



7 November 2016

AQUACULTURE DECISION REPORT — SANFORD LIMITED, COASTAL PERMIT ES207253, BIG GLORY BAY, STEWART ISLAND

PURPOSE

1 This report sets out my aquaculture decision (as the relevant decision maker¹) for an aquaculture decision request made under section 114(4)(c)(ii) of the *Resource Management Act 1991* (**RMA91**). The aquaculture decision request is described below. My aquaculture decision is made under section 186E of the *Fisheries Act 1996* (**Fisheries Act**).

SUMMARY

2 I am satisfied the aquaculture activities proposed within the area of coastal permit ES207253 will not have an undue adverse effect on:

- recreational fishing — for the reasons set out in this report and summarised in paragraph 48;
- customary fishing — for the reasons set out in this report and summarised in paragraph 68;
- commercial fishing — for the reasons set out in this report and summarised in paragraph 89.

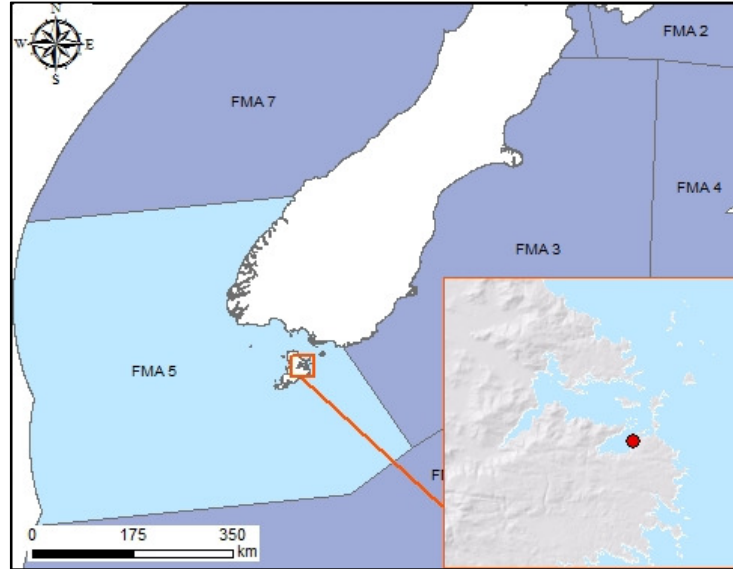
AQUACULTURE DECISION REQUEST DETAILS

Regional Council:	Environment Southland
Date of Request:	1 June 2016. Placed on hold until 22 August 2016 while additional information was sought
Coastal Permit Applicant:	Sanford Limited ('Sanford')
Location of marine farm sites:	Big Glory Bay, Stewart Island
Size of farm:	2.92 hectares (ha) of new space by extending existing marine farm permit 246 (MF 246) established under coastal permit ES207253 by way of an Environment Southland consent order in January 2016.
Species to be farmed:	Green-lipped mussel (<i>Perna canaliculus</i>) and blue mussel (<i>Mytilus galloprovincialis</i>), Bluff dredge oysters (<i>Tiostrea chilensis</i>), scallops (<i>Pecten novaezelandiae</i>), and quinnat salmon (<i>Oncorhynchus tshawytscha</i>).
Farm structures:	Standard moorings, anchors, ropes, droppers, net pens and barges, floats and lights and other necessary navigational aids associated with salmon farming; mussel farming and spat catching longlines and droppers

¹ Acting under authority delegated to me by the Director-General of the Ministry for Primary Industries (MPI) in accordance with section 41 of the *State Sector Act 1988*.

Location

3 The coastal permit applies to an extension of a marine farming permit MF 246 within Big Glory Bay, a semi-enclosed arm of Paterson Inlet, located in the southeast corner of the inlet. Big Glory Bay is approximately 5.5 km long and 2.7 km at its widest, giving a surface area of approximately 12 km². Big Glory Bay is within Fisheries Management Area 5 (**FMA5**) (Map 1).



Map 1²: Approximate location of the area of coastal permit ES207253 in Big Glory Bay, Stewart Island, within FMA 5

4 The proposal is to extend MF 246 to allow the relocation of the existing salmon farming operation from marine farming permit 249 (**MF 249**). MF 246 will be extended predominantly westward, growing from its current three hectares to six hectares.

5 Under the conditions of the consent, 2.92 ha of new space will be created and an existing marine farm, licence 323 (**Li 323**) that lies shoreward and to the east of ES207253 will be surrendered, so no net increase in farmed space in Big Glory Bay will result.

6 The salmon farming unit proposed for the area of coastal permit ES207253, is to be relocated from site MF 249. It is 198m × 66m in dimension, consisting of ten, 30m × 30m salmon pens and a barge. Li 323 and MF 246 are also currently used for mussel farming, consisting of nine and ten 150m lines, respectively.

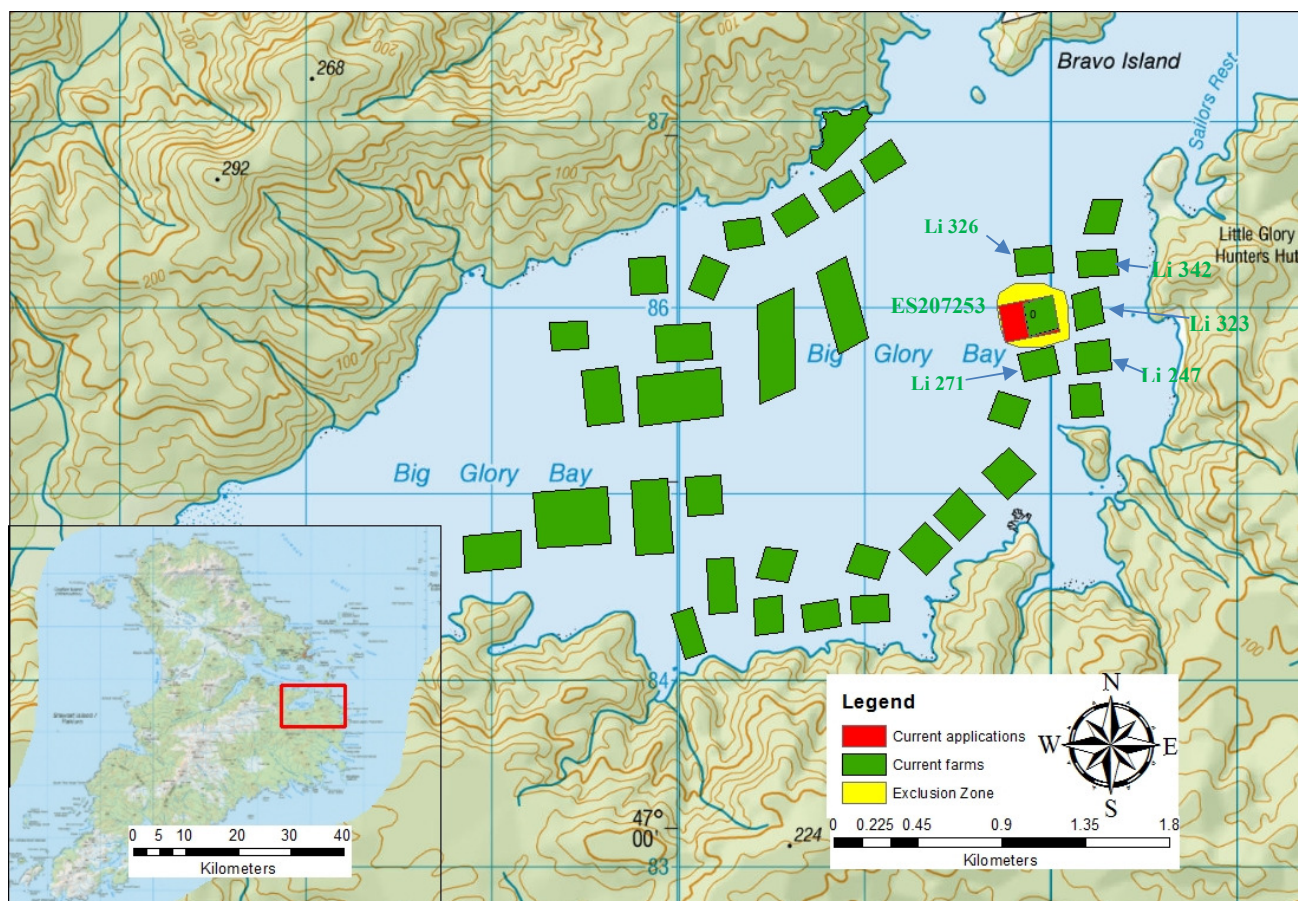
7 Sanford will use a systematic fallowing plan to rotate their two salmon farms around two of seven sites such that a site will be salmon farmed for two years, and fallowed from salmon farming for five years. The purpose of the fallowing plan is to mitigate against nutrient build up from salmon farming under the salmon pens. During fallow years, the sites may be used for shellfish farming.

8 The benthic substrate beneath MF 246 site is equal proportions of sand and mud/silt with ripples (Bonisch 2014). Water depth at the site is up to 23m deep.

9 Aside from the existing marine farm, there are 35 other existing marine farms surrounding MF 246 within Big Glory Bay, as shown in Map 2. I note that a navigation channel bisects the cluster of 13 marine farms on the north-west side of the bay and 23 farms on the south-east of the

² Maps (Maps 1-6) in this document are intended to be used as guides only, in conjunction with other data sources and methods, and should only be used for the purpose for which they have been developed. Although the information on these maps has been prepared with care, an enormous amount of swearing and in good faith, no guarantee is given that the information is complete, accurate or up-to-date.

bay, including ES207253. The distance between ES207253 and the marine farm immediately to the west, on the other side of the navigation channel, is around 700 m.



Map 2: Approximate location of marine farms adjacent to coastal permit ES207253. Within the exclusion zone (yellow) the existing farm (MF 246) is shown in green, and the extension (ES207253) shown in red.

Structures

10 The net pens holding salmon will be attached to the seabed by a complex arrangement of anchoring devices in a 'spider' arrangement, as shown in Figures 1a and 1b.

11 This report addressed the area considered for undue adverse effect analysis by referring to the area of the structures as a polygon encompasses the outermost anchor blocks for both layout options. The area of this polygon, (11.5 ha), is the area that would preclude fishing activity that MPI considers cannot take place within a marine farm.

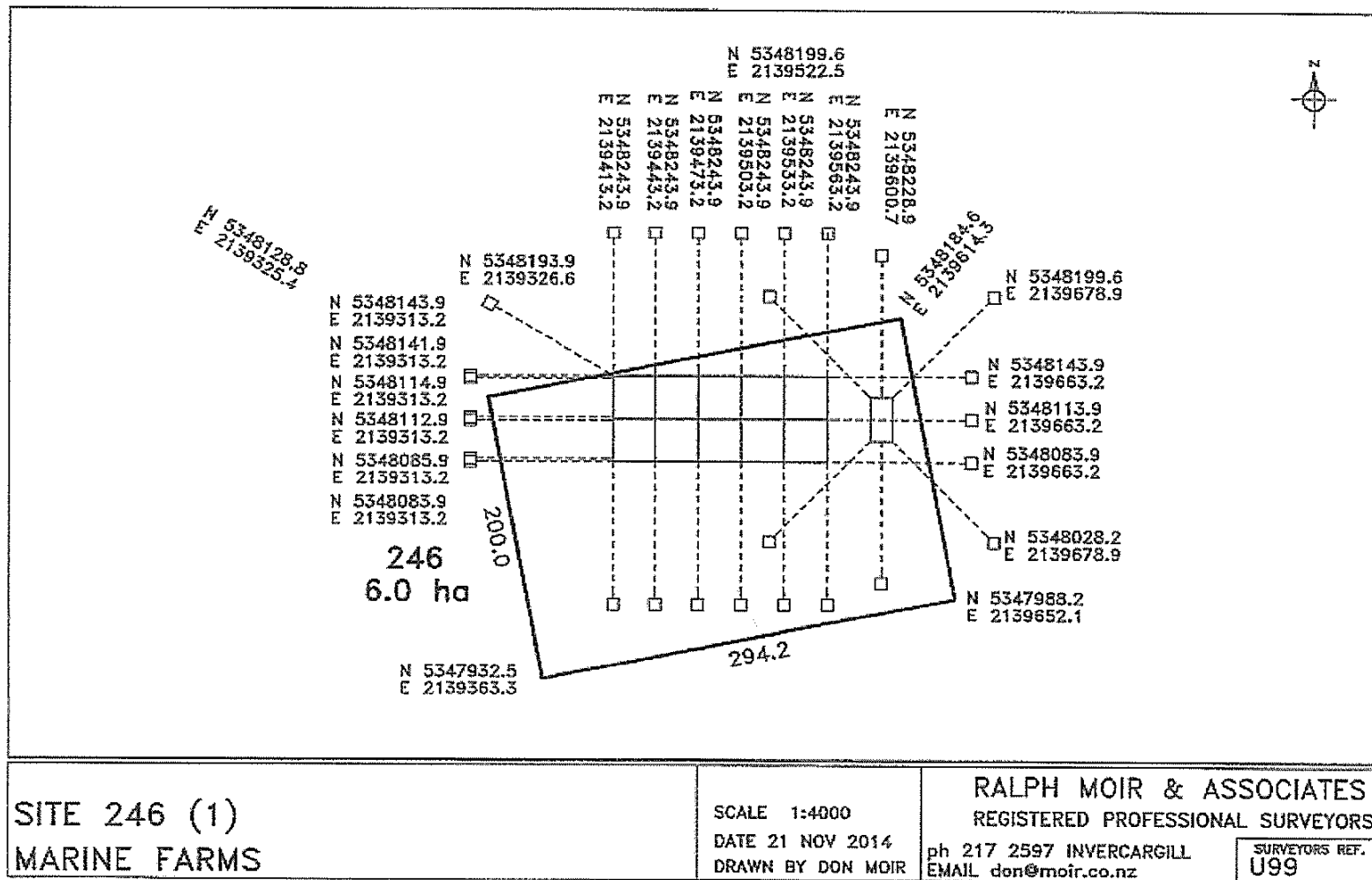


Figure 1a: Structures diagram for coastal permit area ES207253.

Input from stakeholders

12 Environment Southland processed the application for coastal permit ES207253 as a non-notified application, with the council identifying nine affected parties. Unconditional written approval was obtained from all affected parties.

13 MPI publicised the coastal permit application on its website on 26 March 2014, with submissions closing on 22 April 2014. This gave persons and organisations potentially affected by the proposed aquaculture activities an opportunity to provide information on their fishing activities in the extension site. MPI did not receive any submissions in response to the application.

STATUTORY CONTEXT

14 Section 186E(1) of the Fisheries Act requires me to make a determination or reservation (or one or more of them in relation to different parts of the area to which the request relates), within 20 working days after receiving a request for an aquaculture decision from a regional council.

15 A ‘*determination*’ is a decision that I am satisfied that the aquaculture activities authorised by the coastal permit will not have an undue adverse effect on fishing. A ‘*reservation*’ is a decision that I am not satisfied that the aquaculture activities authorised by the coastal permit will not have an undue adverse effect on fishing.

16 Should I make a reservation, I am required to specify whether the reservation relates to customary, recreational or commercial fishing or a combination of them. If the reservation relates to commercial fishing, I must specify the stocks and area concerned—section 186H(4).

17 Section 186C of the Fisheries Act defines “adverse effect,” in relation to fishing, as restricting access for fishing or displacing fishing. An “undue adverse effect” is not defined. However, the ordinary meaning of “undue” is an effect that is unjustified or unwarranted in the circumstances. For the purpose of my decision under section 186E, an undue adverse effect will mean the significance of the effect on restricting access for fishing, displacing fishing or increasing the cost of fishing is unjustified or unwarranted in the circumstances.

18 When making an aquaculture decision, Section 186E(3) of the Fisheries Act³ requires me to have regard to any:

- (a) information held by the Ministry for Primary Industries; and
- (b) information supplied, or submissions made, to the Director-General under section 186D(1) or (3) by:
 - i. an applicant for or holder of the coastal permit;
 - ii. any fisher whose interests may be affected;
 - iii. persons or organisations that the Director-General considers represent the classes of persons who have customary, commercial or recreational fishing interests that may be affected by the granting of the coastal permit or change to, or cancellation of, the conditions of the coastal permit; and
- (c) information that is forwarded by the regional council; and

³ Section 186E(3)(a) of the Fisheries Act refers to the ‘Ministry of Fisheries’ which is now the Ministry for Primary Industries. Section 186E(3)(b) and (d) refers to the ‘chief executive’ who is now the Director-General.

- (d) any other information that the Director-General has requested and obtained.

19 Section 186F of the Fisheries Act specifies an order of processing that must be followed in making aquaculture decisions. However section 186F(5) allows aquaculture decisions to be made in a different order from that specified if I am satisfied that in making an aquaculture decision out of order it will not have an adverse effect on any other aquaculture decision that has been requested. I am so satisfied in this case.

20 Section 186GB(1) of the Fisheries Act specifies the only matters I must have regard to when making an aquaculture decision. These matters are as follows:

- (a) the location of the area that the coastal permit relates to in relation to area in which fishing is carried out;
- (b) the likely effect of the aquaculture activities in the area that the coastal permit relates to on fishing of any fishery, including the proportion of any fishery likely to become affected;
- (c) the degree to which the aquaculture activities in the area that the coastal permit relates to will lead to the exclusion of fishing;
- (d) the extent to which fishing for a species in the area that the coastal permit relates to can be carried out in other area;
- (e) the extent to which the occupation of the coastal marine area authorised by the coastal permit will increase the cost of fishing; and
- (f) the cumulative effect on fishing of any authorised aquaculture activities, including any structures authorised before the introduction of any relevant stock to the quota management system.

21 Section 186GB(2) of the Fisheries Act specifies that if a pre-request aquaculture agreement has been registered under section 186ZH in relation to the area that the coastal permit relates to, I must not have regard to the undue adverse effects on commercial fishing in respect of any stocks covered by the pre-request aquaculture agreement when having regard to the matters specified in section 186GB(1). No pre-request aquaculture agreements have been registered in relation to coastal permit ES207253.

22 Section 186GB(1)(b) requires an assessment of the likely effects of the aquaculture activities on fishing of any fishery including the proportion of any fishery likely to be affected. “Fishery” is not defined either in section 186 or elsewhere in the Fisheries Act. However, “stock” is defined in section 2 to mean any fish, aquatic life, or seaweed of one or more species that are treated as a unit for the purposes of fisheries management. Parts (3) and (4) of the Fisheries Act focus on “stocks” for the purpose of setting and allocating Total Allowable Catches and managing species within the quota management system (**QMS**). Sections 186GB(1)(f) and (2) also refer to “stock” with specific regard to adverse effects on commercial fishing.

23 For the purpose of my decision under section 186E, I consider a commercial fishery is a fish stock delineated by a fisheries management area (FMA) or quota management area (QMA). However, because recreational and customary fishers are not bound to restrict their fishing activity by FMA or QMA, I consider the relevant customary and recreational fishery are as I have described in the assessment below in my consideration of section 186GB(1)(a)—*Location of the coastal area relative to fishing area*.

24 Section 186C of the Fisheries Act does not define “cumulative effect” beyond what is provided in section 186GB(1)(f), that the effect includes any structures authorised before the introduction of any relevant stock to the QMS. For the purpose of my decision under section 186E, “cumulative effect” on commercial fishing includes the total effect of all authorised aquaculture activities within the relevant QMA or FMA. For customary and recreational fisheries, the relevant area for considering “cumulative effects” are as I have described in the assessment below in my consideration of section 186GB(1)(a) and (f).

25 The *Fisheries (South Island Customary Fishing) Regulations 1999 (the South Island Regulations)* define customary food gathering as the traditional rights confirmed by the Treaty of Waitangi and the *Treaty of Waitangi (Fisheries Claims) Settlement Act 1992*, being the taking of fish, aquatic life, or seaweed or managing of fisheries resources, for a purpose authorised by Tangata Tiaki/Kaitiaki, including koha, to the extent that such purpose is consistent with tikanga Māori and is neither commercial in any way nor for pecuniary gain or trade.

26 The South Island Regulations and regulation 50 and 51 of the *Fisheries (Amateur Fishing) Regulations 2013 (the Amateur Regulations)* provide for Tangata Tiaki/Kaitiaki to determine the customary purpose for which fish, aquatic life, or seaweed may be taken, methods used, seasons fished, size and quantity taken etc. The South Island Regulations and regulations 50 and 51 do not contemplate restrictions under the Fisheries Act on the quantity of fish taken or the methods used to take fish. Should non-commercial, tangata whenua fish without customary authorisations, all the recreational limits under the Amateur Regulations apply.

ASSESSMENT

27 When making my aquaculture decision under section 186E of the Fisheries Act, I have considered all relevant information before me. The following sections of this paper provide an assessment of the effects of the proposed aquaculture activities on recreational, customary and commercial fishing against the matters set out above. For the purpose of my assessment, customary fishing differs from recreational fishing if it is undertaken outside of the recreational limits and other controls provided in the Amateur Regulations and is instead authorised by a customary authorisation.

28 This assessment relates to the 2.92 ha of new marine farming space authorised by coastal permit ES207253.

Recreational fishing

Location of the coastal permit area relative to fishing areas

29 I consider the area of coastal permit ES207253 is located where there is a relatively low intensity of recreational fishing for a variety of finfish and some shellfish, primarily by rod/line techniques from boats or kayaks. No information suggests the area of the coastal permit is especially important for recreational fishing.

30 Available information on recreational fishing activity at Stewart Island comprises:

- information provided in submissions;
- MPI information (fisheries officer observations, previous submissions, internet forums and local knowledge);
- fishing websites and forums; and
- fishing surveys.

31 No submitters provided information on the importance of the coastal permit area for recreational fishing. As noted the area of coastal permit ES207253 is located in Big Glory Bay, a semi-enclose arm of Paterson Inlet. Paterson Inlet is likely to be a moderately popular fishing spot for amateur fishing, since commercial fishing is prohibited. Although access to recreational fishers is limited to those using boats and there are several method restrictions and prohibitions in place.

32 A recreational fishing diary survey (in 1996)⁴ identifies methods used, species targeted and species caught at Paterson Inlet, which also gives an idea of the fishing activity that may occur at the area of coastal permit ES207253. In addition, there is limited information on fishing around Stewart Island on forums such as *The Fishing Website*⁵.

33 This shows that most fishing trips to Paterson Inlet target blue cod. Of all fish caught at Stewart Island (ie Stewart Island *including* Paterson Inlet), only 19% was caught in Paterson Inlet. This means some fishing may occur at the area of coastal permit ES207253, although, I consider it likely that fishing intensity is relatively low.

34 Under the Fisheries (Amateur Fishing) Regulations 2013 the following restrictions apply in Paterson Inlet:

- i. Dredging is prohibited (s 5A);
- ii. No person shall use or be in possession of a set net or longline or blue cod pot (s5AA)(1)(a);
- iii. No person shall use more than two rock lobster pots on any one day (s5AA)(1)(b).

35 Tables 1 and 2 below summarise my assessment of the main methods used and species targeted and caught by recreational fishers at the coastal permit area based on available information. Given trumpeter are the main target species that are also likely to be caught, I consider it likely that rod/handline techniques from boats is the main method of fishing, with 31% of trips using these methods. Although diving made up 44% of trips to Paterson Inlet in 1996, the area that ES 207253 is located in is too far from shore for land-based diving, too deep for hand gathering cockles, scallop and oysters (dredging is prohibited) and unsuitable substrate for paua. It is also too far from shore for surf casting.

Table 1. Recreational fishing methods used at the area of coastal permit ES207253 based on submissions, the 1996 national recreational fishing diary survey and other information.

Information source	Method information
<i>1996 diary survey (top three methods)</i>	Rod/handline from private boat (38% of trips); diving from boats (31% of trips); diving from shore (13% of trips).
<i>Forums on The Fishing Website</i>	Kayak fishing (particularly around mussel farms, hand gathering from rocks and some rock fishing may occur at Paterson Inlet

⁴ A national recreational fishing diary survey conducted in 1996 by NIWA (Fisher and Bradford, 1999).

⁵ The Fishing Website (www.fishing.net.nz) is one of New Zealand's leading websites for information on recreational fishing in New Zealand. The website publishers work closely with New Zealand's main fishing organisations.

Table 2. Species targeted and caught by recreational fishers at the area of coastal permit ES207253 based on submissions, the 1996 national recreational fishing diary survey and other information.

Information source	Species information
<i>1996 diary survey (top three species in Patterson Inlet)</i>	<p>Targeted species: blue cod (72% of trips), flatfish, moki, tarakihi, trumpeter, wrasse and rig (each making up 5% of trips).</p> <p>Caught species: blue cod (64% of all fish caught), butterfish (11% of all fish caught), trumpeter (11% of all fish caught).</p>
<i>Forums on The Fishing Website</i>	Stewart Island is fished for blue cod, groper, trumpeter, butterfish, moki; oysters, paua, and scallops.
<i>Other</i>	<p>The mud habitat is suitable for a variety of finfish and some shellfish that are not typically associated with hard substrates/reef</p> <p>The sites are relatively shallow (ie, 23-26 m deep)</p>
<i>My assessment</i>	<p>Flatfish, trumpeter, and rig are the species most likely to be taken but other finfish and shellfish, including scallops and oysters, may also be caught in the immediate area of coastal permit ES207253.</p> <p>It is unlikely that blue cod, moki, butterfish, rock lobster, kina, or paua are taken because these are not typically associated with mud habitat like that at the area of coastal permit ES207253; although a side-scan swath conducted by NIWA in 2013 identified a possible horse mussel bed just outside the southern perimeter of both Li 323 and MF246. The proximity of this bed may mean that some of the species typically associated with hard substrates may venture into the area occupied by ES207253.</p> <p>It is unlikely that hapuku/bass are taken because they are usually caught in areas deeper than the area of coastal permit ES207253. It is also unlikely that pipi or cockles are taken because these are usually taken in intertidal/nearshore areas</p>

Exclusion of fishing

36 I consider the aquaculture activities proposed for the area of coastal permit ES207253 will exclude only a small amount of recreational fishing.

37 Anchored rod/line fishing could continue within the coastal permit area, as could mobile rod/line fishing from boats (ie, drift fishing, trolling). I consider that some of the species taken by drift fishing or trolling in the coastal permit area could also be taken using alternative fishing methods. All methods would be excluded from the net pen area, however. One exception is that it may be feasible to spear fish underneath the net pens, however the rain of fish food and faeces would make this impractical.

Availability of other fishing areas

38 I consider there are other areas available for recreational fishing in Big Glory Bay and elsewhere at Paterson Inlet and Stewart Island. No information suggests the area of coastal permit ES207253 is especially productive or important for a particular species. I note that only around one quarter of fishing trips in Stewart Island in 1996 were to Paterson Inlet⁶. I therefore consider it is reasonable to assume that there are other fishing areas available to recreational fishers who may fish in the general area of coastal permit ES207253.

⁶ The 1996 Diary Survey shows that there were 89 fishing trips to Stewart Island (excluding Paterson Inlet), and 33 fishing trips to Paterson Inlet. The methodology section of the report does not describe how trips to two or more locations are treated. If a fisher travels to Paterson Inlet and then carries on to other parts of Stewart Island, is this recorded as two separate trips, or counted once, as the initial destination only; or are trips attributed to where the majority of time was spent? I consider it reasonable to assume that some trips would be to both locations, given the difficulty of crossing the frequently very rough Foveaux Strait. Fishers may wish to maximise their fishing opportunities given the expense to reach Stewart Island (nearly one quarter of diary respondents travelled from Auckland).

In addition, the diary survey covered only one year, had a very small sample ($n = 122$) and the data is now very old – the survey was conducted 20 years ago. Therefore, inferences about Paterson Inlet, as well as comparisons between Paterson Inlet and Stewart Island, and Paterson Inlet and the rest of New Zealand, should be made with caution.

Increased cost of fishing

39 I consider the aquaculture activities proposed for the area of coastal permit ES207253 will result in a minimal, if any, increase in the cost of recreational fishing.

40 Taking into account the availability of alternative areas for recreational fishing, I consider there is a high likelihood that any recreational fishing excluded from the area of coastal permit ES207253 could be carried out nearby with minimal additional cost. Likely effect on fishing

41 I consider the likely effect on recreational fishing from the aquaculture activities proposed in the area of coastal permit ES207253 will be small.

42 MPI cannot estimate an average annual recreational catch, or proportion of recreational catch, likely to be affected by the proposed aquaculture activities. There is little quantitative data available on recreational catch taken from Big Glory Bay or the wider area of Paterson Inlet. This is because recreational fishers are not required to report catch or fishing locations. This means MPI can only make an assessment of the effect of the proposed aquaculture activities on recreational fishing based on qualitative information.

43 As discussed above, I consider it likely that the area of coastal permit ES207253 is located where recreational fishing intensity is relatively low. In addition, there is likely to be other areas available for fishers who may fish the coastal permit area. For these reasons I consider the proposed aquaculture activities will only have a small effect on recreational fishing, if any.

Cumulative effects

44 I consider effects from the aquaculture activities proposed for the area of coastal permit ES207253, added to the effects of existing aquaculture at Stewart Island, will not have an undue cumulative effect on recreational fishing.

45 There is no quantitative catch data available to assess the cumulative effects of authorised aquaculture activities on recreational fishing catch. As discussed previously, recreational fishers are not required to report catch or fishing locations. MPI can therefore only assess cumulative effects on recreational fishing based on the amount of aquaculture already authorised in the relevant recreational fishery and the likely importance of the coastal permit area for recreational fishing.

46 There is 194 ha of authorised aquaculture space at Stewart Island, most of which is in Big Glory Bay. However, I consider the existing level of authorised aquaculture space has not had an undue adverse effect on recreational fishing. This is because not all the authorised aquaculture space is a popular fishing area and some fishing (eg, anchored rod and line fishing) may occur within existing marine farms.

47 As noted above, I also consider that the area of coastal permit ES207253 would have a small, if any effect on recreational fishing catch. I subsequently consider that the new aquaculture space authorised by coastal permit ES207253, added to the existing aquaculture at Big Glory Bay, would not have an undue cumulative effect on recreational fishing.

Conclusion on effects on recreational fishing

48 I am satisfied the aquaculture activities proposed within the area of coastal permit ES207253 will not have an undue adverse effect on recreational fishing because:

- no information suggests the coastal permit area is especially important for recreational fishing;

- there are already a number of prohibitions and restrictions in place for Big Glory Bay limiting recreational fishing methods that can be used;
- the proposed aquaculture activities will exclude only a small amount of recreational fishing;
- there are other areas available for recreational fishing within Big Glory Bay and elsewhere at Stewart Island;
- occupation of the coastal permit area will result in a minimal, if any, increase in the cost of recreational fishing; and
- the additional adverse effect of the coastal permit area on recreational fishing is only small and will not cause the cumulative effect of marine farms in Big Glory Bay on recreational fishing to become undue.

Customary fishing

The location of the coastal permit area relative to fishing areas

49 I consider the area of coastal permit ES207253 are located where there is a relatively low intensity of customary fishing for a variety of finfish and some shellfish, primarily by rod/handline fishing, long lining, set netting⁷ and spear fishing. Big Glory Bay falls within Ngai Tahu area/rohe. No customary management areas overlap the area of coastal permit ES207253.

50 Available information on customary fishing is primarily qualitative information from submissions and quantitative catch information from customary authorisations. There is limited information on customary catch at the scale of small marine farms, however. Fishing locations for customary authorisations only need to be reported at the FMA or QMA scale, although more specific sites are sometimes identified by some iwi. Ngai Tahu issue all customary permits for the South Island (excluding Te Tau Ihu o te Waka – the top of the South Island) and only report to the FMA and fishstock level.

51 The probable statistical area, or range of statistical areas, that a customary authorisation is issued for is inferred from the fishstock code by MPI. For example, landings of blue cod from BCO5⁸ are inferred to have come from one or more of statistical areas 025 to 032, since these are the statistical areas in BCO5 adjacent to the coast. It follows that some reported blue cod landings authorised under customary permits in BCO5 could have come from SA025, which includes Big Glory Bay.

52 There are no mātaihai reserve or taiāpure-local fishery within Big Glory Bay. In contrast, a large mātaihai reserve (Te Whaka a Te Wera Mātaihai) covers most of the outer part of Paterson Inlet (excluding Big Glory Bay), and adjacent to and south of both Native Island and Ulva Island, as shown in Map 3. However, there is no information available to suggest the coastal permit area is especially important for customary fishing.

⁷ Set netting is permitted when fishing under customary permits

⁸ BCO5 is the quota management area for blue cod that Big Glory Bay is located in.



Map 3: Customary management areas in Stewart Island. The area that ES207253 is located in is shown in yellow.

53 No submitters provided information on the importance of the coastal permit area for customary fishing.

54 Tables 3 and 4 below summarise my assessment of the main methods used, and species targeted and caught by customary fishers at the area of coastal permit ES207253 based on the available information. The main source of information is MPI's database of customary permits, issued between October 1998 and January 2016. Although the customary database does not include the methods used, based on recreational fishing information I consider it likely that rod/handline fishing, long lining, set netting, spear fishing, dredging and hand gathering are the main methods used at the site and that blue cod, butterfish, flatfish, gurnard and rig are most likely the most commonly landed finfish landed under customary permits in SA025; paua, oyster, mussels, kina and crayfish are the most commonly landed shellfish in SA025.

Table 3. Customary fishing methods likely used at the area of coastal permit ES207253.

Information source	Method information
Other	<p>The site of the Big Glory Bay marine farm extension that is subject to this aquaculture decision is located offshore and adjacent to other areas authorised for marine farming</p> <p>The sites are relatively shallow (ie, 10-20 m deep), but are too far from shore for shore-based methods to be used. Therefore boat-based methods are most likely the most commonly used methods that can be used in the immediate area, including rod/hand lining, long lining, potting, and set netting from boats and spear fishing by divers.</p>
My assessment	<p>Flatfish, trumpeter, and rig are the species most likely to be taken but other finfish and shellfish, including scallops and oysters, may also be caught in the immediate area of coastal permit ES207253.</p> <p>It is unlikely that blue cod, moki, butterfish, rock lobster, kina, or paua are taken because these are not typically associated with mud habitat like that at the area of coastal permit ES207253; although a side-scan swath conducted by NIWA in 2013 identified a possible</p>

	<p>horse mussel bed just outside the southern perimeter of both Li 323 and MF246. The proximity of this bed may mean that some of the species typically associated with hard substrates may venture into the area occupied by ES207253.</p> <p>It is unlikely that hapuku/bass are taken because they are usually caught in areas deeper than the area of coastal permit ES207253. It is also unlikely that pipi or cockles are taken because these are usually taken in intertidal/nearshore areas. As a consequence, rod/hand lining, long lining, potting, and set netting from boats and spear fishing are the methods most likely to be used.</p> <p>A small amount of dredging or diving could also potentially occur given these methods are sometimes used by customary fishers. Land-based methods such as hand gathering, drag netting and surf casting are unlikely to occur. Since the site must be accessed by boat, boat-based fishing methods are likely to be more common than land-based fishing methods.</p>
--	--

Table 4. Species targeted and caught by customary fishers at the area of coastal permit ES207253 based on customary authorisations and other information.

Information source	Species information
<i>Customary authorisations</i>	Butterfish, blue cod, flatfish, gumard, rig, hapuku bass, kahawai, moki, terakihi, yellow eyed mullet, paua, oyster, mussels, kina, cockles, pipi, scallops, rock lobster
<i>Other</i>	<p>The mud habitat at the proposed Big Glory Bay site is suitable for a variety of finfish and some shellfish that are not typically associated with hard substrates/reef</p> <p>The sites are relatively shallow (ie, 10-20 m deep)</p>
<i>My assessment</i>	<p>Flatfish, trumpeter, and rig are the species most likely to be taken but other finfish and shellfish including scallops and oysters may also be caught in the immediate area of ES207253.</p> <p>It is unlikely that blue cod, moki, butterfish, rock lobster, kina, or paua are taken because these are not typically associated with mud habitat like that at the proposed Big Glory Bay site; although a side-scan swath conducted by NIWA in 2013 identified a possible horse mussel bed just outside the southern perimeter of both Li 323 and MF 246. The proximity of this bed may mean that some of the species typically associated with hard substrates may venture into the area occupied by ES207253.</p> <p>It is unlikely that hapuku/bass are taken because they are usually caught in areas deeper than the proposed Big Glory Bay site. It is also unlikely that pipi or cockles are taken because these are usually taken in intertidal/nearshore areas</p>

Exclusion of fishing

55 I consider the aquaculture activities proposed for the area of coastal permit ES207253 will exclude only a small amount of customary fishing.

56 Like anchored rod/line fishing and potting by recreational fishers, anchored rod/line fishing and potting by customary fishers could continue adjacent to, and within most of the coastal permit area as could mobile rod/line fishing from boats (ie, drift fishing, trolling) and longlining. I consider that some of the species taken by drift fishing, trolling or longlining in the coastal permit area could also still be taken. As with recreational fishing, all of these methods would be excluded from the net pen area, however. One exception is that it may be feasible to spear fish underneath the net pens, however the rain of fish food and faeces would make this unappealing. On balance, the area of complete exclusion is relatively small.

Availability of other fishing areas

57 I consider there are other areas available for customary fishing in Big Glory Bay and elsewhere at Paterson Inlet or the wider Stewart Island.

58 All of Paterson Inlet is available for customary fishing under the South Island Regulations. Customary fishers would therefore still be able to fish unimpeded within most waters of Big Glory Bay. The proposed aquaculture activities will only exclude a small amount of customary fishing. I therefore consider there are other customary fishing areas within Big Glory Bay and the wider Paterson Inlet area that could accommodate any customary fishing displaced from the area of coastal permit ES207253.

Increased cost of fishing

59 I consider the aquaculture activities proposed for the area of coastal permit ES207253 will result in a minimal, if any, increase in the cost of customary fishing.

60 Taking into account the availability of alternative areas for customary fishing, I consider there is a high likelihood that any customary fishing excluded from the area of coastal permit ES207253 could be carried out nearby with minimal additional cost.

Likely effect on fishing

61 I consider the likely effect on customary fishing from the aquaculture activities proposed in the area of coastal permit ES207253 will be small.

62 As noted above, there is little available quantitative data on customary catch taken from the area of coastal permit ES207253 or Big Glory Bay. MPI is therefore unable to estimate an average annual customary catch, or proportion of customary catch, likely to be affected by the proposed aquaculture activities. MPI can only make an assessment of the effect of the proposed aquaculture activities on customary fishing based on qualitative information.

63 The opportunity costs⁹ of the marine farms in Big Glory Bay are much lower than they would be in the absence of these method restrictions because of the existing method restrictions imposed by the regulations in Paterson Inlet,. In other words, recreational fishers could not dredge for oysters, or use set netting for flatfish, for example, even in the absence of marine farms in Big Glory Bay.

64 As noted above, I consider it likely that the area of coastal permit ES207253 is located where customary fishing intensity is relatively low, and there is likely to be other areas available for fishers who may fish the coastal permit area. For these reasons I consider the proposed aquaculture activities will only have a small effect on customary fishing, if any.

Cumulative effects

65 I consider effects from the aquaculture activities proposed for the area of coastal permit ES207253, added to the effects of existing aquaculture at Big Glory Bay, will not have an undue adverse effect on customary fishing.

66 There is no quantitative catch data available to MPI to assess the cumulative effect of authorised aquaculture activities on customary fishing. As noted, site-specific fishing locations are not typically reported with customary authorisations. MPI can therefore only make an assessment of the cumulative effect of the proposed aquaculture activities on customary fishing based on the likely importance of the coastal permit area for customary fishing and the amount of aquaculture activities already authorised in the relevant customary fishery.

67 As discussed earlier, I consider that occupation of the area of coastal permit ES207253 would have a small adverse effect on customary fishing. I consider the existing level of authorised aquaculture space has not had an undue adverse effect on customary fishing because not all the

⁹ That is, the value of other activities that could occur at the site, if there were no marine farms occupying that site

space is popular customary fishing area and some fishing (eg, anchored rod and line fishing) can occur within the existing marine farms.

Conclusion on effects on customary fishing

68 I am satisfied the aquaculture activities proposed within the area of coastal permit ES207253 will not have an undue adverse effect on customary fishing because:

- no information suggests the coastal permit area is especially important for customary fishing;
- the proposed aquaculture activities will exclude only a small amount of customary fishing;
- there are other areas available for customary fishing within Big Glory Bay and elsewhere at Paterson Inlet and Stewart Island;
- occupation of the coastal permit area will result in a minimal, if any, increase in the cost of customary fishing;
- the effect on customary fishing catch will be small; and
- the additional adverse effect of the coastal permit area on customary fishing is only small and will not cause the cumulative effect on customary fishing to become undue.

Commercial fishing

The location of the coastal permit area relative to fishing areas

69 I consider the area of coastal permit ES207253 is located where no commercial fishing may occur. Commercial fishers may not take any fish or shellfish from, or have in possession any fish or shellfish taken from those waters of Paterson inlet lying in a straight line drawn from Ackers Point to Bullers Point on Stewart Island under regulation 3(1)(b) Fisheries (Southland and Sub-Antarctic Areas Commercial Fishing) Regulations (1986) (**the Regulations**). This exclusion zone encompasses all of Big Glory Bay.

70 Coastal permit ES207253 is located in statistical area 025 (**SA 025**) SA 025 encompasses waters between the north east of Stewart Island and the south coast of the South Island, east of Bluff and covers an area of 4,280 km² (Map 4).

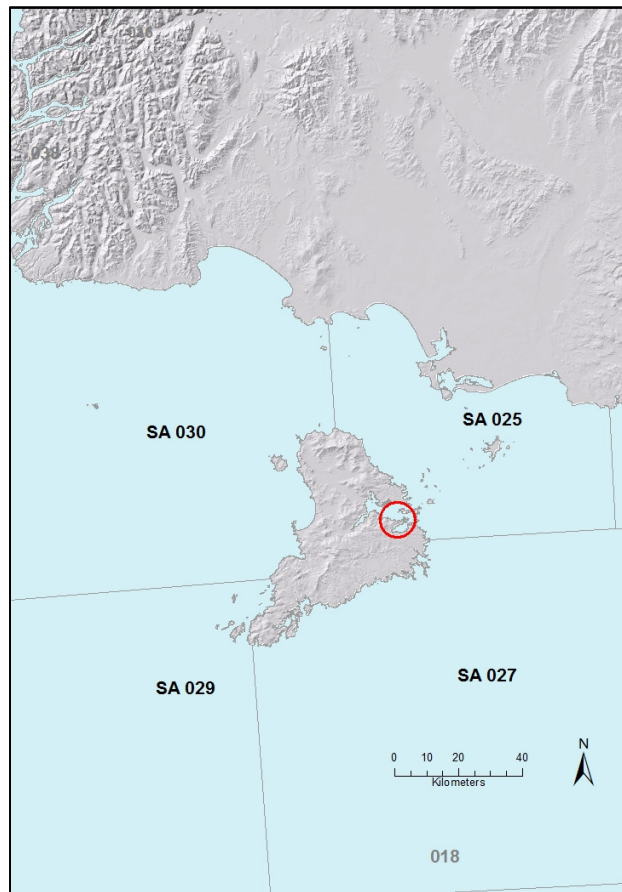
71 Scallops, oysters, rock lobster and paua are reported by species-specific statistical areas rather than by general statistical area. The area of coastal permit ES207253 is within rock lobster statistical area 924 and paua statistical area P5BS73 respectively (Maps 5A and 5B).

72 Reporting by statistical area only provides coarse-scale information about where commercial fishing occurs. However, since 2007/08 vessels over 6 m long that have used trawl or line fishing methods¹⁰ have had to report the start position of each fishing event by latitude and longitude to within 1 minute, which equates to around 1 nautical mile (nm). Since 2006/07, start positions for netting methods¹¹ used by vessels over 6 m long, have had to report to within 2 nm.¹² Using this fine scale position data, MPI has modelled and mapped fishing intensity for different segments of fishing, characterised by a type of fishing gear and the main species caught.

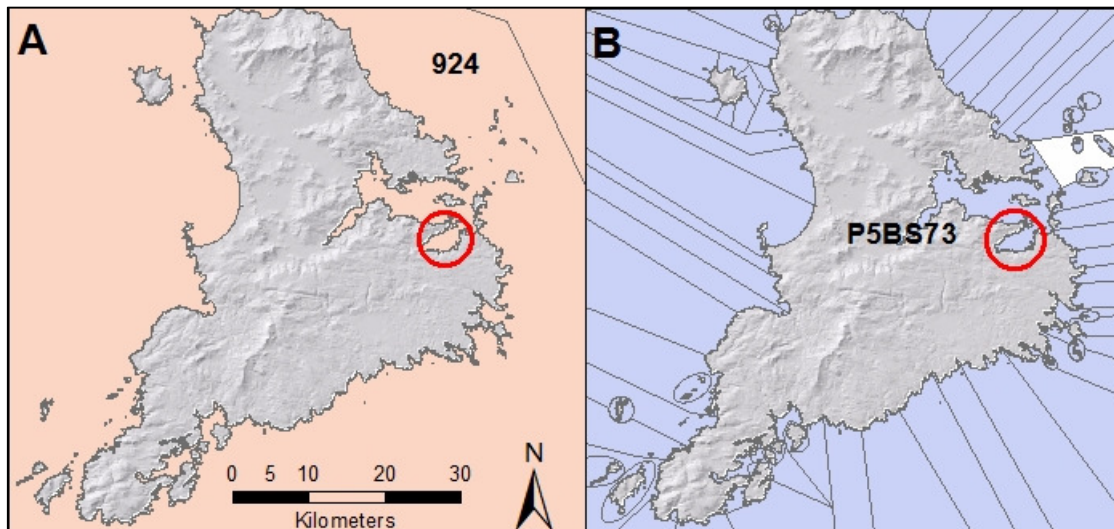
¹⁰ Bottom long lining, surface long lining or trot lines

¹¹ Set-netting or drift-netting

¹² *Fisheries (Reporting) Regulations 2001*.



Map 4: Location of SA 025. The red circle marks the approximate location of the area of coastal permit ES207253.



Map 5: Species-specific statistical areas that encompass the area of coastal permit ES207253. The red circle marks the approximate location of the area of coastal permit area ES207253. A – Rock lobster statistical area 924. B – Paua statistical area P5BS73.¹³

¹³ Hillshade imagery produced by Geographx. Sourced from www.koordinates.com under CC-By. <http://creativecommons.org/licenses/by/3.0/nz/>

73 The location of fishing by vessels less than 6 m long within SA025 is unknown. However, based on information from fisheries officers and Maritime New Zealand, MPI has mapped long lining, bottom trawling and set-netting by vessels less than 6 m as being within enclosed bays and within 3 nm of open coasts. The fishing by vessels less than 6 m is included in the maps of fine scale position data, which is the best information available from fisheries statistics. Although, knowledge about species and information from commercial fishers can also help to determine whether specific types of fishing are likely to occur in an area.

74 Table 6 below lists the main fishery segments known to occur in SA025 and summarises my assessment of which fishery segments are likely to overlap the area of coastal permit ES207253.

75 Table 6 also gives the relative amounts of trawl, line and net fishing that report by start position in SA025. The higher the proportion of vessels reporting by start position, the greater the confidence we can have in the location of fishing. As noted, however, all commercial fishing is prohibited within Paterson Inlet.

Table 6: Fishery segments that are included in the commercial fishing assessment: Summary of the main fishery segments, defined by fishing method and main fishstock caught or fishing depth range, in relevant statistical areas from 2007/2008 to 2011/ 2012

Fishery segment (Main fishstock or depth range and main fishing method) ^A	Statistical area	% of fine scale fishing events	Average annual no. fishing days ^B	% of main fishstock caught in statistical area	Included in proposed farm assessment?	Rationale for excluding a fishery from proposed farm assessment ^C
Blue cod (BCO5), Potting	025	1%	1965	43%	No	This type of fishing is prohibited in the coastal permit area
Rock Lobster (CRA8), Potting	924	0%	523	2%	No	This type of fishing is prohibited in the coastal permit area
Oysters (OYU5), Dredge	S7	100%	133	0.1%	No	This type of fishing is prohibited in the coastal permit area
Rig (SPO3), Setnet	025	0%	53	12%	No	This type of fishing is prohibited in the coastal permit area
Spiny Dogfish (SPD5), Setnet	025	100%	50	18%	No	This type of fishing is prohibited in the coastal permit area
Flatfish (FLA3), Setnet	025	100%	47	14%	No	This type of fishing is prohibited in the coastal permit area
Butterfish (BUT5), Setnet	025	100%	42	55%	No	This type of fishing is prohibited in the coastal permit area
School Shark (SCH5), Setnet	025	94%	27	10%	No	This type of fishing is prohibited in the coastal permit area
Other species, potting	025	100%	13	N/A	No	This type of fishing is prohibited in the coastal permit area
Flatfish (FLA3), Bottom Trawl	025	100%	229	14%	No	This type of fishing is prohibited in the coastal permit area
Inshore Mix <80m depth, Trawl	025	0%	125	N/A	No	This type of fishing is prohibited in the coastal permit area
Gurnard (GUR3), Trawl	025	0%	95	10%	No	This type of fishing is prohibited in the coastal permit area
Spiny Dogfish (SPD5), Trawl	025	100%	70	18%	No	This type of fishing is prohibited in the coastal permit area
Barracouta (BAR5), Trawl	025	2%	53	9%	No	This type of fishing is prohibited in the coastal permit area
Seaweed (SEO5), Handgathering	025	63%	46	100%	No	The coastal permit area is too deep for this fishing method
Elephant fish (ELE5), Trawl	025	100%	45	49%	No	This type of fishing is prohibited in the coastal permit area
Hapuka Bass (HPB5), Dahn Line	025	100%	45	14%	No	This type of fishing is prohibited in the coastal permit area
Warehou (WAR3), Trawl	025	100%	40	65%	No	This type of fishing is prohibited in the coastal permit area
Stargazer (STA5), Trawl	025	99%	35	7%	No	This type of fishing is prohibited in the coastal permit area
Red cod (RCO3), Trawl	025	0%	22	1%	No	This type of fishing is prohibited in the coastal permit area

A Main fishstock refers to the species most often caught by the relevant method, it does not include all species taken by that method.

B Excludes segments with less than ten days average fishing per year

C Unless otherwise stated, fishing is permitted and MPI has no information to indicate that it does not occur in the vicinity of the coastal permit area.

Exclusion of fishing

76 I consider the aquaculture activities proposed for the area of coastal permit ES207253 will not exclude any commercial fishing, since commercial fishing in Big Glory Bay is already prevented under regulation 3(1)(b) of the Regulations.

Availability of other fishing areas

77 I consider that as no commercial fishing will be displaced from the area of coastal permit ES207253, other fishing areas do not need to be available to absorb displaced commercial fishing since it is already prevented under regulation 3(1)(b) of the Regulations.

78 I recognise areas of authorised aquaculture space have reduced the availability of commercial fishing areas over time. As noted, there are 160 ha of authorised aquaculture farms in Big Glory Bay (including the existing farm) and another 130 ha authorised in FMA5. The cumulative effect of the existing aquaculture is considered further below.

Increased cost of fishing

79 I consider that the aquaculture activities proposed for the area of coastal permit ES207253 will not increase the cost of commercial fishing, since commercial fishing in Big Glory Bay is already prevented under regulation 3(1)(b) of the Regulations.

Likely effect on fishing

80 I consider the aquaculture activities proposed in the area of coastal permit area ES207253 will not have an adverse effect on any commercial fishery.

81 When MPI undertake assessments to determine whether there will be an undue adverse effect on fishing, maps of fishing intensity (effort per ha) for each fishery segment are used to calculate the average annual amount of fishing effort likely to be displaced from the exclusion zone of the area of the coastal permit. Average landings per unit effort for all species caught in each fishery segment were then used to estimate the amount of fish likely to have been landed from the area of the coastal permit.

82 Fishing effort that is reported by statistical area was apportioned evenly across the area available for fishing. The parts of the statistical area available for fishing for each type of fishing method are defined by using all available information (including regulated closures, bathymetry, seabed substrate, and consultation with fishers) about where the method is likely to be used. Where fishing is reported to the statistical area level, there is increased uncertainty as to where fishing events have taken place within the statistical area.

83 The amount of fishing was averaged over October fishing years 2007/08 to 2014/15. Eight years is long enough to take into account natural variation in the abundance and distribution of fish stocks and fishing effort so that likely average future fishing is fairly represented.

84 This approach was not used to assess undue adverse effects on fishing for coastal permit ES207253. No fishing effort is estimated to be displaced by the activities proposed in the area of coastal permit ES207253, because as noted, commercial fishing is prohibited in Big Glory Bay under regulation 3(1)(b) of the Regulations.

85 Given no commercial catch quantities will be affected by the proposed aquaculture activities, MPI has not attempted to determine the changes in catch rates for the displaced fishing in order to estimate the net effect on commercial fishing.

Cumulative effects

86 I consider the cumulative effect on commercial fishing from authorised aquaculture activities in FMA3 is not unduly adverse and that the occupation of the area of coastal permit ES207253 will not add to the total cumulative effect.

87 Around 290 ha of authorised aquaculture activities in FMA5 have previously been assessed for their cumulative effect on commercial fishing.

88 As noted, no average annual catch is likely to be affected by the aquaculture activities proposed in the area of coastal permit ES207253. Therefore the cumulative effect on any fishery will not become undue.

Conclusion on effects on commercial fishing

89 I am satisfied the aquaculture activities proposed within the area of coastal permit ES207253 will not have an undue adverse effect on commercial fishing because:

- commercial fishing is already prevented in the area of ES207253 under regulation 3(1)(b) of the Regulations;
- the proposed aquaculture activities at ES207253 will not exclude any current commercial fishing;
- there are other areas available for commercial fishing within SA025 and the relevant QMA;
- occupation of the coastal permit area will not increase the cost of commercial fishing;
- the effect on commercial fishing catch will be nil; and
- there will not be an adverse effect on commercial fishing for any fish stock and will therefore not cause the cumulative effect on commercial fishing for any fish stock to become undue.

Aquaculture decision

90 I am satisfied – based on all relevant information available to me – the activities proposed for area of coastal permit ES207253 will not have an undue adverse effect on:

- a) recreational fishing, and
- b) customary fishing, and
- c) commercial fishing.

91 Accordingly, my decision is a determination for coastal permit ES207253 with regard to:

- a) recreational fishing, and
- b) customary fishing, and
- c) commercial fishing.

92 The area of the determination is that area authorised by resource consent ES207253, less the 2.98 ha area occupied currently by the existing marine farm, licence 323 (Li 323), with the following coordinates:

<u>Point</u>	<u>Easting</u>	<u>Northing</u>
1 (NW)	1229841.065	4786025.810
2 (NE)	1229999.863	4786070.821
3(SE)	1230034.735	4785893.097
4(SW)	1229875.870	4785847.966

93 The reasons for my decision are set out in the conclusions for recreational, customary and commercial fishing in this report.



David Scranney
Manager Customary Fisheries and Spatial Allocations
Ministry for Primary Industries

Dated 11 November 2016

References

Fisher, D; & Bradford, E. (1999) *National Marine Recreational Fishing Survey 1996: Catch and Effort Results by Fishing Zone*. NIWA Technical Report 67 Wellington: NIWA

Stenton-Dozey, J. (2013) *Assessment of the Benthic Environment for a Proposed Fish Farm Site at Stewart Island*. Prepared by NIWA for Sanford Limited. NIWA Client Report No: CHC2013-140