 2013

**ADDENDUM TO FINAL REPORT AND DECISION AMENDING MINOR
MISTAKES OR DEFECTS TO CONDITIONS OF CONSENT**

[1] In the Final Report and Decision of the Board of Inquiry, dated 22 February 2013, the Board made the following determination regarding the concurrent resource consents for the four sites where the Plan Change request was approved:¹

5. Because of the complexity of the Conditions of Consent and the number of iterative changes that have occurred since the commencement of the hearing, leave is given to the Marlborough District Council to apply within one week from receipt of this decision for amendments to correct any minor mistakes or defects.

¹ Final Report and Decision, at B.5

[2] Following the issue of the Decision, the Marlborough District Council carried out a review of the consent conditions. As pointed out in the Council's Memorandum,² the version of the consent conditions in the Final Decision was the first time that the conditions had been separated into four separate sites, and also all the condition numbering (and subsequent cross-references) changed to reflect a more logical and workable numbering system. It was mainly because of the complexity of this process that the Board gave the Council one week to reply for amendments to correct any minor mistakes or defects.

[3] The Council during its review identified a number of matters that are minor mistakes or defects that they considered required amendment. The changes sought to the consent conditions for each site were outlined in attached tables to a Memorandum of Counsel for the Council dated 7 March 2013. The table contained a brief explanation as to the reason why the respective changes were sought.

[4] The Council accordingly sought that the changes as set out in the attached table to the memorandum be made to the final version of the consent conditions that will be incorporated into the Council system and made available to all parties to this process.

[5] I, as Chairman of the Board, have been delegated the authority of the Board to consider the proposed amendments, and if appropriate, make them.

[6] I have considered carefully the tables attached to the Memorandum of Counsel dated 7 March 2013, and have made all of the amendments sought as they clearly fall within the ambit of *minor mistakes or defects*.

[7] Accordingly, I have prepared a tracked change version of the amendments, together with a clean version of the amendments to Appendix 8 (Papatua Farm), Appendix 9 (Waitata Farm), Appendix 10 (Richmond Farm), and Appendix 11 (Ngamahau Farm).

[8] A copy of this Addendum is to be forwarded to the following parties:

[a] The Council;

[b] The applicant, King Salmon; and

² Memorandum of Counsel, 7 March 2013

[c] The Minister of Conservation.

[9] The Addendum, together with the tracked change version and the clean version of the amended conditions of consent is to be posted on the EPA/King Salmon website. A hard copy is to be made available to any party who requests a hard copy of the Addendum.

DATED at AUCKLAND this 13th day of March - 2013

For the Board:



R G Whiting
Retired Environment Judge/Chairman

BOARD OF INQUIRY

New Zealand King Salmon Plan Change Requests and Applications for Resource Consents

APPENDIX 10

Final Conditions of Consent for Richmond
as amended by Addendum dated 13 March 2013
(Clean version)

NEW ZEALAND KING SALMON

CONDITIONS OF CONSENT

Resource Consent for Richmond Farm

Coastal Permit

To establish and operate a marine farm and undertake marine farming of **King Salmon** (*Oncorhynchus tshawytscha*), including:

- a) All associated structures, activities in the coastal marine area, occupation of the common marine and coastal area, disturbance of or damage to the foreshore or seabed, and other ancillary activities and structures;
- b) All associated discharges to water, but excluding the discharge of human sewage;
- c) All associated discharges to air of odour and from diesel and petrol powered equipment
- d) The associated taking and use of coastal water.

Duration of this coastal permit – 35 years from the date of commencement of this consent

This consent is subject to the following Conditions.

Lapse

- 1. This consent shall lapse three years from the date of commencement. The consent shall not lapse if the Baseline Plan required under Condition 56 is provided to and approved by the Council in accordance with Condition 60 and the monitoring required by the Baseline Plan is confirmed to have commenced.

Occupancy and Activity

Occupation and Activity Area

- 2. The occupancy and activity shall be limited to the area shown on **Figure 1** attached to this consent. The marine farm layout shall be generally in accordance with the layout shown on **Figure 1**.

Advice Note: While the occupancy and activity associated with the marine farm and marine farming will occur within the area specified in Condition 2, some effects arising from the activities may be experienced beyond the boundary of this area. For example, the marine farm will be able to be seen and heard from beyond the boundary of the area, and some waste material will travel beyond the boundary.

- 3. The consented area may be exclusively occupied to the extent necessary to undertake the activity and ensure the safety and security of the marine farm and all its structures. In particular, the physical space occupied by all surface structures, including all net pens and barges (refer Conditions 14 and 15), may be exclusively occupied; and all mooring lines extending from the structures to the seabed and the anchoring systems with the seabed may exclusively occupy the physical space that they occupy, but not the water space above, between, and below the lines (other than as necessary to ensure the safety and security of the lines and the anchoring systems).

Salmon Stock

4. All farmed salmon shall be from roe sourced in New Zealand.

Noise

5. All marine farming shall be conducted so as to ensure that noise arising from such activities does not exceed the following noise limits when measured no closer than 250m from any marine farm surface structure:

0700 hours – 2200 hours Monday to Friday and 0700 hours – 1200 hours Saturday	55 dBA L ₁₀
On any day between 0700 hours and 2200 hours	No L _{max} limit
At all other times including any public holiday	45 dBA L ₁₀ , and 75 dBA L _{max}

All marine farming shall be conducted so as to ensure that noise arising from such activities does not exceed the following noise limits when measured at the Notional Boundary of dwellings existing at [insert date of Plan Change becoming operative]:

0700 hours – 2200 hours Monday to Friday and 0700 hours – 1200 hours Saturday	50 dBA L ₁₀ and 0700 hours – 1200 hours Saturday
On any day between 0700 hours and 2200 hours	No L _{max} limit
At all other times including any public holiday	40 dBA L ₁₀ , and 75 dBA L _{max}

6. Noise shall be measured in accordance with NZS 6801:2008. Adjusted levels shall be determined in accordance with NZS 6802:2008. Any construction activities will meet standards specified in NZS 6803:1999.
7. The following activities shall be exempt from the above noise standard:
 - a. Noise generated by navigational aids, safety signals, warning devices, or emergency pressure relief valves;
 - b. Noise generated by emergency work arising from the need to protect life or limb or prevent loss or serious damage to property or minimise or prevent environmental damage; or
 - c. Noise ordinarily generated by the arrival and departure of vessels servicing the marine farm.
8. The use of outdoor radios or similar external speakers on the marine farm is prohibited.

Submerged Artificial Lighting

9. The consent holder shall ensure that the submerged artificial lighting set up in each net pen will not be comprised of any more than the luminance of nine 1000 watt halide underwater lights.

King Shags - Buffer Area and Management Plan

10. As shown on **Figure 2** a buffer area of 100m shall be maintained from the King Shag roosting site in the vicinity of the marine farm, as at the date of the commencement of this consent, within which no ship movements associated with the marine farm shall occur.
11. The consent holder shall, in consultation with the Department of Conservation and the members of the Tangata Whenua Panel (refer to condition 77) prepare and implement a King Shag Management Plan (KSMP). The consent holder shall engage an independent person (or persons) with appropriate knowledge and expertise to prepare the KSMP. The objective of the KSMP shall be to ensure the establishment and operation of the marine farm does not result in a reduction in the population of King Shag in the Marlborough Sounds, with particular regard to the Duffers Reef Shag colony. This plan shall be provided to the Council prior to the first

discharge of feed to the marine farm, with copies being provided to the Department of Conservation and the members of the Tangata Whenua Panel.

The KSMP shall require:

- a Surveys of the numbers of King Shag in the Marlborough Sounds no less than once every three years. The first survey shall be undertaken prior to the first discharge of feed to the marine farm. All survey results are to be provided to the Council, Department of Conservation and the Tangata Whenua Panel within three months of completion of the survey, and posted on the King Salmon website.
- b In the event that a statistically significant decline of King Shag numbers ($p < 0.05$) has occurred since the previous survey, the consent holder shall investigate whether the operation of the marine farm is causing or contributing to the decline.
- c A response mechanism is to be implemented if the marine farm is found to be causing or contributing to the decline in King Shag numbers. Such mechanism to include but not be limited to immediate changes to marine farm management practices including a reduction in feed or stocking levels.

Structures

Location of Structures for Benthic Monitoring Purposes

12. A corner of (one of) the first marine farm net pen(s) established on the marine farm shall be located on the point nominated for that purpose in Condition 20 and located at one end of either row of the salmon net pens. So long as there remain marine farm net pens on the marine farm, net pens shall be located so as to extend contiguously from the nominated corner in either direction.

Advice Note: Condition 12 above is necessary to assist benthic monitoring.

Design and Size of Structures

13. Marine farm net pens shall be steel framed net pens.
14. The maximum area of marine farm net pen surface structures within the marine farm (other than temporary net pens for transferring salmon to or from the marine farm) shall be **1.5 hectares**.
15. Only one feed/accommodation barge (the "barge") shall be located on the marine farm. The "barge" shall have a maximum footprint of 280m² and a maximum height of 7.5m above water level.
16. The exterior design of the feed / accommodation barge (the "barge") shall be generally in accordance with the design produced by HMA, King Salmon Feed Barge Drawing SK09, 9th August 2012.

Colours and Materials for Structures

17. The feed/accommodation barge (the "barge"), including its roof and all ancillary features (such as drain pipes), shall be finished in non-reflective materials and painted in a dark colour (such as Karaka Green). Dark coloured curtains, blinds or shutters are to be provided for the windows of rooms used for staff accommodation.
18. All exterior above-water metal structures (other than the surface of walkways) are to be painted or otherwise finished in dark recessive colours.
19. Black or dark colour is to be used for predator nets, grower nets and bird netting which are normally above-water. Lighter colours may be used for bird netting if trials find this to be more effective.

Council to be Informed of Installation of Structures

20. The Council shall be notified that structures have been installed on the marine farm, and provided with a plan showing the location of those structures, within one month following the initial placement of the first structure(s) at the marine farm, and within one month of the addition of any further structures. When the Council is notified of the initial installation of the first structure(s) on the marine farm, it shall also be informed of the co-ordinates of the starting corner of the marine farm for the purposes of Condition 12.

Marine Farm Navigational Lighting and Marking

21. The placement of marine farm navigational lighting and marking shall be approved by the Harbourmaster under his or her Maritime Delegation from the Director of Maritime Safety pursuant to sections 200, 444(2) and 444(4) of the Maritime Transport Act 1994.

Structural Engineering Design, Installation and Maintenance

22. The design, including the design loading, for the anchoring and mooring warp system shall be specified by a suitably qualified and experienced Chartered Professional Engineer (with appropriate peer review) to cater for the maximum wave loading, and maximum tidal range and currents. The design report and plans shall be provided to the Council, prior to the initial placement of the first structure(s) at the marine farm. A suitably qualified and experienced Chartered Professional Engineer shall supervise the installation of, and certify that, the anchoring system has been installed in accordance with the design report and plans.
23. During installation of the anchoring and mooring warp system, a test pullout loading shall be undertaken of a representative screw anchor, in order to confirm the anchor pullout capacity, in accordance with the Engineering Feasibility Report dated September 2011, prepared by OCEL Consultants Limited and lodged with the application. A report describing the results of the test, and confirming the pullout capacity of the representative screw anchor shall be prepared by the Chartered Professional Engineer specified in Condition 22 who supervises the installation of the anchoring system, and provided to the Council.
24. The anchoring and mooring warp system shall be monitored and maintained in accordance with a "Marine Farm Mooring Monitoring and Maintenance Schedule" prepared or reviewed and accepted by a suitably qualified and experienced Chartered Professional Engineer and provided to the Council. This Schedule shall be provided to the Council prior to the initial placement of the first structure(s) at the marine farm. The monitoring shall include periodic monitoring of the actual mooring loads caused by the hydrodynamic forces on the marine farm by tidal currents and waves, designed to demonstrate that the design loading on the anchors and mooring warps is not exceeded. If monitoring shows that design loadings have been exceeded, the causes of the loading exceedance shall be investigated and rectified.
25. The mooring system shall be designed and maintained such that the maximum loading, under all normal tidal and weather conditions, on any mooring is the lesser of 20% of the anchor pullout capacity determined in accordance with Condition 23, or 20% of the mooring line tension capacity after allowing for the deleterious effects of splices and ties.
26. The structure and mooring system shall be designed such that, under all design cases, the failure of a critical component under the design loading case does not result in the progressive break-up of the structure or progressive failure of the mooring system.
27. Beyond 20m from any surface structure, no mooring line shall be within 4m of the surface of the water.
28. The consent holder shall maintain all structures and fixtures to ensure that they are restrained, secure and in working order at all times, so as to not create a navigational hazard.

Navigational Information and Safety

29. One month prior to the initial placement of the first structure(s) at the marine farm, the consent holder shall notify the Harbourmaster, Land Information New Zealand and the Ngati Koata Trust Board (or its successors) that the structures are to be placed within the area,

and provide them with a copy of the Farm Layout Plan in Figure 1 and a copy of the plan required by Condition 20. Any subsequent additions or disestablishment of the structures shall be notified in a similar manner.

30. Following the initial placement of the first structure(s) at the marine farm, the consent holder shall:
 - a ensure that a notice alerting mariners to the presence and location of the marine farm is broadcast on Marlborough Radio as directed by the Harbourmaster;
 - b prepare and implement an education strategy to alert and inform Marlborough Sounds boat users of the presence and location of the marine farm, its structures and associated mooring lines. The strategy shall be prepared in conjunction with the Harbourmaster prior to the initial placement of the first structure(s) at the marine farm and will cover a period of 2 years from the initial placement of the first structure(s) at the marine farm.

31. The consent holder shall, prior to the initial placement of first structure(s) at the marine farm, prepare a **Navigation Risk Reduction and Management Plan**. The Navigation Risk Reduction and Management Plan shall provide details of the risk controls (design criteria, processes and procedures) to be put into place to operate the marine farm in compliance with Conditions 22-30 and minimise the potential for adverse navigation effects due to the operation of the marine farm. The Navigation Risk Reduction and Management Plan shall be reviewed and updated to reflect any changed circumstances and at not more than 5 yearly intervals. The initial preparation of the Navigation Risk Reduction and Management Plan and its review shall be undertaken in consultation with the Harbourmaster.

Removal of Marine Farm Structures

32. The consent holder shall remove all structures associated with the farm from the site under the following circumstances:
 - a if the marine farm has not been operated by the consent holder for a period of 2 years, and there is no evidence from the consent holder during that period that it intends to continue to maintain and use the marine farm; or
 - b the term of the consent for marine farm structures has expired and the consent holder has not lodged an application to renew the consent for those structures, or if such an application has been lodged the consent has been refused and all rights of appeal exhausted.

Discharge of Feed, Marine Fouling and Antifouling to Coastal Water

Feed Discharge Limits

33. Only extruded pellets or similar shall be fed at the marine farm.

34. The annual tonnage of nitrogen that may be discharged to the marine farm is to be limited to 7% of the tonnage of feed that may be discharged in accordance with Condition 35 and Table 1 (i.e. if up to 3000 tonnes of feed can be discharged then up to 210 tonnes of nitrogen can be discharged).

35. The annual tonnage of feed that may be discharged to the marine farm is limited as follows:
 - a The initial feed discharged (in at least each of the first three years) shall not exceed the Maximum Initial Feed Discharge specified in **Table 1**;
 - b In any year, the tonnage of feed discharged shall not exceed the Maximum Feed Discharge specified in **Table 1**;
 - c Any increase in feed discharged (from one year to the next) shall not exceed the Maximum Increase in Feed Discharge specified in **Table 1**;
 - d Whether or not the annual tonnage of feed discharge may increase above the Maximum

Initial Feed Discharge, or may reach the Maximum Feed Discharge, is dependent upon compliance with Condition 36 below.

36. The annual tonnage of feed discharged to the marine farm may only be increased above the Maximum Initial Feed Discharge specified in Condition 35, or above any subsequent allowable annual feed discharge level, if the following requirements are met:
- a the requirements of Condition 37 .
 - b the requirements of Conditions 38-44 (relating to compliance with Environmental Quality Standards (EQS)); and
 - c any specifications for marine farm management in the **Marine Environmental Monitoring and Adaptive Management Plan (MEM-AMP)** for that year (Condition 65).

Table 1: Maximum initial and maximum annual feed discharges, and maximum increases in annual feed discharges (from one year to the next)

Farm	Maximum Initial Feed Discharge (tonnes per annum)	Maximum Increase in Feed Discharge (tonnes per annum)	Maximum Feed Discharge (tonnes per annum)
Richmond	1500	500	4000

Notes

- 1 The annual feed discharge may exceed the relevant maximum feed discharges specified in **Table 1** 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 specified in **Table 1**.
- 2 There is no limit to any decrease in the annual tonnage of feed discharge.

37. There shall be no increase in the annual tonnage of feed discharged to the marine farm unless the following requirements are met:
- a The marine farm shall have operated at or near ($\pm 15\%$) its current maximum annual feed discharge level for at least 3 years; and
 - b Annual monitoring results of the Enrichment Stage (ES) from the most recent two successive years shall be comparable, based on the monitoring undertaken in Condition 66, assessed as follows. The Enrichment Stage (ES) from the annual monitoring, assessed in accordance with Condition 40, shall statistically not be significantly more than the ES from the previous year, based on the average result for all sampling stations (**Figure 3**) within each compliance Zone. This requirement must be met for each of the Environmental Quality Standards (EQS) compliance Zones for which ES are specified in Condition 39; and
 - c The marine farm complies with all the EQS specified in Condition 40 and is less than the relevant maximum EQS for each Zone.

Environmental Quality Standards (EQS)

38. The discharge of feed, marine biofouling and antifouling at the marine farm shall meet the requirements of Conditions 39-44 relating to Environmental Quality Standards (EQS) at all times. Any breach of these requirements shall, as soon as practicable, be notified to the Council and the members of the Tangata Whenua Panel (refer to Condition 77).

Environmental Quality Standards (EQS) –Seabed Deposition

39. EQS Compliance Zones shall be defined for the marine farm, in accordance with Figure 3 and the dimensions and areas contained in Table 2.

Table 2: Maximum distances of EQS Compliance Zone 2/3 and Zone 3/4 boundaries from the nearest edge of the marine farm net pens; and the maximum total affected areas of Zones 1, 2 and 3.

Farm	EQS Compliance Zone boundary dimensions (maximum distances)		EQS Compliance Zone Area (Maximum area)
	Distance from nearest net pen to Zone 2/3 boundary	Distance from nearest net pen to Zone 3/4 boundary	Total area of Zones 1, 2 and 3 (the footprint)
	Metres (m)	Metres (m)	Hectares (ha)
Richmond	60	250	10

- a The above Zones shall be fixed.
- b Notwithstanding, Condition 39a, the size and shape of the above Zones will be reviewed (to enable comparison with the zone dimensions contained in Table 2), after 3 years of operation at the initial Feed Discharge level in Table 1, as part of the Annual Report (refer to Condition 67.) for that year. The dimensions and area of the Zones may be amended as a result of a recommendation in the Annual Report, provided that the total area of Zones 1, 2 & 3 does not increase by more than 10% from the area specified in Table 2.
40. At all times, the seabed beneath and in the vicinity of the marine farm shall comply with the EQS specified in Table 3. Zone dimensions and area for compliance purposes shall be defined in accordance with Condition 39. Enrichment Stages (ES) shall be defined in accordance with Figure 4 and Table 5.

Table 3: Environmental Quality Standards (EQS) – Seabed Deposition

Zone	Compliance Monitoring Location	EQS
Zones 1 & 2 – beside and beneath the net pens	Measured beneath the edge of the net pens – “Pen” Stations on Figure 3	ES ≤ 5.0 No more than one replicate core with no taxa (azoic), No obvious, spontaneous out-gassing (H ₂ S/methane), Bacteria mat (<i>Beggiatoa</i>) coverage not greater than localized/patchy in distribution.
Zone 3 – near to the net pens	Measured at the Zone 2/3 Boundary Stations on Figure 3	ES ≤ 4.0 Infauna abundance is not significantly higher than at corresponding “Pen” Station Number of taxa >75% of number at relevant / appropriate reference Station(s)
Zone 4 – outside the footprint area	Measured at the Zone 3/4 Boundary Stations on Figure 3	ES < 3.0 Conditions remain statistically comparable with relevant / appropriate reference Station(s)

ES exceedance

- a In the event that the ES is up to and including 0.3 above the EQS for the 1/2 Pen, 2/3 or 3/4 Zone Boundary Stations in Table 3, the consent holder shall in the year following receipt of confirmed notice of such an ES result through its monitoring (and allowing one additional month from any initial notice to provide for re-testing), reduce the amount of feed discharged to the marine farm by 20% of the amount discharged in the year before.
- b In the event that the ES is greater than 0.3 and not greater than 0.6 above the EQS for the 1/2 Pen, 2/3 or 3/4 Zone Monitoring Locations in Table 3, the consent holder shall in the year following receipt of confirmed notice of such an ES result through its monitoring (and allowing one additional month from any initial notice to provide for re-testing), reduce the amount of feed discharged to the marine farm by 40% of the amount discharged in the year before.
- c In the event that the ES is greater than 0.6 above the EQS for the 1/2 Pen, 2/3 or 3/4 Zone Monitoring Locations in Table 3, the consent holder shall, within four months from the date the consent holder receives confirmed notice of such an ES result through its monitoring (and allowing one additional month from any initial notice to provide for re-testing), remove stock and fallow the site until compliance is achieved. Upon any re-stocking, the consent holder shall ensure that the amount of stock shall be designed to ensure that the ES levels required in Table 3 for the 1/2 Pen, 2/3 and 3/4 Zone Boundary Stations will be met in the following year.

Environmental Quality Standards (EQS) - Copper and Zinc Levels

41. Composite samples of sediments beneath and beside the net pens (measured beneath the edge of the net pen – Pen Stations on **Figure 3**) shall be assessed against the ANZECC (2000) ISQG-Low criteria for copper and zinc, as a first-tier trigger level.
42. Where total metals analysis of composite sediment samples exceeds the ANZECC (2000) ISQG-Low criteria for copper and zinc, the MEM-AMP (refer Conditions 65-66) shall include a hierarchical schedule of monitoring of increasing focus and intensity and, ultimately, management action based on the decision hierarchy contained in **Figure 5**.

Environmental Quality Standards (EQS) – Water Column

43. The marine farm shall be operated at all times in such a way as to achieve the following Water Quality Objectives in the water column:
 - a To not cause an increase in the frequency, intensity or duration of phytoplankton blooms (i.e. chlorophyll *a* concentrations ≥ 5 mg/m³) [Note: water clarity as affected by chlorophyll *a* concentrations is addressed by this objective];
 - b To not cause a change in the typical seasonal patterns of phytoplankton community structure (i.e. diatoms vs. dinoflagellates), and with no increased frequency of harmful algal blooms (HAB's) (i.e. exceeding toxicity thresholds for HAB species);
 - c To not cause reduction in dissolved oxygen concentrations to levels that are potentially harmful to marine biota [Note: Near bottom dissolved oxygen under the net pens is addressed separately through the EQS – Seabed Deposition];
 - d To not cause elevation of nutrient concentrations outside the confines of established natural variation for the location and time of year, beyond 250m from the edge of the net pens;
 - e To not cause a statistically significant shift, beyond that which is likely to occur naturally, from a oligotrophic/mesotrophic state towards a eutrophic state;
 - f To not cause an obvious or noxious build-up of macroalgal (eg sea lettuce) biomass [Note: to be monitored in accordance with Condition 66h].
44. The marine farm shall be operated at all times in such a way as to comply with Water Quality Standards (WQS), and associated responses, for the near-farm and wider-scale water column environment of Pelorus Sound. Two tiers of response to potential breaches of WQS shall be set, the first to trigger further monitoring and the second to require reduced

stocking on the marine farm following the next harvest of salmon on the marine farm. The WQS and responses shall be established as follows:

- a For the first three years of marine farm operation, initial WQS for chlorophyll a (chl a), dissolved oxygen (DO), Total Nitrogen (TN) concentrations and an integrated trophic index to achieve the qualitative Water Quality Objectives a, c, d, and e of Condition 43 shall be specified in the **Baseline Report** (Condition 64) and may be reviewed in the **Annual Report** at the end of the first and second years of marine farm operation (Condition 67).
- b The initial WQS shall be reviewed in the **Annual Report** at the end of the third year of marine farm operation (Condition 67) and WQS specified to achieve the Water Quality Objectives a - e of Condition 43. These WQS shall be reviewed through the Annual Report every three years thereafter unless any other **Annual Report** (Condition 67) necessitates earlier review.
- c WQS shall be specified at the locations specified in Condition 63c.
- d In the **Baseline Report** and each **Annual Report**, a hierarchy of responses to potential breaches of the WQS shall be specified, including:
 - i. A first level response requiring further monitoring and/or analysis to determine whether the operation of the marine farm is causing the relevant WQS not to be achieved; and
 - ii. A second level response requiring a plan of action as soon as practicable, with clear timeframes to reduce effects on the water column and achieve full compliance with the WQS, through reduced stocking on the marine farm following the next harvest of salmon on the marine farm.

Discharge of Greywater to Coastal Water

45. Greywater may be discharged from the staff facilities on the marine farm, including from showers, wash basin, kitchen and laundry facilities. The greywater discharge shall not exceed 1 m³ per day from the marine farm. The consent holder shall ensure that an appropriate system is operated at the marine farm to determine the volume of greywater discharge. The results shall be provided to the Council not less frequently than once a year. The consent holder shall notify the Council of any non-compliance with this condition, and explain the reason for it, within one month of the consent holder becoming aware of the non-compliance.

General

46. At all times the consent shall be exercised in accordance with the following General Conditions 47-84 and any documents required under those conditions.

Exercise of this Consent in accordance with Information Provided

47. The exercise of this consent shall be undertaken:
 - a generally in accordance with the following documents (where applicable): NZ King Salmon, Sustainably Growing King Salmon, Resource consent application, dated October 2011; except as amended within the evidence presented by witnesses for NZ King Salmon during the hearing of the resource consent applications, and except where amendments are required by the conditions of this consent, provided that:
 - b in the event of differences of conflict between the information described in the documents and these conditions, the conditions shall prevail.

Odour Management

48. The consent holder shall, prior to the first discharge of feed to the marine farm, have in place, and implement, operational procedures to implement best management practices to:
 - a ensure that, as far as practicable, filling of the 'mort' bin (storing dead fish) does not occur

during still air conditions;

- b establish target times for cleaning the grower nets once they have been raised, to minimise the potential for odour from dirty nets;
- c ensure that, as far as practicable, there is only one grower net being lifted and cleaned at one time, to minimise the potential for odours from this activity.

Marine Mammal and Shark Management

49. The consent holder shall, in consultation with the Department of Conservation, and the members of the Tangata Whenua Panel (refer to Condition 77) prepare, implement and comply with a Marine Mammal and Shark Management Plan. This plan shall be provided to the Council prior to the initial placement of the first structure(s) at the marine farm.

The objectives of the Marine Mammal and Shark Management Plan shall be to:

- a minimise the adverse effects on marine mammals and protected sharks from the operation of the marine farm;
- aa minimize the interaction of sharks with the marine farms;
- b determine how the operation of the marine farm will be managed adaptively to avoid, remedy and mitigate adverse effects on marine mammals and protected sharks;
- c ensure that the best practicable option is adopted to avoid entanglement or entrapment of marine mammals and sharks, having regard to best international practice, ongoing research and allowing for technological improvements in net design and construction;
- d establish a monitoring programme to assess the effectiveness of the **Marine Mammal and Shark Management Plan**; and
- e establish reporting and response procedures in the event of marine mammal and protected shark entrapment, entanglement, injury or death.

50. The **Marine Mammal and Shark Management Plan** shall include, but not be limited to, the following details:

- a minimising the potential for sharks and marine mammals to enter the marine farm net pens through the use of predator-resistant materials in net pen construction and predator exclusion nets enclosing the marine farm net pen structures and extending sufficiently high above the water around the marine farm to exclude such predators, but no higher;
- b limiting the maximum mesh size of any predator netting to 200mm (the internal measurement when the net is stretched in the direction of the long diagonal of the meshes);
- c ensuring predator nets are sufficiently tensioned and maintained at that tension at all times so as to avoid entanglement of marine mammals and large sharks;
- d ensuring the twine diameter of the predator net is of a sufficient gauge to:
 - i. be detected acoustically by dolphins; and
 - ii. avoid the entanglement of marine mammals or large sharks;
- e predator net maintenance requirements, including:
 - i. standards and scheduling;
 - ii. repairing holes and tears immediately;
 - iii. avoiding predator nets being left open over night or for extended periods of time;
 - iv. avoiding forming entrapment pockets in predator nets;
- f procedures for auditing marine farm security following any marine mammal gaining access beyond a predator net, and taking all practical steps to correct any faults found;
- g procedures to ensure visual surface marine mammal surveys are conducted prior to major net maintenance work and that nets are not opened, removed or shifted if dolphins are observed within 2km of the marine farm;
- h procedures for capture and release of any entrapped or entangled marine mammal and protected shark species;
- i procedures for the retrieval, storage and transport of dead marine mammals and protected shark species for formal identification and autopsy purposes;
- j staff training requirements, including identification of protected shark species;
- k ensuring there is no feeding of marine mammals and sharks;
- l ensuring dead fish are removed promptly from the fish pens;
- m ensuring anchor warps are maintained under sufficient tension to prevent possible entanglement of cetaceans and large sharks;

- n ensuring all lines associated with the marine farm are secured at all times, and that any loose lines are secured and/or retrieved promptly;
- o ensuring that all nets are removed from marine farm structures that are left fallow, untended or are abandoned;
- p ensuring all net and cordage debris, plastic strapping and other marine farm, domestic or other non-biodegradable waste is collected, retained and disposed of at an approved solid waste facility onshore, and that if any loose debris does enter the water around the marine farm, it is retrieved from the seabed, water column or foreshore promptly;
- q reporting requirements to the Marlborough District Council and the Department of Conservation, and in particular:
 - i. a minimum of annual summary reports of all incidents involving marine mammals and protected sharks becoming entangled or entrapped at a marine farm;
 - ii. immediate reporting (within 24 hours) of any incident where a marine mammal or protected shark may be injured or killed;
 - iii. reporting (within one week) of actions undertaken to remedy any unforeseen events such as a marine mammal or protected shark becoming entrapped or entangled at a marine farm.

The Marine Mammal and Shark Management Plan shall be reviewed, to ensure best practice, by an appropriate qualified person at 5-yearly intervals and provided to the Council.

Biosecurity Management

- 51. The consent holder shall prepare and implement a Biosecurity Management Plan with the objectives of minimising the risk of spreading marine pests and disease agents as a result of the establishment and operation of the marine farm. The consent holder shall consult with the Tangata Whenua Panel (refer to Condition 77) in the course of preparing the Biosecurity Management Plan. The reasonable costs of this participation will be met by the consent holder.
- 52. The **Biosecurity Management Plan** shall include on-farm, as well as vector-based, management measures to reduce the risk of spread, including:
 - a Methods to manage vectors that could spread marine pests and disease agents to or from marine farms;
 - b Routine practices to manage fouling of nets and structures;
 - c A passive surveillance regime to facilitate early detection of unusual or suspicious organisms associated with marine farm structures;
 - d An effective disease surveillance regime for salmon stock;
 - e The use of husbandry and harvesting methods consistent with best practice for the minimisation of disease risk;
 - f On-farm management measures to prevent, control or contain biosecurity risks to the extent practicable.

The Biosecurity Management Plan shall also specify the parties to be notified should any new biosecurity risk from marine pests or disease agents be identified at the farm. These parties shall include the members of the Tangata Whenua Panel (refer to Condition 77) and landowners and tourism / recreation businesses within 1km of the farm.

- 53. The **Biosecurity Management Plan** shall be reviewed, to ensure best practice, by a person or persons appropriately qualified in marine biosecurity and aquatic animal diseases, and provided to the Council prior to the initial placement of the first structure(s) at the marine farm. The Plan shall be reviewed at least annually by the consent holder to ensure that the management practices specified in the Plan are consistent with Condition 51 and 52. Any revisions to the Plan shall be provided to the Council within one month following completion of the revisions.

Marine Environmental Monitoring, Adaptive Management and Reporting

- 54. The marine environmental monitoring, adaptive management and reporting to be undertaken in accordance with Conditions 56-67 shall address, but not be limited to, the following potential effects from the operation of the marine farm:
 - a Effects of deposition on the seabed and foreshore;

- b Effects on water quality.
55. The **Purposes** of the marine environmental monitoring, adaptive management and reporting to be undertaken in accordance with Conditions 56-67 shall be:
- a To ensure that the discharge of feed, marine biofouling and antifouling at the marine farm meets the requirements of Conditions 38- 44 relating to Environmental Quality Standards (EQS) at all times;
 - b To ensure that the operation of the marine farm does not result in adverse effects to notable biological features within 1 km of the marine farm including any areas of blue cod habitat or any areas identified by the Tangata Whenua Panel (refer to Condition 77 as customary kaimoana gathering areas, as a result of biodeposition or nutrient enrichment. For purposes of this condition “notable biological features” shall include but not be limited to areas of significant reef, tubeworm mounds and hydroid colonies;
 - c To ensure that the operation of the marine farm does not result in seabed enrichment in areas of natural deposition in neighbouring bays to the marine farm including any areas in those bays identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas;
 - d To confirm that the operation of the farm does not result in any adverse effects on macroalgal biomass on intertidal and shallow rocky reefs, including any reefs identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas, as a result of biodeposition or nutrient enrichment;
 - e To obtain information regarding farm-specific, near-farm mixing properties in order to provide a context for achieving the WQS set under Condition 44;
 - f To confirm that the magnitude of effects from submerged artificial lighting on night-time feeding activity by fish, seabirds and marine mammals in and around the illuminated pens are generally as described in the evidence of Dr C Cornelisen presented to the hearing by the Board of Inquiry.
 - g To confirm the average feed loss levels from the marine farm, including how the feed loss varies over time;
 - h To improve understanding of the size and composition of aggregations of pelagic and demersal fish beneath the marine farm; and of the potential for key heavy metal and organohalogenated contaminants of public health interest in long-lived benthic-pelagic fish species, of recreational, commercial or customary interest, residing in the near vicinity of the marine farm.
56. The following plans and reports shall be prepared by the consent holder, in order to address the potential effects set out in Condition 54 and achieve the Purposes in Condition 55.
- a Prior to the initial placement of the first structure(s) at the marine farm, a **Baseline Plan** to specify the monitoring and analysis to be undertaken in order that baseline information can be obtained and analysed prior to the initial placement of the first structure(s) at the marine farm;
 - b Prior to initial placement of the first structure(s) at the marine farm, a **Baseline Report** which presents the results from the monitoring and analysis undertaken in accordance with the **Baseline Plan**, makes recommendations for the development of the marine farm and the monitoring to be undertaken in the first year of operation of the marine farm, and specifies the initial WQS and responses in accordance with Condition 44;
 - c For each year of operation of the marine farm, a **MEM-AMP** to provide a summary of the relevant recommendations from the previous year’s **Baseline Report** or **Annual Report**, and specify the proposed monitoring and marine farm management actions for the following year. The **MEM-AMP** may be prepared as one Plan jointly with the **MEM-AMP(s)** for other marine farms managed by the same consent holder.

- d For each year of operation of the marine farm, an **Annual Report** to provide the details of the monitoring results from the previous year, an analysis of the monitoring results (including in terms of compliance with the EQS), and recommendations for changes to the monitoring and marine farm management actions for the following year. The **Annual Report** may be prepared jointly with **Annual Reports** for other marine farms managed by the same consent holder.
57. The consent holder shall engage an independent person (or persons) with appropriate knowledge and expertise to prepare the **Baseline Plan** and **Baseline Report**, the **MEM-AMP** and the **Annual Report**, in accordance with the conditions of this consent.
58. Prior to finalising the plans and reports specified in Condition 56, the consent holder shall provide them in draft form to the Peer Review Panel for its review, assessment, recommendations and reports, in accordance with Conditions 68 - 74. The consent holder shall have particular regard to any recommendations from the Peer Review Panel in finalising these plans and reports. The plans and reports shall identify how the consent holder has had regard to any recommendations from the Peer Review Panel, if any recommendations have not been adopted and the reasons why.
59. Prior to finalising the plans and reports specified in Condition 56, the consent holder shall provide them to the members of the Tangata Whenua Panel (refer to Condition 77), and provide that Panel with the opportunity to:
- a Receive and discuss with the consent holder the results of all monitoring and analysis required by the conditions of this consent;
 - b Review and provide input to the preparation of the **Baseline Plan** and **Baseline Report**, the **MEM-AMP** and the **Annual Report**, required by Condition 56.
60. Having had particular regard to any recommendations from the Peer Review Panel, the consent holder shall provide the following final plans and reports to the Council for its approval in terms of the conditions of this consent¹:
- a The **Baseline Plan**;
 - b The **Baseline Report**; and
 - c Any **Annual Report** which includes:
 - i. any change in any WQS;
 - ii. any adjustment to the areas and dimensions of the seabed EQS Compliance Zones; or
 - iii. any increase in the maximum annual tonnage of feed that may be discharged to the marine farm

The monitoring and analysis required in terms of the **Baseline Plan** shall not be commenced until the **Baseline Plan** has been approved by the Council.

No structure(s) shall be placed on the marine farm until the **Baseline Report** has been approved by the Council.

No change may be made to any WQS, no adjustment may be made to the area or dimensions of any Seabed EQS Compliance Zone, and there shall be no increase in annual tonnage of feed that may be discharged to the marine farm, until the relevant aspects of the **Annual Report** that includes that/those recommendation(s) is approved by the Council.

Following its approval by the Council, the consent holder shall provide copies of the relevant final plans and reports to the Tangata Whenua Panel (refer Condition 77).

¹ The approval of Marlborough District Council in respect of an **Annual Report** shall be limited to those aspects of the **Annual Report** that are specified in Condition 60c.

61. Other than as specified in Condition 60, having had particular regard to any recommendations from the Peer Review Panel, the consent holder shall provide the following plans and reports specified in Condition 56 to the Council and the Tangata Whenua Panel (refer Condition 77), in accordance with the following timing:
- a The first **MEM-AMP** – following the provision of the **Baseline Report** to the Council and prior to the first discharge of feed to the marine farm;
 - b Each subsequent annual **MEM-AMP** - by 31 July each year.
 - c The **Annual Report** - by 30 April each year.
62. The consent holder shall undertake the monitoring, analysis, marine farm management and other actions in accordance with the **Baseline Plan** and the current provisions of the **MEM-AMP** for that year. The monitoring, and analysis shall be undertaken by a person or persons with appropriate knowledge and expertise.
63. The **Baseline Plan** shall include, but not be limited to, the following:
- a Quantitative and qualitative mapping of soft-sediment habitats and communities across the occupancy and activity area specified in Condition 2; and across the area of EQS compliance Zones 1, 2 & 3 specified in Conditions 39 and 40, including replicate data for the primary environmental variables from each of the proposed on-going monitoring stations and at appropriate reference stations;
 - b A synthesis and review of all available existing water quality data relevant to the enrichment status of Pelorus Sound, in order to provide a historical baseline of water quality conditions;
 - c Water column monitoring for nutrient (NH₄-N, NO₃-N, NO₂-N, DRP, Si, TN and TP) and chlorophyll a concentrations, phytoplankton composition and biomass, salinity, clarity, temperature, turbidity and dissolved oxygen (DO) at the following locations :
 - i. Near-farm locations within 1km from the net pens;
 - ii. Locations within Pelorus Sound that are expected to have the greatest potential for marine farm-related cumulative enrichment effects (particularly where marine farms are located in proximity to one another and/or as indicated by spatially explicit nutrient modelling or other modelling considered necessary by the Peer Review Panel in accordance with Condition 70a);
 - iii. Locations further away from marine farms or groups of marine farms in Pelorus Sound that are expected to have progressively lesser marine farm-related cumulative enrichment effects (as indicated by spatially explicit nutrient modelling or other modelling considered necessary by the Peer Review Panel in accordance with Condition 70a);
 - iv. Locations that are identified as being of high ecological value
 - v. Within the inner Sounds; and
 - vi. Near the entrances to Cook Strait.

The above water column data shall be collected at least monthly at these locations over one year (this shall be required for up to two years if recommended by the Peer Review Panel) prior to the first discharge of feed to the marine farm, provided that this frequency could be reduced in whole or in part, depending on the availability of existing water column data (which can suitably substitute). The appropriateness of any reduction is to be specifically considered by the Peer Review Panel (as part of its review of the **Baseline Plan** under Condition 70).

The monitoring stations for this water column monitoring shall be established as long-term monitoring stations for the purposes of undertaking the long-term water column monitoring specified in Condition 66c. The precise location of the long-term monitoring stations and the range of specific nutrient parameters monitored may, however, be adjusted over time in response to monitoring results (in accordance with Condition 66c) and/or in response to modelling considered necessary by the Peer Review Panel in accordance with Condition 70a.

- d Quantitative and qualitative baseline monitoring (for potential biodepositional effects following marine farm operation) of habitats that support notable biological features within 1km of the marine farm ("reef" monitoring), including any areas of blue cod habitat or any areas identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas, as well as comparable habitats at appropriate reference sites. The monitoring shall be undertaken two times during one year. For the purposes of this condition "notable biological features" shall include but not be limited to areas of significant reef, tubeworm mounds and hydroid colonies.
- e Quantitative and qualitative baseline monitoring (for potential seabed enrichment effects following marine farm operation) at soft sediment sites in neighbouring bays near to, and removed from, the marine farm, chosen based on potential exposure to increased biodeposition including any areas in those bays identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas. This monitoring shall be undertaken at a selection of representative soft sediment sites, which may also double as reference sites for near-farm monitoring (see Condition 63a), and shall be undertaken two times during one year. *[The same monitoring may be undertaken for a group of marine farms, as it will provide baseline information for all marine farms in that group].*
- f Quantitative and qualitative baseline monitoring (for potential effects on macroalgal biomass from biodeposition and/or nutrient enrichment) of ephemeral macroalgae (e.g. *Ulva* sp.), benthic algal films) and perennial algae (e.g. *Hormosira banksii*) percentage cover and the abundance of grazing invertebrates (e.g. cats' eyes snails (*Turbo smaragdus*) and Kina (*Evechinus chloroticus*) on intertidal and shallow subtidal rock reefs, including any reefs identified by the Tangata Whenua Group (refer to Condition 77) as customary kaimoana gathering areas. Monitoring shall be undertaken two times during one year at the following locations:
 - i. At or near locations expected to have the greatest potential for marine farm-related cumulative enrichment effects (either within 1km of the marine farm or in neighbouring bays);
 - ii. At or near locations further away from the marine farm or groups of marine farms in locations that are expected to have less marine farm-related cumulative enrichment effects.

64. The **Baseline Report** shall include the following:

- a Presentation of the results from, and analysis of, the baseline monitoring required by the **Baseline Plan**, including the results of the synthesis and review of all available existing water quality data relevant to the enrichment status;
- b Any recommendations as to the specific location or installation of marine farm anchoring structures;
- c Any recommendations regarding ongoing monitoring following the initial placement of the first structure(s) at the marine farm and the first discharge of feed to the marine farm;
- d As required by Condition 4.4, specification of initial WQS and associated hierarchy of responses to breaches of the WQS. Prior to specifying the initial WQS and responses, the consent holder shall consult with the Council and the Department of Conservation.

65. The **MEM-AMP** shall specify the following:

- a A summary of the recommendations from the **Baseline Report** (in the case of the first **MEM-AMP** for the marine farm) or from the previous year's **Annual Report** regarding marine farm management actions and monitoring (including any increases or decreases in the tonnage of feed to be discharged).
- b A description of all monitoring to be undertaken for the coming year (detailed monitoring requirements are set out in Condition 66). This shall include the methods, locations and frequency of the monitoring, including any control / reference sites. This shall give effect to

any recommendations contained in the **Annual Report** for amendments to the dimensions and areas of the EQS compliance Zones specified in **Table 2** and/or to the location of the representative compliance monitoring Stations specified in **Table 3**, following the review of the results of the monitoring undertaken after 3 years of operation at the Initial Feed Discharge level in **Table 1**.

- c All monitoring and management actions to be undertaken at the marine farm in order to meet the requirements of Conditions 38-44 (including any increases or decreases in the tonnage of feed to be discharged).
- d Any other actions to be undertaken in order to address the potential effects from the operation of the marine farm set out in Condition 54 and achieve the Purposes in Condition 55, including to avoiding, remedying or mitigating any significant adverse effects from the operation of the marine farm identified in the previous year's **Annual Report**.

66. The **MEM-AMP** shall include the following monitoring:

- a The level of sampling and range of environmental variables (e.g. sediment grain size, infauna, percent organic matter, redox & sulfides) to be measured annually at each of the near-farm benthic (soft-sediment) monitoring stations in order to determine compliance with the EQS – Seabed Deposition in Condition 40. This includes appropriate farm-specific reference stations, which may also double as far-field soft-sediment monitoring sites (see Condition 66f);
- b Monitoring in order to determine compliance with the EQS – Copper and Zinc Levels required by Conditions 41 and 42 using a decision-tree approach (see Figure 4), whereby monitoring effort increases in focus and intensity as trigger levels (representing the increased likelihood of ecological effects) are reached.
- c Monitoring in order to determine compliance with the WQS in Condition 44. Throughout the term of the consent this shall include long-term water column monitoring for nutrient (NH₄-N, NO₃-N, NO₂-N, DRP, Si, TN and TP) and chlorophyll a concentrations, phytoplankton composition and biomass, salinity, clarity, temperature, turbidity and dissolved oxygen (DO) at locations stipulated in Condition 63c. The precise location of the long-term monitoring stations and the range of specific nutrient parameters monitored may, however, be adjusted over time in response to monitoring results and/or in response to modelling considered necessary by the Peer Review Panel in accordance with Condition 70c. This monitoring is to be undertaken at least four times per year with at least two surveys occurring during mid-summer periods of highest salmon feed discharge rates and at least two surveys occurring periods associated with winter/spring and/or autumn diatom maxima.
- d Monitoring intensity for a-c above shall be dependent upon the age of the marine farm, how stable the feed discharge levels have been over the last 12 months, and whether or not the marine farm has been compliant with the EQS over the last 2 years (and the nature of any breaches).
- e Targeted water column surveys to quantify the localised effect of the marine farm on surrounding water quality, for the purpose of obtaining information regarding marine farm-specific, near-farm mixing properties in order to provide a context for evaluating compliance with the WQS in Condition 44. This shall involve a series of fine-scale surveys in the vicinity of the marine farm (within 1km from the net pens) measuring: salinity, clarity, temperature, chlorophyll a, turbidity, dissolved oxygen (DO), nutrient concentrations (NH₄-N, NO₃-N, NO₂-N, DRP, Si, TN and TP), phytoplankton composition and biomass along transects that move away from the marine farm and span potential nutrient gradients. The surveys shall be undertaken at least twice per year and continued for at least two years after the marine farm has reached stable maximum feed discharge levels and no future increases are proposed.
- f Annual quantitative and qualitative monitoring for potential depositional effects at soft sediment sites in neighbouring bays near to, and removed from, the marine farm, in order to ensure that the marine farm is not resulting in seabed enrichment in areas of natural deposition in neighbouring

bays. The sites shall be chosen based on potential exposure to increased biodeposition including any areas in those bays identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas. This monitoring shall be undertaken at a selection of representative soft sediment sites, which may also double as reference sites for near-farm monitoring (see Condition 66a), and shall be continued until at least 5 years after the marine farm has reached a stable level of feed discharge and no future increases are proposed [*The same monitoring may be undertaken for a group of marine farms, as it will assess the cumulative effects from all marine farms in that group.*].

- g Annual quantitative and qualitative monitoring of habitats that support notable biological features under or within 1km of the net pens ("reef" monitoring), including any areas of blue cod habitat or any areas identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas, in order to ensure that the operation of the marine farm is not causing adverse effects to these features as a result of biodeposition. Monitoring shall also include comparable habitats at appropriate reference sites. This monitoring shall be continued until at least 5 years after the marine farm has reached a stable level of feed discharge and no future increases are proposed. For the purposes of this condition "notable biological features" shall include but not be limited to areas of significant reef, tubeworm mounds and hydroid colonies. [*This condition only applies if notable biological features are located within 1km of the marine farm.*].
- h Annual quantitative and qualitative monitoring of ephemeral macroalgae (e.g. *Ulva* sp.), benthic algal films) and perennial algae (e.g. *Hormosira banksii*) percentage cover and the abundance of grazing invertebrates (e.g. cats' eyes snails (*Turbo smaragdus*) and *Kina* (*Evechinus chloroticus*) on intertidal and shallow subtidal rocky reefs including any reefs identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas in order to ensure that the operation of the marine farm does not cause an obvious or noxious build-up of macroalgal (e.g. sea lettuce) biomass. Monitoring shall be undertaken at the following locations:
 - i. At or near locations expected to have the greatest potential for marine farm-related cumulative enrichment effects (either within 1km of the marine farm or in neighbouring bays);
 - ii. At or near locations further away from the marine farm or groups of marine farms in locations that are expected to have less marine farm-related cumulative enrichment effects.

This monitoring shall be continued until at least 5 years after the marine farm has reached a stable level of feed discharge and no future increases are proposed.

- i After 3 years of operation at the Initial Feed Discharge level in Table 1, a repeat of the baseline monitoring undertaken in accordance with Condition 63a, in order to review the dimensions and areas of the EQS compliance Zones in Table 2, Condition 39, and the location of the compliance monitoring Stations specified in Table 3, Condition 40. This monitoring may incorporate the compliance monitoring for the EQS –Seabed Deposition in terms of Condition 66a for that year.
- j One-off monitoring of the effects of submerged artificial lighting on the biology of the water column (e.g. zooplankton composition and abundance), when the submerged artificial lights are fully operational, to compare with the assessment of effects of submerged artificial lighting undertaken at the Clay Point marine farm, in order to confirm that the effects are similar.
- k Quarterly monitoring over 2 years by scientifically advised marine farm staff of the effects from submerged artificial lighting on changes in night-time feeding activity by fish, seabirds and marine mammals in and around the illuminated net pens, in order to confirm that the magnitude of these effects are generally as expected.
- l Monitoring of feed loss at a range of appropriate times across a full production cycle, once the marine farm has reached a stable level of feed discharge and no future increases are proposed, to establish feed loss levels and their variability through time.
- m Seasonal monitoring of the size and composition of aggregations of pelagic and demersal

fish beneath the marine farm at a range of appropriate times across one year, once the marine farm has reached a stable level of feed discharge and no future increases are proposed.

67. The **Annual Report** shall include, but not be limited to, the following:
- a A statement as to the tonnage of feed and nitrogen discharged each month over the previous year.
 - b The results of all the monitoring undertaken in the previous year.
 - c A comprehensive analysis of the results of that monitoring, including:
 - i. whether the monitoring information obtained is fit for the purpose of determining the effects from the operation of the marine farm and for determining whether compliance with the EQS specified in Conditions 38-44 is achieved;
 - ii. whether there are any evident trends in terms of effects from the operation of the marine farm.

EQS – Deposition on the Seabed

- d An assessment and conclusions as to whether compliance with the EQS specified in Condition 40 has, or has not, been achieved for the previous year.
- e Recommendations as to any amendments to management practices (including any increases or decreases in the tonnage of feed to be discharged) at the marine farm in order to ensure that the EQS in Condition 40 are complied with.

EQS – Copper and Zinc Levels

- f An assessment and conclusions as to whether compliance with the ANZECC (2000) ISQG-Low criteria for copper and zinc set out in Condition 41 has, or has not, been achieved for the previous year.
- g Where the ANZECC (2000) ISQG-Low criteria for copper and zinc have been exceeded, recommendations as to any amendments to monitoring and management actions at the marine farm, in accordance with Condition 42.

EQS – Water Column

- h An assessment and conclusions as to whether the WQS specified in Condition 44 have, or have not, been complied with, for the previous year.
- i Recommendations as to any amendments to management practices (including any increases or decreases in the tonnage of feed to be discharged) at the marine farm, in order to ensure that the WQS specified in Condition 44 continue to be complied with. In the case of non-compliance with the WQS, recommendations as to monitoring, analysis and/or management responses in accordance with Condition 44d.

Review of the Dimensions and Areas of the EQS Compliance Zones in Table 2

- j Following 3 years of operation at the Initial Feed Discharge level in **Table 1**, a review of the results of the monitoring undertaken in terms of Condition 66i. This shall include, a comparison of those monitoring results with the dimensions and areas of the EQS compliance Zones specified in **Table 2**, Condition 39. In accordance with Condition 39b, the Annual Report shall specify any recommendations for amendments to the dimensions and areas of the EQS compliance Zones in **Table 2**, Condition 39, and to the location of the representative compliance monitoring Stations specified in **Table 3**, Condition 40, for the subsequent years;

Determination of WQS

- k The Annual Report will include the relevant reviews of the near farm and wider-scale water column and ecosystem monitoring results and of WQS and associated hierarchy of responses to breaches of the WQS as specified in condition 44. Prior to specifying amendments to the WQS and responses, the consent holder shall consult with the Council and the Department of Conservation.

Other Recommendations

- l Where identified as a result of the monitoring, any recommendations for other actions to be undertaken to address potential effects from the operation of the marine farm set out in Condition 54 and to achieve the Purposes in Condition 55, including to avoid, remedy or mitigate any significant adverse effects from the operation of the marine farm.
- m Any other recommendations for amendments to the monitoring programme for the following year.

Peer Review Panel

68. The consent holder shall establish, at its own cost, a Peer Review Panel, for the following purposes:

- a to review and provide recommendations to the Council and the consent holder in respect of the adequacy and appropriateness of the **Baseline Plan** and the **Baseline Report** required by Conditions 63 and 64, prior to their provision to the Council for its approval;
- b to review and provide recommendations to the Council and the consent holder in respect of the adequacy and appropriateness of any aspect of an **Annual Report** (required under Condition 67) which relates to:
 - i. any change in any WQS;
 - ii. any adjustment to the areas and dimensions of the seabed EQS Compliance Zones; or
 - iii. any increase in feed discharge to the marine farm;

prior to its provision to the Council for its approval²; and

- c to review and provide recommendations to the consent holder in respect of the adequacy and appropriateness of the **Marine Environmental Monitoring and Adaptive Management Plans (MEM-AMP)** and **Annual Reports** (other than those aspects specified in b above) required under Conditions 65-67, prior to their provision to the Council.

The Peer Review Panel shall be established in time to review the **Baseline Plan**.

69. The Peer Review Panel shall comprise:

- a not less than three persons, at least two of whom shall be scientists who, between them, have experience across the following scientific areas – marine seabed and water column ecology – and evaluating enrichment-related effect – and who are recognised by their peers as having such experience, knowledge and skill. Prior to nominating any person for membership of the Peer Review Panel, the consent holder shall seek comment on that person from the Department of Conservation. These persons shall be approved in writing

² The approval of Marlborough District Council in respect of an **Annual Report** shall be limited to those aspects of the **Annual Report** that are specified in Condition 68b.

by the Council before they commence their review functions.

70. The Peer Review Panel shall report to the consent holder and/or the Council (as required by Condition 68) on the following matters:
- a its review of the **Baseline Plan**, its assessment as to the adequacy of the existing water quality data and monitoring proposed to achieve the requirements of Condition 63 and whether the actions and methods are in accordance with good practice, and any recommendations regarding changes to the monitoring proposed or any requirement for further modelling;
 - b its review of the **Baseline Report**, its assessment as to whether it adequately responds to the results of the monitoring undertaken in terms of the **Baseline Plan** and achieves the requirements of Condition 64 and any recommendations regarding changes to the conclusions and recommendations contained in the **Baseline Report**. This shall specifically include a review of, and any recommendations for changes to, the initial WQS required by Condition 44a and the hierarchy of responses to breaches of the WQS;
 - c its annual review of the **MEM-AMP**, its assessment as to the adequacy of the monitoring and marine farm management and other actions proposed to achieve the requirements of Conditions 65-66 and whether the actions and methods are in accordance with good practice, and any recommendations regarding changes to the monitoring proposed or any requirement for further modelling;
 - d its annual review of the **Annual Report**, its assessment as to whether it adequately responds to the results of the monitoring undertaken in terms of the previous **MEM-AMP** and achieves the requirements of Condition 67 and any recommendations regarding changes to the conclusions, recommendations and other matters specified in the **Annual Report**. This shall specifically include a review of, and any recommendations for changes to, the WQS required by Condition 44b and the hierarchy of responses to breaches of the WQS;
 - e prior to any increase in the annual tonnage of feed discharge to the marine farm, confirmation that the requirements of Conditions 36-37 are complied with, and any associated recommendations regarding changes to the monitoring proposed or any requirement for further modelling;
 - f confirmation that the requirements of Conditions 38 - 44 have been complied with;
 - g any other matters it considers appropriate in fulfilling its purposes in terms of Condition 68 above;
 - h any recommendations as to whether it considers any particular condition(s) should be subject to review in accordance with Sections 128 and 129 of the Act.
71. As part of undertaking its role in accordance with Condition 70, the Peer Review Panel shall provide an opportunity for the Tangata Whenua Panel (refer to Condition 77) to submit information to the Peer Review Panel that relates to the matters it is required to consider and for the Tangata Whenua Panel to meet and speak at least annually with the Panel prior to the Panel finalising its report to the consent holder on the **Baseline Report** and the **Annual Report** in terms of Condition 70b and 70d.
72. Copies of all reports from the Peer Review Panel shall be provided to the consent holder, the Council the members of the Tangata Whenua Panel (refer to Condition 77). These shall be public documents and shall be published on the consent holder's website within four weeks of its receipt by the consent holder.
73. The consent holder shall, in relation to the Peer Review Panel:
- a develop protocols regarding appointment processes, including resignations, replacements and reappointments; the holding of meetings; provision of information and technical advice; administrative support; and other necessary and related procedures.

Such protocols are to be developed in consultation with the Council ;

- b maintain and support the ongoing purposes and work of the Panel, as required by the conditions of these consents;
 - c meet the reasonable costs of undertaking its functions in accordance with the conditions of these consents.
74. The Peer Review Panel shall determine its own processes and procedures for conducting its meetings as it sees fit. The frequency of meetings shall be determined by the consent holder in consultation with the Peer Review Panel, and shall be sufficient to enable the Peer Review Panel to adequately undertake its duties in a timely manner in terms of Condition 70 above.

Social Impact Management

75. The consent holder shall develop the following management plans and provide them to the Council prior to the initial placement of the first structure(s) at the marine farm:
- a A **Residential Amenity Management Plan** to minimise the risk of neighbours experiencing significant reductions in residential amenity due to off-site visual, noise and odour and other effects from the marine farm. This shall include a requirement that there be no firearms at the marine farm at any time, nor on any vessel associated with the marine farm and operated by the consent holder. This shall include the identification of a specific liaison person to be the point of contact with neighbours and any local residents association for the purposes of disseminating information relating to the operation of the marine farm and to respond to any issues or concerns raised.
 - b A **Wildlife Nuisance Management Plan** to minimise the risk of neighbours experiencing significant reductions in amenity values due to wildlife nuisances attributable to the marine farm.
 - c A **Solid Waste Management Plan** to minimise the risk of reductions in neighbouring amenity values caused by the accumulation of solid waste debris along the shoreline resulting from the marine farm.
 - d A **Staff Recruitment and Training Plan** to maximise opportunities for Marlborough residents to gain employment in the consent holder's expanded Marlborough operations resulting from the development of the marine farm.

These Plans may be combined together or form part of a wider management plan, provided the matters referred to are addressed in any such document.

Tourism and Recreation

76. The consent holder shall:
- a prior to the initial placement of the first structure(s) at the marine farm, establish a nominated person within the consent holder's company to liaise with Destination Marlborough (or its successor) and relevant tourism and recreation businesses and organisations in the Marlborough Sounds. The name and contact details for the nominated person, and any changes to those details, shall be provided to Destination Marlborough (or its successor). The nominated person shall be the authorised point of contact for anyone who might be interested in discussing, or meeting, with the consent holder in relation to:
 - i. tourism opportunities associated with salmon or salmon farming;
 - ii. queries or concerns about the operation of the farm, as relevant to tourism or recreation in the Marlborough Sounds.
 - b offer to host, and provide relevant expertise from within the consent holder's company at, an annual forum for tourism operators within the Marlborough Sounds, in order to assist in growing tourism opportunities and business in the Sounds, including in Outer Pelorus

Sound. The offer shall be made through Destination Marlborough (or its successor) which shall be asked to co-ordinate the forum.

Tangata Whenua

77. Prior to finalising the Baseline Plan, the consent holder shall offer Te Runanga o Ngati Kuia Charitable Trust or the organisation with a mandate to represent Te Runanga o Ngati Kuia in relation to these issues) and Ngati Koata Trust Board (or the organisation with a mandate to represent Ngati Koata in relation to these issues) the opportunity to establish, and decide the membership of, a Tangata Whenua Panel. The purpose of the Tangata Whenua Panel, if established, shall be to advise the Peer Review Panel in respect of any matters of concern or issue to the Tangata Whenua Panel, including, but not limited to:

- a The mauri of the water in the Sounds,
- b Any cultural matters or considerations that the Peer Review Panel should be aware of or take into account in considering the water column monitoring locations proposed in the Baseline Plan, the initial Water Quality Standards proposed in the Baseline Report, and any amendment to the ongoing Water Quality Standards in a subsequent Annual Report.

If requested by the Tangata Whenua Panel, the consent holder shall meet with it promptly, and shall take into account any matters raised by the Panel in respect of the exercise of the consent.

The Consent holder shall also:

- c Consult with the Tangata Whenua Panel in relation to the preparation of the Marine Mammal Management Plan and the Biosecurity Management Plan, required by Conditions 50 and 51;
- d Pay all reasonable costs of the Tangata Whenua Panel meeting and providing advice to the Peer Review Panel and the consent holder on cultural matters in respect of this consent.

The Tangata Whenua Panel may operate jointly for more than one marine farm managed by the same consent holder.

78. Prior to the initial placement of the first structure(s) at marine farm, the consent holder shall, in consultation with the Tangata Whenua Panel (refer to Condition 77), prepare an Accidental Discovery Protocol, and provide a copy of the protocol to the Council. The protocol shall be implemented in the event of an accidental discovery of cultural or archaeological artefacts or features during the development of the marine farm. The protocol shall include, but not be limited to:

- a Training procedures for contractors installing anchors for the marine farm regarding the possible presence of cultural or archaeological sites or material, what these might look like, and the relevant actions to take if any sites or material are discovered;
- b Parties to be notified in the event of an accidental discovery shall include, but not be limited to, the iwi with manamoana in the vicinity of the marine farm, the New Zealand Historic Places Trust and the Council;
- c Procedures to be undertaken in the event of an accidental discovery (these shall include the immediate ceasing of all physical works in the vicinity of the discovery);
- d Procedures to be undertaken before work may recommence in the vicinity of the discovery. These shall include allowance for appropriate tikanga (protocols), recording of sites and material, recovery of any artefacts, and consulting the iwi with manamoana in the vicinity of the marine farm and the Historic Places Trust prior to recommencing works in the vicinity of the discovery.

79. Prior to the initial placement of the first structure(s) at the marine farm the consent holder shall invite the members of the **Tangata Whenua Panel** (refer to Condition 77) to collaborate in undertaking a **Stocktake of Wāhi Tapu** in the areas that may be affected by the installation or operation of the marine farm, including wāhi tapu located on land in the immediate vicinity of the marine farm. This stocktake shall involve the collation of available information (written and oral) regarding the location of, and values associated with, any wāhi tapu in these

areas.

Review of Conditions by Consent Authority

80. In accordance with the provisions of sections 128 and 129 of the Resource Management Act (or any provision in substitution therefore), the Council may, at the time(s) specified in **Table 4** below, review the conditions of consent, by serving notice of its intention to do so for one or more of the purposes specified in **Table 4**:

Table 4: Purpose and Times of Potential Review of Conditions of this Consent

Purpose(s)	Time(s) Of Service Of Notice
To deal with any adverse effect on the environment which may arise from the commencement of the consent and which cannot be adequately avoided, remedied or mitigated by any term or condition incorporated within the consent, pursuant to the provisions of section 128(1)(a)(iii) of the Act.	On any anniversary of the initial placement of the first structure(s) at the marine farm Or Within 2 months of receipt of the Annual Report or 5 months of any other report
To modify the monitoring programme.	Within 2 months of receipt of the Annual Report required by Condition 67.
To review the tonnage of feed that may be discharged in accordance with the conditions of this consent, in order to ensure compliance with the EQS in Conditions 38-44 is achieved	Within 2 months of receipt of the Annual Report or 5 months of any other report
To review the specification of the WQS required by Conditions 44a and 44b and the hierarchy of WQS and responses	Within 2 months of receipt of the Baseline Report required by Condition 64 or the Annual Report required by Condition 67
To require the consent holder to adopt the best practicable option to avoid, remedy or mitigate any adverse effect on the environment relating to the activity.	Within 2 months of Annual Report or 5 months of any other report
To review the navigation risk reduction and management plan to ensure that management practices result in compliance with Conditions 21-31.	On any anniversary of the initial placement of the first structure(s) at the marine farm

Other Matters

81. Pursuant to section 36 of the Act and the Council's Schedule of Fees, the consent holder shall pay all actual and reasonable costs associated with any review of this resource consent.
82. Inspection and monitoring by the Council's Regulatory Department in respect of the conditions of this consent may take place annually or more frequently in the event that a previous inspection or complaint indicates the need for more frequent inspection and monitoring.
83. The costs of these inspections and any formal monitoring programme established in consultation with the consent holder will be charged to the consent holder in accordance with the Council's Schedule of Fees pursuant to section 36 of the Act.
84. Prior to the first discharge of feed to the marine farm, either:
- a All costs payable by the applicant to the Environmental Protection Authority or the Minister pursuant to s 149ZD of the Resource Management Act 1991 must have been recovered; or

- b If the amount payable to the Environmental Protection Authority or the Minister pursuant to s 149ZD is subject to a dispute, objection or appeal, the outstanding amount must be placed into a trust account as nominated by the Environmental Protection Authority pending resolution of the dispute, objection or appeal.

Figure 1: Farm Layout Plan

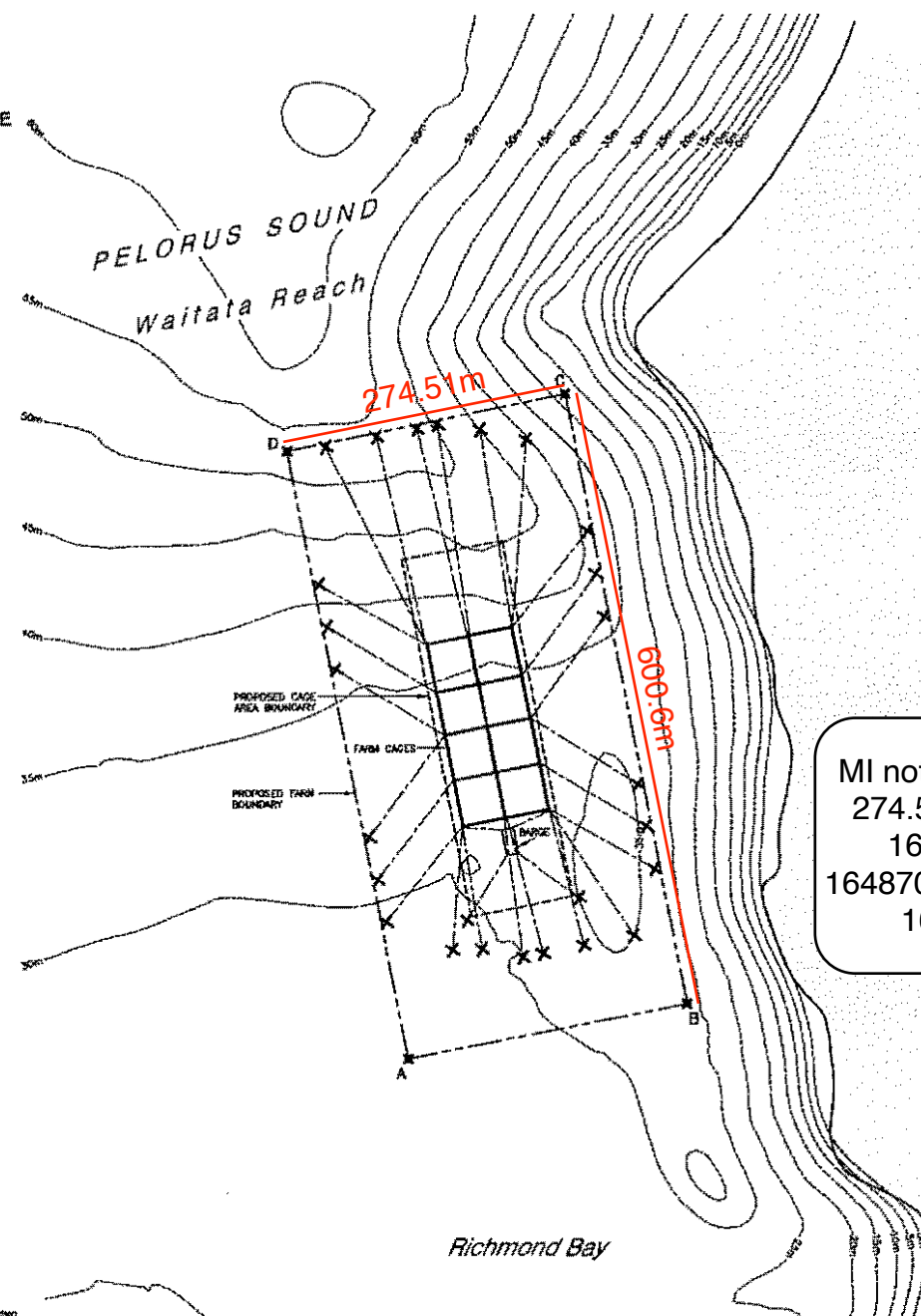


PELORUS SOUND
Waitata Reach

FARM COORDINATES

POINT	EASTING (NZTM)	NORTHING (NZTM)
A	1,660,942	5,480,999
B	1,661,212	5,481,032
C	1,661,094	5,481,841
D	1,660,925	5,481,596

Ketu Bay



MI note 20230622:
 $274.51 \times 600.6 = 164870.706$
 $164870.706 / 10000 = 16.487 \text{ ha}$

NOTE:
 1. HYDROGRAPHIC INFORMATION HAS BEEN SOURCED FROM CARTERBURN INSTITUTE. DEPTHS ARE BELOW MEAN SEA LEVEL.

LEGEND

- X PROPOSED SCREW ANCHOR
- PROPOSED FARM BOUNDARY
- PROPOSED CAGE BOUNDARY
- PROPOSED ANCHOR MARK



CONSENT

DO NOT SCALE FROM DRAWING

COORDS TABLE ADDED	#	Date	By	Consent	Checked	Approved	Date
BARGE AND ANCHOR LOCATIONS AMENDED	8	29/01/13	PH	CONSENT	G. TEEAR		05/11
BARGE AND ANCHOR LOCATIONS AMENDED	8	10/08/12	RVE	PRELIMINARY	G. TEEAR		
BARGE AND ANCHOR LOCATIONS AMENDED	7	09/08/12	RVE	PRELIMINARY	G. TEEAR		
BARGE DIMENSIONS AND LOCATION AMENDED	6	05/08/12	RVE	PRELIMINARY	B. TEEAR		

CONSULTANTS NZ LIMITED

3RD-FLOOR Building Street,
 PO Box 877,
 Christchurch
 Tel (03) 3796544
 Fax (03) 3796538

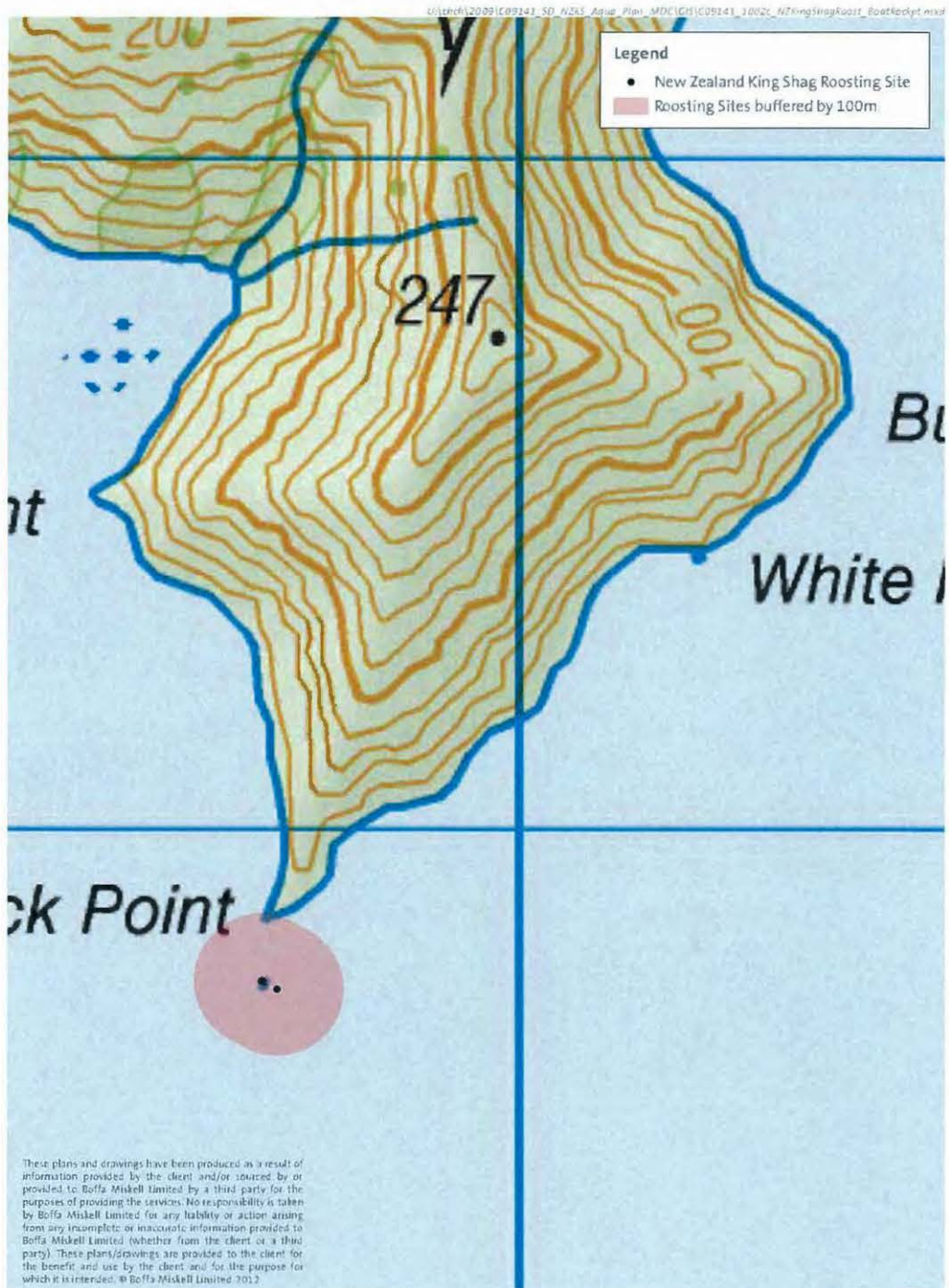
40 Crown Hill Street,
 PO Box 131,
 New Plymouth
 Tel (067) 513210
 Fax (067) 512515

This drawing and its content is the property of PCZ. Construction of the farm is subject to the approval of the relevant authorities.

NEW ZEALAND KING SALMON LIMITED
 RICHMOND, WAITATA REACH, PELORUS SOUND
 PROPOSED FARM LAYOUT

Scale (A3)	ACAD File Name
1:5000	15103/26-01103-0709
Drawing No.	Rev.
DR-051103-073	9

Figure 2: Buffer Area around King Shag Roosting Site in the vicinity of the Richmond Farm (Boat Rock Point)



NZKS: New Zealand King Shag
Boat Rock Point Roosting Site
Date: 22nd May 2012
Plan Prepared for NZKS by Boffa Miskell Limited
Author: brian.mcauslan@boffa-miskell.co.nz | Checked: Sarah Dawson

Figure 3: Environmental Quality Standard (EQS) - Definition of EQS Compliance Zones

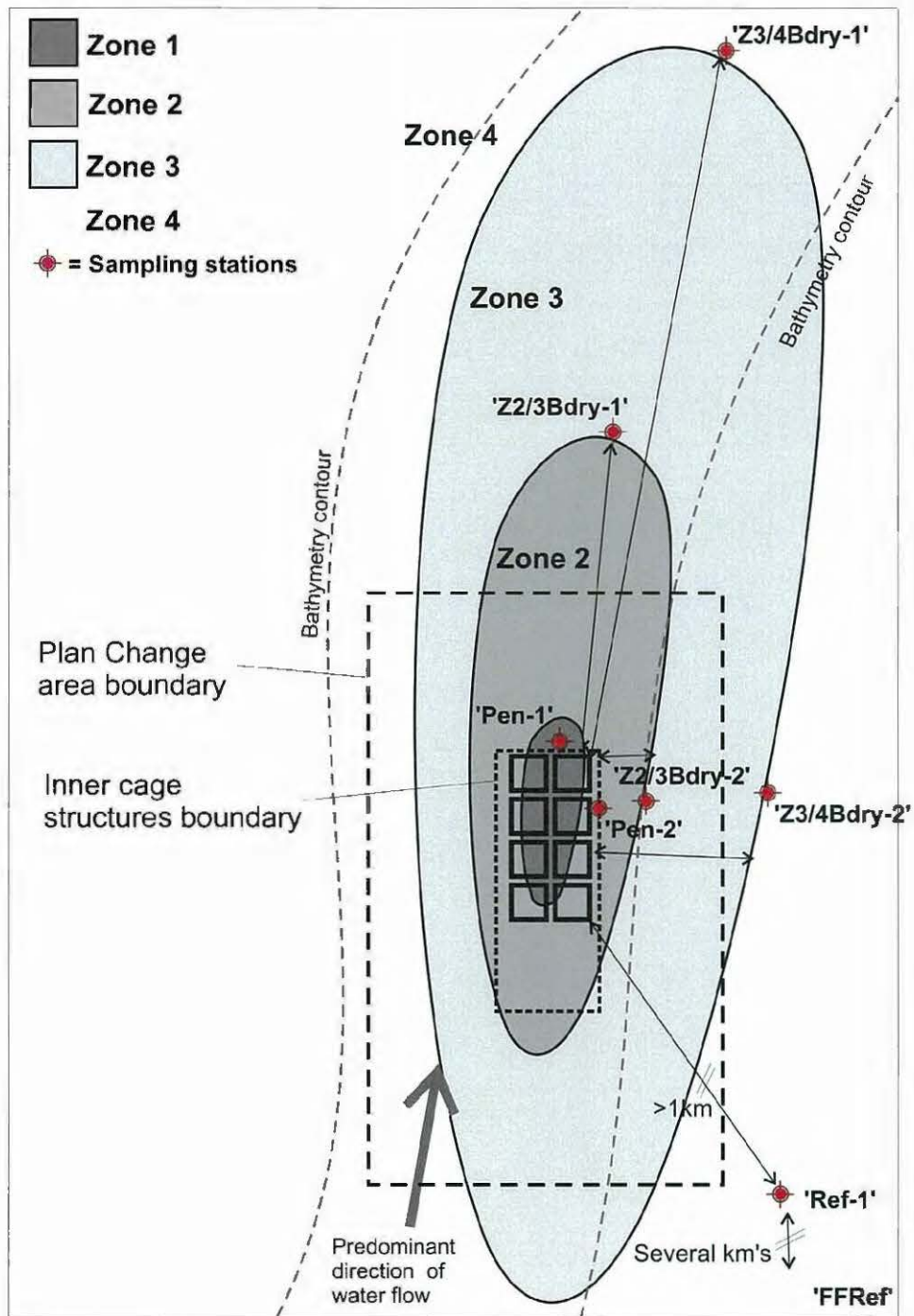


Figure 4: Schematic Diagram of Enrichment Stages

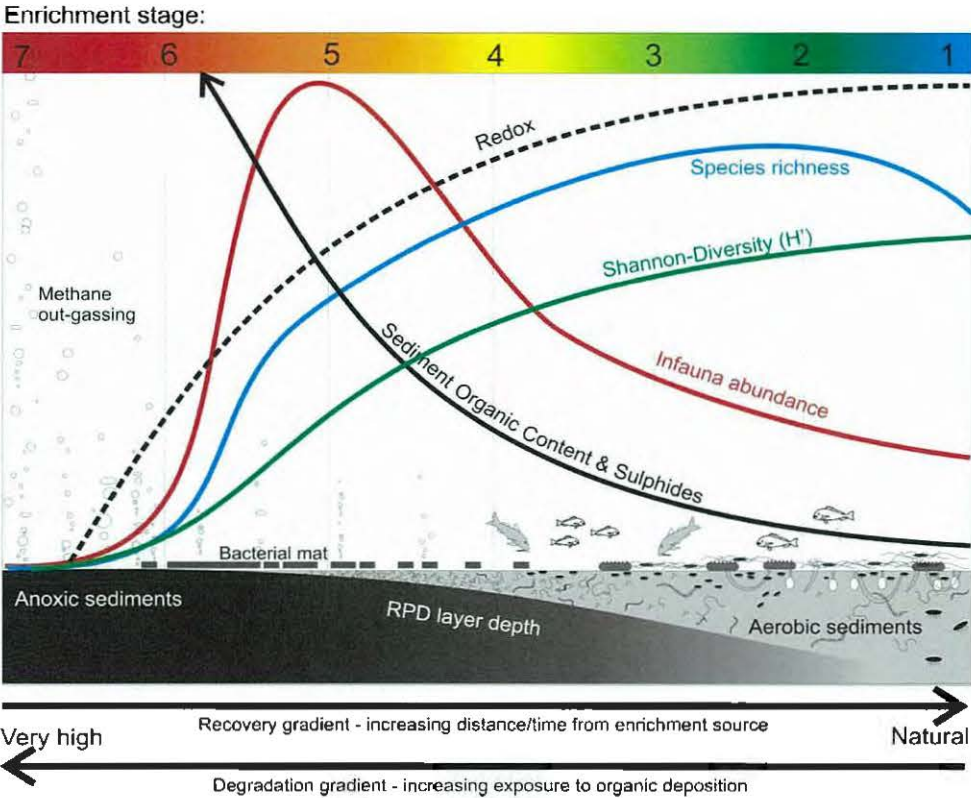
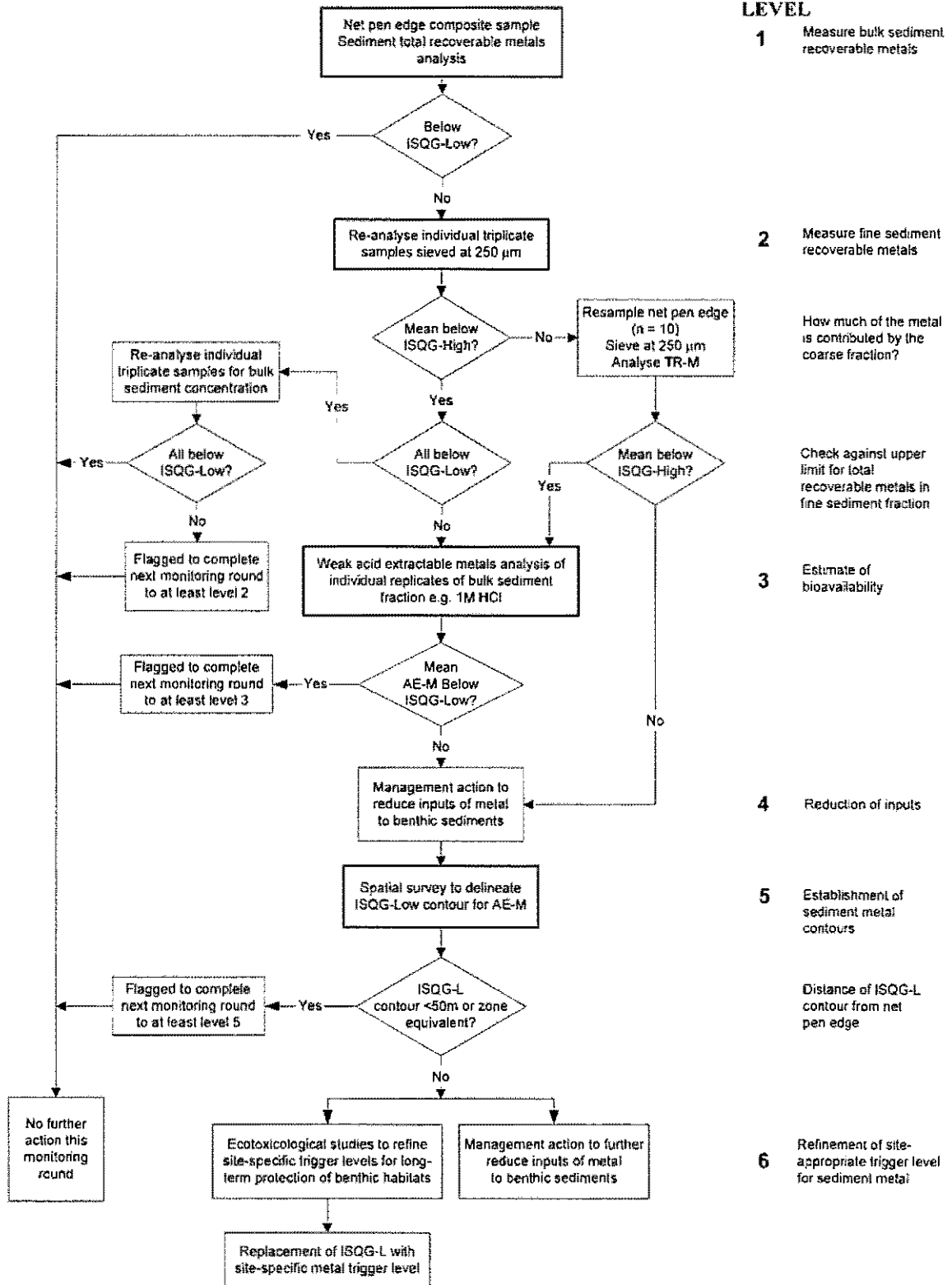


Table 5: General Description and Environmental Characteristics of Enrichment Stages (ES)

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

<i>ES</i>	General description		Environmental characteristics
6	Excessive enrichment: Transitional stage between peak abundance and azoic (devoid of any organisms).	LF	Richness & diversity very low. Abundances of opportunistic species severely reduced from peak, but not azoic. Total abundance low but can be comparable to reference sites. %OM can be very high (3-6 times reference).
		HF	Opportunistic species strongly dominate, with taxa richness and diversity substantially reduced. Total infauna abundance less than at sites further away from the farm. Elevated %OM and sulphide levels. Formation of bacterial mats and out-gassing likely.
7	Severe enrichment: Anoxic & azoic; sediments no longer capable of supporting macrofauna with organics accumulating.	LF	None, or only trace numbers of macrofauna remain. Some samples with no taxa. Spontaneous out-gassing; <i>Beggiatoa</i> usually present but can be suppressed. %OM can be very high (3-6 times Ref).
		HF	Not previously observed – but assumed similar to LF sites

Figure 5: Decision Hierarchy for Copper and Zinc



Annotation History

Date	Reason for Amendment/Alteration
17/04/2017	Supreme Court Judgement
5/09/2017	Section 127 to change Condition 66(e)