

under: the Resource Management Act 1991

in the matter of: Applications by Sanford Limited to change the conditions of various resource consents that authorise the farming of salmon in Big Glory Bay, Stewart Island

by: **Sanford Limited**
Applicant

Statement of evidence by Philip Hunter Mitchell

Dated: 11 March 2019

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INTRODUCTION

- 1 My full name is Philip Hunter Mitchell.
- 2 I have been engaged by Sanford Limited (*Sanford*) to provide resource management and planning advice in respect of its change of conditions application for seven of its marine farm sites in Big Glory Bay, Stewart Island (*the Proposal*). My firm, Mitchell Daysh Limited, was responsible for preparing the change of conditions, application and Assessment of Environmental Effects (*AEE*) for the proposal that were lodged with Environment Southland (*the Council*) on 16 November 2017.
- 3 I have prepared this statement of evidence at the request of Sanford.
- 4 In preparing this evidence I have read the evidence filed by Sanford and its technical advisors, as well as the section 42A report, along with the accompanying technical peer reviews, and the submissions received by Environment Southland.
- 5 I have visited Big Glory Bay in order to view the seven marine farm sites and the surrounding environment. I am also familiar with the relevant statutory planning documents that apply to Big Glory Bay and the Proposal.

QUALIFICATIONS AND EXPERIENCE

- 6 I hold the degrees of Bachelor of Engineering (Hons) and Doctor of Philosophy, both from the University of Canterbury.
- 7 I am employed by Mitchell Daysh Limited, an environmental consulting practice with offices in seven locations around New Zealand that I co-founded in 2016. Previously I was a Director of Mitchell Partnerships Limited, an environmental consultancy I established in 1997, and which was merged with another firm to form Mitchell Daysh Limited. Prior to that, I was the Managing Director of Kingett Mitchell & Associates Limited, a firm that I co-founded in 1987.
- 8 I am a past president of the Resource Management Law Association and a Full Member of the New Zealand Planning Institute and in 2015 was a recipient of the New Zealand Planning Institute's Distinguished Service Award.
- 9 I have practised in the field of resource management for the past 33 years during which time I have had a lead resource management role in many significant projects throughout New Zealand. My specialist areas of practice include providing resource management advice to the private and public sectors, facilitating public consultation processes, undertaking planning analyses, managing resource consent acquisition projects and developing resource consent conditions.

- 10 I am an accredited Hearings Commissioner (with a Chair's endorsement) and have acted as a Hearings Commissioner on approximately 45 occasions, many in the role of Hearing Chair.
- 11 I have acted on several Ministerial advisory panels established to review aspects of the Resource Management Act 1991 (*RMA*) and was a member of the Technical Advisory Group established to review sections 6 and 7 of the RMA.
- 12 I was an appointed mediator / facilitator for the hearings on the notified version of the Proposed Auckland Unitary Plan (*PAUP*).
- 13 I was also appointed jointly by the Minister for Canterbury Earthquake Recovery and the Christchurch City Council as a Hearings Commissioner for the replacement of the Christchurch City District Plan (the district plan that is intended to facilitate the rebuilding of Christchurch).

CODE OF CONDUCT

- 14 Although these proceedings are not before the Environment Court, I have read the Environment Court's Code of Conduct for Expert Witnesses and I agree to comply with it as if these proceedings were before the Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

- 15 In my evidence I will:
 - 15.1 Explain the proposed changes to salmon farming resource consents in Big Glory Bay and how the conditions to manage the activity have evolved since the application was lodged;
 - 15.2 Discuss the planning framework that applies;
 - 15.3 Summarise the actual and potential environmental effects associated with the proposal;
 - 15.4 Discuss the matters raised in submissions and respond to the section 42A report;
 - 15.5 Consider the proposal against the requirements of section 104 of the RMA, and against Part 2 of the RMA;
 - 15.6 Discuss the resource consent condition changes; and
 - 15.7 Set out my summary and conclusions.

DESCRIPTION OF THE PROPOSAL

- 16 As the Panel will be aware, this application is to increase the allowable nitrogen input from salmon farming feed in Big Glory Bay.
- 17 There are 37 marine farm sites in Big Glory Bay and salmon farming is authorised at 10 of those sites. As set out in the following table each salmon farming site has an allowable nitrogen input from feed.
- 18 This application covers seven of those sites – those which have been owned by Sanford for some time. Since this application was made, Sanford has also made partnership arrangements with the parties who own the other three sites, although the conditions of those consents are not part of this process.

Site	Consent Holder	Allowable nitrogen in feed input (tonnes per year)
Consents this application sought changes to		
Li320	Sanford Limited	73.792
Li321	Sanford Limited	73.792
Li338	Sanford Limited	73.792
Li339	Sanford Limited	55.344
Li340	Sanford Limited	55.344
MF246	Sanford Limited	73.8 (the application to allow salmon farming at these sites were made solely on the basis of relocating production from other farms in order to promote environmental sustainability. They did not increase the number of salmon farmed by Sanford in Big Glory Bay.
MF249	Sanford Limited	73.792 (as above)
Total allowable nitrogen from the consents this application has sought changes to		332.064

Site	Consent Holder	Allowable nitrogen in feed input (tonnes per year)
Consents this application did not seek changes to		
Li342	Sanford Limited and Schofield Sea Farms Limited	40.25
Li366	Sanford Limited	55.344
Li474	Sanford Limited	55.344
Total allowable nitrogen from all salmon farming consents in Big Glory Bay		483.002

- 19 Big Glory Bay is the only area in Stewart Island where aquaculture can occur and, as **Dr James** has described, the salmon farm resource consent areas have been carefully chosen to avoid sensitive habitats and inshore reefs.¹ There is also little overlap between the farms in Big Glory Bay and any critical marine mammal habitats, nor is Big Glory Bay an ecologically significant area for seabirds.²
- 20 By way of background, the eight sites identified by the prefix 'Li' were originally authorised by Marine Farming Licence issued by the Ministry of Fisheries. They are the farms that have site-specific nitrogen allowances that were set some 25 years ago, based on the scientific data and techniques available at that time. The two marine farms with the prefix MF were granted on 8 August 2011 (MF 249) and 29 January 2016 (MF 246). The application to allow salmon farming at these two sites did not seek to increase the amount of nitrogen from feed and, in turn, the number of salmon farmed by Sanford in Big Glory Bay. They simply sought to allow production from other existing farms to be relocated to these two new sites. The new sites are well suited to the on-growing farm because they have better water flow compared to some of the other sites. The additional salmon farming space they provided allowed Sanford to implement a sensible fallowing and rotation programme for its salmon farming pens – which is particularly important for managing effects on the seabed. It is anticipated that the fallowing plan will evolve in sophistication over time.
- 21 An important feature of the existing consents for the salmon farming sites is they allow the consent holder to aggregate nitrogen from feed across all its farms, provided "*significant adverse effects on the seabed are avoided*

¹ Dr James, paragraph 100.

² Dr James, paragraph 111 and 117.

and other effects can be remedied or mitigated". This allows Sanford to utilise its total nitrogen allowance at the individual sites which, at any one time, comprise the grower and smolt farms and to "rotate" their locations around the Bay.

- 22 The evidence of **Mr Culley** and **Mr Swart** has described the operation of the salmon farms in Big Glory Bay from their establishment in the 1970s.
- 23 **Mr Culley** has also described that since 2014 Sanford has been reviewing its Big Glory Bay salmon farming strategy because of the need to meet growing demand for its product. I understand that initiatives in that regard include:
- 23.1 Identifying and implementing improvements and efficiency in on-farm practices;
- 23.2 Obtaining enough flexibility and farming space to have the ability to rest a site and allow it to remediate; and
- 23.3 Obtaining access to additional nitrogen allowance from feed.
- 24 As far as I am aware there have been no significant environmental concerns raised during this time despite, in recent times at least, the "nitrogen cap" being fully utilised.
- 25 It is important to note that the Sanford's 'space' issues were largely addressed in 2016 when it was granted the consent to farm salmon on MF246, which prior to that could only be used to grow mussels.³ This allowed a sustainable fallowing and rotation plan to be introduced. However, because it did not increase the nitrogen allowance for Big Glory Bay, it did not allow any increase in production.
- 26 As a result, the current application does not seek any extension to the existing resource consent areas where Sanford is authorised to farm salmon. Rather the application is solely focussed on setting a new, environmentally sustainable nitrogen allowance for Big Glory Bay which will provide increased operational flexibility and salmon production while protecting the Big Glory Bay environment.
- 27 As shown in the above table, the current aggregated nitrogen limit for Big Glory Bay is 438.002 tonnes per year, all of which Sanford can now utilise.
- 28 **Mr Culley** and **Dr Hartstein** have described the detailed technical work undertaken to identify a new, up to date sustainable nitrogen allowance for Big Glory Bay. Central to this was Aquadynamic Solutions Sdn Bhd (ADS) modelling the assimilative capacity of Big Glory Bay for nitrogen from feed using the DELFT3D model. Key outputs of the DELFT3D model were impacts on embayment wide water quality (ammoniacal nitrogen, Chlorophyll-a,

³ AUTH-20157616.

and dissolved oxygen), and localised seabed deposition (organic carbon, faeces and solid waste).

- 29 The modelling undertaken by ADS has focussed on only three of the seven salmon farm sites which are subject to this application – MF246, LI320, and LI339, these being the sites that were being utilised at the time the application was made.
- 30 For reasons outlined in detail by **Dr Hartstein** and **Dr James** the modelling showed that the following was a sustainable nitrogen input from feed:
 - 30.1 412.6 tonnes/year at MF 246;
 - 30.2 200.6 tonnes/year at LI 320; and
 - 30.3 A total nitrogen allowance of 659 tonnes / year in Big Glory Bay.
- 31 Based on this information Sanford made an application in November 2017 to change the conditions which apply to MF246 and LI320. This proposed change to conditions included, by way of summary:
 - 31.1 An increase in the allowable nitrogen input from feed at MF246 and LI320 to 415.6 tonnes per year and 200.6 tonnes per year respectively, providing the total nitrogen from feed in Big Glory Bay did not exceed the sustainable bay wide total of 659 tonnes per year, and provided a binding agent is contained in the feed at site MF 246;
 - 31.2 A requirement that the salmon farming activities at MF246 and LI320 not cause specified environmental standards for water quality (total ammonia nitrogen, chlorophyll-a and dissolved oxygen) and seabed deposition (organic carbon, total faeces and solid waste) to be exceeded; and
 - 31.3 A requirement to prepare a detailed monitoring plan to demonstrate compliance with those environmental standards.
- 32 Because it is not practical to model each and every farming scenario that might eventuate in future, the application sought to enable site-specific farm limits to be set in future, by utilising the same approach undertaken for sites MF 246 and Li 320.
- 33 Specifically, the application sought changes to the five other resource consents which applied to the then Sanford-owned farms (Li321; Li338; Li339; Li340 and MF249) to allow Sanford to use the new Bay-wide allowance at those sites provided, but only if:
 - 33.1 The total nitrogen from feed in Big Glory Bay does not exceed 659 tonnes per year (i.e. the upper limit was capped at what had been determined already);

- 33.2 Modelling⁴ has been undertaken that demonstrates the specified environmental standards for water quality and benthic deposition would be achieved at the site and bay wide;
- 33.3 The additional nitrogen input from feed allows compliance with the environmental standards for water quality and benthic deposition to be achieved;
- 33.4 The feed deployed is consistent with the parameters of the feed modelled;
- 33.5 A monitoring plan is prepared to demonstrate compliance with the specified environmental standards and other controls; and
- 33.6 The approach taken and results obtained are certified by Environment Southland.

POST LODGEMENT CHANGES

- 34 **Ms Undorf-Lay** has described the lengthy consultation and engagement that Sanford has undertaken since the application was lodged, including making myself and its other technical specialists available to engage directly with the interested parties. This, along with the willingness of interested parties (particularly the Department of Conservation (*DoC*) and Te Rūnanga o Awarua) to engage collaboratively, has resulted in the proposed conditions for managing the effects of the proposed increase in nitrogen loading evolving considerably. The updated conditions define more precise, environmentally conservative, environmental standards and more clearly specify how the farms will be monitored and managed on an on-going basis. In turn, the revised conditions provide much more certainty that the desired environmental outcomes will be achieved.
- 35 The s42A report included reference to a version of the conditions I circulated to the Council and submitters last year. Since then they have been further refined to the point that they have been accepted and agreed with both DoC and Te Rūnanga o Awarua. I also understand they are generally accepted by the Council and **Dr Grange**. The final version of proposed conditions is included in **Appendix 1** of my evidence and I address specific details in Section 8.
- 36 By way of summary, the conditions still retain the basic elements that were included in the original application and which I described above. However, the conditions now also include:
- 36.1 A condition requiring the increase in nitrogen input from feed in Big Glory Bay to be in two stages (Stage 1: 583 tonnes / year; Stage 2: 659 tonnes / year). This includes a requirement not allowing the

⁴ Using the DELFT3D Model or alternative modelling software agreed to by Environment Southland.

second stage to proceed until the total nitrogen from feed for three successive years has been at least 466 tonnes, and there is two years of water quality and seabed monitoring results which are not indicating results and / or statistically significant trends towards progressively greater environmental effects at the farms;

- 36.2 A revised suite of water quality objectives that the marine farms shall be operated to achieve;
- 36.3 A new suite of Environmental Quality Standards (*EQS*) for water quality which are set at levels to ensure Big Glory Bay stays in its present trophic state, that there is no increased risk of algal blooms, and oxygen is not depleted to levels that will affect biota;
- 36.4 A new suite of *EQS* for the seabed which are set at levels to ensure benthic effects are constrained to the area within / under the farms and, beyond 50-100m from the edge of the pens, the benthic conditions are not different to the conditions at control sites;
- 36.5 A two-tiered response to any breaches of these *EQS* which, depending on the nature of the breach requires:
- (a) Tier 1 - Further water quality monitoring, consideration of the wider environment, and investigations aimed to determine any contributing effect from farm operations to the breach; or
 - (b) Tier 2 - Reduced stocking and/or fallowing of the marine farm following the next harvest of salmon on that farm to achieve full compliance with the *EQS*-water or *EQS*-seabed within 24 months of the date that monitoring confirms that the breach has occurred .
- 36.6 A requirement that Sanford engage an appropriately qualified and experienced professional to prepare a 3 yearly Technology Update Report, the purpose of which is to:
- (a) Evaluate and report on any new developments in salmon farming technology and/or farm management practices that have the potential to reduce the deposition on the seafloor of uneaten salmon feed and salmon faeces;
 - (b) Any environmental benefits that could be expected by adopting that technology and/or farm management practice; and
 - (c) The feasibility of adopting that technology and/or farm management practice, including, but not limited to financial implications.

- 36.7 A requirement that Sanford have a comprehensive Big Glory Bay Salmon Farm Environmental Management Plan (*BGBSFEMP*) for the marine farms covered by this application, the purpose of which is to set out:
- (a) The procedures and practices to be implemented by the consent holder in order to ensure compliance with the EQS;
 - (b) The proposed layout of each salmon farm site and how this is expected to change over each two year period;
 - (c) The maintenance procedures to be followed to ensure the ongoing efficacy of all salmon farm structures;
 - (d) The procedures and practices to be implemented to minimise, to the extent practicable, the interactions of marine mammals and seabirds with the farm site;
 - (e) The procedures, practices and monitoring to be implemented to meet the objective of reducing historically elevated concentrations of copper and zinc in sediments beneath the farm site to those that satisfy the ANZECC (2000) Interim Sediment Quality Guidelines;
 - (f) How the results of the monitoring will be utilised to adapt, as quickly as practicable, operational farming practices, including but not limited to the following of individual sites, in the event that monitoring indicates that unforeseen environmental effects may arise;
 - (g) Any changes in salmon farming technology and/or farm management practices identified in the Technology Update Report that the consent holder proposes to implement; and
 - (h) Provide robust environmental data to inform the applications for replacement consents once these consents expire in 2025.

37 **Dr James** has provided more detailed discussion on the rationale for the various water quality objectives and EQS that have been chosen. However, I note those objectives and EQS have evolved considerably over the past year in response to feedback from **Dr James**, DoC and **Dr Grange**.

38 The Panel will have noted that the changes sought to the conditions in the initial variation application required a binding agent to be contained in the feed for activities at site MF246⁵ and that this requirement has been removed. That condition was initially included because a binding agent was assumed in the AES modelling. However, it is no longer needed given the

⁵ This was condition 4(a)(ii) in the changes sought to MF246.

new proactive EQS and response framework which is included in the consents.

THE PLANNING FRAMEWORK

- 39 The application to change conditions for seven existing consents was lodged in accordance with s127 of the RMA and accepted by the Council.
- 40 However, for reasons set out in the s42A report the Council subsequently formed the view that the proposed activities should be considered as a new application.
- 41 I understand this matter will be addressed in more detail in Sanford's legal submissions to this hearing.
- 42 However, I agree with the s42A report that whether the proposed change is considered under s127 or is an application for a new activity makes no material difference to the substance of the statutory tests which apply to it. Either way:
- 42.1 The application is for a discretionary activity;
- 42.2 The relevant matters the decision maker is required to consider are set out in s104 of the RMA; and
- 42.3 The relevant effects are limited to those that would arise from the proposed change in activity.⁶

ACTUAL AND POTENTIAL EFFECTS

- 43 The effects of the proposed change in the salmon farming activity are set out in the evidence of other witnesses, particularly **Dr James, Dr Hartstein** and **Dr Grange**.
- 44 Having considered that evidence, in my view the conditions are appropriate to ensure the matters raised are properly addressed. I note that the s42A report reaches a similar conclusion.
- 45 Specifically, I note the following:
- 45.1 The proposal is to allow for an increase in feed levels in order to more efficiently use existing farm space;
- 45.2 All activities will be kept within existing consented areas - i.e. no new space is requested;

⁶ This is prescribed in s127 if the application is considered under that section. If the application is considered to be a new activity the effects of the salmon farming activities currently authorized by the existing marine farm consents would form part of the existing environment against which the effects of this application are to be assessed.

45.3 The key effects of the proposed increase in feed levels will be:

- (a) a potential increase in chlorophyll-a and nutrients in the water column and a decrease in surface oxygen; and
- (b) an increase in benthic deposition;

and, as I explain below, these effects can be avoided, remedied and mitigated through the proposed conditions.

45.4 With respect to effects on the water column, levels of inorganic nitrogen and chlorophyll-a will not change the trophic state in Big Glory Bay or result in more algal blooms, and there is no evidence that dissolved oxygen will be adversely affected as a result of the proposed increase in feed levels.

45.5 The proposed management approach comprising staged development, monitoring, EQS and prescribed management responses to monitoring results will provide a robust framework for identifying any unexpected adverse effects on the water column and for adapting farming practices to address those effects. I accept **Dr Grange** remains concerned with specific points of detail in that management framework relating to chlorophyll-a.⁷ However, **Dr James** has outlined why he does not consider these concerns require a change to the proposed conditions and on the basis of **Dr James'** evidence I consider the proposed conditions are appropriate.

45.6 With respect to effects on the seabed, deposition of faeces and waste feed will generally remain within the boundaries of the lease areas and deposition outside the lease areas will be confined to within 50-100m of those boundaries. Also:

- (a) Effects, if they were to occur, are reversible;
- (b) An important management strategy to avoid adverse effects at the farms themselves is to use rotation and fallowing; and
- (c) The proposed management approach comprising staged development, monitoring, EQS and prescribed management responses to monitoring results will provide a suitably robust framework for identifying any unexpected adverse effects on the benthic environment and for adapting farming practices to address those effects.

45.7 It is apparent there remains a small disagreement between **Dr James** and **Dr Grange** on the length of time that may be required for the seabed beneath a pen to recover sufficiently following

⁷ Dr Grange considers the trigger levels for chlorophyll-a are set to high, and that the proposed monitoring will not detect short term blooms.

fallowing and before farming is reintroduced to that area. To avoid long-term and irreversible effects **Dr James** has recommended that farms be fallowed generally for up to 5 years after 2 years of occupation, or earlier if there are signs of significant adverse effects under farms. This reflects the approach taken in the current rotation and fallowing plan for Sanford's salmon farming in Big Glory Bay. **Dr Grange** remains concerned that the level of impact on the seabed beneath pens will be such that this 5-year fallowing cycle will not be sufficient. However, I agree with **Dr James** that the proposed conditions contain suitable mechanisms to identify and manage this issue even if **Dr Grange's** concerns transpired.

- 45.8 Effects on wildlife are not expected to change as a result of the proposed increase in nitrogen limits and have been previously considered acceptable. **Dr James** has noted, and it has not been contested, that Big Glory Bay is not considered ecologically significant habitat for any species, and in turn habitat exclusion effects are not of concern. However, **Dr James** has recommended that Sanford should put in place more proactive management measures to minimise, to the extent practicable, the interactions of marine mammals and seabirds with the farm sites. This has been included in the proposed conditions requiring implementation of the "Big Glory Bay Salmon Farm Environmental Management Plan".
- 45.9 Effects on landscape, visual amenity and natural character are not expected to change as a result of the proposed increase in nitrogen limits and have been previously considered acceptable. I also note Sanford commissioned Mr Frank Boffa to revisit this matter as part of this application and his conclusions were that:
- (a) Big Glory Bay has a moderate to moderate/high level of natural character and landscape/seascape qualities due to the presence of marine farming activity in the Bay; and
 - (b) The natural character, landscape/seascape and visual effects of the Sanford application will have little if any adverse effects on what currently exists within, or beyond, the confines of Big Glory Bay.
- 45.10 I also note that effects on recreation and navigation are not expected to change as a result of the proposed increase in nitrogen limits and have been previously considered acceptable and that the s42A report reaches the same conclusion.

PROVISIONS OF THE RELEVANT PLANNING DOCUMENTS

- 46 The s42A report has outlined relevant planning provisions that apply to this application. These are contained in the New Zealand Coastal Policy Statement 2010 (*NZCPS*), the Southland Regional Policy Statement 2017 (*RPS*), the Regional Coastal Plan for Southland (*Coastal Plan*), and Te Tangi

a Taurira - the Natural Resource and Environmental Iwi Management Plan for Ngāi Tahu ki Murihiku.

- 47 The list of provisions in the s42A report is comprehensive. I agree that these provisions are those that need to be considered and I do not repeat them. By way of summary, in my opinion, the key planning themes are:
- 47.1 The significant existing and potential contribution of aquaculture to the social, economic and cultural well-being of people and communities is to be recognized, and aquaculture activities are to be provided for in appropriate places in the coastal environment.
- 47.2 Aquaculture is to occur in a way which:
- (a) protects coastal indigenous biodiversity, outstanding natural features, landscapes and natural character in accordance with the relevant policies in the NZCPS (including the directive policies that that adverse effects on certain threatened values, ONC, and ONFL be avoided); and
 - (b) avoids, remedies or mitigates adverse effects on other values.
- 47.3 Big Glory Bay is an appropriate place to provide for aquaculture and is the only area at Stewart Island where this is the case.
- 48 I note that although the Coastal Plan identifies Big Glory Bay as an appropriate location for aquaculture, it pre-dates both the NZCPS and RPS. However, in my opinion no new information has come to light in this consent process which suggests the Coastal Plan's direction that aquaculture in Big Glory Bay is appropriate in any way conflicts with the new NZCPS or RPS provisions. In reaching this conclusion I consider the following to be particularly important:
- 48.1 The observations of **Mr Swart** that the waters of Big Glory Bay are ideal for salmon farming and are the best habitat in New Zealand for King Salmon, and that suitable land-based facilities to support the activity are already in place at Half Moon Bay and Bluff;⁸
- 48.2 The evidence of **Ms Undorf-Lay** on the significant contribution aquaculture, including salmon farming, makes to the social and economic wellbeing of people and communities on Stewart Island and in Bluff;⁹

⁸ Mr Swart, paragraphs 11 and 12.

⁹ Ms Undorf-Lay, paragraphs 22 and 25 - 26

48.3 **Dr James'** observation that while several threatened species of bird¹⁰ and marine mammal¹¹ inhabit Stewart Island waters (as they do many other parts of New Zealand), Big Glory Bay is not an ecologically significant habitat for any species, and interactions between the marine farm, mammals and seabirds can be suitably managed; and

48.4 Mr Boffa's assessment that the landscape and natural character values of Big Glory Bay to be moderate / high (not outstanding), and the proposed activity would have little if any adverse effects on the landscape and natural character values which currently exist in Big Glory Bay.

49 In summary, I consider the (very largely agreed) proposed conditions avoid, remedy or mitigate the effects of the proposed activities, and the proposal is consistent with the expectations of the statutory planning framework which applies here. The s42A report reaches a similar conclusion.

CONSENT TERM

50 The initial application sought a change to the conditions of the existing consents, which expire on 1 January 2025.

51 While I agree with the s42A report that the effects of the proposed activities would justify a 20-year term of consent, that is not what was asked for in the original application. Nor has a 20-year term been discussed with submitters.

52 Therefore, irrespective of whether the application is granted as a change to the consent conditions or as a new application, in my view the consents should retain the same 1 January 2025 expiry date, as any extension of time beyond the current expiry date is beyond the scope of the application and is not able to be imposed by the Panel.

CONDITIONS

53 As I outlined above, since the application was lodged considerable effort has gone into developing an agreed set of proposed conditions. This has been achieved with very helpful input from the Council, DoC and Te Rūnanga o Awarua as well as through meetings with government agencies, international researchers and salmon farmers in Tasmania.

¹⁰ Southern NZ dotterel (*Charadrius obscurus obscurus*) Nationally critical; Fiordland crested penguin (*Eudyptes pachyrhynchus*) Nationally vulnerable; Stewart Island shag (*Leucocarbo chalconotus*) Nationally vulnerable; and Yellow-eyed penguin (*Megadyptes antipodes*); Black-billed gull (*Chroicocephalus bulleri*).

¹¹ New Zealand sea lion/Hooker's sea lion (*Phocarctos hookeri*); Bottlenose dolphin (*Tursiops truncatus*); Southern right whale (*Balaena australis*).

- 54 I have already described the key elements of those conditions and I do not repeat that here.
- 55 I have included in **Appendix 1** a final suite of proposed conditions which show how I consider the agreed standards, staging, monitoring and management approaches could be implemented.
- 56 Important matters to note are:
- 56.1 In all cases the detail contained in the version of conditions agreed with submitters has been retained;
- 56.2 I have inserted the various "farm management" conditions which are common to all the consents and address water quality objectives, EQS, monitoring requirements, Big Glory Bay Salmon Farm Environmental Management Plan and the Technology Update Report into a common set of Big Glory Bay Salmon Farming General Conditions, rather than repeating them in each consent individually.
- 56.3 I have made some consequential changes to the monitoring conditions. The Panel will have noted that Appendix 1 of each consent already requires monitoring. This monitoring programme is targeted at monitoring the effects of aquaculture in the broad. The new monitoring programme required by the common set of Big Glory Bay Salmon Farming General Conditions, and described by **Dr James**, is intended to supersede the Appendix 1 monitoring insofar as it relates to monitoring the specific effects of salmon farming. My changes reflect this.
- 56.4 I have made some consequential changes to the existing fallowing and rotation conditions on the resource consent for MF246 so they incorporate the new management regime for identifying and managing effects at the salmon farming sites. I have also inserted these same conditions into the consents for the other sites which pre-date the MF246 consent and do not currently have any specific fallowing and rotation conditions.

CONCLUSION

- 57 In my opinion the proposal offers the opportunity for increased salmon production and operational flexibility, while protecting the Big Glory Bay environment.
- 58 Aquaculture, including salmon farming in Big Glory Bay is a keystone industry for Stewart Island and the proposal will assist in it continuing to fulfil this role in the future.
- 59 A substantial effort has gone into developing the proposed conditions with very helpful input from the Council, submitters and their respective advisors, such that they will ensure that effects of the activity are

acceptable, and that there are suitably robust mechanisms in place to identify and address any unexpected effects which might potentially occur.

- 60 I have also concluded that the proposal will be consistent with the outcomes sought in the relevant objectives and policies of the planning documents.
- 61 In my opinion I can see no planning impediment to granting consent to this application, subject to the imposition of the proposed conditions proffered.

Philip Hunter Mitchell

11 March 2019

Appendix 1 – Proposed Conditions

[LI320]

Environment Southland

Application No: S005-006

Consent No: 203236

Coastal Permit

Pursuant to Section 105(1) of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from 1 January 2005.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted:	To occupy part of the seabed with a marine farm
Location	- site locality Big Glory Bay, Stewart Island (LI320)
	- map reference As shown on attached map (dated 9 October 2008)
	- receiving environment Coastal marine area
Expiry Date	1 January 2025

Consent Amended Conditions amended on 12 November 2008, 11 December 2008, on 17 August 2011 after review and again on 31 January 2012 as follows:

Schedule of Conditions

Note: This consent document is for the deemed consent for LI320 that was reviewed in accordance with Section 10(4) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.

Term and Purpose

1A. The consent holder shall comply with the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203236, AUTH-203237, AUTH-203240, AUTH-203241 and AUTH-203242.

1. This consent expires on the 1 January 2025, unless it has been cancelled or surrendered at an earlier date pursuant to Section 126 or 138 respectively of the Resource Management Act 1991.

Note:

- (i) *This deemed coastal permit was created on the 1 January 2005 and expires on the 1 January 2025 pursuant to sections 8(2), 10(1) and 10(8) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004. This consent provides for the activities previously authorised by the Ministry of Fisheries Marine Farm Licence LI320, including any variations to that licence, at the time of transfer to the Southland Regional Council and any granted amendment to the consent by the Council up to, and including, the granting of the review amendment.*
 - (ii) *In accordance with section 126 of the Resource Management Act 1991, this deemed coastal permit may be cancelled if it has not been exercised within 5 years from the date of granting the review amendment. Continuing to exercise this deemed coastal permit means the site is actively used to farm the authorised species, not just having structures on the site.*
 - (iii) *It is accepted that “fallowing” may form part of the salmon farming activities and the consent may not be cancelled pursuant to section 126 of the Resource Management Act 1991 where the site is vacated of structures for the purpose of fallowing the seabed.*
 - (iv) *Pursuant to sections 123 and 124 of the Resource Management Act 1991, a new consent may be required at the expiration of this consent. The application will be considered in accordance with the plans in effect at that time, and the adverse effects of the proposed activity. The holder of this deemed coastal permit has a preferential right to apply for a new consent pursuant to section 49 of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004 and sections 165ZH and 124 of the Resource Management Act 1991.*
2.
 - (a) This consent authorises the placement of structures in, on and over the seabed, and the occupation of the coastal marine area with the structures for the purpose of marine farming the following species:
 - green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - quinnat salmon (*Oncorbynchus tshawytscha*);
 - blue mussels (*Mytilus galloprovincialis*);
 - Bluff dredge oysters (*Tiostrea chilensis*); and
 - scallops (*Pecten novaezelandiae*)
 - (b) Except for the green-lipped mussels, Bluff dredge oysters and salmon, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
 - (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
 - (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that *Undaria* and other marine fouling are eradicated prior to transportation.

- (e) This consent also authorises the deposition, on the seabed, of material, arising from marine farming the various organisms.
3. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown on the attached survey map dated 9 October 2008 for LI320, comprising approximately 3 hectares.

In addition, all used and unused mussel / salmon anchors outside the above co-ordinates that are detailed on the attached survey map are to be considered part of the marine farm site.

4. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at all times.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

5. The total nitrogen input from feed at the marine farm site for salmon between 1 July and 30 June each year shall be restricted to 200.6 73.792 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated. A significant adverse is considered to have occurred if no marine life exists under the salmon cages provided that:-~~
- (a) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that
- (i) until such time as the requirements of Condition 5A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership.
- 5A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:
- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and

(d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and

(e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and

(f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied.

6. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless the material has:

(a) Biosecurity New Zealand clearance as an imported feed product; or

(b) Approval from the Council's Director of Environmental Management.

7. The consent holder shall keep a record of all disinfectants, antibiotics, antifoulants or any other chemicals used in the marine farm site which must show the following information for each application:

(a) chemical name;

(b) quantity;

(c) date; and

(d) reason for use.

8. (a) The consent holder shall at all times during the continuance of this consent maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard. No significant alteration or deviation from the authorised structures that may adversely alter the impact on the environment is permitted without the prior written approval of the Council's Director of Environmental Management.

Note: any such alteration may require an application for a new resource consent or an amendment to this consent.

(b) Any authorised officer of the Council, may at all times, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair in the structures, requiring the consent holder to repair the structures, the consent holder shall, with all reasonable speed, cause the defect to be removed or the repairs to be made.

9. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm marked and lit in accordance with the navigation and safety requirements of the Council's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guideline for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or its replacement booklet.

- (b) Except for the purpose of navigational safety pursuant to condition 9(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.
10. The consent holder shall manage the marine farming operation in such a way that deposition of shell, and other material including feed, on the seabed is minimised. Any shell and other material collected from the site shall not be disposed of in the coastal marine area in an unauthorised manner.
11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site and used. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both Biosecurity New Zealand or the Council's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site, to the satisfaction of the Council's Director of Environmental Management.

Note:

- (a) *Another geographic coastal marine area from Big Glory Bay is outside of the Stewart Island / Rakiura coastal waters.*
 - (b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform Biosecurity New Zealand, as soon as practicable, of the presence of an organism not normally seen or otherwise detected in New Zealand.*
 - (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at Biosecurity New Zealand of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
- (b) The consent holder shall advise the Council's Biosecurity Manager, no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay.
12. The consent holder shall ensure that:
- (a) The marine farm site identification number LI320 is displayed above the water level at each four corners of the surface infrastructure block, and if relevant on the salmon marine farm structure, at all times to the satisfaction of the Council's Compliance Manager;
 - (b) no equipment or materials from the marine farming activity is stored in an unauthorised manner;
 - (c) all rubbish is removed from the marine farm site and disposed of at an authorised refuse site;
 - (d) any material lost from the marine farm site is retrieved where relevant, as soon as practicable;
 - (e) all reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Council's Harbourmaster is notified immediately of the situation;
 - (f) other than the deposition authorised under Condition 2, no oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or

polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;

- (g) in the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:
 - (i) take immediate steps to contain the spill and to recover it; and
 - (ii) notify as soon as practicable the Southland Regional Council's pollution hotline on 03 211 5245 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects; and
 - (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without the approval of the Southland Regional Council.
13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.
15. Upon expiry of the period for which the consent is granted, or on any cancellation of the consent, the consent holder shall, if required by the Council to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the consent holder fails to do so, the Council may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the consent holder.

Monitoring

16. (a) The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail.
- (b) The consent holder shall carry the following monitoring programme for the activity authorised by Condition 2(d) of this consent:
- (i) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (ii) Ensure that if any unwanted organism, pest (excluding Undaria), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and dispose of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary,

cleaned of the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Council's Director of Environmental Management established to ensure the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters no longer exists at the location. If the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.

- (iii) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 16(b)(i) and 16(b)(ii) of this consent. A copy of the entries in this log shall be made available to the Council on request.

17. Monitoring in accordance with the Big Glory Bay Monitoring Programme specified in Appendix 1 shall confirm with the following standards:

- (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, by the Council's Director of Environmental Management;
- (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Council's Director of Environmental Management;
- (c) the monitoring and analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Council's Director of Environmental Management;
- (d) the result of seabed analysis shall be supplied to the Southland Regional Council no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;
- (e) the results of water quality analysis shall be supplied to the Southland Regional Council no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
- (f) the Southland Regional Council may audit monitor sample collection up to once each year at a cost covered by the consent holder.

18. The consent holder shall undertake an investigation, if the result from any one sample in the Big Glory Bay Monitoring Programme specified in Appendix 1 identifies an adverse effect on the environment, to determine the probable cause of the adverse effect. A report shall be provided summarising the results and analysis on completion of the investigation sampling, but no later than two months from the initial sample that identified an adverse effect being provided to the Council.

Reporting

19. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of:
- (a) the data collected as part of the Big Glory Bay Monitoring Programme specified in Appendix 1; and on completion of the sampling but no later than 31 July each year.
 - (b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:
 - (i) A comparison with the results of previous monitoring at the same salmon farm site;
 - (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
 - (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
 - (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
 - (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results.
20. The consent holder shall provide an annual report summarising the annual volume of feed for salmon supplied between 1 July and 30 June each year to the marine farm site, no later than 31 July each year.
21. The consent holder shall notify the Council's Director of Environmental Management of the intention to change the species that will be farmed at the site at least six months prior to commencing farming the species.

Fallowing and Rotation

- 21A. The consent holder shall at all times undertake rotation and fallowing of their salmon farming operations in accordance with the Fallowing Plan in Appendix 2 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.
- 21B. If any time frame outlined in the Fallowing Plan in Appendix 2 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan as detailed in the General Conditions in Schedule A, cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Fallowing Plan.

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Council Charges

23. In consideration of the right to occupy Crown land in the coastal marine area for the activity specified above, the consent holder shall, each year, pay to the Southland Regional Council the appropriate coastal occupation charge specified in the Regional Coastal Plan. Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$562.71 plus GST, and shall be payable in advance on invoice. The revenue from this charge shall be used only for the purpose of promoting the sustainable management of the coastal marine area.
24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Southland Regional Council collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.

Review of Conditions

25. The Southland Regional Council may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:
- (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
 - (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
 - (c) Complying with the requirements of a regional plan; or
 - (d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment.
- (e) to address any matter raised in the annual monitoring report insofar as it relates to condition 19(b); or
- (f) to address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent

Note: The consent holder may request the Council to collaboratively review under Section 127 of the Act any specific consent conditions at any time for the same purposes in Condition 25(a) – (d).

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua.

Appendix One

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for LI339, ~~LI320, LI321, LI338, LI339~~, LI340, ~~MF246~~, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: it is the Council's intention that the Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, ~~LI320, LI321~~, LI322, LI323, LI324, LI325, LI337, ~~LI338~~, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, ~~MF246~~, MF247, MF248, MF273, MF274, MR275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed under the salmon cage as close as possible, and at 50 metres and 100 metres from that salmon cage shall be undertaken annually.

If the marine farm site is fallowed, the monitoring of the seabed shall be undertaken at five years, 10 years and 15 years from the date of the last annual monitoring occurring at the site. If the marine farm site is reactivated to farm salmon then the annual monitoring regime recommences and replaces this fallowing monitoring regime.

- ~~(iii) in addition to Clause 1 (a)(ii), no longer than one year prior to the marine farm site erecting structures to farm salmon, monitoring of the seabed under where the salmon cages are to be located as close as possible, and at 50 metres and 100 metres from where salmon cage are be located shall be undertaken. The monitoring report shall be furnished to the Council's Director of Environmental Management at least three months prior to the marine farm site erecting structures to farm salmon.~~

~~Note: this condition also applies to the site if it had been vacated of structures and stock for the purpose of fallowing the seabed. This condition does not apply to fallowing certain sections of the marine farm site by moving structures around within the same site.~~

- (iv) in addition to Clause 1 (a)(i), I (a)(ii) or 1 (a)(iii), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Council's Director of Environmental Management. The monitoring shall occur every year for the first three years, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:

- sediment colour, including providing a colour photograph of the sediment sample;
 - depth of the oxygenated layer below the sediment surface;
 - occurrence of hydrogen sulphide;
 - sediment texture and grain size;
 - total organic carbon content;
 - infaunal and epifauna community composition; and
 - zinc and copper trace metal levels pursuant to Clause 1(a)(ii) and (iii) listed above when relates to salmon farming
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (ii) after the first two years outlined in clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll *a*;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2 Following and Rotation Plan

Copied from Appendix 3 of MF246

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

[LI321]

Environment Southland

Application No: S005-006

Consent No: 203237

Coastal Permit

Pursuant to Section 105(1) of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from 1 January 2005.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted: To occupy part of the seabed with a marine farm

Location - site locality Big Glory Bay, Stewart Island (LI321)
- map reference As shown on attached map (dated 19 May 2008)
- receiving environment Coastal marine area

Expiry Date 1 January 2025

Consent Amended Conditions amended on 12 November 2008, 11 December 2008, on 17 August 2011 after review and again on 31 January 2012 as follows:

Schedule of Conditions

Note: This consent document is for the deemed consent for LI321 that was reviewed in accordance with Section 10(4) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.

Term and Purpose

1A. The consent holder shall comply with the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203236, AUTH-203237, AUTH-203240, AUTH-203241 and AUTH-203242.

1. This consent expires on the 1 January 2025, unless it has been cancelled or surrendered at an earlier date pursuant to Section 126 or 138 respectively of the Resource Management Act 1991.

Note:

- (i) *This deemed coastal permit was created on the 1 January 2005 and expires on the 1 January 2025 pursuant to sections 8(2), 10(1) and 10(8) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004. This consent provides for the activities previously authorised by the Ministry of Fisheries Marine Farm Licence LI321, including any variations to that licence, at the time of transfer to the Southland Regional Council and any granted amendment to the consent by the Council up to, and including, the granting of the review amendment.*
 - (ii) *In accordance with section 126 of the Resource Management Act 1991, this deemed coastal permit may be cancelled if it has not been exercised within 5 years from the date of granting the review amendment. Continuing to exercise this deemed coastal permit means the site is actively used to farm the authorised species, not just having structures on the site.*
 - (iii) *It is accepted that “fallowing” may form part of the salmon farming activities and the consent may not be cancelled pursuant to section 126 of the Resource Management Act 1991 where the site is vacated of structures for the purpose of fallowing the seabed.*
 - (iv) *Pursuant to sections 123 and 124 of the Resource Management Act 1991, a new consent may be required at the expiration of this consent. The application will be considered in accordance with the plans in effect at that time, and the adverse effects of the proposed activity. The holder of this deemed coastal permit has a preferential right to apply for a new consent pursuant to section 49 of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004 and sections 165ZH and 124 of the Resource Management Act 1991.*
2.
 - (a) This consent authorises the placement of structures in, on and over the seabed, and the occupation of the coastal marine area with the structures for the purpose of marine farming the following species:
 - green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - quinnat salmon (*Oncorbynchus tshawytscha*);
 - blue mussels (*Mytilus galloprovincialus*);
 - Bluff dredge oysters (*Tiostrea chilensis*); and
 - scallops (*Pecten novaezelandiae*)
 - (b) Except for the green-lipped mussels, Bluff dredge oysters and salmon, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
 - (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
 - (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that *Undaria* and other marine fouling are eradicated prior to transportation.

- (e) This consent also authorises the deposition, on the seabed, of material, arising from marine farming the various organisms.
3. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown on the attached survey map dated 19 May 2008 for LI321, comprising approximately 3 hectares.

In addition, all used and unused mussel / salmon anchors outside the above co-ordinates that are detailed on the attached survey map are to be considered part of the marine farm site.

4. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at all times.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

5. (a) Except where Condition 5(b) applies ~~The the~~ total nitrogen input from feed at the marine farm site for salmon between 1 July and 30 June each year shall be restricted to 73.792 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated. A significant adverse is considered to have occurred if no marine life exists under the salmon cages.~~
- (b) Where the consent holder:
- (i) holds additional resource consents that authorise salmon farming in Big Glory Bay that have conditions specifying allowable nitrogen input from feed; and/or
- (ii) has the written agreement of another consent holder in Big Glory Bay that holds a resource consent with conditions specifying allowable nitrogen input;
the consent holder may utilise that nitrogen input from feed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that:
- (iii) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that
- a. until such time as the requirements of Condition 5A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership; and

- (iv) modelling in DELFT3D, or alternative modelling software agreed to in writing by Environment Southland, has been undertaken by a suitably qualified, experienced, and independent person, which demonstrates that an additional amount of nitrogen input from feed above that authorised by Condition 5(a) does not result in:
- a. The monthly median concentrations of chlorophyll-a in the water column within Big Glory Bay (monthly median from a data set of all monitoring sites) being greater than 3.5 µg/l for three consecutive months; or
 - b. For three consecutive months, the concentration of chlorophyll-a in the water column (monthly median at any sampling site within Big Glory Bay) exceeding 5 µg/L:
 - at two or more sites for any two of those three consecutive months; and
 - at one or more sites for the remaining month; or
 - c. An increase in the average monthly excess total ammonia nitrogen in Big Glory Bay of more than 30 µg/L at the surface of the water column, when compared with baseline data from the same or comparable sampling sites from the period July 2015 to December 2017; or
 - d. The dissolved oxygen saturation in the water column at any sampling point more than 250 metres from the farm falling below 70% for three consecutive months (measured using 1 metre bins to 2 metres from the seabed); or
 - e. Total organic carbon deposition greater than 0.73 kg/m²/year more than 100 metres from the boundary of the site; or
 - f. Total faeces and solid waste deposition greater than 5 kg/m²/year more than 100 metres from the boundary of the site; and
- (v) the additional nitrogen input from feed allows compliance with criteria listed in Condition 5(b)(iv) to be assessed; and
- (vi) the feed deployed shall be consistent with the parameters of the feed modelled.

5A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:

- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and

(d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and

(e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and

(f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied.

6. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless the material has:

(a) Biosecurity New Zealand clearance as an imported feed product; or

(b) Approval from the Council's Director of Environmental Management.

7. The consent holder shall keep a record of all disinfectants, antibiotics, antifoulants or any other chemicals used in the marine farm site which must show the following information for each application:

(a) chemical name;

(b) quantity;

(c) date; and

(d) reason for use.

8. (a) The consent holder shall at all times during the continuance of this consent maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard. No significant alteration or deviation from the authorised structures that may adversely alter the impact on the environment is permitted without the prior written approval of the Council's Director of Environmental Management.

Note: any such alteration may require an application for a new resource consent or an amendment to this consent.

(b) Any authorised officer of the Council, may at all times, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair in the structures, requiring the consent holder to repair the structures, the consent holder shall, with all reasonable speed, cause the defect to be removed or the repairs to be made.

9. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm marked and lit in accordance with the navigation and safety requirements of the Council's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guideline for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or its replacement booklet.

- (b) Except for the purpose of navigational safety pursuant to condition 9(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.
10. The consent holder shall manage the marine farming operation in such a way that deposition of shell, and other material including feed, on the seabed is minimised. Any shell and other material collected from the site shall not be disposed of in the coastal marine area in an unauthorised manner.
11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site and used. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both Biosecurity New Zealand or the Council's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site, to the satisfaction of the Council's Director of Environmental Management.

Note:

- (a) *Another geographic coastal marine area from Big Glory Bay is outside of the Stewart Island / Rakiura coastal waters.*
 - (b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform Biosecurity New Zealand, as soon as practicable, of the presence of an organism not normally seen or otherwise detected in New Zealand.*
 - (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at Biosecurity New Zealand of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
- (b) The consent holder shall advise the Council's Biosecurity Manager, no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay.
12. The consent holder shall ensure that:
- (a) The marine farm site identification number LI321 is displayed above the water level at each four corners of the surface infrastructure block, and if relevant on the salmon marine farm structure, at all times to the satisfaction of the Council's Compliance Manager;
 - (b) no equipment or materials from the marine farming activity is stored in an unauthorised manner;
 - (c) all rubbish is removed from the marine farm site and disposed of at an authorised refuse site;
 - (d) any material lost from the marine farm site is retrieved where relevant, as soon as practicable;
 - (e) all reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Council's Harbourmaster is notified immediately of the situation;
 - (f) other than the deposition authorised under Condition 2, no oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or

polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;

- (g) in the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:
 - (i) take immediate steps to contain the spill and to recover it; and
 - (ii) notify as soon as practicable the Southland Regional Council's pollution hotline on 03 211 5245 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects; and
 - (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without the approval of the Southland Regional Council.
13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.
15. Upon expiry of the period for which the consent is granted, or on any cancellation of the consent, the consent holder shall, if required by the Council to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the consent holder fails to do so, the Council may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the consent holder.

Monitoring

16. (a) The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail.
- (b) The consent holder shall carry the following monitoring programme for the activity authorised by Condition 2(d) of this consent:
- (i) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (ii) Ensure that if any unwanted organism, pest (excluding Undaria), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and dispose of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary,

cleaned of the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Council's Director of Environmental Management established to ensure the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters no longer exists at the location. If the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.

- (iii) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 16(b)(i) and 16(b)(ii) of this consent. A copy of the entries in this log shall be made available to the Council on request.

17. Monitoring in accordance with the Big Glory Bay Monitoring Programme specified in Appendix 1 shall confirm with the following standards:

- (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, by the Council's Director of Environmental Management;
- (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Council's Director of Environmental Management;
- (c) the monitoring and analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Council's Director of Environmental Management;
- (d) the result of seabed analysis shall be supplied to the Southland Regional Council no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;
- (e) the results of water quality analysis shall be supplied to the Southland Regional Council no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
- (f) the Southland Regional Council may audit monitor sample collection up to once each year at a cost covered by the consent holder.

18. The consent holder shall undertake an investigation, if the result from any one sample in the Big Glory Bay Monitoring Programme specified in Appendix 1 identifies an adverse effect on the environment, to determine the probable cause of the adverse effect. A report shall be provided summarising the results and analysis on completion of the investigation sampling, but no later than two months from the initial sample that identified an adverse effect being provided to the Council.

Reporting

19. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of:
- (a) the data collected as part of the Big Glory Bay Monitoring Programme specified in Appendix 1; and on completion of the sampling but no later than 31 July each year.
 - (b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:
 - (i) A comparison with the results of previous monitoring at the same salmon farm site;
 - (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
 - (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
 - (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
 - (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results.
20. The consent holder shall provide an annual report summarising the annual volume of feed for salmon supplied between 1 July and 30 June each year to the marine farm site, no later than 31 July each year.
21. The consent holder shall notify the Council's Director of Environmental Management of the intention to change the species that will be farmed at the site at least six months prior to commencing farming the species.

Fallowing and Rotation

- 21A. The consent holder shall at all times undertake rotation and fallowing of their salmon farming operations in accordance with the Fallowing Plan in Appendix 2 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.
- 21B. If any time frame outlined in the Fallowing Plan in Appendix 2 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan as detailed in the General Conditions in Schedule A, cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Fallowing Plan.

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Council Charges

23. In consideration of the right to occupy Crown land in the coastal marine area for the activity specified above, the consent holder shall, each year, pay to the Southland Regional Council the appropriate coastal occupation charge specified in the Regional Coastal Plan. Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$562.71 plus GST, and shall be payable in advance on invoice. The revenue from this charge shall be used only for the purpose of promoting the sustainable management of the coastal marine area.
24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Southland Regional Council collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.

Review of Conditions

25. The Southland Regional Council may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:
- (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
 - (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
 - (c) Complying with the requirements of a regional plan; or
 - (d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment.
- (e) to address any matter raised in the annual monitoring report insofar as it relates to condition 19(b); or
- (f) to address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent.

Note: The consent holder may request the Council to collaboratively review under Section 127 of the Act any specific consent conditions at any time for the same purposes in Condition 25(a) – (d).

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua

Appendix One

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for LI320, LI321, LI338, LI339, LI340, MF246, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: it is the Council's intention that the Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, LI320, LI321, LI322, LI323, LI324, LI325, LI337, LI338, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, MF246, MF247, MF248, MF273, MF274, MR275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed under the salmon cage as close as possible, and at 50 metres and 100 metres from that salmon cage shall be undertaken annually.

If the marine farm site is fallowed, the monitoring of the seabed shall be undertaken at five years, 10 years and 15 years from the date of the last annual monitoring occurring at the site. If the marine farm site is reactivated to farm salmon then the annual monitoring regime recommences and replaces this following monitoring regime.

- ~~(iii) in addition to Clause 1 (a)(ii), no longer than one year prior to the marine farm site erecting structures to farm salmon, monitoring of the seabed under where the salmon cages are to be located as close as possible, and at 50 metres and 100 metres from where salmon cage are to be located shall be undertaken. The monitoring report shall be furnished to the Council's Director of Environmental Management at least three months prior to the marine farm site erecting structures to farm salmon.~~

~~Note: this condition also applies to the site if it had been vacated of structures and stock for the purpose of fallowing the seabed. This condition does not apply to fallowing certain sections of the marine farm site by moving structures around within the same site.~~

- (iv) in addition to Clause 1 (a)(i), 1 (a)(ii) or 1 (a)(iii), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Council's Director of Environmental Management. The monitoring shall occur every year for the first three years, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:
 - sediment colour, including providing a colour photograph of the sediment sample;

- depth of the oxygenated layer below the sediment surface;
 - occurrence of hydrogen sulphide;
 - sediment texture and grain size;
 - total organic carbon content;
 - infaunal and epifauna community composition; and
 - zinc and copper trace metal levels pursuant to Clause 1(a)(ii) and (iii) listed above when relates to salmon farming
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (ii) after the first two years outlined in clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll *a*;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2 Following and Rotation Plan

As copied from Appendix 3 of MF246

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

[LI338]

Environment Southland

Application No: S005-006

Consent No: 203240

Coastal Permit

Pursuant to Section 105(1) of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from 1 January 2005.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted: To occupy part of the seabed with a marine farm

Location - site locality Big Glory Bay, Stewart Island (LI338)
- map reference As shown on attached map (dated 28 April 2008)
- receiving environment Coastal marine area

Expiry Date 1 January 2025

Consent Amended Conditions amended on 12 November 2008, 11 December 2008, on 17 August 2011 after review and again on 31 January 2012 as follows:

Schedule of Conditions

Note: This consent document is for the deemed consent for LI338 that was reviewed in accordance with Section 10(4) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.

Term and Purpose

1A. The consent holder shall comply with the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203236, AUTH-203237, AUTH-203240, AUTH-203241 and AUTH-203242.

1. This consent expires on the 1 January 2025, unless it has been cancelled or surrendered at an earlier date pursuant to Section 126 or 138 respectively of the Resource Management Act 1991.

Note:

- (i) *This deemed coastal permit was created on the 1 January 2005 and expires on the 1 January 2025 pursuant to sections 8(2), 10(1) and 10(8) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004. This consent provides for the activities previously authorised by the Ministry of Fisheries Marine Farm Licence LI338, including any variations to that licence, at the time of transfer to the Southland Regional Council and any granted amendment to the consent by the Council up to, and including, the granting of the review amendment.*
 - (ii) *In accordance with section 126 of the Resource Management Act 1991, this deemed coastal permit may be cancelled if it has not been exercised within 5 years from the date of granting the review amendment. Continuing to exercise this deemed coastal permit means the site is actively used to farm the authorised species, not just having structures on the site.*
 - (iii) *It is accepted that “fallowing” may form part of the salmon farming activities and the consent may not be cancelled pursuant to section 126 of the Resource Management Act 1991 where the site is vacated of structures for the purpose of fallowing the seabed.*
 - (iv) *Pursuant to sections 123 and 124 of the Resource Management Act 1991, a new consent may be required at the expiration of this consent. The application will be considered in accordance with the plans in effect at that time, and the adverse effects of the proposed activity. The holder of this deemed coastal permit has a preferential right to apply for a new consent pursuant to section 49 of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004 and sections 165ZH and 124 of the Resource Management Act 1991.*
2.
 - (a) This consent authorises the placement of structures in, on and over the seabed, and the occupation of the coastal marine area with the structures for the purpose of marine farming the following species:
 - green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - quinnat salmon (*Oncorbynchus tshawytscha*);
 - blue mussels (*Mytilus galloprovincialus*);
 - Bluff dredge oysters (*Tiostrea chilensis*); and
 - scallops (*Pecten novaezelandiae*)
 - (b) Except for the green-lipped mussels, Bluff dredge oysters and salmon, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
 - (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
 - (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that *Undaria* and other marine fouling are eradicated prior to transportation.

- (e) This consent also authorises the deposition, on the seabed, of material, arising from marine farming the various organisms.
3. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown on the attached survey map dated 28 April 2008 for LI338, comprising approximately 4.5 hectares.

In addition, all used and unused mussel / salmon anchors outside the above co-ordinates that are detailed on the attached survey map are to be considered part of the marine farm site.

4. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at all times.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

5. (a) Except where Condition 5(b) applies ~~The the~~ total nitrogen input from feed at the marine farm site for salmon between 1 July and 30 June each year shall be restricted to 73.792 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated. A significant adverse is considered to have occurred if no marine life exists under the salmon cages.~~
- (b) Where the consent holder:
- (i) holds additional resource consents that authorise salmon farming in Big Glory Bay that have conditions specifying allowable nitrogen input from feed; and/or
- (ii) has the written agreement of another consent holder in Big Glory Bay that holds a resource consent with conditions specifying allowable nitrogen input;
the consent holder may utilise that nitrogen input from feed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that:
- (iii) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that
- a. until such time as the requirements of Condition 5A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership; and

- (iv) modelling in DELFT3D, or alternative modelling software agreed to in writing by Environment Southland, has been undertaken by a suitably qualified, experienced, and independent person, which demonstrates that an additional amount of nitrogen input from feed above that authorised by Condition 5(a) does not result in:
- a. The monthly median concentrations of chlorophyll-a in the water column within Big Glory Bay (monthly median from a data set of all monitoring sites) being greater than 3.5 µg/l for three consecutive months; or
 - b. For three consecutive months, the concentration of chlorophyll-a in the water column (monthly median at any sampling site within Big Glory Bay) exceeding 5 µg/L:
 - at two or more sites for any two of those three consecutive months; and
 - at one or more sites for the remaining month; or
 - c. An increase in the average monthly excess total ammonia nitrogen in Big Glory Bay of more than 30 µg/L at the surface of the water column, when compared with baseline data from the same or comparable sampling sites from the period July 2015 to December 2017; or
 - d. The dissolved oxygen saturation in the water column at any sampling point more than 250 metres from the farm falling below 70% for three consecutive months (measured using 1 metre bins to 2 metres from the seabed); or
 - e. Total organic carbon deposition greater than 0.73 kg/m²/year more than 100 metres from the boundary of the site; or
 - f. Total faeces and solid waste deposition greater than 5 kg/m²/year more than 100 metres from the boundary of the site; and
- (v) the additional nitrogen input from feed allows compliance with criteria listed in Condition 5(b)(iv) to be assessed; and
- (vi) the feed deployed shall be consistent with the parameters of the feed modelled.

5A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:

- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and

(d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and

(e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and

(f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied.

6. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless the material has:

(a) Biosecurity New Zealand clearance as an imported feed product; or

(b) Approval from the Council's Director of Environmental Management.

7. The consent holder shall keep a record of all disinfectants, antibiotics, antifoulants or any other chemicals used in the marine farm site which must show the following information for each application:

(a) chemical name;

(b) quantity;

(c) date; and

(d) reason for use.

8. (a) The consent holder shall at all times during the continuance of this consent maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard. No significant alteration or deviation from the authorised structures that may adversely alter the impact on the environment is permitted without the prior written approval of the Council's Director of Environmental Management.

Note: any such alteration may require an application for a new resource consent or an amendment to this consent.

(b) Any authorised officer of the Council, may at all times, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair in the structures, requiring the consent holder to repair the structures, the consent holder shall, with all reasonable speed, cause the defect to be removed or the repairs to be made.

9. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm marked and lit in accordance with the navigation and safety requirements of the Council's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guideline for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or its replacement booklet.

- (b) Except for the purpose of navigational safety pursuant to condition 9(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.
10. The consent holder shall manage the marine farming operation in such a way that deposition of shell, and other material including feed, on the seabed is minimised. Any shell and other material collected from the site shall not be disposed of in the coastal marine area in an unauthorised manner.
11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site and used. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both Biosecurity New Zealand or the Council's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site, to the satisfaction of the Council's Director of Environmental Management.

Note:

- (a) *Another geographic coastal marine area from Big Glory Bay is outside of the Stewart Island / Rakiura coastal waters.*
 - (b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform Biosecurity New Zealand, as soon as practicable, of the presence of an organism not normally seen or otherwise detected in New Zealand.*
 - (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at Biosecurity New Zealand of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
- (b) The consent holder shall advise the Council's Biosecurity Manager, no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay.
12. The consent holder shall ensure that:
- (a) The marine farm site identification number LI338 is displayed above the water level at each four corners of the surface infrastructure block, and if relevant on the salmon marine farm structure, at all times to the satisfaction of the Council's Compliance Manager;
 - (b) no equipment or materials from the marine farming activity is stored in an unauthorised manner;
 - (c) all rubbish is removed from the marine farm site and disposed of at an authorised refuse site;
 - (d) any material lost from the marine farm site is retrieved where relevant, as soon as practicable;
 - (e) all reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Council's Harbourmaster is notified immediately of the situation;
 - (f) other than the deposition authorised under Condition 2, no oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or

polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;

- (g) in the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:
 - (i) take immediate steps to contain the spill and to recover it; and
 - (ii) notify as soon as practicable the Southland Regional Council's pollution hotline on 03 211 5245 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects; and
 - (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without the approval of the Southland Regional Council.
13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.
15. Upon expiry of the period for which the consent is granted, or on any cancellation of the consent, the consent holder shall, if required by the Council to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the consent holder fails to do so, the Council may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the consent holder.

Monitoring

16. (a) The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail.
- (b) The consent holder shall carry the following monitoring programme for the activity authorised by Condition 2(d) of this consent:
- (i) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (ii) Ensure that if any unwanted organism, pest (excluding Undaria), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and disposed of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary,

cleaned of the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Council's Director of Environmental Management established to ensure the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters no longer exists at the location. If the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.

- (iii) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 16(b)(i) and 16(b)(ii) of this consent. A copy of the entries in this log shall be made available to the Council on request.

17. Monitoring in accordance with the Big Glory Bay Monitoring Programme specified in Appendix 1 shall confirm with the following standards:
 - (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (c) the monitoring and analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (d) the result of seabed analysis shall be supplied to the Southland Regional Council no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;
 - (e) the results of water quality analysis shall be supplied to the Southland Regional Council no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
 - (f) the Southland Regional Council may audit monitor sample collection up to once each year at a cost covered by the consent holder.
18. The consent holder shall undertake an investigation, if the result from any one sample in the Big Glory Bay Monitoring Programme specified in Appendix 1 identifies an adverse effect on the environment, to determine the probable cause of the adverse effect. A report shall be provided summarising the results and analysis on completion of the investigation sampling, but no later than two months from the initial sample that identified an adverse effect being provided to the Council.

Reporting

19. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of:
- (a) the data collected as part of the Big Glory Bay Monitoring Programme specified in Appendix 1; and ~~on completion of the sampling but no later than 31 July each year.~~
 - (b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:
 - (i) A comparison with the results of previous monitoring at the same salmon farm site;
 - (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
 - (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
 - (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
 - (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results.
20. The consent holder shall provide an annual report summarising the annual volume of feed for salmon supplied between 1 July and 30 June each year to the marine farm site, no later than 31 July each year.
21. The consent holder shall notify the Council's Director of Environmental Management of the intention to change the species that will be farmed at the site at least six months prior to commencing farming the species.

Fallowing and Rotation

- 21A. The consent holder shall at all times undertake rotation and fallowing of their salmon farming operations in accordance with the Fallowing Plan in Appendix 2 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.
- 21B. If any time frame outlined in the Fallowing Plan in Appendix 2 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan as detailed in the General Conditions in Schedule A, cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Fallowing Plan.

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Council Charges

23. In consideration of the right to occupy Crown land in the coastal marine area for the activity specified above, the consent holder shall, each year, pay to the Southland Regional Council the appropriate coastal occupation charge specified in the Regional Coastal Plan. Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$562.71 plus GST, and shall be payable in advance on invoice. The revenue from this charge shall be used only for the purpose of promoting the sustainable management of the coastal marine area.
24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Southland Regional Council collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.

Review of Conditions

25. The Southland Regional Council may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:
 - (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
 - (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
 - (c) Complying with the requirements of a regional plan; or
 - (d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment.
 - (e) To address any matter raised in the annual monitoring report insofar as it relates to condition 19(b); or
 - (f) To address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent

Note: The consent holder may request the Council to collaboratively review under Section 127 of the Act any specific consent conditions at any time for the same purposes in Condition 25(a) – (df).

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua

Appendix One

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for ~~LI320, LI321, LI338~~, LI339, LI340, ~~MF246~~, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: it is the Council's intention that the Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, ~~LI320, LI321~~, LI322, LI323, LI324, LI325, LI337, LI338, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, ~~MF246~~, MF247, MF248, MF273, MF274, MR275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed under the salmon cage as close as possible, and at 50 metres and 100 metres from that salmon cage shall be undertaken annually.

If the marine farm site is fallowed, the monitoring of the seabed shall be undertaken at five years, 10 years and 15 years from the date of the last annual monitoring occurring at the site. If the marine farm site is reactivated to farm salmon then the annual monitoring regime recommences and replaces this fallowing monitoring regime.

- ~~(iii) in addition to Clause 1 (a)(ii), no longer than one year prior to the marine farm site erecting structures to farm salmon, monitoring of the seabed under where the salmon cages are to be located as close as possible, and at 50 metres and 100 metres from where salmon cage are to be located shall be undertaken. The monitoring report shall be furnished to the Council's Director of Environmental Management at least three months prior to the marine farm site erecting structures to farm salmon.~~

~~*Note: this condition also applies to the site if it had been vacated of structures and stock for the purpose of fallowing the seabed. This condition does not apply to fallowing certain sections of the marine farm site by moving structures around within the same site.*~~

- (iv) in addition to Clause 1 (a)(i), 1 (a)(ii) or 1 (a)(iii), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Council's Director of Environmental Management. The monitoring shall occur every year for the first three years, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:

- sediment colour, including providing a colour photograph of the sediment sample;
 - depth of the oxygenated layer below the sediment surface;
 - occurrence of hydrogen sulphide;
 - sediment texture and grain size;
 - total organic carbon content;
 - infaunal and epifauna community composition; and
 - zinc and copper trace metal levels pursuant to Clause 1(a)(ii) and (iii) listed above when relates to salmon farming
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (ii) after the first two years outlined in clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll *a*;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2 Following and Rotation Plan

Copied from Appendix 3 of MF246

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

[LI339]

Environment Southland

Application No: S005-006

Consent No: 203241

Coastal Permit

Pursuant to Section 105(1) of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from 1 January 2005.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted: To occupy part of the seabed with a marine farm

Location - site locality Big Glory Bay, Stewart Island (LI339)
- map reference As shown on attached map (dated 28 April 2008)
- receiving environment Coastal marine area

Expiry Date 1 January 2025

Consent Amended Conditions amended on 12 November 2008, 11 December 2008, on 17 August 2011 after review and again on 31 January 2012 as follows:

Schedule of Conditions

Note: This consent document is for the deemed consent for LI339 that was reviewed in accordance with Section 10(4) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.

Term and Purpose

1A. The consent holder shall comply the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203236, AUTH-203237, AUTH-203240, AUTH-203241 and AUTH-203242.

1. This consent expires on the 1 January 2025, unless it has been cancelled or surrendered at an earlier date pursuant to Section 126 or 138 respectively of the Resource Management Act 1991.

Note:

- (i) *This deemed coastal permit was created on the 1 January 2005 and expires on the 1 January 2025 pursuant to sections 8(2), 10(1) and 10(8) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004. This consent provides for the activities previously authorised by the Ministry of Fisheries Marine Farm Licence LI339, including any variations to that licence, at the time of transfer to the Southland Regional Council and any granted amendment to the consent by the Council up to, and including, the granting of the review amendment.*
 - (ii) *In accordance with section 126 of the Resource Management Act 1991, this deemed coastal permit may be cancelled if it has not been exercised within 5 years from the date of granting the review amendment. Continuing to exercise this deemed coastal permit means the site is actively used to farm the authorised species, not just having structures on the site.*
 - (iii) *It is accepted that “fallowing” may form part of the salmon farming activities and the consent may not be cancelled pursuant to section 126 of the Resource Management Act 1991 where the site is vacated of structures for the purpose of fallowing the seabed.*
 - (iv) *Pursuant to sections 123 and 124 of the Resource Management Act 1991, a new consent may be required at the expiration of this consent. The application will be considered in accordance with the plans in effect at that time, and the adverse effects of the proposed activity. The holder of this deemed coastal permit has a preferential right to apply for a new consent pursuant to section 49 of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004 and sections 165ZH and 124 of the Resource Management Act 1991.*
2. (a) This consent authorises the placement of structures in, on and over the seabed, and the occupation of the coastal marine area with the structures for the purpose of marine farming the following species:
 - green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - quinnat salmon (*Oncorbynchus tshawytscha*);
 - blue mussels (*Mytilus galloprovincialis*);
 - Bluff dredge oysters (*Tiostrea chilensis*); and
 - scallops (*Pecten novaezelandiae*)
 - (b) Except for the green-lipped mussels, Bluff dredge oysters and salmon, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
 - (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
 - (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that *Undaria* and other marine fouling are eradicated prior to transportation.
 - (e) This consent also authorises the deposition, on the seabed, of material, arising from marine farming the various organisms.
3. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown

on the attached survey map dated 24 April 2008 for LI339, comprising approximately 4 hectares.

In addition, all used and unused mussel / salmon anchors outside the above co-ordinates that are detailed on the attached survey map are to be considered part of the marine farm site.

4. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at all times.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

5. (a) Except where Condition 5(b) applies The the total nitrogen input from feed at the marine farm site for salmon between 1 July and 30 June each year shall be restricted to 55.344 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated. A significant adverse is considered to have occurred if no marine life exists under the salmon cages.~~
 - (b) Where the consent holder:
 - (i) holds additional resource consents that authorise salmon farming in Big Glory Bay that have conditions specifying allowable nitrogen input from feed; and/or
 - (ii) has the written agreement of another consent holder in Big Glory Bay that holds a resource consent with conditions specifying allowable nitrogen input;

the consent holder may utilise that nitrogen input from feed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that:
 - (iii) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that
 - a. until such time as the requirements of Condition 5A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership; and
 - (iv) modelling in DELFT3D, or alternative modelling software agreed to in writing by Environment Southland, has been undertaken by a suitably qualified, experienced, and independent person, which demonstrates that an additional amount of nitrogen input from feed above that authorised by Condition 5(a) does not result in:

- a. The monthly median concentrations of chlorophyll-a in the water column within Big Glory Bay (monthly median from a data set of all monitoring sites) being greater than 3.5 µg/l for three consecutive months; or
- b. For three consecutive months, the concentration of chlorophyll-a in the water column (monthly median at any sampling site within Big Glory Bay) exceeding 5 µg/L:
 - at two or more sites for any two of those three consecutive months; and
 - at one or more sites for the remaining month; or
- c. An increase in the average monthly excess total ammonia nitrogen in Big Glory Bay of more than 30 µg/L at the surface of the water column, when compared with baseline data from the same or comparable sampling sites from the period July 2015 to December 2017; or
- d. The dissolved oxygen saturation in the water column at any sampling point more than 250 metres from the farm falling below 70% for three consecutive months (measured using 1 metre bins to 2 metres from the seabed); or
- e. Total organic carbon deposition greater than 0.73 kg/m²/year more than 100 metres from the boundary of the site; or
- f. Total faeces and solid waste deposition greater than 5 kg/m²/year more than 100 metres from the boundary of the site; and
- (v) the additional nitrogen input from feed allows compliance with criteria listed in Condition 5(b)(iv) to be assessed; and
- (vi) the feed deployed shall be consistent with the parameters of the feed modelled.

5A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:

- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and
- (d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and
- (e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in

Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and

(f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied.

6. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless the material has:
- (a) Biosecurity New Zealand clearance as an imported feed product; or
 - (b) Approval from the Council's Director of Environmental Management.

7. The consent holder shall keep a record of all disinfectants, antibiotics, antifoulants or any other chemicals used in the marine farm site which must show the following information for each application:
- (a) chemical name;
 - (b) quantity;
 - (c) date; and
 - (d) reason for use.

8. (a) The consent holder shall at all times during the continuance of this consent maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard. No significant alteration or deviation from the authorised structures that may adversely alter the impact on the environment is permitted without the prior written approval of the Council's Director of Environmental Management.

Note: any such alteration may require an application for a new resource consent or an amendment to this consent.

- (b) Any authorised officer of the Council, may at all times, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair in the structures, requiring the consent holder to repair the structures, the consent holder shall, with all reasonable speed, cause the defect to be removed or the repairs to be made.

9. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm marked and lit in accordance with the navigation and safety requirements of the Council's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guideline for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or its replacement booklet.

- (b) Except for the purpose of navigational safety pursuant to condition 9(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.

10. The consent holder shall manage the marine farming operation in such a way that

deposition of shell, and other material including feed, on the seabed is minimised. Any shell and other material collected from the site shall not be disposed of in the coastal marine area in an unauthorised manner.

11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site and used. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both Biosecurity New Zealand or the Council's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site, to the satisfaction of the Council's Director of Environmental Management.

Note:

- (a) *Another geographic coastal marine area from Big Glory Bay is outside of the Stewart Island / Rakiura coastal waters.*
- (b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform Biosecurity New Zealand, as soon as practicable, of the presence of an organism not normally seen or otherwise detected in New Zealand.*
- (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at Biosecurity New Zealand of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
- (b) The consent holder shall advise the Council's Biosecurity Manager, no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay.

12. The consent holder shall ensure that:

- (a) The marine farm site identification number LI339 is displayed above the water level at each four corners of the surface infrastructure block, and if relevant on the salmon marine farm structure, at all times to the satisfaction of the Council's Compliance Manager;
- (b) no equipment or materials from the marine farming activity is stored in an unauthorised manner;
- (c) all rubbish is removed from the marine farm site and disposed of at an authorised refuse site;
- (d) any material lost from the marine farm site is retrieved where relevant, as soon as practicable;
- (e) all reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Council's Harbourmaster is notified immediately of the situation;
- (f) other than the deposition authorised under Condition 2, no oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;
- (g) in the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:
- (i) take immediate steps to contain the spill and to recover it; and

- (ii) notify as soon as practicable the Southland Regional Council's pollution hotline on 03 211 5245 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects; and
 - (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without the approval of the Southland Regional Council.
13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
 14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.
 15. Upon expiry of the period for which the consent is granted, or on any cancellation of the consent, the consent holder shall, if required by the Council to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the consent holder fails to do so, the Council may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the consent holder.

Monitoring

16. (a) The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail.
- (b) The consent holder shall carry the following monitoring programme for the activity authorised by Condition 2(d) of this consent:
 - (i) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (ii) Ensure that if any unwanted organism, pest (excluding Undaria), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and dispose of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary, cleaned of the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Council's Director of Environmental Management established to ensure the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters no longer exists at the location. If the unwanted organism pest

(excluding Undaria), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.

- (iii) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 16(b)(i) and 16(b)(ii) of this consent. A copy of the entries in this log shall be made available to the Council on request.

17. Monitoring in accordance with the Big Glory Bay Monitoring Programme specified in Appendix 1 shall confirm with the following standards:

- (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, by the Council's Director of Environmental Management;
- (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Council's Director of Environmental Management;
- (c) the monitoring and analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Council's Director of Environmental Management;
- (d) the result of seabed analysis shall be supplied to the Southland Regional Council no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;
- (e) the results of water quality analysis shall be supplied to the Southland Regional Council no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
- (f) the Southland Regional Council may audit monitor sample collection up to once each year at a cost covered by the consent holder.

18. The consent holder shall undertake an investigation, if the result from any one sample in the Big Glory Bay Monitoring Programme specified in Appendix 1 identifies an adverse effect on the environment, to determine the probable cause of the adverse effect. A report shall be provided summarising the results and analysis on completion of the investigation sampling, but no later than two months from the initial sample that identified an adverse effect being provided to the Council.

Reporting

19. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of:

- (a) the data collected as part of the Big Glory Bay Monitoring Programme specified in Appendix 1; and on completion of the sampling but no later than 31 July each year.

(b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:

- (i) A comparison with the results of previous monitoring at the same salmon farm site;
- (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
- (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
- (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
- (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results.

20. The consent holder shall provide an annual report summarising the annual volume of feed for salmon supplied between 1 July and 30 June each year to the marine farm site, no later than 31 July each year.

21. The consent holder shall notify the Council's Director of Environmental Management of the intention to change the species that will be farmed at the site at least six months prior to commencing farming the species.

Following and Rotation

21A. The consent holder shall at all times undertake rotation and following of their salmon farming operations in accordance with the Following Plan in Appendix 2 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.

21B. If any time frame outlined in the Following Plan in Appendix 2 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan as detailed in the General Conditions in Schedule A, cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Following Plan.

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Council Charges

23. In consideration of the right to occupy Crown land in the coastal marine area for the activity specified above, the consent holder shall, each year, pay to the Southland Regional Council the appropriate coastal occupation charge specified in the Regional Coastal Plan. Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$562.71 plus GST, and shall be payable in advance on invoice. The revenue from this

charge shall be used only for the purpose of promoting the sustainable management of the coastal marine area.

24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Southland Regional Council collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.

Review of Conditions

25. The Southland Regional Council may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:

- (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
- (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
- (c) Complying with the requirements of a regional plan; or
- (d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment.

(e) to address any matter raised in the annual monitoring report insofar as it relates to condition 19(b); or

(f) to address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent.

Note: The consent holder may request the Council to collaboratively review under Section 127 of the Act any specific consent conditions at any time for the same purposes in Condition 25(a) – (ef).

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua.

Appendix One

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for LI320, LI321, LI338, LI339, LI340, MF246, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: it is the Council's intention that the Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, LI320, LI321, LI322, LI323, LI324, LI325, LI337, LI338, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, MF246, MF247, MF248, MF273, MF274, MR275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed under the salmon cage as close as possible, and at 50 metres and 100 metres from that salmon cage shall be undertaken annually.

If the marine farm site is fallowed, the monitoring of the seabed shall be undertaken at five years, 10 years and 15 years from the date of the last annual monitoring occurring at the site. If the marine farm site is reactivated to farm salmon then the annual monitoring regime recommences and replaces this fallowing monitoring regime.

- ~~(iii) in addition to Clause 1 (a)(ii), no longer than one year prior to the marine farm site erecting structures to farm salmon, monitoring of the seabed under where the salmon cages are to be located as close as possible, and at 50 metres and 100 metres from where salmon cage are to be located shall be undertaken. The monitoring report shall be furnished to the Council's Director of Environmental Management at least three months prior to the marine farm site erecting structures to farm salmon.~~

~~Note: this condition also applies to the site if it had been vacated of structures and stock for the purpose of fallowing the seabed. This condition does not apply to fallowing certain sections of the marine farm site by moving structures around within the same site.~~

- (iv) in addition to Clause 1 (a)(i), 1 (a)(ii) or 1 (a)(iii), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Council's Director of Environmental Management. The monitoring shall occur every year for the first three years, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:

- sediment colour, including providing a colour photograph of the sediment sample;
 - depth of the oxygenated layer below the sediment surface;
 - occurrence of hydrogen sulphide;
 - sediment texture and grain size;
 - total organic carbon content;
 - infaunal and epifauna community composition; and
 - zinc and copper trace metal levels pursuant to Clause 1(a)(ii) and (iii) listed above when relates to salmon farming
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (ii) after the first two years outlined in clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll a;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2 Following and Rotation Plan

Copied from Appendix 3 of MF246

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

[LI340]

Environment Southland

Application No: S005-006

Consent No: 203242

Coastal Permit

Pursuant to Section 105(1) of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from 1 January 2005.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted: To occupy part of the seabed with a marine farm

Location - site locality Big Glory Bay, Stewart Island (LI340)
- map reference As shown on attached map (dated 28 April 2008)
- receiving environment Coastal marine area

Expiry Date 1 January 2025

Consent Amended Conditions amended on 12 November 2008, 11 December 2008, on 17 August 2011 after review and again on 31 January 2012 as follows:

Schedule of Conditions

Note: This consent document is for the deemed consent for LI340 that was reviewed in accordance with Section 10(4) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.

Term and Purpose

1A. The consent holder shall comply with the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203226, AUTH-203227, AUTH-203240, AUTH-203241 and AUTH-203242.

1. This consent expires on the 1 January 2025, unless it has been cancelled or surrendered at an earlier date pursuant to Section 126 or 138 respectively of the Resource Management Act 1991.

Note:

- (i) *This deemed coastal permit was created on the 1 January 2005 and expires on the 1 January 2025 pursuant to sections 8(2), 10(1) and 10(8) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004. This consent provides for the activities previously authorised by the Ministry of Fisheries Marine Farm Licence LI340, including any variations to that licence, at the time of transfer to the Southland Regional Council and any granted amendment to the consent by the Council up to, and including, the granting of the review amendment.*
 - (ii) *In accordance with section 126 of the Resource Management Act 1991, this deemed coastal permit may be cancelled if it has not been exercised within 5 years from the date of granting the review amendment. Continuing to exercise this deemed coastal permit means the site is actively used to farm the authorised species, not just having structures on the site.*
 - (iii) *It is accepted that “fallowing” may form part of the salmon farming activities and the consent may not be cancelled pursuant to section 126 of the Resource Management Act 1991 where the site is vacated of structures for the purpose of fallowing the seabed.*
 - (iv) *Pursuant to sections 123 and 124 of the Resource Management Act 1991, a new consent may be required at the expiration of this consent. The application will be considered in accordance with the plans in effect at that time, and the adverse effects of the proposed activity. The holder of this deemed coastal permit has a preferential right to apply for a new consent pursuant to section 49 of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004 and sections 165ZH and 124 of the Resource Management Act 1991.*
2. (a) This consent authorises the placement of structures in, on and over the seabed, and the occupation of the coastal marine area with the structures for the purpose of marine farming the following species:
- green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - quinnat salmon (*Oncorbynchus tshawytscha*);
 - blue mussels (*Mytilus galloprovincialis*);
 - Bluff dredge oysters (*Tiostrea chilensis*); and
 - scallops (*Pecten novaezelandiae*)
- (b) Except for the green-lipped mussels, Bluff dredge oysters and salmon, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
- (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
- (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that Undaria and other marine fouling are eradicated prior to transportation.
- (e) This consent also authorises the deposition, on the seabed, of material, arising from marine farming the various organisms.

3. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown on the attached survey map dated 24 April 2008 for LI340, comprising approximately 4 hectares.

In addition, all used and unused mussel / salmon anchors outside the above co-ordinates that are detailed on the attached survey map are to be considered part of the marine farm site.

4. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at all times.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

5. ~~(a) Except where Condition 5(b) applies The the~~ total nitrogen input from feed at the marine farm site for salmon between 1 July and 30 June each year shall be restricted to 55.344 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated. A significant adverse is considered to have occurred if no marine life exists under the salmon cages.~~

~~(b) Where the consent holder:~~

~~(i) holds additional resource consents that authorise salmon farming in Big Glory Bay that have conditions specifying allowable nitrogen input from feed; and/or~~

~~(ii) has the written agreement of another consent holder in Big Glory Bay that holds a resource consent with conditions specifying allowable nitrogen input;~~

~~the consent holder may utilise that nitrogen input from feed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that:~~

~~(iii) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that~~

~~a. until such time as the requirements of Condition 5A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership; and~~

~~(iv) modelling in DELFT3D, or alternative modelling software agreed to in writing by Environment Southland, has been undertaken by a suitably qualified, experienced, and independent person, which demonstrates that~~

an additional amount of nitrogen input from feed above that authorised by Condition 5(a) does not result in:

- a. The monthly median concentrations of chlorophyll-a in the water column within Big Glory Bay (monthly median from a data set of all monitoring sites) being greater than 3.5 µg/l for three consecutive months; or
 - b. For three consecutive months, the concentration of chlorophyll-a in the water column (monthly median at any sampling site within Big Glory Bay) exceeding 5 µg/L:
 - at two or more sites for any two of those three consecutive months; and
 - at one or more sites for the remaining month; or
 - c. An increase in the average monthly excess total ammonia nitrogen in Big Glory Bay of more than 30 µg/L at the surface of the water column, when compared with baseline data from the same or comparable sampling sites from the period July 2015 to December 2017; or
 - d. The dissolved oxygen saturation in the water column at any sampling point more than 250 metres from the farm falling below 70% for three consecutive months (measured using 1 metre bins to 2 metres from the seabed); or
 - e. Total organic carbon deposition greater than 0.73 kg/m²/year more than 100 metres from the boundary of the site; or
 - f. Total faeces and solid waste deposition greater than 5 kg/m²/year more than 100 metres from the boundary of the site; and
- (v) the additional nitrogen input from feed allows compliance with criteria listed in Condition 5(b)(iv) to be assessed; and
- (vi) the feed deployed shall be consistent with the parameters of the feed modelled.

5A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:

- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and
- (d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and

(e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and

(f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied.

6. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless the material has:

- (a) Biosecurity New Zealand clearance as an imported feed product; or
- (b) Approval from the Council's Director of Environmental Management.

7. The consent holder shall keep a record of all disinfectants, antibiotics, antifoulants or any other chemicals used in the marine farm site which must show the following information for each application:

- (a) chemical name;
- (b) quantity;
- (c) date; and
- (d) reason for use.

8. (a) The consent holder shall at all times during the continuance of this consent maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard. No significant alteration or deviation from the authorised structures that may adversely alter the impact on the environment is permitted without the prior written approval of the Council's Director of Environmental Management.

Note: any such alteration may require an application for a new resource consent or an amendment to this consent.

(b) Any authorised officer of the Council, may at all times, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair in the structures, requiring the consent holder to repair the structures, the consent holder shall, with all reasonable speed, cause the defect to be removed or the repairs to be made.

9. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm marked and lit in accordance with the navigation and safety requirements of the Council's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guideline for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or its replacement booklet.

(b) Except for the purpose of navigational safety pursuant to condition 9(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.

10. The consent holder shall manage the marine farming operation in such a way that deposition of shell, and other material including feed, on the seabed is minimised. Any shell and other material collected from the site shall not be disposed of in the coastal marine area in an unauthorised manner.
11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site and used. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both Biosecurity New Zealand or the Council's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site, to the satisfaction of the Council's Director of Environmental Management.

Note:

- (a) *Another geographic coastal marine area from Big Glory Bay is outside of the Stewart Island / Rakiura coastal waters.*
 - (b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform Biosecurity New Zealand, as soon as practicable, of the presence of an organism not normally seen or otherwise detected in New Zealand.*
 - (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at Biosecurity New Zealand of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
- (b) The consent holder shall advise the Council's Biosecurity Manager, no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay.
12. The consent holder shall ensure that:
 - (a) The marine farm site identification number LI340 is displayed above the water level at each four corners of the surface infrastructure block, and if relevant on the salmon marine farm structure, at all times to the satisfaction of the Council's Compliance Manager;
 - (b) no equipment or materials from the marine farming activity is stored in an unauthorised manner;
 - (c) all rubbish is removed from the marine farm site and disposed of at an authorised refuse site;
 - (d) any material lost from the marine farm site is retrieved where relevant, as soon as practicable;
 - (e) all reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Council's Harbourmaster is notified immediately of the situation;
 - (f) other than the deposition authorised under Condition 2, no oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;
 - (g) in the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:

- (i) take immediate steps to contain the spill and to recover it; and
 - (ii) notify as soon as practicable the Southland Regional Council's pollution hotline on 03 211 5245 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects; and
- (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without the approval of the Southland Regional Council.
- 13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
- 14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.
- 15. Upon expiry of the period for which the consent is granted, or on any cancellation of the consent, the consent holder shall, if required by the Council to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the consent holder fails to do so, the Council may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the consent holder.

Monitoring

- 16. (a) The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail.
- (b) The consent holder shall carry the following monitoring programme for the activity authorised by Condition 2(d) of this consent:
 - (i) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (ii) Ensure that if any unwanted organism, pest (excluding Undaria), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and dispose of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary, cleaned of the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Council's Director of Environmental Management established to ensure the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal

waters no longer exists at the location. If the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.

- (iii) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 16(b)(i) and 16(b)(ii) of this consent. A copy of the entries in this log shall be made available to the Council on request.
17. Monitoring in accordance with the Big Glory Bay Monitoring Programme specified in Appendix 1 shall confirm with the following standards:
- (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (c) the monitoring and analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (d) the result of seabed analysis shall be supplied to the Southland Regional Council no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;
 - (e) the results of water quality analysis shall be supplied to the Southland Regional Council no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
 - (f) the Southland Regional Council may audit monitor sample collection up to once each year at a cost covered by the consent holder.
18. The consent holder shall undertake an investigation, if the result from any one sample in the Big Glory Bay Monitoring Programme specified in Appendix 1 identifies an adverse effect on the environment, to determine the probable cause of the adverse effect. A report shall be provided summarising the results and analysis on completion of the investigation sampling, but no later than two months from the initial sample that identified an adverse effect being provided to the Council.

Reporting

19. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of
- (a) the data collected as part of the the Big Glory Bay Monitoring Programme specified in Appendix 1; and on completion of the sampling but no later than 31 July each year.

(b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:

- (i) A comparison with the results of previous monitoring at the same salmon farm site;
- (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
- (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
- (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
- (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results.

20. The consent holder shall provide an annual report summarising the annual volume of feed for salmon supplied between 1 July and 30 June each year to the marine farm site, no later than 31 July each year.

21. The consent holder shall notify the Council's Director of Environmental Management of the intention to change the species that will be farmed at the site at least six months prior to commencing farming the species.

Following and Rotation

21A. The consent holder shall at all times undertake rotation and following of their salmon farming operations in accordance with the Following Plan in Appendix 2 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.

21B. If any time frame outlined in the Following Plan in Appendix 2 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan as detailed in the General Conditions in Schedule A, cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Following Plan.

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Council Charges

23. In consideration of the right to occupy Crown land in the coastal marine area for the activity specified above, the consent holder shall, each year, pay to the Southland Regional Council the appropriate coastal occupation charge specified in the Regional Coastal Plan. Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$562.71 plus GST, and shall be payable in advance on invoice. The revenue from this

charge shall be used only for the purpose of promoting the sustainable management of the coastal marine area.

24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Southland Regional Council collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.
25. The Southland Regional Council may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:
 - (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
 - (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
 - (c) Complying with the requirements of a regional plan; or
 - (d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment.
 - (e) to address any matter raised in the annual monitoring report insofar as it relates to condition 19(b); or
 - (f) to address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent.

Note: The consent holder may request the Council to collaboratively review under Section 127 of the Act any specific consent conditions at any time for the same purposes in Condition 25(a) – (d).

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua.

Appendix One

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for ~~LI320, LI321, LI338~~ LI339, LI340, ~~MF246~~, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: it is the Council's intention that the Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, ~~LI320, LI321~~, LI322, LI323, LI324, LI325, LI337, ~~LI338~~, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, ~~MF246~~, MF247, MF248, MF273, MF274, MF275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed under the salmon cage as close as possible, and at 50 metres and 100 metres from that salmon cage shall be undertaken annually.

If the marine farm site is fallowed, the monitoring of the seabed shall be undertaken at five years, 10 years and 15 years from the date of the last annual monitoring occurring at the site. If the marine farm site is reactivated to farm salmon then the annual monitoring regime recommences and replaces this fallowing monitoring regime.

~~(iii) in addition to Clause 1 (a)(ii), no longer than one year prior to the marine farm site erecting structures to farm salmon, monitoring of the seabed under where the salmon cages are to be located as close as possible, and at 50 metres and 100 metres from where salmon cage are to be located shall be undertaken. The monitoring report shall be furnished to the Council's Director of Environmental Management at least three months prior to the marine farm site erecting structures to farm salmon.~~

~~Note: this condition also applies to the site if it had been vacated of structures and stock for the purpose of fallowing the seabed. This condition does not apply to fallowing certain sections of the marine farm site by moving structures around within the same site.~~

- (iv) in addition to Clause 1 (a)(i), 1 (a)(ii) or 1 (a)(iii), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Council's Director of Environmental Management. The monitoring shall occur every year for the first three years, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:

- sediment colour, including providing a colour photograph of the sediment sample;
 - depth of the oxygenated layer below the sediment surface;
 - occurrence of hydrogen sulphide;
 - sediment texture and grain size;
 - total organic carbon content;
 - infaunal and epifauna community composition; and
 - zinc and copper trace metal levels pursuant to Clause 1(a)(ii) and (iii) listed above when relates to salmon farming
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (ii) after the first two years outlined in clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll a;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2 Following and Rotation Plan

Copied from Appendix 3 of MF246

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

[MF246]

Environment Southland

AUTH-20157616

Coastal Permit

Pursuant to Section 104B of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council (the "Consent Authority") to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from 29 January 2016.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted:	To place structures in, on and over the seabed, to occupy the coastal marine area, and to discharge contaminants for the purpose of undertaking marine farming activities.	
Location	- site locality - map reference - receiving environment	Big Glory Bay, Stewart Island (MF246) As shown on Appendix 2 map (dated 21 November 2014) Coastal Marine Area
Legal description at the site:	Marine and Coastal Area	
Expiry Date	1 January 2025	

Schedule of Conditions

Term and Purpose

1A. The consent holder shall comply with the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203226, AUTH-203227, AUTH-203240, AUTH-203241 and AUTH-203242.

1. (a) This consent authorises the placement of structures in, on and over the seabed, the occupation of the coastal marine area, and the discharge of contaminants as described in the application for resource consent dated 10 February 2014 and further information dated 28 November 2014, at the locations shown in Appendix 2, for the purpose of marine farming the following species:
 - green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - blue mussels (*Mytilus galloprovincialis*);

- Bluff dredge oysters (*Tiostrea chilensis*);
 - scallops (*Pecten novaezelandiae*); and
 - quinnat salmon (*Oncorbynchus tshawytscha*).
- (b) Except for salmon, green-lipped mussels and Bluff dredge oysters, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
- (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
- (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that *Undaria* and other marine fouling are eradicated prior to transportation.
- (e) This consent also authorises the discharge of material, including (but not limited to) faeces, unconsumed feed, shall and pseudofeces to water and subsequently on to the seabed as a result of marine farming the various organisms.
2. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown on the attached survey map attached as Appendix 2 for MF246, comprising approximately 6 hectares.

All used and unused mussel anchors outside the above co-ordinates that are detailed on the survey map attached as Appendix 2 are to be considered part of the marine farm site.

3. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at any time.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

4. The total nitrogen input from feed for salmon at the marine farm site between 1 July and 30 June the following year shall be restricted to 73.8415.1 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated provided that:~~
- (a) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that
- (i) until such time as the requirements of Condition 4A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership.

4A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:

- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and
- (d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and
- (e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and
- (f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied

4B The consent holder shall provide an annual report summarising the:

- (a) Monthly volume of feed for salmon supplied to the marine farm site; and
- (b) Monthly loading (in tonnes) of total nitrogen supplied to the marine farm site as a result of feeding salmon;

between 1 July and 30 June the following year. This report shall be provided to the Consent Authority by 31 July each year, or upon request.

5. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless:

- (a) The material has Biosecurity New Zealand clearance as an imported feed product; or
- (b) Written agreement for its use has been obtained from the Consent Authority.

6. The consent holder shall keep a log of all disinfectants, antibiotics, antifoulants or any other chemicals used in the operations of the marine farm. The log must show the following information for each application:

- chemical name;
- quantity;
- date; and
- reason for use.

This log shall be provided to the Consent Authority by 31 July each year, or upon request.

7. (a) The consent holder shall at all times, throughout the duration of this consent, maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard.

Note: The Consent Authority must be notified before any alterations are made to the authorised structures, to confirm whether a new consent or an amendment to this consent is required.

- (b) Any authorised officer of the Consent Authority may, at any time, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair requiring the consent holder to repair the structures, the consent holder shall cause the defect to be removed or the repairs to be made as soon as it reasonably practicable.

8. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm site marked and lit in accordance with the navigation and safety requirements of the Consent Authority's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guidelines for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or subsequent publications.

- (b) Except for the purpose of navigational safety pursuant to Condition 8(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.

9. By 31 March 2016, the consent holder shall provide the new site perimeter co-ordinates for marine farm site MF246 and the site perimeter co-ordinates for the disestablished marine farm site (LI323) to Land Information NZ in the form of an H-Note for issue as a Notice to Mariners for chart correction.

10. The consent holder shall manage the marine farming operation in such a way that deposition of shell, and other material including feed, on the seabed is minimised. There shall not be any unauthorised disposal in the coastal marine area of any shell and/or other material collected from the site.

11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both the Ministry for Primary Industries or the Consent Authority's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site.

Note:

(a) *Another geographic coastal marine area in Condition 10(a) refers to coastal marine areas outside of the Stewart Island / Rakiura coastal waters.*

(b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform the Ministry for Primary Industries, as soon as practicable, of the*

presence of an organism not normally seen or otherwise detected in New Zealand.

- (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at the Ministry for Primary Industries of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
 - (b) The consent holder shall advise the Consent Authority's Biosecurity Manager no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay, and report on remediation actions taken.
12. The consent holder shall ensure that:
- (a) The marine farm site identification number MF246 is displayed above the water level at each four corners of the infrastructure block, and if relevant on the salmon marine farm structure, at all times.
 - (b) No equipment or materials from the marine farm site is stored in an unauthorised manner.
 - (c) All rubbish is removed from the marine farm site and disposed of at an authorised refuse site.
 - (d) Any material lost from the marine farm site is retrieved where relevant, as soon as practicable.
 - (e) All reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Consent Authority's Harbourmaster is notified immediately of the situation.
 - (f) No oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;
 - (g) In the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:
 - (i) take immediate steps to contain the spill and to recover it; and
 - (ii) notify as soon as practicable the Consent Authority's Pollution Response Hotline on 0800 76 88 45 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects.
 - (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without agreement from the Consent Authority.
13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.

Monitoring

15. The consent holder shall carry out the following monitoring programme for the activity authorised by Condition 1(d) of this consent:
 - (a) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (b) Ensure that if any unwanted organism, pest (excluding *Undaria*), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and dispose of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary, cleaned of the unwanted organism pest (excluding *Undaria*), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Consent Authority established to ensure the unwanted organism pest (excluding *Undaria*), and/or species not found within Stewart Island coastal waters no longer exists at the location. If the unwanted organism pest (excluding *Undaria*), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.
 - (c) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 14(a) and 14(b) of this consent. A copy of the entries in this log shall be made available to the Consent Authority on request.

16. The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail. This-The monitoring specified in Appendix 1 shall conform with the following standards:
 - (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, with the Consent Authority;
 - (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Consent Authority;
 - (c) the analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Consent Authority;
 - (d) the result of seabed analysis shall be supplied to the Consent Authority no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;

- (e) the results of water quality analysis shall be supplied to the Consent Authority no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
- (f) the Consent Authority may audit monitoring sample collection methodology up to once each year at a cost covered by the consent holder.

Reporting

- 17. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of:
 - (a) the data collected as part of the Big Glory Bay Monitoring Programme specified in Appendix 1; and on completion of the sampling but no later than 31 July each year.
 - (b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:
 - (i) A comparison with the results of previous monitoring at the same salmon farm site;
 - (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
 - (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
 - (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
 - (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results.
- 18. The consent holder shall notify the Consent Authority of the intention to change the farmed species from shellfish to finfish (or vice versa) at least six months prior to commencing farming the species.

Following and Rotation

- 19. The consent holder shall at all times undertake rotation and following of their salmon farming operations ~~at MF246~~ in accordance with the Following Plan in Appendix 3 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.
- 20. If ~~an emergency arises, and~~ any time frame outlined in the Following Plan in Appendix 3 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan, as detailed in the General Conditions in Schedule A cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Following Plan.

- ~~21. The consent holder shall prepare a report summarising the findings of the monitoring required under Clauses 1(a)(ii) and (iii) of Appendix 1 at the conclusion of each following period. The report shall include but not be limited to:~~
- ~~(a) an assessment of the state of benthic sediments at MF246 prior to farming salmon, using monitoring required in Clause 1(a)(iv) of Appendix 1, and/or benthic monitoring results from previous investigations (provided that the available data corresponds with required monitoring parameters);~~
 - ~~(b) the effects on benthic sediments, including the rate of enrichment, once the salmon farming operation was introduced to site MF246;~~
 - ~~(c) the rate of remediation of the benthic environment during the following period;~~
 - ~~(d) the success of the Following Plan in achieving a level of recovery that will allow for the area to withstand further organic enrichment without suffering any cumulative deterioration;~~
 - ~~(e) recommendations for any necessary adaptations to the Following Plan that are required to achieve a level of recovery that will allow for the area to withstand further organic enrichment without suffering any cumulative deterioration.~~

~~This report shall be submitted to the Consent Authority prior to the reintroduction of salmon farming at MF246.~~

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Consent Authority Charges

23. The consent holder shall, each year, pay to the Consent Authority the appropriate coastal occupation charge specified in the relevant regional plan(s). Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$607.60 plus GST, and shall be payable in advance on invoice.
24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Consent Authority collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.

Review of Conditions

25. The Consent Authority may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:
- (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
 - (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
 - (c) Complying with the requirements of a regional plan; or

(d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment; or-

(e) to address any matter raised in the annual monitoring report insofar as it relates to condition 17(b); or

(f) to address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua

Notes:

- 1. In accordance with Sections 125 and 126 of the Resource Management Act 1991, this coastal permit may will lapse if it has not been exercised within 5 years from the date of granting, or may be cancelled if not exercised for a period of 5 years. Continuing to exercise this coastal permit means the site is actively used to farm the authorised species, not just having structures on the site.*
- 2. Upon the expiry of the consent, or on any cancellation of the consent, the marine farm owner/ operator shall, if required by the Consent Authority to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the marine farm owner/ operator fails to do so, the Consent Authority may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the marine farm owner/ operator.*

Glossary

Pen Edge: The edge of the salmon farming cages.

Site Boundary: The boundary of the consented marine farming area.

Appendix 1

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for LI320, LI321, LI338, LI339, LI340, MF246, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: The Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, ~~LI320, LI321~~, LI322, LI324, LI325, LI337, ~~LI338~~, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, ~~MF246~~, MF247, MF248, MF273, MF274, MF275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed shall be undertaken at the following locations on an annual basis:

- (1) Under the salmon cage as close as possible,
- (2) 50 metres from the site boundary identified in Appendix 2; and
- (3) 100 metres from the site boundary identified in Appendix 2.

~~(iii) — when the marine farm site is fallowed, monitoring of the seabed within in the site boundary identified in Appendix 2, at the location previously occupied by salmon cages, shall be undertaken annually. If the marine farm site is reactivated to farm salmon then the annual monitoring regime in Condition 1(a)(ii) recommences and replaces this following monitoring regime.~~

~~(iv) — within three months of the granting of this consent, monitoring of the seabed at the furthest point from the pen edge but within the site boundary of MF246.~~

- (v) in addition to Clause 1 (a)(i), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Consent Authority. The monitoring shall occur every year for the first three years from the granting of this consent, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:

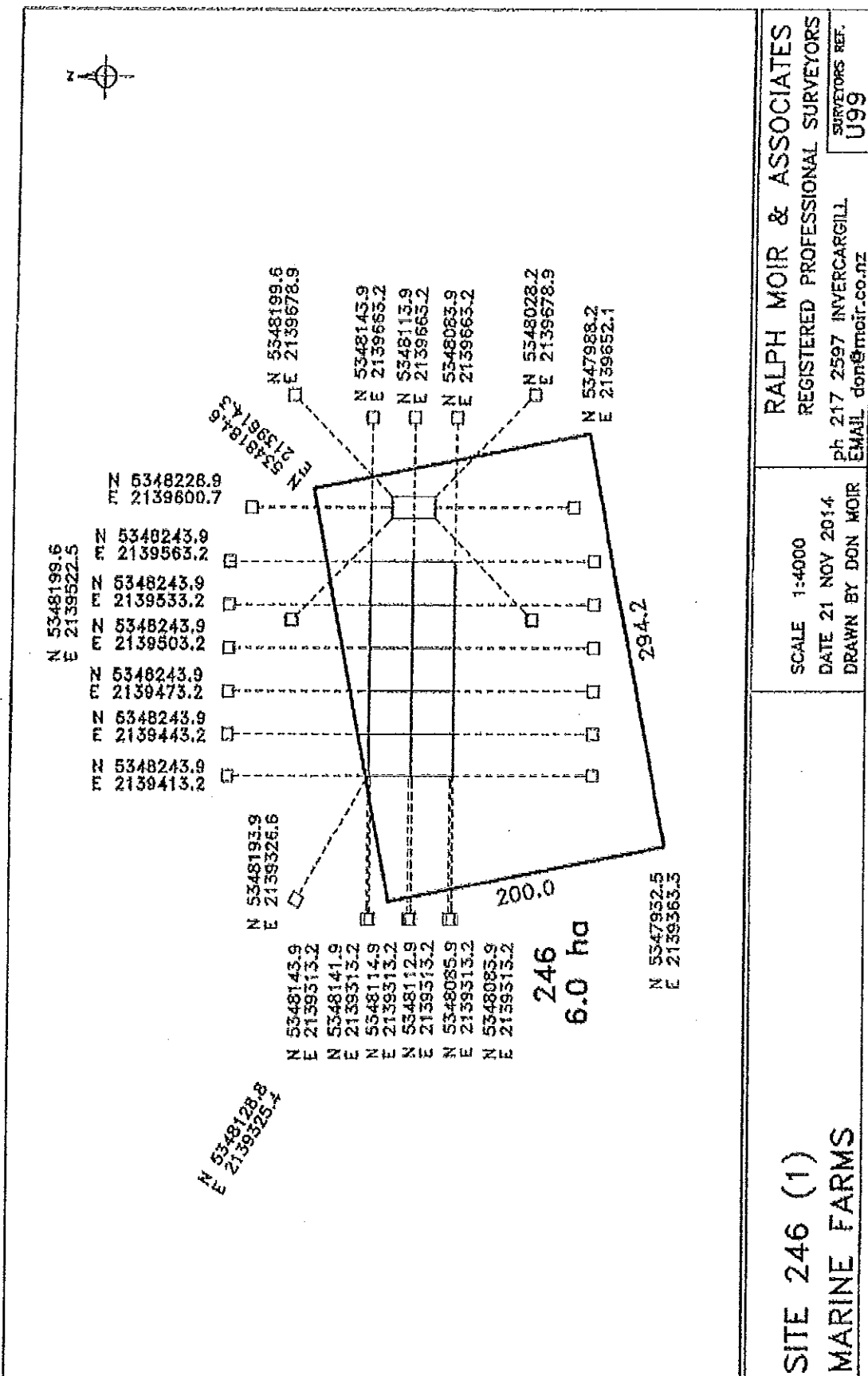
- sediment profile detailing the features of the sediment sample;
- colour photographs of the sediment sample;
- depth of the oxygenated layer below the sediment surface;
- occurrence of hydrogen sulphide;
- sediment texture and grain size;
- total organic carbon content;

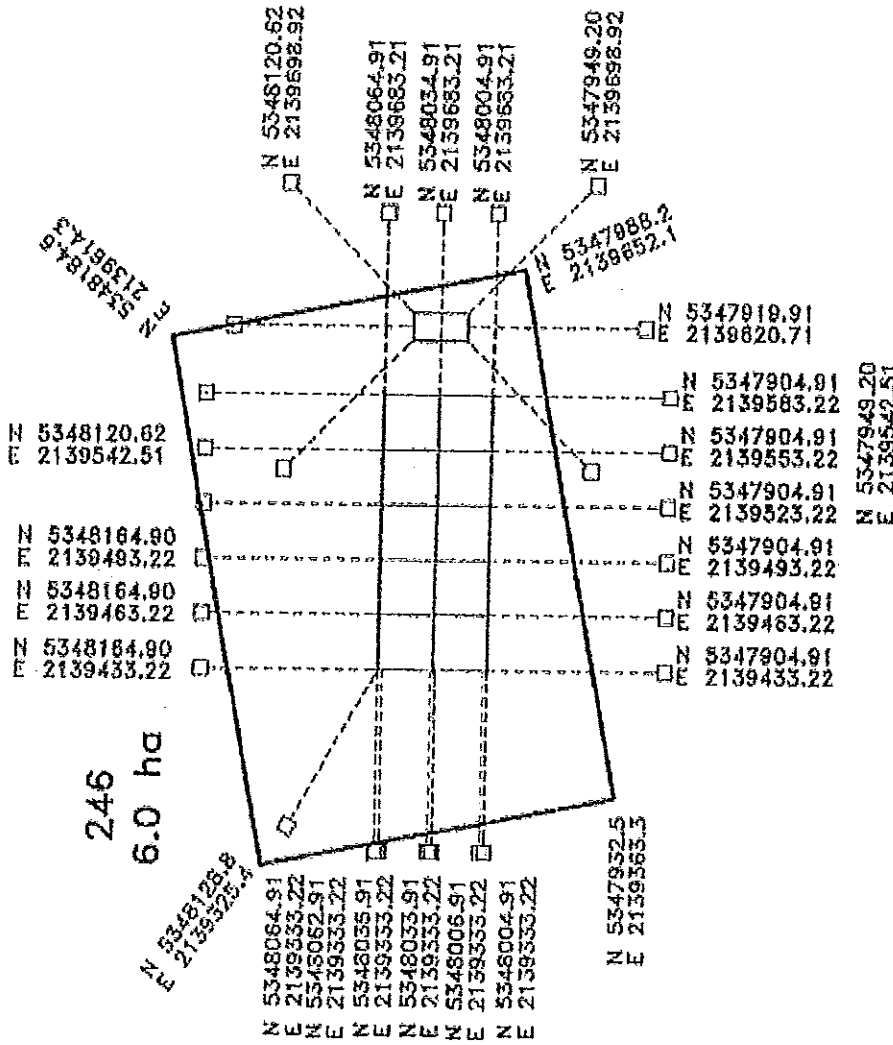
- infaunal and epifauna community composition; and
 - zinc and copper trace metal levels.
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Consent Authority.
- (ii) after the first two years outlined in Clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Consent Authority.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll a;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2

Site Maps

APPENDIX 2 Site Maps





RALPH MOIR & ASSOCIATES
REGISTERED PROFESSIONAL SURVEYORS
SURVEYORS REF. U99

SCALE 1:4000
DATE 21 NOV 2014
DRAWN BY DON MOIR

PH 217 2597 INVERCARGILL
EMAIL don@moir.co.nz

SITE 246 (2)
MARINE FARMS

Appendix 3

Fallowing and Rotation Plan

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

[MF249]

Environment Southland

Application No: S005-004

Consent No: 207256

Coastal Permit

Pursuant to Section 104B and 117 of the Resource Management Act 1991, a resource consent is hereby granted by the Southland Regional Council to **Sanford Ltd** (the "consent holder") of **PO Box 120, Bluff 9842** from **8 August 2011**.

Please read this Consent carefully, and ensure that any staff or contractors carrying out activities under this Consent on your behalf are aware of all the conditions of the Consent.

Details of Permit

Purpose for which permit is granted:	To place structures in, on and over the seabed, and to occupation the coastal marine area with the structures for the purpose of marine farming.
Location	- site locality - map reference - receiving environment
	Big Glory Bay, Stewart Island (MF249) As shown on attached map (dated 1 April 2010) Coastal marine area
Expiry Date	1 January 2025

Schedule of Conditions

Consent Amended Conditions amended on 12 August 2011 and again on 31 January 2012 as follows:

Note: This consent document is for MF249, that was reviewed in accordance with Section 10(4) of the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004 and is a replacement for consent numbers 95098 and 203088.

Term and Purpose

1A. The consent holder shall comply with the site-specific conditions set out below as well as Big Glory Bay Salmon Farming General Conditions set out in Schedule A which apply to resource consents AUTH-20157616, AUTH-207256, AUTH-203226, AUTH-203227, AUTH-203240, AUTH-203241 and AUTH-203242.

1. This consent expires on the 1 January 2025, unless it has been lapsed, cancelled or surrendered at an earlier date pursuant to Section 125, 126 or 138 respectively of the Resource Management Act 1991.

Note:

- (i) *In accordance with Sections 125 and 126 of the Resource Management Act 1991, this coastal permit may be lapsed or cancelled if it has not been exercised within 5 years from the date of granting or if exercised in the past but has not been exercised during the preceding 5 years. Continuing to exercise this coastal permit means the site is actively used to farm the authorised species, not just having structures on site.*
 - (ii) *Pursuant to Sections 123 and 124 of the Resource Management Act 1991, a new consent may be required at the expiration of this consent. The application will be considered in accordance with the plan in effect at that time, and the adverse effects of the proposed activity. The holder of this coastal permit has a preferential right to apply for a new consent pursuant to Sections 165ZH and 124 of the Resource Management Act 1991.*
2.
 - (a) This consent authorises the placement of structures in, on and over the seabed, and the occupation of the coastal marine area with the structures for the purpose of marine farming the following species:
 - green-lipped mussels (*Perna canaliculus*) (generally called by the brand name greenshell mussels);
 - blue mussels (*Mytilus galloprovincialis*);
 - Bluff dredge oysters (*Tiostrea chilensis*);
 - scallops (*Pecten novaezelandiae*); and
 - quinnat salmon (*Oncorbynchus tshawytscha*).
 - (b) Except for salmon and green-lipped mussels and Bluff dredge oysters, spat and stock shall only be obtained from the Stewart Island / Rakiura coastal waters.
 - (c) All green-lipped mussel spat and stock shall be obtained from Ninety Mile Beach, unless authorised by a separate resource consent.
 - (d) Bluff dredge oyster spat and stock may be obtained from the Foveaux Strait Growing Area 1902 or from Bluff Harbour provided that the oysters are submerged into a solution of at least 5% acetic acid for a minimum of 60 seconds to ensure that *Undaria* and other marine fouling are eradicated prior to transportation.
 - (e) This consent also authorises the deposition, on the seabed, of material, arising from marine farming the various organisms.
3. The occupation of the coastal marine area for marine farming activities, pursuant to this consent, shall only occur within the application co-ordinates as detailed and shown on the attached survey map dated 1 April 2010 for MF249, comprising approximately 12 hectares and contained in Appendix 3.

In addition, all used and unused mussel anchors outside the above co-ordinates that are detailed on the attached survey map are to be considered part of the marine farm site.

4. Except to the extent that it is necessary to achieve the purpose of this consent and for public safety, members of the public shall not be excluded from the marine farm site at all times.

Note: This consent does not authorise exclusive occupation within the authorised area even though the marine farming structures and operations will result in some physical exclusion over part of that area. The extent that the physical exclusion over part of the authorised area is necessary for the normal operation of the marine farm is provided for by this consent (refer to section 122(5) of the Resource Management Act 1991).

Restrictions on Operations

5. (a) Except where Condition 5(b) applies ~~The the~~ total nitrogen input from feed at the marine farm site for salmon between 1 July and 30 June each year shall be restricted to 73.792 tonnes. ~~Where the consent holder has the right to use an additional site or sites consented for salmon farming within Big Glory Bay, the total nitrogen input from feed can be deployed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that significant adverse effects on the seabed are avoided and other effects can be remedied or mitigated. A significant adverse effect is considered to have occurred if no marine life exists under the salmon cages.~~
 - (b) Where the consent holder:
 - (i) holds additional resource consents that authorise salmon farming in Big Glory Bay that have conditions specifying allowable nitrogen input from feed; and/or
 - (ii) has the written agreement of another consent holder in Big Glory Bay that holds a resource consent with conditions specifying allowable nitrogen input;

the consent holder may utilise that nitrogen input from feed, either wholly or in part, between any or all of the consent holder's marine farm sites provided that:
 - (iii) the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year does not exceed 659 tonnes across all farms in Big Glory Bay, irrespective of ownership; except that
 - a. until such time as the requirements of Condition 5A have been satisfied, the total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership; and
 - (iv) modelling in DELFT3D, or alternative modelling software agreed to in writing by Environment Southland, has been undertaken by a suitably qualified, experienced, and independent person, which demonstrates that an additional amount of nitrogen input from feed above that authorised by Condition 5(a) does not result in:
 - a. The monthly median concentrations of chlorophyll-a in the water column within Big Glory Bay (monthly median from a data set of all monitoring sites) being greater than 3.5 µg/l for three consecutive months; or

- b. For three consecutive months, the concentration of chlorophyll-a in the water column (monthly median at any sampling site within Big Glory Bay) exceeding 5 µg/L:
 - at two or more sites for any two of those three consecutive months; and
 - at one or more sites for the remaining month; or
 - c. An increase in the average monthly excess total ammonia nitrogen in Big Glory Bay of more than 30 µg/L at the surface of the water column, when compared with baseline data from the same or comparable sampling sites from the period July 2015 to December 2017; or
 - d. The dissolved oxygen saturation in the water column at any sampling point more than 250 metres from the farm falling below 70% for three consecutive months (measured using 1 metre bins to 2 metres from the seabed); or
 - e. Total organic carbon deposition greater than 0.73 kg/m²/year more than 100 metres from the boundary of the site; or
 - f. Total faeces and solid waste deposition greater than 5 kg/m²/year more than 100 metres from the boundary of the site; and
- (v) the additional nitrogen input from feed allows compliance with criteria listed in Condition 5(b)(iv) to be assessed; and
- (vi) the feed deployed shall be consistent with the parameters of the feed modelled.

5A The total nitrogen input from feed used in Big Glory Bay between 1 July and 30 June each year shall not exceed 583 tonnes across all farms in Big Glory Bay, irrespective of ownership until:

- (a) At least 1 July 2021; and
- (b) The total nitrogen in feed used in Big Glory Bay between 1 July and 30 June in each of three successive years has been at least 466 tonnes; and
- (c) The relevant farm(s) has operated for a period of three successive years at levels of between 85- 100% of its allowable individual nitrogen input; and
- (d) Monitoring results of the past two successive years for both seabed and water quality are not indicating results and/or statistically significant trends towards progressively greater environmental effects of the farms; and
- (e) A suitably qualified, experienced and independent person has confirmed, in writing, that the increased input of nitrogen in feed should meet the requirements of Big Glory Bay Salmon Farming General Conditions G3 and G4 contained in Schedule A of this consent and that the requirements of (a) – (d) of this condition have been satisfied; and
- (f) Environment Southland certifies that the requirements of clause (b) and (c) of this condition have been satisfied.

6. Material that is not from Stewart Island / Rakiura coastal waters shall not be fed to fish on any fish farm unless the material has:
 - (a) Biosecurity New Zealand clearance as an imported feed product; or
 - (b) Approval from the Council's Director of Environmental Management.
7. The consent holder shall keep a record of all disinfectants, antibiotics, antifoulants or any other chemicals used in the marine farm site which must show the following information for each application:
 - (a) chemical name;
 - (b) quantity;
 - (c) date; and
 - (d) reason for use.
8. (a) The consent holder shall at all times during the continuance of this consent maintain the marine farm structures, including but not restricted to the associated structures of anchors, lines, droppers, buoys, and if relevant cages and fixed barges, in good repair, appearance and condition. The marine farm structures shall also be secured so as to not create a navigation hazard. No significant alteration or deviation from the authorised structures that may adversely alter the impact on the environment is permitted without the prior written approval of the Council's Director of Environmental Management.

Note: any such alteration may require an application for a new resource consent or an amendment to this consent.

(b) Any authorised officer of the Council, may at all times, enter upon the marine farm structures and view its state of repair, including all associated structures. Upon receipt of a notice in writing, of any defect or want of repair in the structures, requiring the consent holder to repair the structures, the consent holder shall, with all reasonable speed, cause the defect to be removed or the repairs to be made.
9. (a) The consent holder shall ensure all the marine farming structures are laid out and the boundaries of the marine farm marked and lit in accordance with the navigation and safety requirements of the Council's Harbourmaster or their delegate.

Note: Navigation and safety guidelines for aquaculture areas can be found in the "Guideline for Aquaculture Management Areas and Marine Farms" booklet dated December 2005 produced by Maritime New Zealand, or its replacement booklet.

(b) Except for the purpose of navigational safety pursuant to condition 9(a), the exterior colour of any structures used on the marine farm site shall be consistent with the surrounding physical landscape.
10. The consent holder shall manage the marine farming operation in such a way that deposition of shell, and other material including feed, on the seabed is minimised. Any shell and other material collected from the site shall not be disposed of in the coastal marine area in an unauthorised manner.
11. (a) Any equipment or materials, excluding vessels, used in the coastal marine area, for marine farming purposes, which have been previously used or stored in

another geographic coastal marine area, shall be thoroughly cleaned and sterilised before transport to the marine farm site and used. It shall be the consent holder's responsibility to ensure that any marine farming structure, including associated structures, is maintained free of unwanted organisms and pests as identified by either or both Biosecurity New Zealand or the Council's Regional Pest Management Strategy. Any removed unwanted organism or pest shall be disposed of at an authorised land disposal site, to the satisfaction of the Council's Director of Environmental Management.

Note:

- (a) *Another geographic coastal marine area from Big Glory Bay is outside of the Stewart Island / Rakiura coastal waters.*
 - (b) *Under Section 44 of the Biosecurity Act 1993 every person has a duty to inform Biosecurity New Zealand, as soon as practicable, of the presence of an organism not normally seen or otherwise detected in New Zealand.*
 - (c) *Under Section 46 of the Biosecurity Act 1993 every person is required, without unreasonable delay, to notify the chief technical officer at Biosecurity New Zealand of the presence or possible presence of notifiable organisms. Unwanted organisms also fit under this category.*
- (b) The consent holder shall advise the Council's Biosecurity Manager, no later than 5 working days after detecting any incidence of unwanted organisms and/or pests not normally seen or detected within Big Glory Bay.

12. The consent holder shall ensure that:

- (a) The marine farm site identification number MF249 is displayed above the water level at each four corners of the surface infrastructure block, and if relevant on the salmon marine farm structure, at all times to the satisfaction of the Council's Compliance Manager;
- (b) no equipment or materials from the marine farming activity is stored in an unauthorised manner;
- (c) all rubbish is removed from the marine farm site and disposed of at an authorised refuse site;
- (d) any material lost from the marine farm site is retrieved where relevant, as soon as practicable;
- (e) all reasonable steps are taken to retrieve any lost material from the marine farm site that could constitute a navigation hazard, and the Council's Harbourmaster is notified immediately of the situation;
- (f) other than the deposition authorised under Condition 2, no oil, diesel, petrol, grey water, detergents, cleaning materials, bilge water, sewage or any other toxic or polluting substances, shall be discharged into the coastal marine area at the site, either directly or indirectly, as a result of exercising this consent;
- (g) in the event of any spill of oil or fuel at the marine farm site, the first person to the scene shall:
 - (i) take immediate steps to contain the spill and to recover it; and
 - (ii) notify as soon as practicable the Southland Regional Council's pollution hotline on 03 211 5245 that a spill has occurred. Notification shall include the type and quantity of oil or fuel spilled and the steps taken to remedy or mitigate any adverse effects; and

- (h) In the event of a spill of any contaminant, no dispersants or degrading agents shall be discharged to water without the approval of the Southland Regional Council.
- 13. In the event a marine mammal is entangled or stranded within the marine farm structures, the consent holder shall as soon as practicable contact the Department of Conservation Southland Conservancy.
- 14. Neither the issuing of this consent nor anything contained in it shall affect the liability of the consent holder for any injury caused by the marine farm structures to any vessel or person through any default or neglect of the consent holder.
- 15. Upon expiry of the period for which the consent is granted, or on any cancellation of the consent, the consent holder shall, if required by the Council to do so, remove the marine farm structures, including all associated structures, entirely from the site and to restore the site as near to its original condition within three months of the date of expiry, or cancellation. If the consent holder fails to do so, the Council may cause the marine farm structures, including all the associated structures, to be removed and the site restored, and may recover the costs incurred by the removal and restoration from the consent holder.

Monitoring

- 16. (a) The consent holder shall carry out the Big Glory Bay Monitoring Programme specified in Appendix 1 and that required by the Big Glory Bay Salmon Farming General Conditions in Schedule A. In the event of conflict, duplication or overlap Schedule A shall prevail.
- (b) The consent holder shall carry the following monitoring programme for the activity authorised by Condition 2(d) of this consent:
 - (i) Monitor at least 10 percent of each re-seeded crop transferred to Big Glory Bay by lifting the trays on which seeded oysters are attached out of the water and visually inspect for contamination by any unwanted pests and/or species not found within Stewart Island coastal waters at 1, 3, 6 and 12 months after the droppers are hung. Visual Inspections shall also be undertaken at the time the re-seeded crop is harvested. The work is to be carried out by a suitably qualified person to detect unwanted organisms and pests.
 - (ii) Ensure that if any unwanted organism, pest (excluding Undaria), and/or species not found within Stewart Island coastal waters is found on the re-seeded crop, the trays and re-seeded oysters are removed immediately from the coastal waters and dispose of at an authorised land disposal site. In addition, the surrounding area shall be inspected and, if necessary, cleaned of the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters, and a monitoring program approved by the Council's Director of Environmental Management established to ensure the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters no longer exists at the location. If the unwanted organism pest (excluding Undaria), and/or species not found within Stewart Island coastal waters infestation are such that the biosecurity of Stewart Island is considered to be at risk, then the consent holder shall remove all of the trays and other equipment used for the re-seeded crop from the coastal marine area.

- (iii) The consent holder shall maintain a log of all re-seeded oyster spat and stock, including the timing, amount and location of re-seeded spat and stock, treatments and monitoring carried out in accordance with Conditions 16(b)(i) and 16(b)(ii) of this consent. A copy of the entries in this log shall be made available to the Council on request.
- 17. Monitoring in accordance with the Big Glory Bay Monitoring Programme specified in Appendix 1 shall confirm with the following standards:
 - (a) sample collection, preservation and analysis of the seabed samples shall be carried out by a suitably qualified person or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (b) sample collection, preservation and analysis of the water quality samples shall be carried out in accordance with the most recent edition of APHA "Standard Methods for the Examination of Water and Wastewater" or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (c) the monitoring and analyses are to be carried out by a laboratory with IANZ accreditation or equivalent, or as agreed to, in writing, by the Council's Director of Environmental Management;
 - (d) the result of seabed analysis shall be supplied to the Southland Regional Council no later than five working days of the consent holder receiving them. The methods of analysis are to be specified with the results;
 - (e) the results of water quality analysis shall be supplied to the Southland Regional Council no later than 20 working days from the end of the month in which the samples are taken. The methods of analysis are to be specified with the results; and
 - (f) the Southland Regional Council may audit monitor sample collection up to once each year at a cost covered by the consent holder.
- 18. The consent holder shall undertake an investigation, if the result from any one sample in the Big Glory Bay Monitoring Programme specified in Appendix 1 identifies an adverse effect on the environment, to determine the probable cause of the adverse effect. A report shall be provided summarising the results and analysis on completion of the investigation sampling, but no later than two months from the initial sample that identified an adverse effect being provided to the Council.

Reporting

- 19. The consent holder shall provide an annual report no later than 31 July each year summarising the results and analysis of:
 - (a) the data collected as part of the Big Glory Bay Monitoring Programme specified in Appendix 1; and on completion of the sampling but no later than 31 July each year.
 - (b) the data collected in accordance with the Big Glory Bay Salmon Farming General Conditions in Schedule A, including:
 - (i) A comparison with the results of previous monitoring at the same salmon farm site;

- (ii) Identification of any potential environmentally significant monitoring trends, at both the site and Big Glory Bay scales;
- (iii) Identification of any proposed additional monitoring, including the rationale for it, and the proposed scale, extent and timeframes involved;
- (iv) An evaluation of the potential implications of the monitoring results from all salmon farming operations undertaken in Big Glory Bay by the consent holder on the environmental quality of Big Glory Bay; and
- (v) The extent to which the monitoring results indicate that farming practices may need to be adapted in order to address unforeseen environmental effects indicated by the monitoring results

20. The consent holder shall provide an annual report summarising the annual volume of feed for salmon supplied between 1 July and 30 June each year to the marine farm site, no later than 31 July each year.
21. The consent holder shall notify the Council's Director of Environmental Management of the intention to change the species that will be farmed at the site at least six months prior to commencing farming the species.

Fallowing and Rotation

- 21A. The consent holder shall at all times undertake rotation and fallowing of their salmon farming operations in accordance with the Fallowing Plan in Appendix 2 unless the Big Glory Bay Salmon Farm Environmental Plan certified by Environment Southland under condition G9 of the Big Glory Bay Salmon Farming General Conditions in Schedule A allows otherwise, in which case the provisions in Schedule A shall prevail.
- 21B. If any time frame outlined in the Fallowing Plan in Appendix 2 or as superseded by the certified Big Glory Bay Salmon Farm Environmental Plan as detailed in the General Conditions in Schedule A, cannot be adhered to, the consent holder shall contact the Consent Authority as soon as reasonably practicable and provide reasons for non-compliance with the Fallowing Plan.

Other Permits

22. The granting of this consent does not absolve the consent holder from the responsibility to obtain any approval, permit, licence, concession or consent from any other body.

Council Charges

23. In consideration of the right to occupy Crown land in the coastal marine area for the activity specified above, the consent holder shall, each year, pay to the Southland Regional Council the appropriate coastal occupation charge specified in the Regional Coastal Plan. Each financial year, commencing 1 July, the charge shall be adjusted for inflation in accordance with the Consumer Price Index. The sum payable in the first year of this consent (or the proportion thereof for which the consent is current) is \$562.71 plus GST, and shall be payable in advance on invoice. The revenue from this charge shall be used only for the purpose of promoting the sustainable management of the coastal marine area.
24. In addition to the above sum, the consent holder shall pay an administration and monitoring charge to the Southland Regional Council collected in accordance with Section 36 of the Resource Management Act, payable upon invoice.

Review of Conditions

25. The Southland Regional Council may, in accordance with Sections 128 and 129 of the Act, serve notice, during the months of August to October each year, of its intention to review the conditions of the consent for the purposes of:
- (a) Dealing with any adverse effect or cumulative effects on the environment which may arise from the exercise of this consent; or
 - (b) Considering any changes to information on the effects of marine farming, particularly information gained from monitoring; or
 - (c) Complying with the requirements of a regional plan; or
 - (d) Providing for a bond if further investigation and/or information, including relevant case law on the application of bonds to consents, shows that one is necessary to avoid, remedy or mitigate potential adverse effects on the environment.
- (e) to address any matter raised in the annual monitoring report insofar as it relates to condition 19(b); or
- (f) to address any matter raised in the Technology Update Report required by the Big Glory Bay Salmon Farming General Conditions contained in Schedule A to this consent.

Note: The consent holder may request the Council to collaboratively review under Section 127 of the Act any specific consent conditions at any time for the same purposes in Condition 25(a) – (ef).

26. The consent holder shall provide Te Rūnanga o Awarua with copies of all reports that are required by these conditions to be sent to Environment Southland. These reports shall be provided simultaneously to Environment Southland and Te Rūnanga o Awarua.

Appendix One

Big Glory Bay Monitoring Programme

1. The consent holder shall monitor the effects of the marine farming activities on the seabed, as follows:

- (a) (i) except for ~~LI320, LI321, LI338~~, LI339, LI340, ~~MF246~~, MF249, MF250, MF271, MF272 and MF365, monitoring of the seabed at representative locations under the marine farm site shall be undertaken at least once prior to 1 January 2025.

Note: it is the Council's intention that the Programme shall monitor at least two marine farm sites per year within the bay from the following marine farm sites LI149, LI315, LI316, LI317, LI318, LI319, ~~LI320, LI321~~, LI322, LI323, LI324, LI325, LI337, ~~LI338~~, LI342, LI366, LI418, LI461, LI474, LI475, MF244, MF245, ~~MF246~~, MF247, MF248, MF273, MF274, MR275 and MF326 so each site is monitored at least once prior to 1 January 2025.

- (ii) an exception to Clause 1(a)(i) is if the marine farm site is actively farming salmon at the site, then monitoring of the seabed under the salmon cage as close as possible, and at 50 metres and 100 metres from that salmon cage shall be undertaken annually.

If the marine farm site is fallowed, the monitoring of the seabed shall be undertaken at five years, 10 years and 15 years from the date of the last annual monitoring occurring at the site. If the marine farm site is reactivated to farm salmon then the annual monitoring regime recommences and replaces this fallowing monitoring regime.

- ~~(iii) in addition to Clause 1 (a)(ii), no longer than one year prior to the marine farm site erecting structures to farm salmon, monitoring of the seabed under where the salmon cages are to be located as close as possible, and at 50 metres and 100 metres from where salmon cage are be located shall be undertaken. The monitoring report shall be furnished to the Council's Director of Environmental Management at least three months prior to the marine farm site erecting structures to farm salmon.~~

~~Note: this condition also applies to the site if it had been vacated of structures and stock for the purpose of fallowing the seabed. This condition does not apply to fallowing certain sections of the marine farm site by moving structures around within the same site.~~

- (iv) in addition to Clause 1 (a)(i), monitoring of the seabed at two control sites identified in the Programme and approved, in writing, by the Council's Director of Environmental Management. The monitoring shall occur every year for the first three years, then once every three years thereafter.

- (b) The samples will be analysed for the following to assess the sediment quality:
 - sediment colour, including providing a colour photograph of the sediment sample;

- depth of the oxygenated layer below the sediment surface;
 - occurrence of hydrogen sulphide;
 - sediment texture and grain size;
 - total organic carbon content;
 - infaunal and epifauna community composition; and
 - zinc and copper trace metal levels pursuant to Clause 1(a)(ii) and (iii) listed above when relates to salmon farming
2. The consent holder shall monitor the effects of the marine farming activities on the water quality, as follows:
- (a) (i) monitoring of the water column shall be undertaken monthly for the first two years, commencing from 1 July 2011, by taking samples at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (ii) after the first two years outlined in clause 2(a)(i), monitoring of the water column shall be undertaken three times during the period of 1 November to 30 June each year and once during the period of 1 July to 31 October each year at four sites within Big Glory Bay and two control sites inside the bay, at a depth of 5 metres, as identified in the Programme and approved, in writing, by the Council's Director of Environmental Management.
- (b) The water quality samples will be analysed for the following:
- water temperature;
 - chlorophyll *a*;
 - vertical seechi depth; and
 - dissolved oxygen.

Appendix 2 Following and Rotation Plan

As copied from Appendix 3 of MF246

APPENDIX 3

Fallowing and Rotation Plan

FALLOWING PLAN FOR SALMON FARMING IN BIG GLORY BAY-STEWART ISLAND

21/01/2016

Introduction:

Fallowing is used worldwide by salmon farmers to sustainably manage the environmental effects of their activity. The settlement of particulate matter underneath the salmon pens causes undesirable nutrient enrichment of the benthic sediments.

The fallowing process involves the moving of the salmon pens from one location to another, the resulting cessation of salmon farming allows the enriched sediments on the vacated location time to remediate by natural processes.

Shifting salmon farms is not new to Sanford, their farms have been moved numerous times over the 35 years of farming in Big Glory Bay, but the moves have never been planned to maximize the environmental benefits of fallowing.

This Plan provides a framework for the systematic fallowing of the Sanford salmon farms in Big Glory Bay.

Objective:

The objective of this Fallowing Plan is to ensure recovery of the benthic environment to a level that will allow it to withstand further organic enrichment without suffering any cumulative deterioration.

Definition of the term "farm location":

The location of the salmon farming pens and associated structures within the consented marine farm area.

The area occupied by the salmon pens of each farm is about 1ha, and some benthic enrichment extends beyond the pens. This means that farm sites less than about 4ha in area can accommodate one farm location, whereas larger sites may provide two or more farm locations (the actual extent of the enrichment footprint in terms of the farm location is going to be site specific and determined by experience).

The Fallowing Process:

- One complete rotation will take no less than seven years.
- Seven farm locations will be farmed for two years each, and fallowed from salmon farming for five years.
- Two separate salmon farms will be operating at any one time (the "smolt farm" and the "grower farm").
- Each salmon farm will occupy one farm location for two consecutive years before moving to the next farm location.
- Moving a salmon farm from one farm location to the next will occur in summer, and should take about one month to complete depending on weather conditions etc .
- Farm locations that are not actively farming salmon may be used to farm shellfish.

Sites to Provide the Farm Locations:

Seven farm locations are required to accommodate a seven year rotation of two salmon farms.

Sanford-owned sites in Big Glory Bay where salmon farming is authorised:

Site	AUTH Number	Area (ha)	Farm locations
MF246	AUTH-20157616	6	2 (246/1 + 246/2)
MF249	AUTH-207256	12	2 (249/1 + 249/2)
LI320*	AUTH-203236	3	0
LI321*	AUTH-203237	3	0
LI338#	AUTH-203240	4.5	0
LI339	AUTH-203241	4	1
LI340	AUTH-203242	4	1

"#" = Site 338 was salmon farmed for 27 years, mussels may be grown on the site with brood stock at one end.

"*" = Sites 321 and 320 are not considered suitable for salmon farming at this time.

Sanford-owned sites suitable for salmon farm locations but where salmon farming is not authorised:

Site	AUTH Number	Area (ha)	Farm locations
LI475**	AUTH-203244	3	1

"**" = Another site or sites may be used instead of 475.

The above sites provide seven farm locations. A new salmon variation will be required for at least one site.

The Order of Occupancy of the Farm Locations:

The initial order in which the farm locations will be occupied by the salmon farms will depend on:

- Which locations are presently farming salmon.
- To what degree the farm locations are impacted.
- What the timing is for obtaining the necessary authority to occupy the location (if required).
- The mechanics of the move (moving to the closest location may be preferred, and the two salmon farms should always be as far apart as possible for biosecurity reasons).

The Order of Occupancy

<u>YEAR</u>	<u>GROWER FARM</u>		<u>SMOLT FARM</u>	
	Location	Notes	Location	Notes
2015	249/1	current	339	current
2016	246/1		339	
2017	246/1		340	
2018	246/2		340	
2019	246/2		249/2	
2020	475		249/2	
2021	475		249/1	switch
2022	339	switch	249/1	
2023	339		246/1	
2024	340		246/1	
2025	340		246/2	
2026...	so on...		so on...	

The "order of occupancy" as recorded in this plan will be followed unless there is a good reason to do otherwise.

This Plan will assist farm management by determining which location the salmon farm will go to next and when.

Conclusion:

The rotation period is considered appropriate now, but will need to be monitored, and possibly adjusted in the future. Periodic evaluations of the success of this Plan are required by Condition 21 of Resource Consent AUTH-20157616.

Appendix 3 Survey Map

Schedule A

Big Glory Bay Salmon Farming General Conditions

The conditions in the schedule apply to AUTH-20157616, AUTH-207256, AUTH-203226, AUTH-203227, AUTH-203240, AUTH-203241 and AUTH-203242

Water Quality Objectives

- G1. The marine farms shall be operated in such a way to achieve the following water quality objectives for the water column:
- (a) To not cause a shift in the trophic state of the water column (i.e. change towards a eutrophic state), beyond that which is likely to occur naturally.
 - (b) To not increase the frequency, intensity, or duration of phytoplankton blooms (i.e. chlorophyll-a concentrations $\geq 5 \mu\text{g/l}$).
 - (c) To not cause elevated nutrient concentrations outside the confines of established natural variation for the location and time of the year, beyond 250m from the edge of the farm.
 - (d) To not cause reduction in dissolved oxygen concentrations to levels that are potentially harmful to marine biota beyond 250 m from the edge of the farm.

Advice note: The term "edge of the farm" in these conditions refers to the boundary of the area for which resource consent has been granted

Environmental Quality Standards

- G2. Two tiers of responses in support of maintaining the Environmental Quality Standards (EQS) specified in Conditions G3 (a) – (d) and G4 (a) - (d) shall apply.
- (a) Tier one: a breach of Condition G3(a) shall trigger further water quality monitoring, consideration of the wider environment, and investigations aimed to determine any contributing effect from farm operations on chlorophyll-a levels. Where relevant, this Tier one response shall also include the consideration of, and planning for, future management responses to avoid further breaches.
 - (b) Tier two: a breach of any of the Tier two standards (Conditions G3(b) – (d) and G4(a) – (d)) shall require reduced stocking and/or fallowing of the marine farm following the next harvest of salmon on that farm to achieve full compliance with the EQS-water or EQS-seabed within 24 months of the date the consent holder receives confirmed notice of such a EQS result through its monitoring. A substantive improvement within 12 months of that date is required.

Environmental Quality Standards-water (EQS-water):

- G3. Salmon farming activities authorised by these consents shall not result in any one of the following:
- (a) Tier one standard (see condition G2): the monthly median concentrations of chlorophyll-a in the water column within Big Glory Bay (monthly median from a data set of all monitoring sites) being greater than $3.5 \mu\text{g/l}$ for three consecutive months; or

- (b) Tier two standard (see condition G2): for three consecutive months, the concentration of chlorophyll-a in the water column (monthly median at any sampling site within Big Glory Bay) exceeding 5 µg/L:
 - (i) at two or more sites for any two of those three consecutive months; and
 - (ii) at one or more sites for the remaining month; or
- (c) Tier two standard (see condition G2): an increase in the average monthly excess total ammonia nitrogen in Big Glory Bay of more than 30 µg/L at the surface of the water column, when compared with baseline data from the same or comparable sampling sites from the period July 2015 to December 2017; or
- (d) Tier two standard (see condition G2): the dissolved oxygen saturation in the water column at any sampling point more than 250 metres from the farm falling below 70% for three consecutive months (measured using 1 metre bins to 2 metres from the seabed).

Environmental Quality Standards-seabed (EQS-seabed)

G4. Tier two standard (see condition G2): Salmon farming activities authorised by these consents shall meet the following Environmental Quality Standards (EQS) for the seabed within 10 metres of the edge of the pens:

- (a) The benthic community retains a diversity and abundance of marine taxa (other than one or two opportunistic enrichment-tolerant taxa such as Capitellid and Dorvillea worms, and nematodes) at levels which allow for sustained farm waste assimilative capacity and sufficient seabed recovery to support a farm rotation cycle with a fallowing period of not less than 5 years.
- (b) No more than 20% of the not less than 5 replicate cores collected have no taxa present (azoic). In any assessment under this condition, the effects of mussel shell substrate on benthic communities are to be ignored.
- (c) No obvious, spontaneous out-gassing (H₂S/methane)
- (d) Bacteria mat (Beggiatoa) coverage not greater than 50% of the sampled area.

G5. Water quality monitoring will be detailed in the Big Glory Bay Salmon Farm Environmental Management Plan (“BGBSFEMP”) required by the conditions of these conditions and shall include monthly sampling of nutrients (total ammoniacal nitrogen, NO₃-N, NO₂-N, DRP, TN and TP), chlorophyll a, phytoplankton composition (reference sites), temperature, dissolved oxygen (DO), water clarity, salinity at the locations specified in the BGBSFEMP. A new “Reference” site outside Big Glory Bay shall be established.

G6. Seabed monitoring will be detailed in the BGBSFEMP and shall include annual monitoring at the locations specified in the BGBSFEMP for sediment grain size, total organic matter (TOM), total organic carbon (TOC), copper and zinc, appearance of sulphide depth and general colour, depth of redox layer, obvious outgassing, mat forming bacteria, epifauna and infauna. If any benthic sample contains a large number of mussel shells or the grab is prevented from closing due to the presence of mussel shells, the sample shall be retaken. In the event that three grab samples at any one location all contain a large number of mussel shells or the grab is prevented from

closing due to the presence of mussel shells the sampling location shall be relocated approximately 10 metres distant.

G7. Notwithstanding any other conditions of these consents, a suitably qualified, experienced and independent person shall prepare a monitoring plan, the purpose of which is to enable compliance with the standards in Conditions G3 and G4 to be assessed.

The monitoring plan shall be submitted to Environment Southland for approval in a technical certification capacity two months before the total nitrogen input from feed in Big Glory Bay authorised by consents AUTH-20157616, AUTH-207256, AUTH-203326, AUTH-203327, AUTH-203240, AUTH-203241 and AUTH-203242 is increased above 483 tonnes/year.

G8. In addition to the requirements of conditions G5 and G6, the BGBSFEMP shall set out the details of:

(a) Possible responses to a Tier one standard breach requiring further monitoring and/or analysis to determine whether the operation of the marine farm is causing the relevant EQS-water not to be achieved; and

(b) Possible management responses to a Tier two standard breach requiring a clear decision process and plan of action, with clear timeframes to reduce effects on the water column or seabed and achieve full compliance with the EQS-water or EQS-seabed as soon as practicable in accordance with Condition G2(b).

Advice note: These consents expire in 2025, following which the on-going efficacy of the conditions of these consents, and especially Conditions G2, G3 and G4, will need to be reassessed, having particular regard to the monitoring undertaken in accordance with Condition G5, G6, G7 and G8.

Big Glory Bay Salmon Farm Environmental Management Plan

G9. Notwithstanding any other conditions of these consents, the consent holder shall, no later than [31 July 2019], submit to Environment Southland, a Big Glory Bay Salmon Farm Environmental Management Plan (“BGBSFEMP”) for approval in a technical certification capacity.

G10. The BGBSFEMP required by Condition G9:

(a) May be updated by the consent holder at any time; and

(b) Shall be updated by the consent holder at least once in every two year period;

(c) Address relevant matters identified in the latest Technology Update Report;

provided that any updated provisions shall only apply, once the updated BGBSFEMP has been approved in a technical certification capacity by Environment Southland.

G11. The purpose of the BGBSFEMP required by Condition G9, or any updated BGBSFEMP prepared in accordance with Condition G10, is, as a minimum, to set out:

(a) The procedures and practices to be implemented by the consent holder in order to ensure compliance with Conditions G2, G3 and G4; and

- (b) The proposed layout of each salmon farm site and how this is expected to change over each two year period; and
- (c) The maintenance procedures to be followed to ensure the ongoing efficacy of all salmon farm structures; and
- (d) The procedures and practices to be implemented to minimise, to the extent practicable, the interactions of marine mammals and seabirds with the farm site; and
- (e) The procedures, practices and monitoring to be implemented to meet the objective of reducing historically elevated concentrations of copper and zinc in sediments beneath the farm site to those that satisfy the ANZECC (2000) Interim Sediment Quality Guidelines; and
- (f) How the results of the monitoring required by the conditions of these consents will be utilised to adapt, as quickly as practicable, operational farming practices, including but not limited to the fallowing of individual sites, in the event that monitoring indicates that unforeseen environmental effects may arise;
- (g) Any changes in salmon farming technology and/or farm management practices identified in the Technology Update Report required by Condition G13 that the consent holder proposes to implement; and
- (h) Provide robust environmental data to inform the applications for replacement consents once these consents expire in 2025.

G12. When determining practicability for the purposes of Condition G11(f), the following factors will be considered:

- (a) The requirements of Conditions G2, G3 and G4; and
- (b) Fish should be allowed to grow to market ready size before being harvested; and
- (c) Salmon cage relocation to allow fallowing should not compromise fish health or the scheduling of fish harvesting.

Technology Update Report

G13. At three yearly intervals during the term of these consents, the consent holder shall engage an appropriately qualified and experienced professional to prepare a Technology Update Report and, following consultation with Environment Southland, provide it to Environment Southland.

The purpose of the Technology Update Report is to:

- (a) Evaluate and report on any new developments in salmon farming technology and/or farm management practices that have the potential to reduce the deposition on the seafloor of:
 - (i) Uneaten salmon feed; and
 - (ii) Salmon faeces.
- (b) Any environmental benefits that could be expected by adopting that technology and/or farm management practice; and

(c) The feasibility of adopting that technology and/or farm management practice, including, but not limited to financial implications.

Advice Note

Conditions G1 – G13 apply to AUTH-20157616, AUTH-207256, AUTH-203226, AUTH-203227, AUTH-203240, AUTH-203241 and AUTH-203242. It is envisaged the one BGBSFEMP and one Technology Update Report will be prepared that addresses all the consent holder's salmon farms in Big Glory Bay, rather than having a number of individual documents.