

19 November 2015

AQUACULTURE DECISION REPORT — COASTAL PERMITS R/REG/2103/3601, R/REG/2103/3602, R/REG/2103/4631 AND R/REG/2103/4655, WAIMANGO POINT, FIRTH OF THAMES

PURPOSE

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

SUMMARY

2 I am satisfied the aquaculture activities proposed within the areas of coastal permits R/REG/2013/3601, R/REG/2013/3602, R/REG/2013/4631 and R/REG/2013/4655 will not have an undue adverse effect on:

- recreational fishing for the reasons set out in this report and summarised in paragraph 47;
- 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 93.

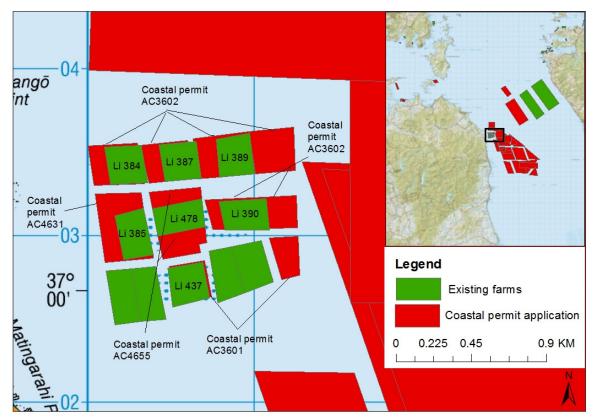
Regional Council:	Auckland Council (AC)
Date of Request:	22 October 2015
Coastal Permit Applicant:	R/REG/2013/3601: Dean Aislabie (AC3601)
	R/REG/2013/3602: Ambush Marine Limited (AC3602)
	R/REG/2013/4631: Peter McMillan Bull (AC4631)
	R/REG/2013/4655: Allan and Jane Bartrom (AC4655)
Location of marine farm site:	Waimango Point, Firth of Thames
Size of aquaculture decision area:	R/REG/2013/3601: 3.96 hectares (ha)
	R/REG/2013/3602: 20.35 ha
	R/REG/2013/4631: 6.54 ha
	R/REG/2013/AC4655: 6.52 ha
Species to be farmed:	Green-lipped mussels (Perna canaliculus)
Farm structures:	Standard marine farm longlines and anchors with droppers for farming and spat catching

AQUACULTURE DECISION REQUEST DETAILS

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*.

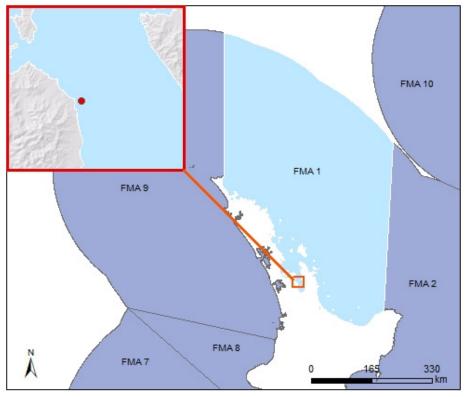
Location

3 Coastal permits AC3601, AC3602, AC4631 and AC4655 apply to areas at Waimango Point in the Firth of Thames (Map 1). The Firth of Thames is in Fisheries Management Area 1 (**FMA1**) (Map 2).



Map 1²: Location of the areas authorised by coastal permits AC3601, AC3602, AC4631 and AC4655 at Waimango Point, Firth of Thames (MPI, 2015).

² Disclaimer: Maps 1-6B and all information accompanying them 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 were developed. The information shown in the maps is based on a summary of data obtained from various sources. While all reasonable measures have been taken to ensure the accuracy of the maps, MPI: (a) gives no warranty or representation in relation to the accuracy, completeness, reliability or fitness for purpose of the maps; and (b) accepts no liability whatsoever in relation to any loss, damage or other costs relating to any person's use of the maps, including but not limited to any compilations, derivative works or modifications of the maps. The maps are subject to Crown copyright administered by Ministry for Primary Industries (MPI), and are licensed for general use under the Creative Commons Attribution 3.0 New Zealand licence (http://creativecommons.org/licenses/by/3.0/nz/). Crown copyright ©. NZ topo data. Sourced from Land Information New Zealand under CC-By. http://creativecommons.org/licenses/by/3.0/nz/



Map 2: Location of the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 (red circle) within FMA1.

4 Coastal permit AC3601 comprises three parts; two parts totalling 0.43 ha adjacent to marine farm licence 437 (**Li 437**) to account for offsite structures of Li 437, and a separate part of 3.53 ha (Appendix 1).

5 Coastal permit AC3602 comprises eight areas; a 2.80 ha part accounts for offsite structures of marine farm licence 384 (**Li 384**), a 2.53 ha part accounts for offsite structures of marine farm licence 387 (**Li 387**), two parts totalling 3.27 ha account for offsite structures of marine farm licence 389 (**Li 389**), a 6.58 ha part extends Li 389, two parts totalling 1.75 ha account for offsite structures of marine farm licence 390 (**Li 390**), and 3.42 ha part extends Li 390 (Appendix 2).

6 Coastal permit AC4631 comprises one 6.54 ha part to account for offsite structures and extend marine farm licence 385 (Li 385) (Appendix 3).

7 Coastal permit AC4655 comprises two parts totalling 6.52 ha to account for offsite structures and extend marine farm licence 478 (Li 478) (Appendix 4).

8 Aside from four other authorisations in the same block of marine farms at Waimango Point, the next closest marine farms are in the two large blocks of the Wilson Bay Marine Farming Zone, within Waikato Regional Council's jurisdiction, on the eastern side of the Firth of Thames.

9 Most areas of coastal permits AC3601, AC3602, AC4631 and AC4655 are located in 5-10 m of water, with the separate block of AC3601 and the extensions to Li 389 and Li 390 (under coastal permit AC3602) located in slightly deeper waters up to 20 m (Kelly *et al.* 2013). The sediments in the sites are predominantly mud with some shell hash (Kelly *et al.* 2013). No hard substrate (eg, reef or cobble) has been observed within the coastal permit areas.

10 The closest distance to shore for any of the coastal permit areas is around 500 m.

Structures

11 Farm layout or structures plans are not yet developed for coastal permits AC3601, AC3602, AC4631 and AC4655. These only need to be provided to AC within two months of the farms' construction.

12 However, the application for coastal permit AC4631 states the longlines would be either 80-90 m or 200-220 m in length with a separation of approximately 19 m. The application for coastal permit AC4655 states the longlines would be approximately 250 m long with a separation of approximately 20 m and not less than 10 m. Furthermore, the applications for coastal permits AC3601 and AC3602 state that the existing marine farms contain longlines that range from 130-200 m. I consider the longlines in new farm areas relating to these coastal permits are likely to be similar lengths. The spacing between the longlines has not been stated in coastal permit applications AC3601 and AC3602.

Input from stakeholders

MPI publicised the applications for coastal permits AC3601, AC3602, AC4631 and AC4655 on its website on 18 December 2014. Under section 186D(3) of the Fisheries Act, on 18 December 2014, MPI also consulted with Ngāti Whanaunga, Ngati Maru and Ngati Tamatera on whether the proposed activities would affect customary fishing within their rohe boundaries. This was because these iwi submitted to AC on the applications and in response to a formal request by Ngāti Whanaunga for consultation.

14 The closing date for submissions to MPI was 6 February 2015. MPI received no submissions in response to the consultation.

STATUTORY CONTEXT

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

16 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.

17 If 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).

18 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.

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

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.

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

20 Section 186F of the Fisheries Act specifies an order of processing that must be followed in making aquaculture decisions. But 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.

21 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 areas that the coastal permit relates to in relation to areas in which fishing is carried out;
- (b) the likely effect of the aquaculture activities in the areas 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 areas that the coastal permit relates to will lead to the exclusion of fishing;
- (d) the extent to which fishing for a species in the areas 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.

22 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 areas 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 permits AC3601, AC3602, AC4631 or AC4655.

23 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.

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 areas relative to fishing area*.

25 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 areas for considering "cumulative effects" are as I have described in the assessment below in my consideration of section 186GB(1)(a) and (f).

26 The Fisheries (Kaimoana Customary Fishing) Regulations 1998 (the Kaimoana 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 Kaitiaki/Tiaki, 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.

27 The Kaimoana Regulations and regulation 50 and 51 of the *Fisheries (Amateur Fishing) Regulations 2013* (the Amateur Regulations) provide for Tangata Kaitiaki/Tiaki 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 Kaimoana 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 tangata whenua fish without customary authorisations, all the recreational limits under the Amateur Regulations apply.

ASSESSMENT

28 When making my aquaculture decisions 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 provided in the Amateur Regulations and is instead authorised by a customary authorisation.

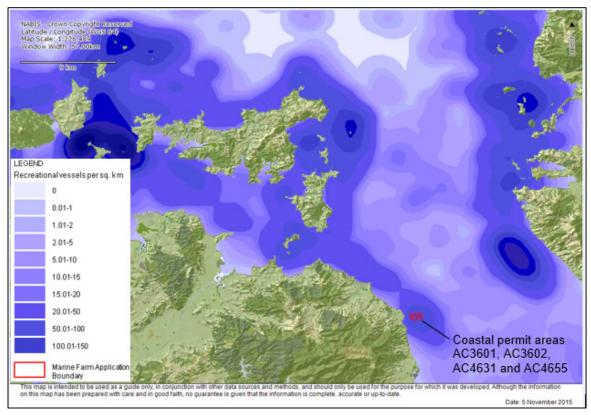
Recreational fishing

Location of the coastal permit areas relative to fishing areas

I consider the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 are located where there is a moderate amount of recreational fishing, predominantly by stationary and mobile rod/hand line methods. I consider that snapper and kahawai are the main species targeted and/or caught.

- 30 Available information on recreational fishing activity in the Firth of Thames comprises:
 - information provided in submissions, if any;
 - information provided in the coastal permit applications;
 - fishing surveys; and
 - MPI information (eg, institutional knowledge).

No submissions on the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 were received from recreational fishers, and there are no recent submissions on other marine areas around Waimango Point. However, the Assessments of Effects on the Environment (**AEE's**) submitted with the applications for coastal permits AC3601 and AC3602 suggest the Waimango Point marine farms are popular recreational fishing destinations, particularly as fish aggregating devices for snapper and other species. The AEE's state there may be as many as 30 boats in the vicinity of the farms during busy weekends and holidays, especially during harvesting. Results from an aerial survey of the Hauraki Gulf in 2005 by Hartill *et al* (2007) suggest there is likely to be a moderate amount of recreational fishing at the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 when compared to other areas in inner Hauraki Gulf (Map 3).



Map 3. Aerial survey results from 2005 of recreational fishing intensity (Hartill et al, 2007).⁴

32 A recreational fishing survey by Fisher and Bradford (1999) provides information on methods used, and species targeted and caught within zones in FMA1, one of which includes Waimango Point. Table 1 below summarises my assessment of the main methods used, and species caught and targeted in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 based on recreational fishing surveys, benthic surveys and other information.

⁴ Figure sourced from NABIS (MPI, 2015).

As shown, I consider that stationary and mobile rod/hand line methods from private boats are the predominant methods used at the areas of coastal permits AC3601, AC3602, AC4631 and AC4655, and that snapper and kahawai are the main species targeted and caught.

Table 1: Recreational fishing methods used and species caught and targeted at the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 based on the available information.

	Source of inf		
	Fisher & Bradford (1999)	Site and other information	My assessment
Methods potentially used	Rod/line from private boat (67% of trips) Rod/line from shore (26 % of trips) Hand gathering (4% of trips) Set net (2% of trips) Diving from private boat, drag netting and diving from shore (less than 1% of trips)	The mud substrate in the coastal permit areas is suitable for all the methods identified as occurring in the Firth of Thames zone by Fisher & Bradford (1999). Depths at the coastal permit areas are greater than those used for drag netting and hand gathering. The coastal permit areas are too far from shore for rod/line fishing or diving from shore. Rod/line methods by boat include trolling, drift fishing and anchored fishing.	Stationary and mobile rod/line methods from private are the most commonly used methods at the site. A small amount of set netting and diving from private boat may also occur but is unlikely to be common.
Species caught (top 10)	Snapper (1,063) Kahawai (160) Flatfish (60) Blue Mackerel (58) Jack Mackerel (51) Mackerels (34) Shark (23) Koheru (20) School Shark (14) Trevally (8)	The depths, mud substrate and existing marine farm structures in the vicinity of the coastal permit areas are suitable for the most commonly caught species identified in the Firth of Thames zone by Fisher & Bradford (1999).	Snapper and kahawai are likely to be the most commonly caught species at the coastal permit areas.
Species targeted	Snapper (85% of trips) Kahawai (7% of trips) Kingfish (3% of trips) Flatfish (2% of trips) Spotty (1% of trips) Gurnard, Mullet (unspecified), John dory and Tuna (less than 1% of trips)	The depths, mud substrate and existing marine farm structures in the vicinity of the coastal permit areas are suitable for the most commonly targeted species identified in the Firth of Thames zone by Fisher & Bradford (1999).	Snapper and kahawai are likely to be the most commonly targeted species at the coastal permit areas.

Exclusion of fishing

I consider the aquaculture activities proposed for the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will exclude some of the recreational fishing methods that may be used in the area.

Of the recreational fishing that may occur in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 it is likely that trolling, drift fishing and set netting would be excluded. Anecdotal information from recreational fishers⁵ suggests that spaces between longlines of mussel farms in the Marlborough Sounds are too narrow for set netting and trolling without risk of entanglement. I also consider that drift fishing is unlikely to occur within marine farms because of risk of entanglement. However, it is common for fishers to fish by rod/hand line within mussel farms, so it is possible anchored fishing could continue between the proposed structures. I do not consider that diving would be excluded from the coastal permit areas.

Availability of other fishing areas

36 I consider there are other areas available for recreational fishing in the Firth of Thames.

37 There are no area closures or method restrictions or prohibitions that limit the extent of any alternative areas for recreational fishing in the Firth of Thames. I therefore consider that alternative areas could absorb any recreational fishing displaced from the areas of coastal permits AC3601, AC3602, AC4631 and AC4655, particularly given:

- no information suggests the coastal permit areas offer fishing opportunities (eg, habitat, species, methods) specific to them;
- there are likely to be sufficient alternative areas, particularly for rod/hand line fishing which can occur amongst mussel farms.

Increased cost of fishing

38 I consider the aquaculture activities proposed for the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will result in a minimal, if any, increase in the cost of recreational fishing.

39 Based on the available information, I consider there is a high likelihood that any recreational fishing excluded from the coastal permit areas could be carried out nearby with minimal additional cost, or that most species targeted at the coastal permit areas can be taken using alternative fishing methods.

Likely effect on fishing

40 I consider the likely effect on recreational fishing from the aquaculture activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will be small.

41 There is little quantitative data available on recreational catch taken from the coastal permit areas or the Firth of Thames. Recreational fishers are not required to report catch or fishing locations. MPI is therefore unable to estimate an average annual recreational catch, or proportion of recreational catch, likely to be affected by the proposed aquaculture activities. Rather, MPI can only make an assessment of the effect of the proposed aquaculture activities on recreational fishing based on qualitative information.

⁵ FMA7 Recreational Fishing Forum, 27 May 2013.

42 Overall, I consider the effect on recreational fishing from the proposed aquaculture activities will be small because:

- not all recreational fishing methods would be excluded from the coastal permit areas; and
- alternative areas at Waimango Point and within the wider Firth of Thames could absorb the recreational fishing displaced from the coastal permit areas.

Cumulative effect

43 I consider effects from the aquaculture activities proposed for the areas of coastal permit coastal permits AC3601, AC3602, AC4631 and AC4655, added to the effects of existing aquaculture in the Firth of Thames, will not have an undue adverse effect on recreational fishing.

44 There is no quantitative catch data available to assess the cumulative effects of authorised aquaculture on recreational fishing catch. As noted, recreational fishers are not required to report catch or fishing locations. MPI can therefore only make an assessment about 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 areas for fishing.

I acknowledge there is already a large amount (approximately 2,800 ha) of authorised aquaculture space in the Firth of Thames. Approximately 55 ha of this authorised aquaculture space is at Waimango Point. However, overall I consider the authorised space has not had an undue adverse effect on recreational fishing. This is because some fishing (eg, anchored rod/hand line fishing) can occur within the existing farms and not all the authorised aquaculture space is located in popular fishing areas.

As noted, I consider the adverse effects of the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 on recreational fishing will be small. Taking into account the effects of the existing authorised aquaculture areas, I consider the additional effects from the coastal permit areas will not cause the cumulative effect on recreational fishing to become undue.

Conclusion on effects on recreational fishing

47 I am satisfied the aquaculture activities proposed within the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will not have an undue adverse effect on recreational fishing because:

- anchored rod/hand line fishing could still be used in the areas;
- there are other recreational fishing areas available in the Firth of Thames;
- occupation of the coastal permit areas will result in a minimal, if any, increase in the cost of recreational fishing; and
- the additional adverse effect of the coastal permit areas on recreational fishing is only small and will not cause the cumulative effect on recreational fishing to become undue.

Customary fishing

The location of the coastal permit areas relative to fishing areas

48 I consider the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 are located where there could be a small amount of customary fishing for snapper, kahawai, kingfish, trevally and flatfish by stationary and mobile rod/hand line methods and perhaps set netting, as well as a small amount of diving for mussels. 49 There are no existing customary management areas in the Firth of Thames (eg, taiapurelocal fishery or mātaitai reserves). However, I consider that there are at least eight iwi that could have customary fishing interests in the coastal permit areas.⁶

50 Available information on customary fishing is primarily qualitative information from submissions and quantitative catch information from customary authorisations. There is no information on customary catch at the scale of small marine farms. Fishing locations for customary authorisations only need to be reported at the FMA or QMA scale. Fishing methods and specific sites are not typically reported.

51 As noted, MPI received a request for consultation from Ngāti Whanaunga. However, no submissions were received from this iwi or any customary fishers stating the methods used or species caught.

52 Customary authorisations from October 2009 to June 2014 provide information on species targeted by customary fishers at Wilson Bay and in the Firth of Thames.

Table 2 below summarises my assessment of the main methods used, and species caught in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 based on the customary authorisations and other available information. I consider it likely that rod/hand line methods and perhaps a small amount of set netting are likely to be the main methods used to target snapper. I also consider that a small amount of diving for mussels may occur.

		Source of information					
	Customary authorisations	Other information	My assessment				
Methods used	N/A	Methods used by recreational fishers (and therefore potentially customary fishers) at the coastal permit areas are stationary and mobile rod/hand line methods from boats, and perhaps a small amount of set netting or diving.	Stationary and mobile rod/hand line methods and perhaps a small amount of set netting or diving could be used in the coastal permit areas.				
Species targeted	Kahawai, kingfish, flatfish, trevally, kina, mussels, snapper, paua, pipi, oyster, scallops, crayfish	No algae beds or hard substrate habitat (cobble/reef) typically favored by paua, kina and crayfish are present in the coastal permit areas. Kelly <i>et al.</i> (2013) did not observe kina, paua, scallops or oysters in the coastal permit areas and the areas are too deep to be typical pipi habitat. Kelly <i>et al.</i> (2013) observed mussels within and near to the existing marine farm structures.	Snapper, kahawai, kingfish, flatfish, trevally and mussels could be taken by customary fishers in the coastal permit areas.				

 Table 2: Customary fishing methods used and species targeted at the areas of coastal permits

 AC3601, AC3602, AC4631 and AC4655 based on the available information.

⁶ According to rohe maps at <u>http://www.tkm.govt.nz/region/tamaki/</u>, iwi with potential interests at Waimangu Point are Te Ākitai Waiohua, Ngāti Maru, Ngāti Paoa, Ngāi Tai ki Tāmaki, Ngāti Tamaterā, Ngāti Whanaunga, Ngāti Te Ata and Waikato (Tainui).

Exclusion of fishing

54 I consider the aquaculture activities proposed for the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will exclude some of the customary fishing methods that may be used in the area.

55 Of the customary fishing methods likely to occur in the coastal permit areas it is likely that set netting, drift fishing or trolling by rod/line would be excluded. As noted, anecdotal information from recreational fishers suggests that spaces between longlines of mussel farms in the Marlborough Sounds are too narrow for set netting and trolling without risk of entanglement. And, the longline spacing in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 are likely to be similar to that of mussel farms in the Marlborough Sounds.

⁵⁶ I also consider that drift fishing is unlikely to occur within marine farms because of risk of entanglement. I therefore consider use of drift fishing by customary fishers would also be prevented. However, I do not consider that anchored rod/hand line fishing or diving would be excluded from the coastal permit areas.

Availability of other fishing areas

57 I consider there are some alternative areas for customary fishing at Waimango Point and in the wider Firth of Thames.

58 Like recreational fishing, there are no area closures or method restrictions or prohibitions that limit the extent of any alternative areas for customary fishing at Waimango Point or elsewhere in the Firth of Thames. I therefore consider that alternative areas could absorb any customary fishing displaced from the areas of coastal permits AC3601, AC3602, AC4631 and AC4655, particularly given:

- no information suggests the coastal permit areas offer fishing opportunities (eg, habitat, species, methods) specific to them;
- there are likely to be sufficient alternative areas, particularly for rod/hand line fishing which can occur amongst mussel farms.

Increased cost of fishing

59 I consider the aquaculture activities proposed for the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will result in a minimal, if any, increase in the cost of customary fishing.

Based on the available information, I consider that any customary fishing displaced from the coastal permit areas can be carried out nearby with minimal additional cost, or that most species targeted in the coastal permit areas can be taken using alternative fishing methods.

Likely effect on fishing

61 I consider the likely effect on customary fishing from the aquaculture activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will be relatively small.

As noted, there is little available quantitative data on customary catch taken from the coastal permit areas. 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. Rather, MPI can only make an assessment of the effect of the proposed aquaculture activities on customary fishing based on qualitative information.

63 Overall, I consider the effect on customary fishing from the proposed aquaculture activities will be relatively small because:

- not all customary fishing methods would be excluded from the coastal permit areas; and
- alternative areas at Waimango Point and in the wider Firth of Thames could absorb the customary fishing displaced from the coastal permit areas.

Cumulative effect

I consider the effects from the aquaculture activities proposed for the areas of coastal permits AC3601, AC3602, AC4631 and AC4655, added to the effects of existing aquaculture in the Firth of Thames, will not have an undue adverse effect on customary fishing.

65 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. Therefore, MPI can 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 areas for fishing and the amount of aquaculture activities already authorised in the relevant customary fishery.

As noted, there are approximately 2,800 ha of authorised aquaculture space in the Firth of Thames, around 55 ha of which is at Waimango Point. I consider the authorised aquaculture space has had some effect on customary fishing. However, I do not consider that the effect is undue because some customary fishing (eg, anchored rod/hand line fishing) can still occur within marine farms and it is unlikely all the farms are located in popular customary fishing areas.

As noted, I consider the adverse effects of the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 on customary fishing will be small. Taking into account the effects of the existing authorised aquaculture areas, I consider the additional effects from the coastal permit areas will not cause the cumulative effect on customary fishing to become undue.

Conclusion on effects on customary fishing

I am satisfied the aquaculture activities proposed within the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will not have an undue adverse effect on customary fishing because:

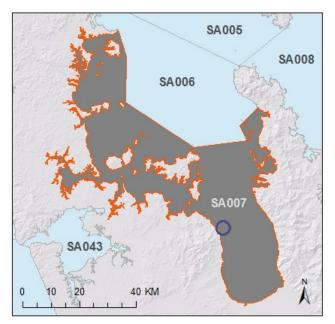
- anchored rod/hand line fishing and diving could still be used in the areas;
- there are other areas available for customary fishing at Waimango Point and in the wider Firth of Thames;
- occupation of the coastal permit areas will result in a minimal, if any, increase in the cost of customary fishing; and
- the additional adverse effect of the coastal permit areas 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 areas relative to fishing areas

69 I consider the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 are located where there is little commercial fishing, if any.

Historically, most commercial fishing has been reported by statistical area. The areas of coastal permits AC3601, AC3602, AC4631 and AC4655 are located in general statistical area 007 (**SA007**), which encompasses the Firth of Thames (2,585 km²) (Map 4).

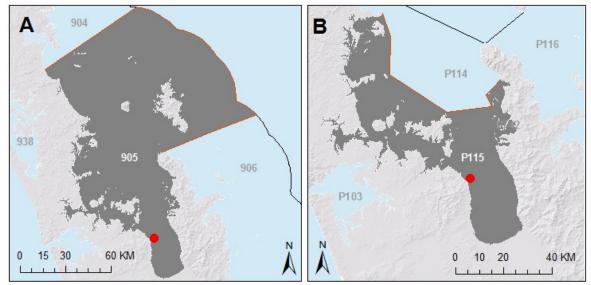


Map 4: General statistical area SA007 encompassing the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 (location as a blue circle).⁷

Scallops, oysters, rock lobster and paua are reported by species-specific statistical areas rather than by general statistical area. The areas of coastal permits AC3601, AC3602, AC4631 and AC4655 fall within rock lobster statistical area 905 and paua statistical area P115 (Maps 5A and 5B). However, the coastal permit areas are not located in any scallop or oyster statistical areas because commercial fishing for scallops is prohibited in the Firth of Thames⁸ and there is no oyster fishery in the areas.

⁷ Hillshade imagery produced by Geographx. Sourced from <u>www.koordinates.com</u> under CC-By. http://creativecommons.org/licenses/by/3.0/nz/

⁸ Section 22 of the *Fisheries (Auckland and Kermadec Areas Commercial Fishing) Regulations 1986.*



Map 5: Species-specific statistical areas encompassing the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 (location as a red circle). A — Rock lobster statistical area 905. B — Paua statistical area P115.⁹

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 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.

The location of fishing by vessels less than 6 m long within SA007 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.

Table 3 below lists the main fishery segments known to occur in SA007 and summarises my assessment of which fishery segments are likely to overlap the areas of coastal permits AC3601, AC3602, AC4631 and AC4655. Maps 6A and 6B below show the annual average fishing effort per ha (for fishing years 2007/08–2011/12) for overlapping fishery segments with fishing reported by both latitude and longitude and by statistical area.

Table 3 also gives the relative amounts of fishing that report by start position. The higher the proportion of vessels reporting by start position, the greater confidence in the location of fishing as depicted in Maps 6A and 6B.

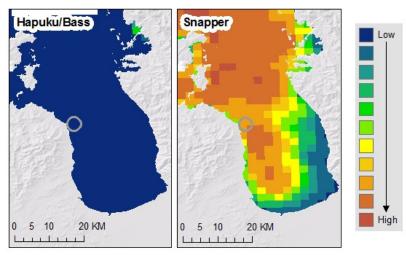
⁹ Hillshade imagery produced by Geographx. Sourced from <u>www.koordinates.com</u> under CC-By. http://creativecommons.org/licenses/by/3.0/nz/

¹⁰ Bottom long lining, surface long lining or trot lines.

¹¹ Set-netting or drift-netting.

¹² Fisheries (Reporting) Regulations 2001.

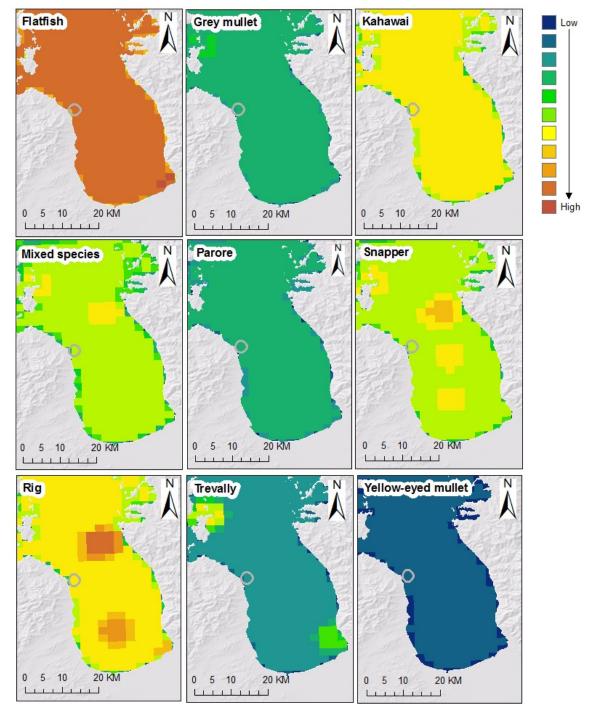
76 The Firth of Thames is open to all commercial fishing methods except trawling and Danish seining, although some gear and deployment restrictions apply.¹³ Take of scallops, pipi, tuatua, cockle and spotted black groper is also prohibited.¹⁴



Map 6A: Fishing intensity of long line fishery segments. The grey circle indicates the general location of the coastal permit areas.

¹³ Fisheries (Auckland Kermadec Areas Commercial Fishing) Regulations 1986. 14

Fisheries (Auckland Kermadec Areas Commercial Fishing) Regulations 1986.



Map 6B: Fishing intensity of set net fishery segments. The grey circle indicates the general location of the coastal permit areas.

Fishery segment (main fishstock or depth range and main fishing method) ¹⁵	Statistical area	% of fine scale fishing events	Average annual no. fishing days ¹⁶	% of main fishstock caught in statistical area	Potentially affected by coastal permits?	Rationale for excluding fishery from proposed farm assessment ¹⁷
Flatfish, Set Net (incl. Gill Net)	007	0%	2466	38%	Yes	
Snapper, Bottom Long Line	007	84%	704	8%	Yes	
Kahawai, Set Net (incl. Gill Net)	007	1%	348	17%	Yes	
Rig, Set Net (incl. Gill Net)	007	14%	241	16%	Yes	
Mixed Fishery, Set Net (incl. Gill Net)	007	3%	239	N/A	Yes	
Snapper, Set Net (incl. Gill Net)	007	3%	216	8%	Yes	
Grey Mullet, Ring Net	007	0%	173	6%	Yes	
Snapper, Hand Line	007	0%	142	8%	Yes	
Grey Mullet, Set Net (incl. Gill Net)	007	0%	126	6%	Yes	
Kahawai, Ring Net	007	0%	110	17%	Yes	
Mixed Fishery, Hand Line	007	0%	43	N/A	Yes	
Trevally, Set Net (incl. Gill Net)	007	8%	31	1%	Yes	
Sea Cucumber, Diving	007	0%	24	33%	Yes	
Snapper, Ring Net	007	0%	22	8%	Yes	
Yellow-eyed Mullet, Set Net (incl. Gill Net)	007	0%	20	36%	Yes	
Mixed, Ring Net	007	0%	16	N/A	Yes	
Other (Mussels, Cooks Turban), Diving	007	2%	15	N/A	Yes	
Other (Fish and Octopus), Pot	007	0%	11	N/A	Yes	

Table 3: 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 2007/08 to 2011/12.

¹⁵ Main fishstock refers to the species most often caught by the relevant method, it does not include all species taken by that method.

¹⁶ Excludes segments with less than five days fishing per year.

¹⁷ Unless otherwise stated, fishing is permitted and MPI has no information to indicate it does not occur in the vicinity of the coastal permit area.

Table 3 continued:

Fishery segment (main fishstock or depth range and main fishing method)	Statistical area	% of fine scale fishing events	Average annual no. fishing days	% of main fishstock caught in statistical area	Potentially affected by coastal permits?	Rationale for excluding fishery from proposed farm assessment
Pilchard, Purse Seine	007	0%	9	0%	No	The low number of fishing days (<10) are unlikely to occur in the coastal permit areas
Mixed, Bottom Long Line	007	74%	7	N/A	No	Based on current data, this fishery occurs outside of the coastal permit areas
Albacore, Troll	007	0%	5	0%	No	The low number of fishing days (<10) are unlikely to occur in the coastal permit areas
Snapper, Danish Seine	007	25%	3	8%	No	This type of fishing is prohibited at the coastal permit areas
Snapper, Bottom Trawl	007	100%	3	8%	No	This type of fishing is prohibited at the coastal permit areas
Scallops, Dredge	2W, 2X	0%	128	0%	No	This type of fishing is prohibited at the coastal permit areas
Rock lobster, Rock Lobster Pot	905	0%	1024	0%	No	Rock lobsters are mainly fished from areas of rocky reef and hard substrate. The coastal permit areas do not include this habitat type
Parore, Set Net (incl. Gill Net)	007	0%	74	29%	No	Parore are mainly associated with reef and seaweed habitats (MPI, 2013) and are unlikely to be targeted in the coastal permit area
Kina, Diving	007	0%	62	0%	No	Kina are found in rock and reef habitats. The coastal permit areas do not include this habitat type
Parore, Ring Net	007	0%	49	29%	No	Parore are mainly associated with reef and algal habitats (MPI, 2013) and are unlikely to be targeted in the coastal permit areas
Packhorse Lobster, Rock Lobster Pot	905	0%	22	0%	No	Packhorse lobsters inhabit areas of reef and hard substrate. This habitat type does not occur in the coastal permit areas

Exclusion of fishing

⁷⁷ I consider the aquaculture activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will exclude only a small amount of commercial fishing, if any.

The exclusion zone for commercial fishing methods in this assessment (as identified in Table 3) is the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 (ie, 3.96 ha, 20.84 ha, 6.54 ha and 6.52 ha, totaling 37.86 ha). This is because the methods could occur immediately adjacent to but not within the coastal permit areas.

Availability of other fishing areas

⁷⁹ I consider that any commercial fishing displaced from the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 could occur in other areas.

80 There are commercial closures or restrictions in parts of SA007 and the relevant QMAs or FMA1 (including various species, method, time period, fishing gear, or a combination of these criteria).¹⁸ However, I consider the extent of the closures does not significantly limit the potential for any commercial fishing displaced from the coastal permit areas to be absorbed by alternative fishing grounds because:

- the same methods as those possibly used at the coastal permit areas could be used elsewhere in SA007 and in other areas in the relevant QMAs or FMA1;
- no information suggests the sites offer fishing opportunities (eg, habitat, species, methods) specific to them; and
- the area excluded to commercial fishing would be relatively small compared to available area.

81 I recognise areas of authorised aquaculture space have reduced the availability of other commercial fishing areas over time. As noted, there are around 2,800 ha of authorised aquaculture space in the Firth of Thames. In SA007 there are approximately 3,250 ha of marine farms that make up 30% of the 11,560 ha of aquaculture in FMA1. The cumulative effect of the existing aquaculture is considered further below.

Increased cost of fishing

I consider that the aquaculture activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will not increase the cost of commercial fishing.

83 While the coastal permit areas may be located within a region used for commercial fishing, I consider that using alternative commercial fishing grounds would not result in an increase in the cost of commercial fishing. This is because the coastal permit areas will only exclude a relatively small area from commercial fishing compared to the size of relevant QMAs or FMA1 and there are equally productive fishing grounds available nearby.

Likely effect on fishing

84 I consider the aquaculture activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will only have a small adverse effect on any commercial fishery, if any.

¹⁸ The Marine Reserves Act 1971, Fisheries (Challenger Area Commercial Fishing) Regulations 1986 and Fisheries (Commercial Fishing) Regulations 2001 contain closures and restrictions.

The amount of fishing effort estimated to be displaced by the activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 is negligible. The coastal permit areas would affect less than 95 kg of average annual catch for fishing indicated as assessed in Table 3.

86 The maps of fishing intensity (effort per ha) for each fishing sector were used to calculate the average annual amounts of fishing effort that is likely to be displaced from the exclusion zones of the coastal permit areas. 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.

Fishing effort that is only reported by statistical area was apportioned evenly across the area available for fishing although some areas are likely to include more productive habitats than others. 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.

88 The amount of fishing was averaged over October fishing years 2007/08 to 2011/12. Five 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.

89 Given the very small catch quantities likely to be affected by the proposed aquaculture activities, MPI has not attempted to determine the likely changes in catch rates for the displaced fishing in order to estimate the net effect on commercial fishing. This assessment is based on the worst-case scenario that all of the catch displaced from the coastal permit areas would be lost from the affected fisheries and no new catch would be available from the vacated areas.

Cumulative effect

90 I consider the addition to the cumulative effect on commercial fishing from the aquaculture activities proposed in the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 is negligible.

Around 11,560 ha of authorised aquaculture activities in FMA1 have been previously assessed for their total cumulative effect on commercial fishing. For any fish stocks potentially affected by the areas of coastal permits AC3601, AC3602, AC4631 and AC4655, the cumulative effect has previously been assessed as a maximum of approximately 0.8% effect on any fishery and not undue.

As noted, the coastal permit areas would affect less than 95 kg of average annual catch for fishing indicated as assessed in Table 3. I consider this negligible increase will not cause the new level of cumulative effect on any fishery to become undue.

Conclusion on effects on commercial fishing

I am satisfied the aquaculture activities proposed within the areas of coastal permits AC3601, AC3602, AC4631 and AC4655 will not have an undue adverse effect on commercial fishing because:

- there are alternate fishing grounds in SA007 and the relevant QMAs or FMA1;
- occupation of the coastal permit areas will result in a minimal, if any, increase in the cost of commercial fishing;
- effects on commercial fishing catch will only be small; and

• the additional adverse effect on commercial fishing for any fish stock is only small and will not cause the cumulative effect on commercial fishing for any fish stock to become undue.

Aquaculture decision – R/REG/2013/3601

I am satisfied – based on all relevant information available to me – the activities proposed for coastal permit area R/REG/2013/3601 will not have an undue adverse effect on:

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

Accordingly, my decision is a determination for coastal permit R/REG/2013/3601 with regard

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

96 The area of the determination on recreational, customary and commercial fishing is 3.96 ha comprising three parts with the following coordinates (NZTM2000):

Extension of Li 437 – Part 1			Extension	of Li 437 – Part 2	
Point	Easting	Northing	Point	Easting	<u>Northing</u>
1	1804483.92	5902812.76	1	1804518.08	5902572.86
2	1804697.47	5902850.36	2	1804638.98	5902604.04
3	1804739.01	5902631.23	3	1804518.31	5902571.24
4	1804727.78	5902628.18			
5	1804689.00	5902840.00			
6	1804485.11	5902804.42			

New block					
<u>Point</u>	Easting	<u>Northing</u>			
1	1805085.30	5902985.30			
2	1805259.90	5902996.60			
3	1805269.10	5902760.70			
4	1805158.80	5902735.70			

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

David Scranney Spatial Allocations Manager Ministry for Primary Industries

Aquaculture decision – R/REG/2013/3602

I am satisfied – based on all relevant information available to me – the activities proposed for coastal permit area R/REG/2013/3602 will not have an undue adverse effect on:

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

Accordingly, my decision is a determination for coastal permit R/REG/2013/3602 with regard

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

100 The area of the determination on recreational, customary and commercial fishing is 20.84 ha comprising eight parts with the following coordinates (NZTM2000):

Extension of Li 384					
Point	Easting	Northing			
1	1803995.56	5903537.74			
2	1804294.09	5903552.90			
3	1804296.56	5903539.17			
4	1804096.00	5903531.00			
5	1804132.00	5903307.00			
6	1804336.61	5903316.13			
7	1804337.94	5903308.73			
8	1804031.66	5903298.46			

Extension of Li 387				
Point	Easting	<u>Northing</u>		
1	1804309.68	5903542.16		
2	1804595.25	5903569.49		
3	1804597.12	5903560.79		
4	1804422.00	5903546.00		
5	1804458.95	5903323.30		
6	1804362.37	5903312.68		
7	1804338.81	5903415.29		
8	1804317.00	5903540.00		
9	1804310.24	5903539.73		

Extension of Li 389 – Part 1			Extension of I	.i 389 – Part 2	
<u>Point</u>	Easting	Northing	<u>Point</u>	Easting	<u>Northing</u>
1	1804626.44	5903581.77	1	1804979.04	5903522.82
2	1804961.75	5903622.13	2	1804997.84	5903369.33
3	1804963.48	5903612.19	3	1805005.65	5903370.02
4	1804767.00	5903577.00			
5	1804786.86	5903350.64			
6	1804656.37	5903339.08			
7	1804656.12	5903341.09			
8	1804677.00	5903343.00			
9	1804647.00	5903565.00			
10	1804628.70	5903563.46			

New block of Li 389				
<u>Point</u>	Easting	Northing		
1	1804961.75	5903622.10		
2	1805232.70	5903649.90		
3	1805243.40	5903388.10		
4	1805005.60	5903370.00		
5	1804979.10	5903522.36		
6	1804968.00	5903613.00		
7	1804963.47	5903612.19		

Extension of Li 390 – Part 1			Extension	of Li 390 – Part 2	
Point	Easting	Northing	Point	Easting	Northing
1	1804698.32	5903215.31	1	1805084.43	5903036.64
2	1805053.65	5903231.82	2	1805088.12	5903043.50
3	1805055.58	5903221.30	3	1805086.78	5903043.47
4	1804783.00	5903203.00			
5	1804818.76	5903036.75			
6	1804748.50	5903034.99			

New block of Li 390					
Point	Easting	Northing			
1	1805053.60	5903231.80			
2	1805249.40	5903240.70			
3	1805257.40	5903046.80			
4	1805088.10	5903043.50			
5	1805084.47	5903063.29			
6	1805066.00	5903222.00			
7	1805055.52	5903221.30			

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

barras

David Scranney Spatial Allocations Manager Ministry for Primary Industries

Aquaculture decision – R/REG/2013/4631

102 I am satisfied – based on all relevant information available to me – the activities proposed for coastal permit area R/REG/2013/4631 will not have an undue adverse effect on:

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

103 Accordingly, my decision is a determination for coastal permit R/REG/2013/4631 with regard to:

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

104 The area of the determination on recreational, customary and commercial fishing is 6.54 ha comprising an area with the following coordinates (NZTM2000):

Extension of Li 385					
Point	Easting	Northing			
1	1804039.00	5903248.70			
2	1804318.10	5903258.00			
3	1804331.00	5903164.60			
4	1804158.00	5903118.00			
5	1804210.90	5902854.30			
6	1804389.70	5902883.30			
7	1804389.30	5902862.90			
8	1804099.70	5902838.60			

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

barras

David Scranney Spatial Allocations Manager Ministry for Primary Industries

Aquaculture decision – R/REG/2013/4655

106 I am satisfied – based on all relevant information available to me – the activities proposed for coastal permit area R/REG/2013/4655 will not have an undue adverse effect on:

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

107 Accordingly, my decision is a determination for coastal permit R/REG/2013/4655 with regard to:

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

108 The area of the determination on recreational, customary and commercial fishing is 6.52 ha comprising two parts with the following coordinates (NZTM2000):

Extension of Li 478 – Part 1		Extension	Extension of Li 478 – Part 2		
Point	Easting	Northing	Point	Easting	<u>Northing</u>
1	1804362.04	5903260.80	1	1804417.27	5902996.05
2	1804673.81	5903290.52	2	1804700.91	5903050.98
3	1804681.90	5903218.98	3	1804711.69	5902955.73
4	1804383.00	5903161.00	4	1804665.30	5902946.45
			5	1804673.99	5902897.00
			6	1804446.30	5902856.90

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

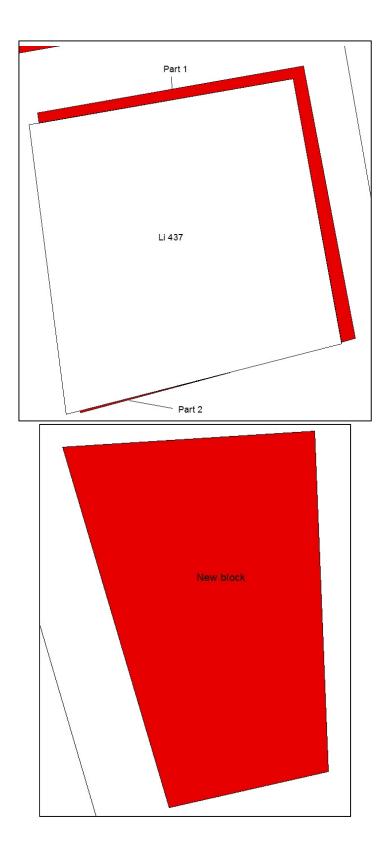
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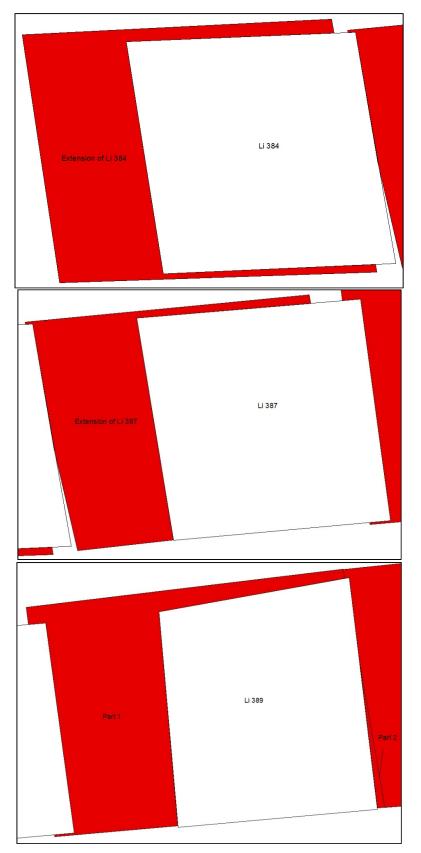
References

Fisher, D. & Bradford, E. 1999. National marine recreational fishing survey 1996: catch and effort results by fishing zone, *NIWA Technical Report* 67. 44p

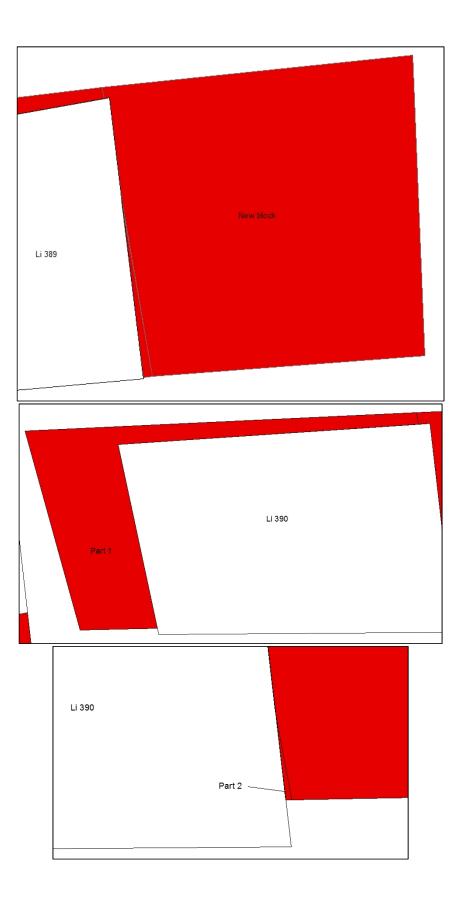
Hartill, B., Bian R., Armiger, H., Vaughan, M. & Rush, N. 2007. Recreational marine harvest estimates of snapper, kahawai and kingfish in QMA1 in 2004-05. *New Zealand Fisheries Assessment Report 2007/26*. 44p

Kelly, S., Sim-Smith, C., & Haggit, T. (2013). Mussel Farm Survey, Waimango Point, Firth of Thames, Coast and Catchment Ltd. October 2013.



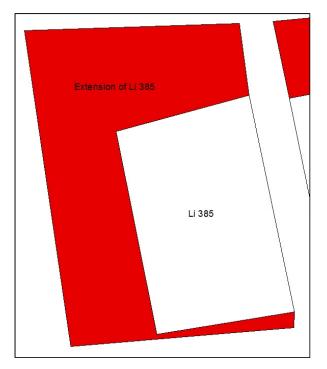


Appendix 2: Parts of coastal permit AC3602





Appendix 3: Parts of coastal permit AC4631



Appendix 4: Parts of coastal permit AC4655

