

## Submission on TRC Regional Coastal Plan

From Emily Bailey  
6484a South Rd, Pungarehu  
[emilybailey297@gmail.com](mailto:emilybailey297@gmail.com)

Tēnā koutou,

this will just be brief as it is an addition to my previous submission and I prefer to speak to my submission.

I request that:

- seismic surveying is prohibited in the coastal environment as there is now clear proof through scientific research of harm to marine mammals, marine birds and now other small species such as phytoplankton which has a flow on effect to other marine life. The government is no longer allowing new permits for this activity (due to the risks of climate change) but allowing existing permits to continue while new evidence shows the activity is harmful to marine life. This is wrong. As current kaitiaki of this coastal environment, TRC should take a stand to protect marine life until such point that the activity might be done in a harmless manner.
- All point source contaminant discharges to the coastal environment be prohibited unless there is an unforeseen emergency such as a tree falling on a pipe but that said, all risks should be assessed and prevented. It is unacceptable in this day and age to be discharging contaminants to fresh or seawater. There are always alternatives such as grey and black water systems or controlled evaporation. As a society we use far too much clean water to 'wash away' contaminants. This attitude has to stop. In most places around the world they wouldn't think of using drinkable water to wash down cow sheds, factories or even human toilets. Coastal planting below farmland, industrial sites or human wastewater treatment systems needs to become an obligation like riparian planting. Drains from streets and industrial areas also should be fitted with rubbish diverters and oil filters that are checked and cleaned regularly, particularly before heavy rain warnings.
- Access along the coastal environment should not interfere with cultural sites or privately owned land without permission from owners. Too many people treat Māori owned coastal land as public land where they think they can camp, cut down trees, graze animals or dump things like old cars and landfill. As sea level rises and storm surges damage banks, encroachment by visitors is increasing like the high tide mark. This needs to stop.

Ngā mihinui,  
Emily

## Submission on the TRC Draft Coastal Policy, September 2017

Author: Emily Bailey (Taranaki iwi, Te Atiawa, Ngāti Mutunga)

Date: 7 September 2017

Contacts: [emilybailey297@gmail.com](mailto:emilybailey297@gmail.com) , 6484a South Rd, RD35 Pungarehu

He mihinui ki a koutou.

I previously submitted on the draft plan on behalf of the Parihaka Papakainga Trust but as I am not a trustee at the moment I am making a personal submission. I am a member of Parihaka and I whakapapa to Ngāti Rāhiri at Waipapa and to Otarāua hapū at Waitara.

I would like to submit the following in support of extending or creating further areas of Outstanding Value at:

1. Waipapa, Otarāua Rd, Waitara
2. the Waitara reefs and
3. the reefs, tauranga ika/waka and urupā in the eight Parihaka fishing reserves.

I believe these places have great cultural, ecological, economical and recreational importance and require special protections from development, dredging and uncontrolled recreational disturbance. Some of these were set aside in the 1970s as hapū fishing reserves under Te Tiriti o Waitangi and yet still are not without major issues that make it difficult for tangata whenua to utilise and protect them for future generations to enjoy.

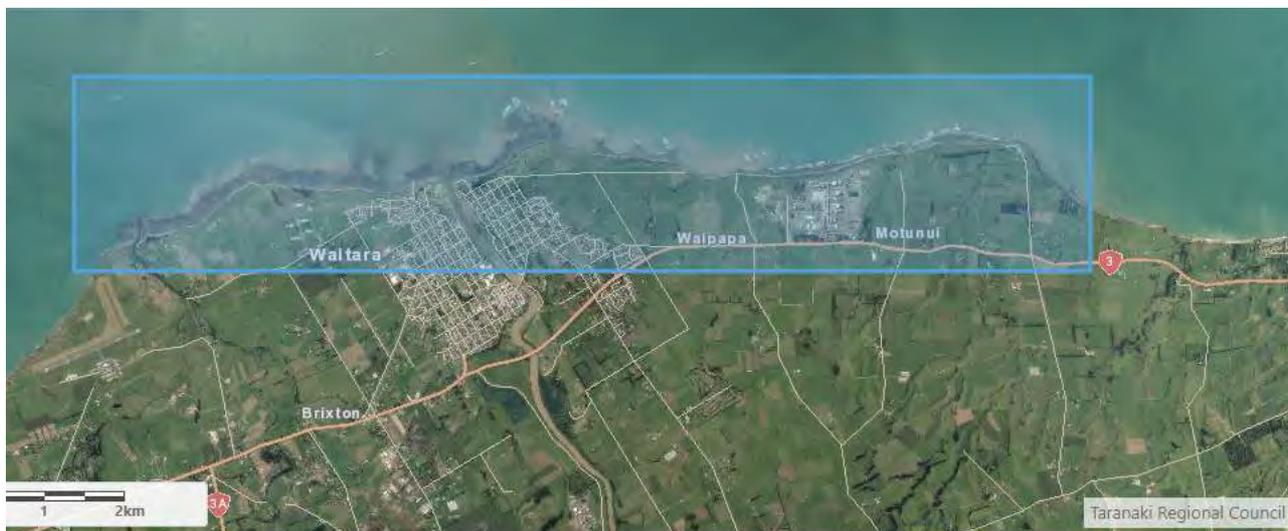
### 1. Waipapa, Otarāua Rd, Waitara

The picture here shows an old tauranga waka that our tūpuna made, as I was told by my cousin Phillip Tippins about 20 years ago before he passed away. It is hard to make out in this picture as it is either below the stream mouth or just to the left. When you are standing there and looking from the coast there is a large rock which marks the entrance point, which is only visible at mid to low tide. As you can see in the photo, our family urupā lies above the cliff which is slowly eroding into the sea. As a child my late aunt Vera Bezeems would take us to the rocks and reef here to collect kaimoana. My cousin Phillip said he fished and caught koura around here.



## 2. Waitara Kaawa / Reefs

These kaawa have been well documented by the hapū in Waitara over the past few decades. They were once rich with kaimoana which sustained many people. They can be so again through better protection and management under the local hapū and community. For years they have been subjected to things like sewage, factory waste, sediment build up from intensive farming and deforestation, and oil and gas waste discharges to land and water. They are an important economic, social and cultural taonga.



## 3. Parihaka coastal reserves – kaawa, tauranga ika/waka, urupā, archaeological remains

There are at least 8 fishing reserves along the Taranaki coastline between Warea and Oaonui called:

- Tui Raho (Tuhiraroa)
- Te Whanganui
- Ihurangi
- Okawa
- Te Ikaroa
- Tīpoka 55a and Tīpoka 55b
- Mataurukuhia
- Te Wairua (Wairoa) (on Waitaha River)

These have been administered by the Parihaka Papakāinga trustees for many years, on behalf of hapū. There have been problems with land confiscation causing denial of access, neighbours moving fences and farming land without permission, the seabed being dredged and tailings dumped onshore, and recreational users damaging and defiling the sites with rubbish, excrement and via vehicle movements. All of these sites were important sources of food and at times held large populations of our people. They are important still for whitebait, kahawai, kina, pūpū, pāua, wheki, pīharau, watercress, seaweed and other kaimoana as well as cultural, recreational and spiritual sites.



Extract from *N.Z. Gazette*, 18 May 1972, No. 42, page 1079

*Setting Apart Māori Freehold Lands as Māori Reservations*

Whānau by notice dated 17 March 1972 and published in *Gazette*, 23 March 1972, No. 26, p. 636, the Māori freehold lands set apart in the First Schedule hereto were set apart as Māori reservations; and whereas the appellation on one of the blocks is incorrect, now, therefore, pursuant to section 439 of the Māori Affairs Act 1953, notice is hereby given as follows.

**NOTICE**

1. The notice dated 17 March 1972 and published in *Gazette*, 23 March 1972, No. 26, p. 636, relating to the lands described in the First Schedule hereto is hereby cancelled.
2. The lands described in the Second Schedule hereto are hereby set apart as Māori reservations for the purpose of raising grounds for the common use and benefit of the members of the Ngāti Mōhau tribe.

**FIRST SCHEDULE**

**TARANAKI LAND DISTRICT**

All those pieces of land situated in the Cape Survey District as are more particularly delineated on the S.O. plan set out opposite the respective land:

A. B. P.	Being	Plan Reference
7 2 0	Tipoka, Section 35A, Block XII. All the land situated in Section 35, south of the Waitotara Stream and being part of the land contained and described in certificate of title, Volume 10, folio 37.	246L
7 2 0	Tipoka, Section 35B, Block XII. All the land situated in Section 35, north of the Waitotara Stream, and being part of the land contained and described in certificate of title, Volume 10, folio 37.	246L
9 0 0	Waipua, Section 31, Block XII, and being all of the land contained and described in certificate of title, Volume 10, folio 36.	236L
1 0 0	Whanganui, Section 92, Block VIII, and being all of the land contained and described in certificate of title, Volume 10, folio 64.	248L and 249L, 1054

**SECOND SCHEDULE**

**TARANAKI LAND DISTRICT**

All those pieces of land situated in the Cape Survey District as are more particularly delineated on the S.O. plan set out opposite the respective land:

A. B. P.	Being	Plan Reference
7 2 0	Tipoka, Section 35A, Block XII. All the land situated in Section 35, south of the Waitotara Stream and being part of the land contained and described in certificate of title, Volume 10, folio 37.	246L
7 2 0	Tipoka, Section 35B, Block XII. All the land situated in Section 35, north of the Waitotara Stream, and being part of the land contained and described in certificate of title, Volume 10, folio 37.	246L
9 0 0	Waipua, Section 31, Block XII, and being all of the land contained and described in certificate of title, Volume 10, folio 36.	236L
1 0 0	Whanganui, Section 92, Block VIII, and being all of the land contained and described in certificate of title, Volume 10, folio 64.	248L and 249L, 1054

Dated at Wellington this 11th day of May 1972.  
 J. W. APPRELLBY,  
 Deputy Secretary for Māori and Māori Affairs  
 (M. and I.A. 21/3/664)

Above left: 1880 West Coast NZ Survey map showing some of the native settlements along the coast.

Above right: Gazette notice of some of the reserves in 1972 for Ngāti Mōhau hapū.

Tui Raho contains a rare endemic coastal herb that is being protected by DoC and the local community. Old fishing rocks (mahe) are commonly found in this area too from the days when this was a well used fishing pā. It has a well know surf break which now brings problems like traffic congestion, rubbish and toilet waste. The river mouth is also a hapū boundary marker.

Te Whanganui was also a large fishing pā with a tauranga waka constructed by hand (see area in photo below). The current boat ramp lies beside it. This area has many problems with encroachment by neighbours, dredging on and off shore and coastal erosion but is still a highly popular site for fishing, swimming and seaweed collection.



Ihutangi and Okawa were much larger than the current reserve boundaries and there are urupā here by the Waitekaure stream and Okawa that is said to have carved stones. The reef was called Te Kopu-a-Whai according to the late Whero Bailey, where wheki were abundant. There have been problems with neighbours farming illegally here, dumping of dredge tailings, burnt out cars, rubbish and coastal erosion. It is still a popular camping and fishing spot. There is the beginning of a tauranga waka the men were building but it was unfinished.

Te Ikaroa has a large tauranga waka called Te Kupe built by the women (top area in photo below) and a tauranga ika (lower area in photo). There were once many kainga here, there are still a few now. Conger eel were abundant. There are constant problems with campers and surfers leaving waste and causing at least one fire as well as damaging plantings and removing signage. It is popular for swimming and fishing too.



Mataurukuhia has a tauranga-ika, piharau in the Otahi and watercress. Beautiful site with no public road access. Farmers are using it perhaps illegally.

Tīpoka 55a and 55b sit aside the Waitotoroa river mouth and there are whānau still living here. It is a popular white-baiting and fishing site still. There is possibly a tauranga waka here (see photo below).



Te Wairua (Wairoa) has no public road access and sits at the Waitaha river mouth. It is a beautiful site with sand dunes and kowharawhara but has problems with encroaching neighbours who also 'land farmed' drilling waste.

**Your name**

Bruce Boyd

**Organisation (if applicable)**

Project Reef Life & South Taranaki Underwater Club

**Address**

202A Turuturu Road  
R.D 14  
Hawera 4674

**Daytime phone number**

02102761723

**Email address**

[boydsnest2@gmail.com](mailto:boydsnest2@gmail.com)

**Could you gain an advantage in trade competition through this submission?**

No

**Do you wish to be heard in support of your application?**

No

**Your submission on the Proposed Plan**

I am in full support of the inclusion of ONC-6 'Project Reef' on page 129, Schedule 2 of the Draft Coastal Plan.

**Your comment on documents incorporated by reference in the Proposed Plan, as detailed in Schedule 9 (comment optional)**

**Document/file 1**

**Document/file 2**

**Document/file 3**

**Document/file 4**

**Form 5**

**Submission on publicly notified proposal for policy statement or plan, change or variation  
Clause 6 of Schedule 1, Resource Management Act 1991**

To: Taranaki Regional Council  
Private Bag 713  
**Stratford 4352**

[Uploaded via online feedback form <https://www.trc.govt.nz/council/plans-and-reports/strategy-policy-and-plans/regional-coastal-plan/proposed-coastal-plan-feedback-form/>]

Name of submitter: Chorus New Zealand Limited  
PO Box 6640  
Auckland 1141

This is a submission on the following proposed plan: Proposed Coastal Plan for Taranaki

Chorus New Zealand Limited, Vodafone New Zealand Limited and Spark New Zealand Trading Limited have lodged individual but identical submissions to the Proposed Coastal Plan for Taranaki. While individual submissions have been lodged, the submitters intend preparing and presenting a joint case.

Chorus New Zealand Limited could not gain an advantage in trade competition through this submission.

Chorus New Zealand Limited welcomes the opportunity to make a submission on the Proposed Coastal Plan for Taranaki. In general, Chorus New Zealand Limited is supportive of the Proposed Plan. However there are some matters for which amendment is sought to prior to Proposed Plan being made operative.

Submarine cables provide crucial diversity and resilience for domestic communications around New Zealand. Chorus New Zealand Limited worked alongside Spark New Zealand Trading Limited and Vodafone New Zealand Limited to establish a shared solution via Vodafone New Zealand Limited's Aqualink Cable (which passes through the Taranaki Coastal Marine Area) to quickly restore telecommunications to Kaikoura when the fibre line that typically serves that area was broken during the 2016 earthquake. The companies work together and lease capacity on different submarine cables, and as such, protecting the integrity of submarine telecommunication cables is of paramount importance to all three companies, regardless of who the asset owner is.

The purpose of the Resource Management Act 1991, as embodied in section 5, is promotion of the sustainable management of natural and physical resources. Telecommunications infrastructure is a significant physical resource, and the safe, reliable and efficient functioning of the network is vital for the regional economy and is in the public interest (both in terms of allowing people and communities to provide for their "wellbeing", and also for assisting to ensure their "health and safety").

The specific provisions of the proposal that the submission relates to, the submission points, reasons and decisions sought are detailed in the attached table.

Chorus New Zealand Limited wishes to be heard in support of its submission. Chorus New Zealand Limited will present a joint case with Vodafone New Zealand Limited and Spark New Zealand Trading Limited at any hearing. If others make a similar submission, Chorus New Zealand Limited will consider presenting a joint case with them at a hearing.



**Signed:** .....  
Andrew Kantor, Environmental Planner and RMA Advisor  
Chorus New Zealand Limited

27 April 2018

**Address for Service:**

Chorus New Zealand Limited  
C/- Incite  
P O Box 2058  
Wellington 6140

**Contact Details:**

Attention: Tom Anderson  
Telephone: 04 801 6862 or 027 231 0246  
E-mail: [tom@incite.co.nz](mailto:tom@incite.co.nz)

Proposed text is in **bold and underlined** and text requested to be deleted is in ~~strikethrough~~.

Specific provision this submission relates to	Support/Oppose/Amendment	Reasons for submission	Relief sought
<b>Section 4: Objectives</b>			
<i>Objective 2: Appropriate use and development</i>	Support	The placement of telecommunications infrastructure, and in particular submarine cables, in the coastal marine and coastal area is an appropriate use of those spaces, and this is recognised in Objective 2.	Retain Objective 2 as notified.
<i>Objective 3: Reverse sensitivity</i>	Support	An objective highlighting reverse sensitivity effects on the use and ongoing operation of nationally and regionally important infrastructure and other lawfully established activities from new or inappropriate use and development in the coastal environment is supported	Retain Objective 3 as notified.
<b>Section 5: Policies</b>			
<i>Policy 2: Integrated management</i>	Support	A policy which provides for the integrated management of the coastal environment, and in particular highlights social and cultural well-being of the community alongside the functional and/or location constraints of nationally or regionally important infrastructure is supported.	Retain Policy 2 as notified.
<i>Policy 5: Appropriate use and development of the coastal environment</i>	Support	As for the support for Objective 2, telecommunications infrastructure, in particular submarine cables, is an appropriate use in the coastal environment. The functional need for such infrastructure is determined by the social and economic demands of a community to be connected to modern day telecommunications, and through the island nature of the country. As such, Policy 5 is supported.	Retain Policy 5 as notified.
<i>Policy 7: Impacts on established operations and activities</i>	Support	As per the support for Objective 3, Policy 7 is supported as it provides a framework for the management of reverse sensitivity impacts.	Retain Policy 7 as notified.
<i>Policy 31: Structures that support safe public access and use, or public or environmental benefit</i>	Support	Telecommunications infrastructure, including such infrastructure which has a functional need to be located in the coastal marine or coastal area, has a clear public benefit, in that it allows modern societies to remain connected. Policy 31 specifically states that in appropriate locations and subject to the appropriate management of adverse effects, structures providing for the efficient operation of nationally and regionally important infrastructure will be allowed. This is supported from a telecommunications perspective.	Retain Policy 31 as notified.
<i>Policy 32: Placement of structures</i>	Support	As has been stated for Policy 5, there is a functional need for some telecommunications infrastructure to be placed in the coastal marine and coastal areas. This is provided for through Policy 32, with appropriate controls to manage effects, avoid duplication of structures and avoid identified areas for protection. This is supported from a telecommunications perspective.	Retain Policy 32 as notified.
<i>Policy 36: Maintenance, repair, replacement and minor upgrading of existing structures</i>	Support	From time to time, telecommunications infrastructure in the coastal marine and coastal environment requires maintenance, repair, replacement and minor upgrading. This is provided for through Policy 36.	Retain Policy 36 as notified.
<i>Policy 37: Alteration or extension of existing structures</i>	Support	Given changing demand and technologies, telecommunication infrastructure can require alteration or extension. This is provided for through Policy 37, which also provides for both positive and adverse effects management. This is supported.	Retain Policy 37 as notified.
<i>Policy 38: Removal of coastal structures</i>	Support	Policy 38 strongly encourages the decommissioning and removal of any existing structures in the coastal marine area at the end of their useful lives, unless certain circumstances exist, one of which being that the removal of the structure would cause greater adverse effects on the environment than leaving it in place.	Retain Policy 38 as notified.

Specific provision this submission relates to	Support/Oppose/Amendment	Reasons for submission	Relief sought
		This approach generally aligns with the management of decommissioned telecommunications infrastructure in the environment, and as such the approach outlined in the policy is supported.	
<i>Policy 42: Disturbance of the foreshore or seabed</i>	Support	Typically when telecommunications infrastructure is placed, maintained or upgraded in the coastal marine or coastal areas, the area disturbed will be appropriately managed in line with what is outlined in Policy 42. As such this policy is supported.	Retain Policy 42 as notified.
<b>Section 8: Regional Rules</b>			
<b>Rule 22 Network utility structure erection or placement where the structure is :</b> <i>(d) a communication or electricity cable that is buried or attached to a bridge, access structure or pole;</i>	Amendment	The intent of Rule 22 is supported, in that Controlled Activity status for the placement of new network utility structures in the coastal marine and coastal areas is appropriate. However, sub clause (d) requires a communication cable to be buried or attached to a bridge, access structure or pole. While in some instances telecommunication cables are buried (through either a mole plough, directional drilling, trenching, jet burying, a chain trench, or separate combinations of those), there are other instances where cables are simply laid on the seafloor, and left to natural processes to bury them at a shallow depth. The environmental effect of a cable laid on the seafloor is generally of a lesser degree than the aforementioned burying techniques, however laying a cable on the seafloor is not provided for under Rule 22 as a Controlled Activity, and as such becomes either a Discretionary or Non Complying Activity under Rules 33 and 34 respectively. Given the minimal environmental effects which arise from a seafloor laid cable, it is requested that this activity be included in sub clause (d) to Rule 22.	Amend Rule 22 as follows: <b>Rule 22 Network utility structure erection or placement in the Estuaries Unmodified, Estuaries Modified, Open Coast or Port Coastal Management Areas where the structure is :</b> <i>(d) a communication or electricity cable that is <u>either buried, laid on the seabed or foreshore</u>, or attached to a bridge, access structure or pole;</i>
<b>Rule 38 Existing lawfully established structure removal and replacement</b>	Amendment	Like with Rule 22, the intent of Rule 38 is supported. However, there are issues with Standards/Terms/Conditions (f) and (g). Standard/Term/Condition (f) requires that “ <i>the replacement structure is built in the same location as the original structure</i> ”. This is unworkable. Typically, the telecommunications infrastructure which is being replaced needs to remain operational until the replacement structure is commissioned. As such, while it is possible to locate the replacement structure in a close proximity to the original structure, it is impossible to locate the replacement structure in the same location as the original structure. Consequently, an amendment is sought to the rule. There are two options for this amendment. One is simply to add the words “or similar” between the words “same” and “location” within the rule. However this does not provide the absolute clarity and measureable parameters which are necessary for permitted activity rules. It should be noted that if a cable replacement was undertaken in accordance with the standards as notified (i.e. telecommunications infrastructure was decommissioned, removed, and then the replacement structure is placed in the same location), the same methodologies would need to be used, as natural processes occurring between the removal of the old structure and installation of the replacement structure would mean that the space within which the old structure was located would be filled in. Consequently, the environmental disruption of replacing a structure in the same location, or in a similar location, are no different. The other option is more specific to submarine cables, which are typically the type of telecommunication infrastructure which is located in the coastal marine or coastal area. This option provides for a specific parameters in which replacement cables are to be located. These parameters have been determined from the recommendations made in	Either amend Rule 38 as follows: <b>Rule 38 Existing lawfully established structure removal and replacement:</b> ... <i>The Standards/Terms/Conditions are as follows</i> <i>(f) the replacement structure is built in the same <u>or similar</u> location as the original structure;</i> <i>(g) the existing structure is removed completely with no waste being placed into the coastal marine area, <u>unless the removal of the structure is considered by a Suitably Experienced and Qualified Coastal Professional, in collaboration with the Regional Council. to have greater adverse effects on the environment than leaving it in place;</u></i> <b>OR</b> amend Rule 38 as follows: <b>Rule 38 Existing lawfully established structure removal and replacement:</b> ... <i>The Standards/Terms/Conditions are as follows</i> <i>(f) the replacement structure, <u>except for submarine cables or lines</u>, is built in the same location as the original structure. <u>A replacement submarine cable or line must be laid or suspended within a horizontal distance of no more than three times the depth of water from the cable or line which is being replaced.</u></i> <i>(g) the existing structure is removed completely with no waste being placed into the coastal marine area, <u>unless the removal of the structure is considered by an independent suitably qualified and experienced coastal practitioner, to have greater adverse effects on the environment than leaving it in place. The reasoning for this must be provided to Taranaki Regional Council;</u></i>  <i>A replacement cable or line must be laid or suspended in the same location</i>

Specific provision this submission relates to	Support/Oppose/Amendment	Reasons for submission	Relief sought
		<p>the International Cable Protection Committee (ICPC) <i>Recommendation No. 2 – Recommended Routing and Reporting Criteria for Cables in Proximity to Others</i> (attached as <b>Appendix 1</b>). In lieu of any other national or international guidance or standards being available to set parameters, the ICPC recommendations are considered by the industry as a de facto standard.</p> <p>ICPC Recommendation No. 2 does not set a specific distance that a replacement cable should be from an existing cable. Rather, the “<i>Cable Routing and Reporting Criteria</i>” in Section 2.9 (Cable Parallels) of the recommendation provides horizontal separation distance guidance based on depth of water. The desired separation distance where in service cables are parallel to one another is three times the depth of water, although this can be reduced to two times the depth of water in some instances.</p> <p>The reasoning for the separation distances is two-fold. The first matter is in regard to the safe removal of decommissioned cables. Essentially, the technique employed to remove a decommissioned cable is by a hook/anchor type tool dropped from a barge above and is moved through the seabed where the cable is until the cable is snagged, and it is then winched up on to the barge. Sufficient space is required between cables (including a replacement cable which has taken over servicing an area from the cable which is being removed), to ensure that the operative cable is not disrupted when the disused cable is removed.</p> <p>The second matter relates to the first, and that is that after a cable is laid, it can be moved by the coastal process (wave and tidal action), as well as other events such as earthquakes. Consequently, the exact location of a decommissioned cable is not necessarily known when it comes to removing it, and as such sufficient separation is needed between cables to ensure the correct cable is ‘snagged’ when hauling a disused cable from the environment.</p> <p>Consequently the second option for the recommended relief sought for Standard/ Term/Condition (f) directly corresponds to the ICPC recommendations.</p> <p>Standard/Term/Condition (g) requires that “<i>the existing structure is removed completely with no waste being placed into the coastal marine area</i>”. As is recognised through Policy 38, complete removal of an existing structure does not necessarily give rise to reduced environmental effects. Allowance should be made for these situations within the rule framework. An independent suitably qualified and experienced coastal practitioner should be able to make a determination that the environmental effect of removing a structure will be greater than leaving it in situ. This takes away any potential bias from the structure owner, and will give rise to environmental effects which have a lesser degree than what the permitted standard allows.</p>	
<b>Definitions and Acronyms</b>			
<b>Network utility</b>	Support	The definition refers back to Section 166 of the Resource Management Act 1991. Telecommunication and radiocommunication network operators are clearly provided for under that section, and as such this definition is supported.	Retain the definition of Network Utility as notified.
<b>Regionally important infrastructure</b> means infrastructure of regional and/or national importance and is:	Amendment	Sub clauses (h) and (i) to the definition of Regionally Important Infrastructure (RII) refer to <i>strategic telecommunications facilities, as defined in section 5 of the Telecommunications Act 2001 and strategic radio communications facilities as defined in section 2(1) of the Radio Communications Act 1989</i> . There is no definition of “strategic telecommunication /radiocommunication facility” in either the Telecommunications Act or the Radiocommunications Act. Consequently the definition	Preferably, amend the definition of Regionally Important Infrastructure so that it refers only to Infrastructure: <del><b>Regionally important infrastructure</b> means infrastructure of regional and/or national importance and is</del> <b>includes:</b> (a) Port Taranaki and its approaches and on-going development to meet changing operational needs;

Specific provision this submission relates to	Support/Oppose/Amendment	Reasons for submission	Relief sought
<p>(h) <i>strategic telecommunications facilities, as defined in section 5 of the Telecommunications Act 2001;</i></p> <p>(i) <i>strategic radio communications facilities as defined in section 2(1) of the Radio Communications Act 1989;</i></p>		<p>of RII as notified creates confusion and uncertainty, particularly generated by the reference to “strategic telecommunication /radiocommunication facility”, with no direction provided as to what this encompasses, and through the lack of recognition that telecommunication and radiocommunication facilities are interlinked, and as a whole they are essential to the region in terms of their economic and social benefits, as well as being critical in times of emergency and disaster (as opposed to having elements which are “strategic” and elements which are not.</p> <p>Further, in a more generic sense, specifically providing only for RII, and therefore not allowing other ‘lesser’ infrastructure not to benefit from the policy framework that is attributed to RII is unnecessary. All infrastructure is essential, and this should be recognised in the Plan text. A simpler solution is to remove any reference through the plan to RII (or to infrastructure of a regional and/or national importance) and replace it simply with the word ‘infrastructure’ and accordingly have a definition of that term. On this matter, Spark and Chorus have both been involved in assisting the Ministry for the Environment with the National Planning Standards (NPS) process. This process has been legislated for in the Resource Legislation Amendment Act 2017, and as such form new sections 58B to 58J of the Resource Management Act 1991. Part of the NPS work stream includes progressing a number of key definitions and is following the approach taken by the Auckland Unitary Plan, which has departed from the premise of ‘Regionally Important Infrastructure’ and instead simply recognises ‘infrastructure’. Alignment with this approach is encouraged for the Taranaki Coastal Plan.</p>	<p>(b) <i>facilities and arterial pipelines for the supply or distribution of minerals including oil and gas and their derivatives;</i></p> <p>(c) <i>the national electricity grid, as defined by the Electricity Industry Act 2010;</i></p> <p>(d) <i>facilities for the generation and/or transmission of electricity where it is supplied to the national electricity grid and/or the local electricity distribution network, including supply within the local electricity distribution network;</i></p> <p>(e) <i>defence facilities;</i></p> <p>(f) <i>flood protection works;</i></p> <p>(g) <i>infrastructure associated with the safe and efficient operation of state highways and the rail network;</i></p> <p>(h) <del>strategic telecommunications facilities, as defined in section 5 of the Telecommunications Act 2001;</del></p> <p>(i) <del>strategic radiocommunications facilities as defined in section 2(1) of the Radio Communications Act 1989;</del></p> <p>(j) <i>New Plymouth airport, including flight paths;</i></p> <p>(k) <i>arterial pipelines and pumping stations for the distribution of potable water and water treatment plants; and</i></p> <p>(l) <i>arterial pipelines and pumping stations for the collection of wastewater and stormwater, and wastewater treatment plants</i></p> <p><b>OR</b> amend the definition of Regionally Important Infrastructure as follows:  <b>Regionally important infrastructure</b> means infrastructure of regional and/or national importance and is:</p> <p>(h) <del>strategic telecommunications facilities, as defined in section 5 of the Telecommunications Act 2001;</del></p> <p>(i) <del>strategic radiocommunications facilities as defined in section 2(1) of the Radio Communications Act 1989;</del></p>

**Appendix 1:**

**International Cable Protection Committee Recommendation No. 2 – Recommended Routing and Reporting Criteria for Cables in Proximity to Others**



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# ICPC Recommendation

## Recommendation No. 2

### Recommended Routing and Reporting Criteria for Cables in Proximity to Others

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**Note:** The presence of a Suffix letter after the Issue number indicates inclusion of updated peripheral information that does not change the wording of this Recommendation.

## Contact for Enquiries and Proposed Changes

If you have any questions regarding this document or suggestions for improving it, please send an email to the ICPC's [general.manager@iscpc.org](mailto:general.manager@iscpc.org)

## Suggested Citation

International Cable Protection Committee. ICPC Recommendation #2, Recommended Routing and Reporting Criteria for Cables in Proximity to Others, Issue 3 November 2015.

Available by request at [www.iscpc.org](http://www.iscpc.org) or [secretariat@iscpc.org](mailto:secretariat@iscpc.org)

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*An International Cable Protection Committee Ltd ("ICPC") Recommendation ("Recommendation") implies a consensus of those substantially concerned with its scope and provisions. A Recommendation is intended as a guide to aid cable owners and other seabed users in promoting the highest goals of reliability and safety in the submarine cable environment. The existence of a Recommendation does not in any respect preclude anyone, whether he has approved the Recommendation or not, from laying or repairing undersea cables or employing procedures to these ends which may be required by the ordinary practice of seamanship or by the special circumstances of each case, but which may not be conforming to the Recommendation.*

*The ICPC does not develop standards and will in no circumstances give an interpretation of a Recommendation in the name of the ICPC. The ICPC and its members do not accept any liability for any errors in the Recommendation or for any consequences resulting from its use as a planning guide. Nothing in this Recommendation should be viewed as relieving anyone from the rights and obligations of seabed users under international law, including but not limited to the United Nations Convention of the Law of the Sea ("UNCLOS").*

*NB: ICPC Recommendations are subject to periodic review and users are cautioned to obtain the latest issues. This Recommendation may be revised or withdrawn at any time without further notice to the recipient.*

**TABLE OF CONTENTS**

Disclaimer ..... 2

Table Of Contents ..... 3

Preamble..... 4

1. Introduction ..... 4

2. Cable Route Selection Data ..... 4

3. Notifications In Connection With New Cable Construction Or Repairs ..... 14

4. References ..... 15

5. Definitions..... 15

6. Attachments..... 15

## **PREAMBLE**

The purpose of this recommendation is to assist cable owners and those planning submarine cable systems that cross or are in close proximity to existing in-service cables. Owners of existing cables which may be crossed by a planned cable should also find assistance from this recommendation in reaching agreement on the manner of any proposed crossing or close approach by a new cable system.

The recommendations are based on best practice/worst case scenarios and, given the proliferation of modern cables, it is unlikely that many proposed crossings will meet all, or even most of the criteria.

Nonetheless, the recommendation should be used as a guideline to enable the two cables' owners to reach a compromise over the planned crossing, acceptable to both parties. Ultimately, the objective is to allow each cable to share the seabed without significant impact to future maintenance of either cable.

## **1. INTRODUCTION**

This Recommendation provides generalised cable routing and notification criteria that the ICPC recommends be used when undertaking cable route planning activities where the cable to be installed crosses, approaches close to or parallels an existing or planned system.

The criteria set out in the following paragraphs are designed to specifically apply to submarine telecommunication cables. For information on crossing power cables and pipelines, see ICPC Recommendation No. 3.

## **2. CABLE ROUTE SELECTION DATA**

### **2.1 General**

The minimum requirements for cable routing are embodied in the United Nations Convention on the Law of the Sea (UNCLOS) Articles 51, 58, 79, and 114. It is necessary to give due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced.

The routing of a cable depends on a number of factors, including the end points to be connected, seabed characteristics, risks of cable damage, water depths, the routes and characteristics of cables already in place. Cable routing guidelines to strive for under ideal conditions are suggested below. It must be noted that in practice, a number of factors particular to any given cable installation may prevent adherence to certain of these guidelines. In areas of dense cable congestion, it will not be possible to meet these guidelines; therefore a compromise must be agreed between each cable owner.

The routes of new cables should be selected so as to avoid crossings of other cables, in particular existing in service cables, whenever feasible. Crossings of two or more cables, which would create a close spaced triangle or matrix, or other situation which prejudices the repair of existing cables should be avoided if possible. Where this is not possible, then consideration should be given to Section 2.12 of this recommendation.

Optimised cable crossing and parallel criteria would ideally consider such factors as water depth, cable maintenance and repair, accuracy of the navigational control methods used to identify the locations of existing cables, and local legal and permitting requirements.

These factors, coupled with natural and cultural submarine obstructions, will all influence crossing angles and spacing. It is recommended that each crossing and parallel situation be examined on its own particular merits, with consideration for the prevailing environment and conditions.

## 2.2 Planning

When new systems are conceived, it is important that potential cable crossings are considered as early as possible in the planning process. Approaches should be made to other cable owners whose cables may be affected and information, including the positions of their submerged plant, sought from them. In cases where two or more new systems are being planned and installed in the same time frame, it may be appropriate to also approach the system supplier responsible for the routing and installation. The protocol in such cases should be agreed between the purchaser and supply contractor. Communication between the two supply contractors during installation is critical so the installation timing and location is known.

In areas where cables must through necessity closely approach others, for example at existing cable landing points, it is recommended that Maintenance Authorities of cables in close proximity are consulted in order to ascertain the most up to date Cable Route Position Lists (RPLs) including any adjustments for cable maintenance operations. An exchange of route information from both the existing and planned cable should confirm if indeed no crossings are required and help prevent unforeseen interaction between cables.

Those planning a new cable should consider providing ICPC with basic cable routing and landing details for dissemination to its members. This action will raise awareness and allow other members to alert the presence of in service cables in the same vicinity.

*NB: Failure to relate the positions of repeaters in other systems to the positions of repeaters in the system being planned may result in problems with recovery of repeaters during repairs later in the lives of either system.*

## 2.3 Crossing Agreements

The early stages of the Route Engineering process will identify existing and planned cables that the new system will closely approach or cross. Early consultation should take place with the Maintenance Authorities of these other cables in order to reach an agreement on the position and manner of the crossing or close approach.

In most cases the cable owners should be able to come to an accord without a formal signed Crossing Agreement (which would contain liability and insurance provisions), this being effected by a simple exchange of correspondence covering the technical aspects of the proposed crossing, an 'agreement to cross'.

For such a simple 'agreement to cross', (which should not require a signature from either party), the Maintenance Authority for the crossing cable should forward to the Maintenance Authority for the crossed cable the following information:

- i) A Route Position List (RPL) covering the route of the cable for at least three times depth of water on both sides of the proposed crossing point

- ii) The information source for the crossed cable route (Admiralty Chart, 3<sup>rd</sup> party database name or RPL provenance)
- iii) Depth of water
- iv) Angle of cables crossing
- v) Cable armour type
- vi) Positions of any submarine plant within 3 x depth of water on both sides of the proposed crossing point.
- vii) Derivation of navigational data, including datums
- viii) Type of seabed in area of crossing
- ix) Burial information, if applicable, including the procedures to be followed by the Installer, when crossing the cable.

It is helpful to include the above information in a chartlet of the crossing area or close approach, showing both cables and any other points of interest. Consideration should be given to supplying a copy of the RPL for the whole of the particular segment of the system involved as this may serve to highlight areas where the cables are in close proximity away from the crossing point.

To aid this process ICPC have produced an agreement to cross notification template for the exchange of technical information (Attachment 1). The Maintenance Authority for the crossed cable should then review the information and respond on a timely basis to ensure that the crossing falls within the guidelines laid down by this procedure, or if that is not possible, that a compromise is reached which is acceptable to both parties.

Ultimately an 'agreement to cross' may not be achieved if both parties cannot reach an agreed compromise.

*NB: The need for both parties to provide the fullest possible information to each other, as early as possible in the project timetable cannot be overstressed. Delay in forwarding the initial request will have a knock on effect, as will the failure to supply sufficient information for the other party to make an informed decision. Project timescales are becoming foreshortened and the fullest possible information, sent as early as possible, will help to ensure that crossing agreements can be concluded well in advance of the cable installation.*

## **2.4 Cable Crossings**

When crossings are unavoidable, they shall be made as near to a right angle (90 degrees) as possible. If a 90-degree crossing is not technically feasible then angles down to 45 degrees may be considered depending on the particular circumstances. It is highly recommended that crossing angles shallower than 45 degrees not be implemented in order to ensure operational and maintenance activities related to either cable are not compromised.

## **2.5 Cable Types**

Cable types shall be chosen to avoid situations where armoured cables cross lightweight (LW) cables and vice versa due to the risk of abrasion.

Where it is proposed to install an armoured cable over an existing LW cable, special coverings shall be applied to armoured cables or special crossing methods implemented where this situation is deemed unavoidable.

Where it is proposed to install a LW cable over an existing armoured cable, a short length of armoured cable shall be inserted into the LW cable at the crossing point or special crossing methods implemented where this situation is deemed unavoidable.

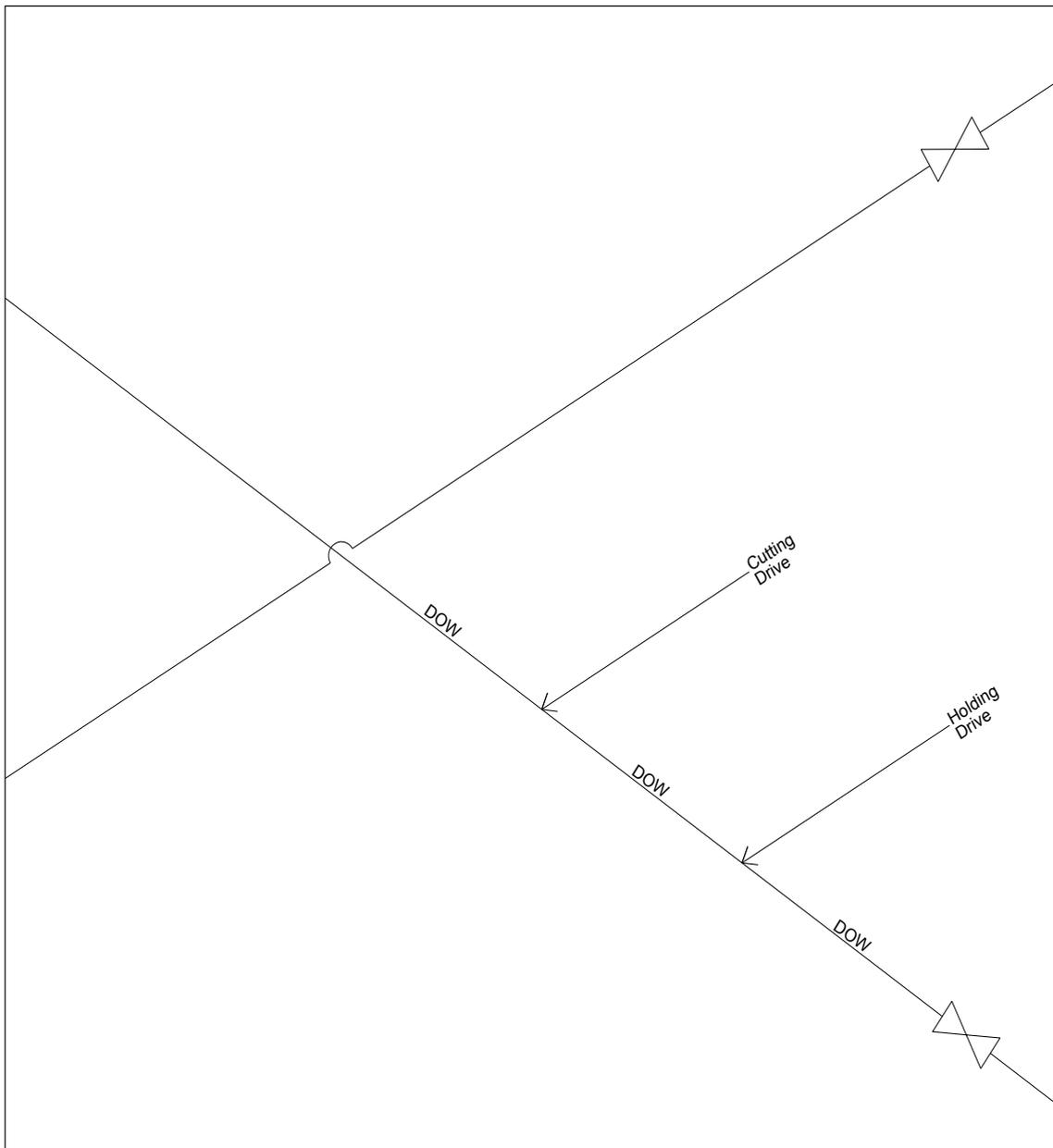
## **2.6 Repeaters**

It is recommended that a clearance of at least three times the depth of water should be allowed between a crossing point and a repeater in the crossed system. The applicable depth of water being the crossing point or the repeater, whichever is the greater. This will ensure that the repeater can be recovered, without endangering the crossing cable, should the cable have been cut so close to the other end of the repeater that recovery from that end is not possible.

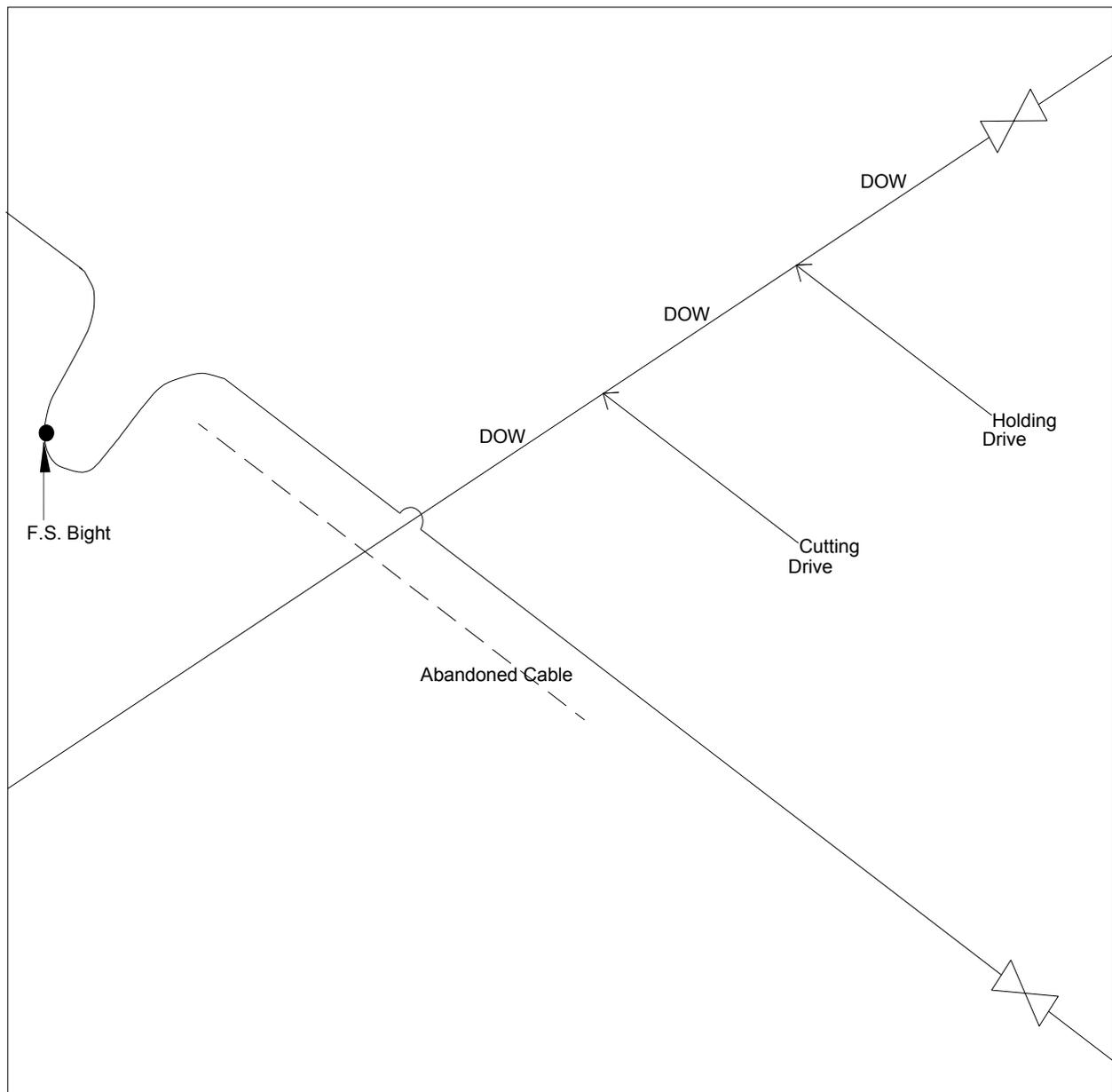
However, with the use of modern navigational equipment and lay/repair practices, these distances could be reduced to 2 times depth of water providing that two such crossings do not exist on either side of the repeater.

If a minimum of 2 times water depth cannot be maintained, then an alternative maintenance solution should be agreed between cable owners.

(See Diagram 1 on the following page)

Diagram 1

Similarly, a clearance of at least three times depth of water should be allowed between the crossing point and a repeater in the crossing system. This will ensure that, in the event of a repair to the crossed cable which results in that cable becoming the crossing cable, the repeater can be recovered should the cable have been cut close to the other end. (See diagram 2)

Diagram 2

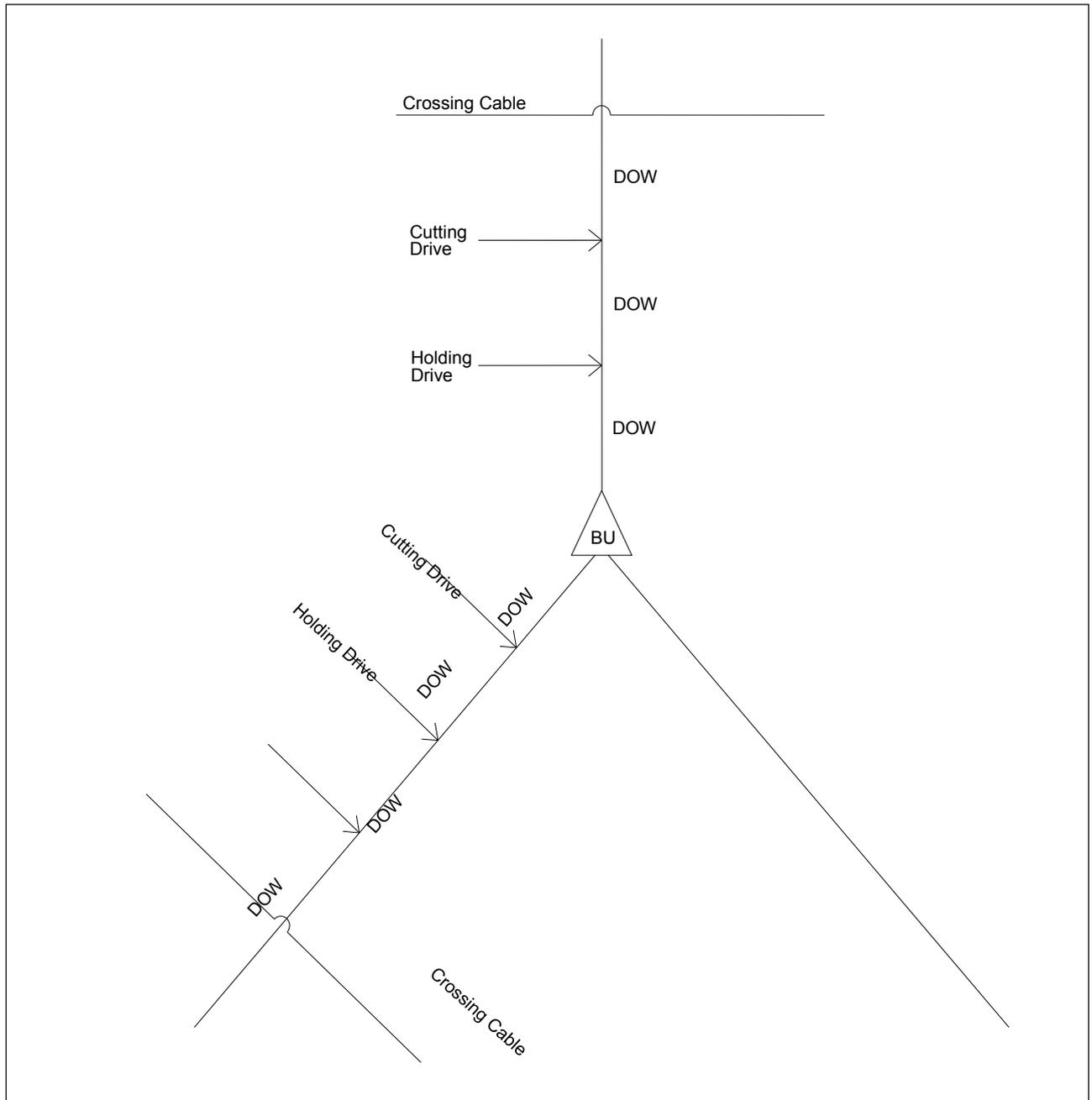
It should be noted that when repairs are carried out close to cable crossings, the planning process should ensure that the final splice is deployed well away from the crossing point and preferably in a direction away from the adjacent repeater, so that it least compromises future repairs in the same area. It should be recognised that practical operational considerations on the repair ground may mean the repair bight direction cannot always be laid away from the adjacent repeater.

It should also be noted that, whilst the clearance criteria of at least three times depth of water should be adequate in most circumstances, in very shallow water this may not be sufficient. For example, in 20m water depth grappling for the crossed cable only 60m from the crossing cable could result in that cable being disturbed: in this situation a clearance of a least 100m should be allowed.

## 2.7 Branching Units

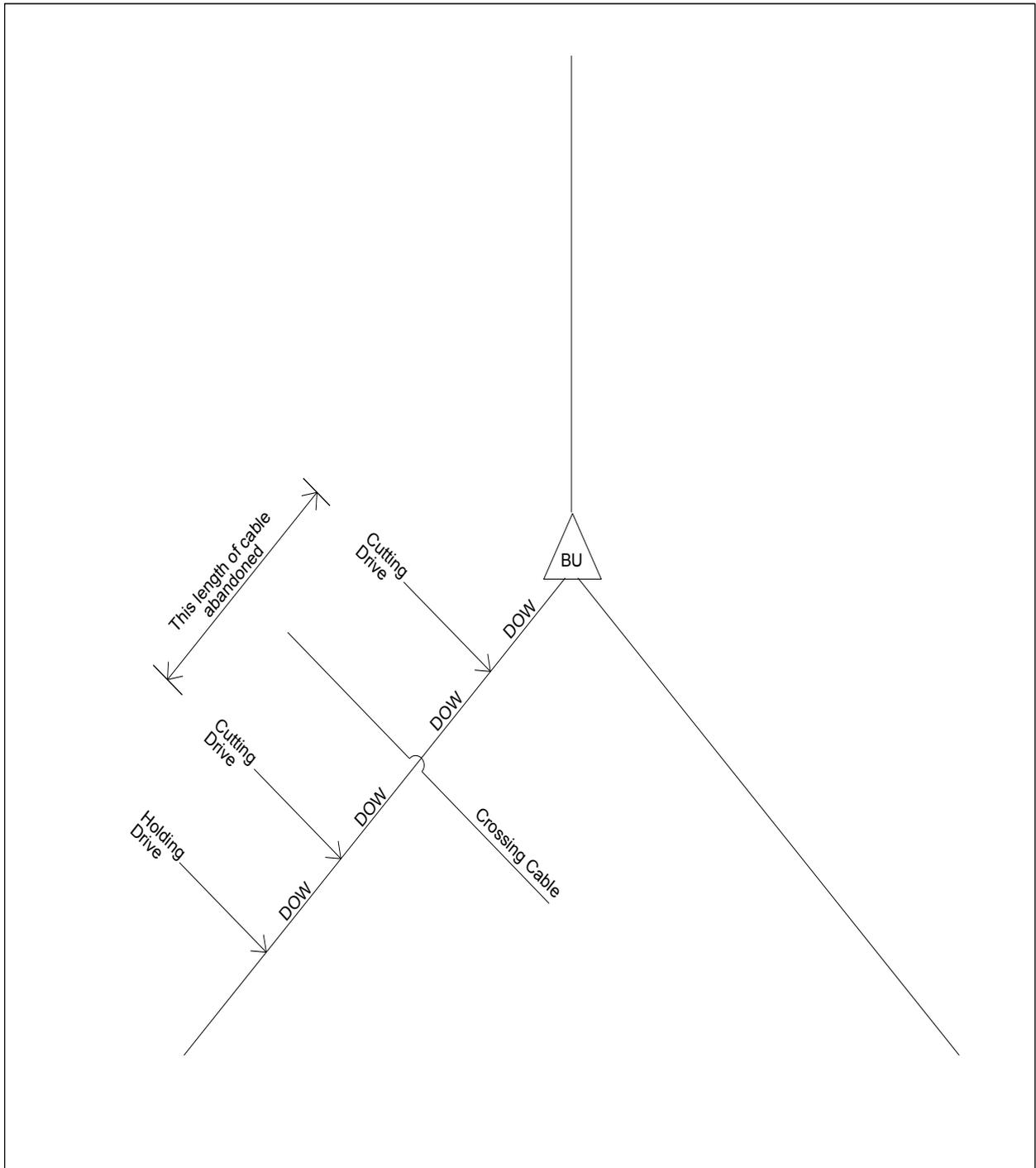
As with repeaters, a clearance of at least 3 times depth of water should be allowed along the main trunk of a branching unit to allow it to be recovered without endangering the crossing cable. The applicable depth of water being the crossing point or the branching unit, whichever is the greater. On the legs of a branching unit, the clearance recommended is 4 times depth of water. This is to allow room for a cutting drive followed by a holding drive to enable the legs to be buoyed off, whilst still keeping operations well clear of the crossing cable. (See diagram 3)

Diagram 3



Where other considerations are paramount, it is possible to cut down the clearance along the legs to twice depth of water, but if this is done then the cutting and buoing operation has to be undertaken outside the crossing point and in that case a length of cable equal to twice depth of water would have to be abandoned on each leg that was crossed. (See diagram 4)

Diagram 4



## 2.8 Burial Procedures

When it is necessary to cross a buried cable, then the following should apply.

The Maintenance Authority of the crossing cable should supply a copy of the procedures to be followed by its contractor during the crossing operation. This should include at least the following:

(i) Plough up/plough down positions.

These are conventionally 500m before and after the closest point of approach to the cable being crossed. In some circumstances it may be acceptable to reduce this clearance, following discussions with the Maintenance Authority of the crossed cable and the agreement of all parties involved in the installation process. For example the distance from plough up/plough down might be reduced for cables on the continental shelf where the route of the cable to be crossed has been positively identified and located during marine survey.

(ii) Plough position during the crossing.

The plough will normally be flown between the plough up and down positions, though the Maintenance Authority of the crossed cable may ask that the plough be on the deck of the installation ship at this time.

(iii) Post Lay Inspection

An ROV should inspect the crossing point to verify the position and ensure that the cable has been properly laid prior to any burial operations.

(iv) Post Lay Burial.

The cable between the plough up and plough down position will be buried by an ROV, either tracked or free-swimming. The procedure should detail how this will be done and how close the ROV will approach the cable.

If the crossed cable is not buried, permission may be sought to bury a short section at the crossing point, prior to burying the crossing cable.

If the crossed cable is buried, permission may be sought to bury the crossing cable to a shallower depth, leaving an agreed safety margin between the two cables so that there is no risk of the ROV fouling the lower cable.

Should burial not be possible at the crossing point, then cable protection by other methods, such as mattressing or rock dumping may be required.

After completion of the crossing operations, as-laid data should be provided to the owner of the crossed cable in the format and time frame agreed.

## 2.9 Cable Parallels

Where in service cables parallel one another, the distance between them shall be maintained at 3 times depth of water where possible. However, it is recognised that these separation distances may not be achievable in all circumstances when planning a cable and so the distances may be reduced. With the use of modern navigational equipment and lay/repair practices, these distances could be reduced to 2 times depth of water after consultation and agreement by all affected parties. In areas of high cable congestion, even a separation of 2 times water depth may not be achievable. In these cases, the

maintenance options for each cable should be assessed and agreed with each affected party.

In the case of multiple coastal or festoon type systems, the distance between parallel cables and the number of crossings shall not be ignored in order to reduce the system length. When close parallels are unavoidable because of routing constraints, the minimum spacing between parallel cables shall be determined after consultation with and agreement by all affected parties.

### **2.10 Shore-end Cables**

Every endeavour shall be made to avoid unnecessary alter courses in the routing of shore-end cables. This approach will allow:

- a) The earliest possible launching of a cable plough, where the cable is to be buried into the seabed.
- b) Easier subsequent cable installations to be achieved without unnecessary cable crossings close to shore.
- c) Easier removal of the shore-end cable, should this be required for either permitting reasons or to allow a subsequent cable system to be installed, or for any other reason, after the cable system is withdrawn from service at the end of its service life.

### **2.11 Choke Points or Narrows**

Where there is a feature, or series of features, which restricts the width of the corridor in which a cable must run, careful consideration shall be given to the positioning of the first and subsequent cables in order to maximise the utilisation of the available space.

The route chosen for the first and subsequent cables shall ensure that:

- a) A minimum number of cable crossings occur in the approach to, and departure from, a chokepoint or narrows.
- b) That the cables lie parallel to the maximum extent possible and the distance between cables is chosen with due regard to the installation of further cables through the same feature at some time in the future.
- c) The number of altercourse points shall be kept to a minimum.

### **2.12 Multiple Crossings**

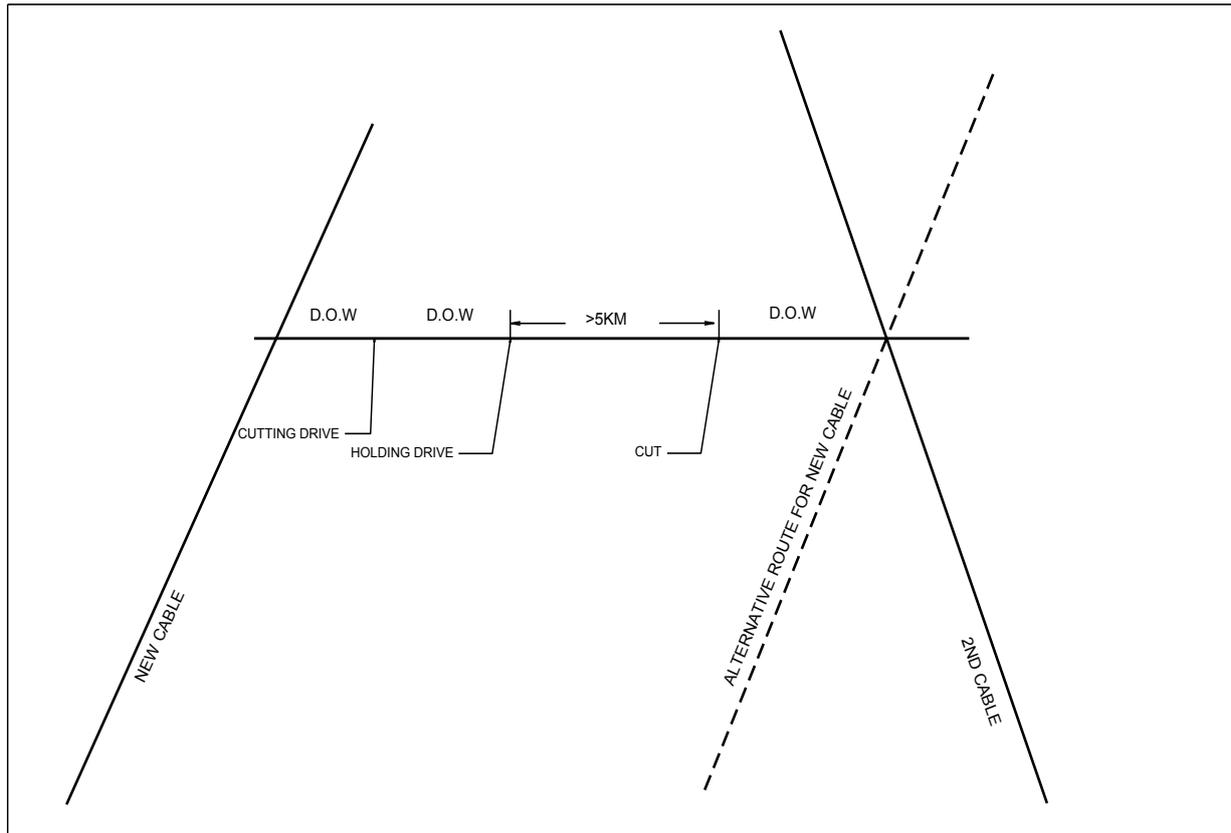
In deep water, crossings should be planned so that they are well away from existing cable crossings. However, where it is not possible to provide a sufficiently large separation, then it may be preferable to install the new cable over the existing crossing.

In the example below (see Diagram 5), a new cable is to be installed close to the crossing point of existing cables. If we assume 4,000m water depth throughout, and that generally in deep water the minimum cable length that can economically be recovered is 5 kms, it can be seen that the minimum clearance between the two cable-crossing points is 17kms. Anything less will effectively sterilise the cable between the two crossing points and render it unrecoverable.

In this case it would be preferable to install the new cable over the original crossing point.

Care should be taken when the original two cables cross at a relatively shallow angle as a third cable may make cable recovery close to the crossing point, during repairs, difficult: however even in this case, the cable unrecoverable at a multiple crossing may be less than would be so if the two crossings were separated.

Diagram 5



### 3. NOTIFICATIONS IN CONNECTION WITH NEW CABLE CONSTRUCTION OR REPAIRS

#### 3.1. General

Advance notification of planned new cable routes, or repair operations, which will result in close parallels and/or crossings of existing cable routes, shall be made to the responsible Maintenance Authority for the existing cable system or to the Purchaser or Supply Contractor for cables in the process of being installed.

#### 3.2. Contact List

A list, identifying maintenance or engineering contacts for every working cable system in the same general area as the new cable system, shall be established by the Maintenance Authorities of each of the cable systems. This list shall be periodically updated to reflect

current status and shall include telephone, facsimile and e-mail details of the nominated contacts. This list will be used to facilitate required notifications and to obtain existing cable positional data for use in new route planning.

### 3.3. Conflicts with Military and Government Cables

The organisation that has responsibility for planning the new cable system shall make all reasonable efforts to ensure the planned cable route does not conflict with military, government or any other submarine facilities. Additionally, consultation with other ICPC members that have cables in the area of planned installation could assist in locating appropriate military and government contacts.

### 3.4. Operational Notifications

The cable owner or Maintenance Authority will ensure that it is a requirement of the cable installation vessel or company to inform all relevant parties of the intention to cross 48 and 24 hours before the crossing and again 24 hours after the crossing.

## 4. REFERENCES

Document	Title
Submarine Cables: The Handbook of Law and Policy – Publishers: Martinus Hijoff (2014)	Chapter 11, Protecting Submarine Cables from Competing Uses

## 5. DEFINITIONS

The following words acronyms and abbreviations are referred to in this document.

Term	Definition
DoW	Depth of Water
FS	Final Splice
Maintenance Authority	The organisation responsible for the operation and maintenance of a particular submarine cable system
RPL	Route Position List
LW	Lightweight cable (unarmoured)
ROV	Remotely Operated Vehicle, an unmanned submersible robot

## 6. ATTACHMENTS

Document Number	Title
Recommendation No.2 Attachment No. 1.	ICPC Agreement to Cross Notification Template

## ICPC Agreement to Cross Notification



Planned Cable System Name: *(Name of new cable)*

Planned cable Owner: *(Company name and contact)*

Agreement to Cross Contact: *(cable owner or their agent, name contact details)*

### ICPC Recommendation No2 Recommended Information Exchange

i) Route Position List (RPL) for consideration: (either co-ordinate listing below or the name of a separate file attached)

ii) Information Source for the crossed cable (Admiralty Chart, 3rd party database name or RPL provenance)

iii) Depth of water at the crossing

iv) Angle of cables crossing

v) Cable armour type

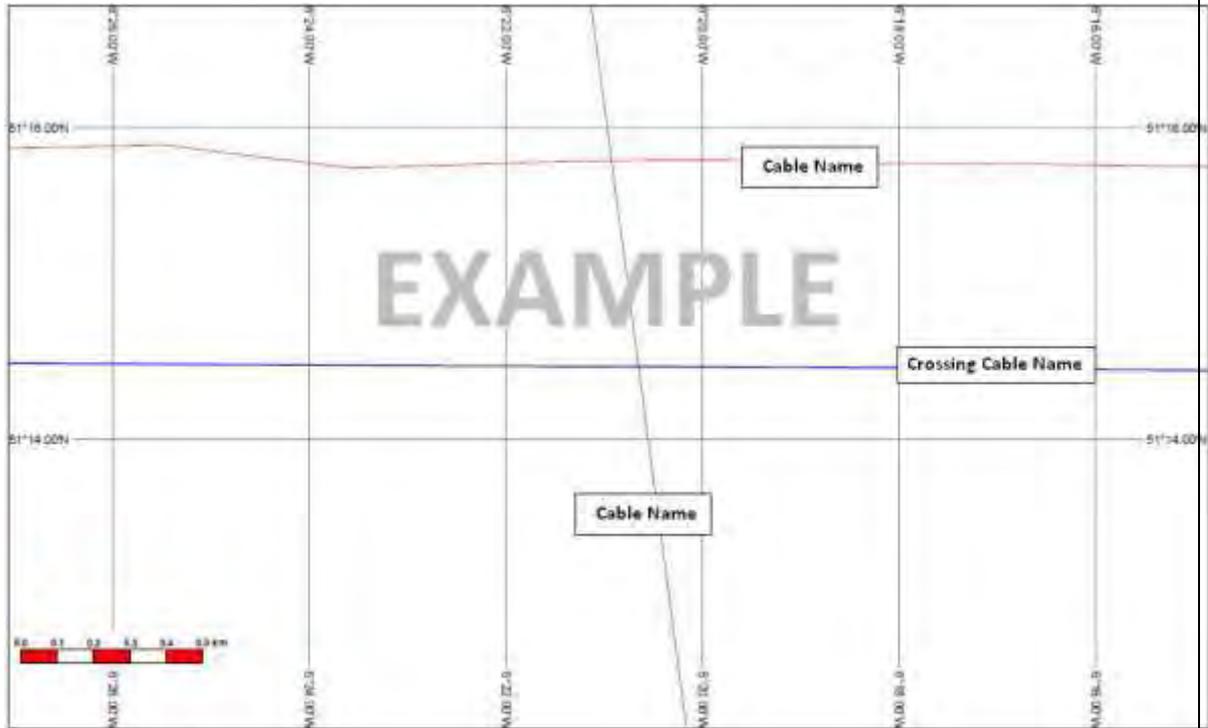
vi) Positions of any submarine plant within 3 x depth of water on both sides of the proposed crossing point.

vii) Derivation of navigational data, including datums

viii) Type of seabed in area of crossing

- ix) Burial information, if applicable, including the procedures to be followed by the Installer, when crossing the cable.

**Crossing Chart**



Min Angle: 82.13°  
 Location: XX° 14.469° N ; XX° 20.648° W  
 Water Depth: 103m  
 Cable Type: Nexans Single Armour

**Your name**

nigel cliffe

**Organisation (if applicable)**

acupuncture south taranaki

**Address**

276 wataroa rd, pungarehu, taranaki

**Daytime phone number**

0276819524

**Email address**

[tubularz2012@gmail.com](mailto:tubularz2012@gmail.com)

**Could you gain an advantage in trade competition through this submission?**

No

**Do you wish to be heard in support of your application?**

No

**Your submission on the Proposed Plan**

my submission relates to the development of the regionally significant surf area. i believe that the toilet at paora rd should not be able to discharge any fluids or solids into the ocean. either directly or by way of ground water. i propose that the location of the toilet is reassessed.

the second aspect of the submission relates to the inclusion of people who live in the surf area to be included in decisions about any water bourne events and any exclusions that these events may incur.

My submission also opposes any waterbourne events lasting more than 3 consecutive days over a 5 day period. I support what has been in place previously in the coastal plan relating to waterbourne events.

**Your comment on documents incorporated by reference in the Proposed Plan, as detailed in Schedule 9 (comment optional)**

**Document/file 1**

**Document/file 2**

**Document/file 3**

**Document/file 4**

# Proposed Coastal Plan for Taranaki, 2018

## Submission by Climate Justice Taranaki Inc., 27 April 2018

### Introduction

1. Climate Justice Taranaki (CJT)<sup>1</sup> welcome the opportunity to provide the Taranaki Regional Council with comments on the Proposed Coastal Plan for Taranaki. We are a community group of residents from in and around Taranaki who are concerned about climate change, its root causes and the social injustice associated with it. Our core members have background in environmental science and marine ecology. We have been an incorporated society since 2015.
2. CJT submitted on the Draft Coastal Plan for Taranaki in November 2016<sup>2</sup>. A few of our comments were addressed in the Proposed Plan but many remain outstanding, as reflected in this current submission.

### Mana whenua

3. It is our understanding that Ngāti Maru has a mandate to negotiate with the Crown already. This needs to be updated in the plan (section 1.6). We note that Ngāti Maru is not included in Schedule 5B (Sites of significance to Māori). We urge the Council to work with Ngāti Maru when developing and implementing the plan.
4. Many hapū and iwi still oppose Crown authority over land and sea. The Foreshore and Seabed Act 2004, which extinguished customary Māori property rights to the coastal areas, and the subsequent Marine and Coastal Area (Takutai Moana) Act 2011, are recent examples of legislation that demonstrate the on-going debate as to who controls the coast and sea. It is our understanding that all iwi of Taranaki made applications in the High Court for legal recognition of their customary rights in te takutai moana (the marine and coastal area). These applications were due one year ago, on 3rd April 2017. Approximately 380 applications for Crown engagement were received from across Aotearoa. The Taranaki applications can be seen on the Ministry of Justice website<sup>3</sup>.

### Coastal Management

#### Appropriate use and development

5. CJT suggest updating the paragraph “*Appropriate use and development*” (p.13 of plan) to reflect the central government’s recent announcement<sup>4,5</sup> of no new offshore (EEZ and territorial waters) oil and gas exploration permits and restricting new permits to only onshore Taranaki over the next three years. While Taranaki has been “*one of the most important mineral producing regions...*” the government has signalled an end to further exploration and a beginning to transition away from fossil fuels.
6. A new Westpac NZ research report<sup>6</sup> showed that “*NZ can decarbonise towards a two-degree target while achieving economic growth*” and an early and smooth transition “*would create \$30 billion more GDP through to 2050 than the shock scenario.*” The Council of Trade Unions<sup>7</sup> including E tū<sup>8</sup> and South Taranaki iwi Ngāti Ruanui<sup>9</sup> have all openly announced their readiness to start a just transition to low carbon economy.

#### Coastal hazards and climate change

7. There is no doubt that climate change and sea level rise are heightening the risk of coastal hazards<sup>10,11</sup>. We ask that the statement be strengthened to “*The risk of, or vulnerability to, coastal*

hazards ~~may~~ increase over time due to climate change and sea level rise” (p.15). Climate change has already been identified as the cause of a 379 percent increase in sewage overflows<sup>12</sup> last year, as ageing infrastructure were unable to cope with record rains, threatening coastal water quality. In terms of coastal hazards, it is crucial to be kept up-to-date and flexible in terms of vulnerability assessments and management, because extreme events are occurring more frequently and intensely, as a result of climate disruption. What was previously considered a 1-in-500-year event is becoming a 1-in-100-year event, a 1-in-20-year event, and could eventually become the norm<sup>13,14</sup>.

8. A recent Ministry for the Environment report titled Adapting to Climate Change (MfE, 2017)<sup>15</sup> pointed out, “Given the long lifetime of infrastructure, it is important that climate change adaptation is factored into infrastructure decisions now... However, overall there is limited evidence of proactive action that reduces medium and long-term risks... In the majority of cases, councils do not have a plan for how to go about climate change adaptation...”

## **Policies**

### **Integrated management**

9. CJT fully support the emphasis on integrated management. We suggest expanding Policy 2(g) to include working collaboratively with government departments and authorities (e.g. EPA) to avoid, mitigate and manage any potential impacts from activities proposed/conducted in the Exclusive Economic Zone (e.g. seabed and petroleum mining), on Taranaki’s coastal environment.

## **Regional Rules**

### **Petroleum dispersant use**

10. Rule 4: As stated in our 2016 submission on the Draft Coastal Plan, we do not support the use of petroleum dispersant in any of the Coastal Management Areas (CMAs) and certainly not as a Permitted activity. Two of the dispersants that have been approved for use by Maritime NZ<sup>16</sup>, Corexit 9500 and Corexit 9527, are extremely toxic<sup>17</sup> to humans and the environment, and even more toxic when combined with crude oil. We submit that the use of the above-mentioned and other toxic petroleum dispersants be Prohibited in all CMAs. The use of non-toxic dispersants may be Discretionary.

### **Untreated human sewage discharges**

11. Rule 5: We strongly support that any untreated human sewage discharges be Prohibited in all CMAs.

### **Wastewater treatment plant discharges**

12. Rule 6: We are strongly opposed to allowing existing wastewater discharge that contains human sewage into any CMA, after its consent expires. We submit that once existing consents expire, the activity be Prohibited in all CMAs, considering its impact on the environment, on Maori rights and interest, the operational problems associated with such facilities, the duration of some existing discharge consents and advancement in wastewater treatment technology.
13. Our 2016 submission gave clear explanations to our argument on the subject of wastewater discharge, based on the lessons learnt from Waitara. Moreover, the risk of Norovirus<sup>18</sup> outbreaks through sewage-contaminated produce is real, as shown by the presence of Norovirus in shellfish collected near the marine outfall in Hawera in August 2017<sup>19</sup>. While the NPDC Wastewater Treatment Plant upgrade in recent years has significantly reduced the levels of GI and GII Norovirus in the plant effluent, low levels of Norovirus GII were detected in mussels collected from the Waiwhakaiho Reef during May 2017<sup>20</sup>. Crucially, mussels and other filter feeding molluscs are

efficient at concentrating Norovirus which can be retained in their flesh for up to 8-10 weeks. Only low concentrations of Norovirus are required to pose a high risk of infection in humans<sup>21</sup>.

14. Rules 7 & 8: We are strongly opposed to allowing new wastewater discharge that contains human sewage (treated or untreated) into any CMA. We submit that all new wastewater discharge containing human sewage be Prohibited in all CMA.

### **Sampling and cleaning biofouling**

15. Rule 10: We support that any discharges from biofoul cleaning into all CMAs except the Port, be Non-complying.

### **Seismic surveying and bathymetric testing**

16. Rule 12: We are strongly opposed to further petroleum prospecting and exploration. We submit that all seismic surveying for petroleum in any CMA be Prohibited because of the need to stop any further fossil fuel exploration and extraction in order to minimize climate disruption and to avoid harm to marine ecosystems and threatened species. On 27<sup>th</sup> February 2018, following our complaint to the Advertising Standards Authority<sup>22</sup> re PEPANZ's [seismicsurvey.co.nz](http://seismicsurvey.co.nz) website, PEPANZ revised its claims. Our complaint highlighted the harm from seismic surveys on marine ecological communities and on marine mammal species. Currently, offshore seismic survey activities are poorly regulated and renowned marine scientists, notably Prof Liz Slooten and Dr. Leigh Torres, have both criticized the effectiveness of the Code of Conduct developed by the Department of Conservation. A petition<sup>23</sup>, demanding a halt to all seismic testing in Taranaki Moana has gathered almost 12,000 signatures. On 30<sup>th</sup> November 2017, the Iwi Chairs Forum, involving all of the Taranaki iwi, unanimously passed a resolution, opposing all seismic testing and oil exploration across all NZ waters<sup>24</sup>.

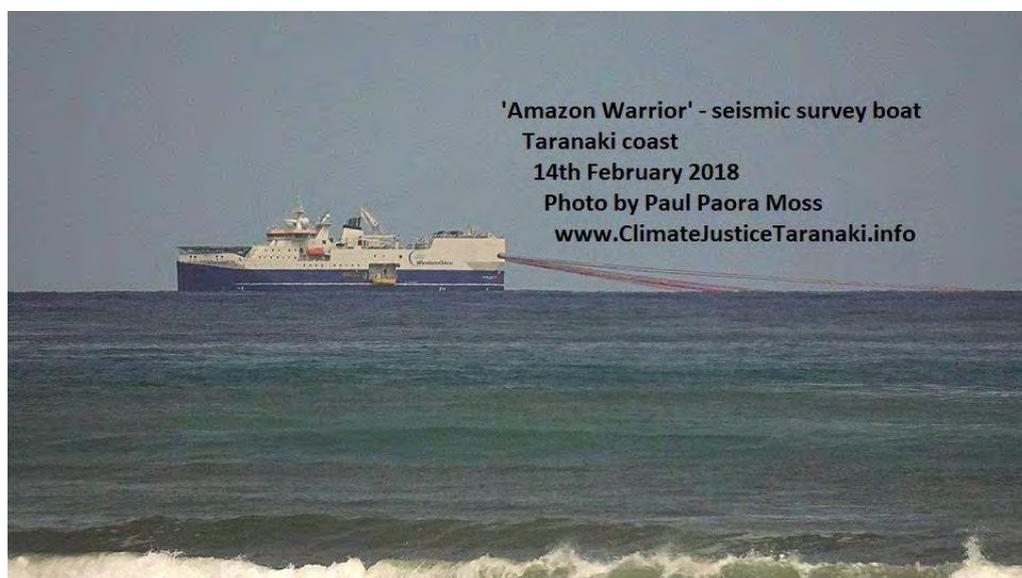


Photo: Seismic survey vessel 'Amazon Warrior', taken from Te Ikaroa, near Cape Egmont, on 14th February 2018, by Paul Paora Moss.

### **Other discharges to water or land not provided for in Rules 1 to 12**

17. Rules 13 & 14: We are very concerned about these two 'catch-all' rules and seek clarifications and examples of the types of contaminants that fall under these. Are they designed to capture contaminant discharge from industrial facilities such as Fonterra Whareroa and Methanex plants?

18. Fonterra Whareroa holds a consent<sup>25</sup> to discharge up to 40,000 cubic metres/day of dairy factory wastewater via a marine outfall, shared by South Taranaki District Council, for the discharge of municipal wastes including meat processing wastes. In 2014-2015, seven unauthorised incidents occurred, resulting in consent breaches. In 2015-2016, three incidents were recorded and resulted in two infringement notices being issued<sup>26</sup>. Methanex Motunui Ltd holds a consent (3400-2)<sup>27</sup> to discharge up to 12,096 cubic metres per day of effluent, containing hydrocarbons, methanol, 13 different treatment chemicals (including 600 kg of the coagulant Klaraid PC 1190P, 400 kg of Cortrol OS7780, 300 kg of Inhibitor AZ8104, 300 kg of Continuum AEC3109 and 20 kg of Spectrus CT1300, etc) and other contaminants into the Tasman Sea via the Waitara marine outfall. Cortrol OS7780<sup>28</sup> is very toxic to aquatic organisms, and there is limited evidence of it being carcinogenic. The maximum daily limit of Spectrus CT1300 may be doubled in response to increased levels of the bacteria Legionella if detected. Spectrus CT1300 is potentially toxic to the liver, kidney and central nervous system. In 2014-2015, two incidents due to Methanex's aging pipelines resulted in non-compliance. In 2015-2016, two unauthorised incidents recording non-compliance in respect of Methanex's activities at the Waitara Valley site occurred<sup>29</sup>. In 2016-2017, three unauthorised incidents recording non-compliance were recorded at the two sites<sup>30</sup>. Most of these incidences were apparently related to mechanical failures or unanticipated issues. None was followed by any enforcement response.
19. These industries, by discharging wastes and contaminants, are not only polluting our environment, but pose serious risks to public health and often ignoring Maori rights. They externalise the real costs of their operations by making profits from public good. Just as there is an urgent need to transition off fossil fuels onto renewable energy, the linear model of business and product lifecycles will need to transition onto circular economies<sup>31</sup> where waste is treated as wealth (rather than liability) – good for business and good for the environment.
20. We argue that strengthening environmental regulation will create the incentives for such transitions. We argue that if such 'catch-all' rules are to remain, then Rule 13 for the relevant discharge activities should be Publicly Notified.

### **Structures and occupation**

21. Rule 18: We object to permitting the placement of any outfall structure and the associated activities in any of the CMAs. Without a resource consent, it is impossible to know whether the standards/terms/conditions are met. We submit that such activities be Prohibited or Non-Complying in CMAs Outstanding Value and Estuaries Unmodified, and Discretionary in the other CMAs.

### **Structure used for whitebaiting**

22. Rule 24: We support the Prohibited status of erection or placement of a whitebait stand in all CMAs. We also support the installation of protected whitebait breeding stations such as staked haybales at the mean high water level of stream and river mouths.

### **Exploration or appraisal drilling**

23. Rules 26-28: We are opposed to further petroleum exploration and mining onshore and offshore and therefore ask that drilling of any petroleum exploration or appraisal well and associated activities in any CMA be Prohibited. If this is not acceptable to Council, then we ask that such activities in the Open Coast and Port be Discretionary (rather than Controlled). Due to the likely effects on public access and safety risks<sup>32</sup>, we request that these activities be Publicly Notified (whether the activity is deemed Discretionary or Controlled).
24. If Council insist on Rule 26 with its Controlled status, then we ask that the setback distance of 1,000 m from sensitive marine benthic habitat (Schedule 4B), reef system or boundary of CMA Outstanding

Value be increased to at least 6,000 m. The latter is based on Cawthron (30/10/2015)<sup>33</sup> which concluded that while a distance of 1,000 m should be adequate from a single well drilling activity, a much larger buffer distance (6 km or over) could be required to reduce community-based effects from multiple wells. A more conservative approach based on the maximum zone of effects would suggest a buffer distance of 20 km for water-based drilling fluids, as discerned by the limits of barium tracers. Rule 26 condition (a) indicates that new drilling may occur beyond 2,000 m of a previously drilled site which presumably means an existing well, resulting in a multiple wells situation, requiring a minimum buffer or setback distance of 6,000 m.

### **Petroleum production installation erection or placement**

25. Rules 29-30: We are opposed to the drilling of new production wells but would support provisions for the maintenance and occupation of space by existing wells and associated infrastructure, and for the abandonment and decommissioning of wells and the associated infrastructure at the end of production life. If any new production wells are to be drilled, then prudent buffer distances as we propose in point 24 above should apply. Rule 30 relating to petroleum production, installation and associated activities in CMAs Outstanding Coastal, Estuaries Unmodified and Estuaries Modified should be reclassified as Prohibited (rather than Non-complying).

### **Temporary military training**

26. Rules 31-32: We do not support military training activities in a world where most, if not all, wars are fought over control of resources and ideologies. The NZDF, like many others, are clearly not just a 'defence' force, and they operate largely in secrecy without opportunities for public scrutiny (See the recent revelations by Nicky Hager and Jon Stephenson (2017)<sup>34</sup>. The recent fire-fighting foam contamination<sup>35</sup> around NZ's military sites and its health impacts on nearby residents illustrate some of the far-reaching and irreversible harm caused by military and associated activities. Our group stands for social justice where all can have access to the necessities of life and well-being. We do not condone violence including military actions and any potential human and environmental harm they cause.

### **Structure maintenance, repair, minor alteration, removal and replacement**

27. Rules 35 & 38: We have concern over the Permitted status of maintenance, reconstruction, removal or replacement of established structures and the associated activities in CMAs Outstanding Value and Estuaries Unmodified. We propose that they be Discretionary instead, to allow for consideration of new/up-to-date knowledge about ecosystems, species and environmental effects, technological development and proper reporting/monitoring. Furthermore, there are issues with coastlines being presumed to be Crown land where the Seabed and Foreshore Act applies and where Maori reserves have been drawn up incorrectly and/or illegally taken by neighbours. In fact, there are clear records and archaeological evidence alongside current use by tangata whenua. We understand that Council allow seabed removal in tauranga waka and dumping of dredge spoils on Maori reserves eg. Egmont Boat Club. These activities need to be notified at the very least.

### **Clearance of outfalls, culverts and intake structures**

28. Rule 51: We submit that disturbance of the foreshore or seabed and deposition of materials for clearance of outfalls, culverts and intake structures and any associated activities, especially the discharge of contaminants, be Discretionary (not Permitted) in CMA Outstanding Value and Estuaries Unmodified so that adequate consent conditions, environmental monitoring and reporting could be put in place.

## Other disturbance, damage, destruction, removal or deposition that is not provided for in Rules 51 to 59

29. Rules 60, 61: We are gravely concerned over these two catch-all rules, especially when the Proposed Coastal Plan appears to be silent on seabed mining. The latter, such as the proposed TTRL seabed mining, is an extremely destructive activity opposed by a huge number of New Zealanders, all major environmental organisations and all Taranaki iwi<sup>36,37,38,39</sup>. We submit that all seabed mining activities be Prohibited in all CMAs, including the Open Coast due to transboundary impacts of the activity.



Minerals mining (blue), exploration (red) and prospecting (green) permits in the Taranaki coastal marine area and in the EEZ. Source: NZPAM website<sup>40</sup>, accessed 23/04/2018.

## Schedules & Maps

30. Schedule 1 CMA and Schedule 2: We propose including Patea Shoals and Rolling Ground as CMA of Outstanding Value and onto Schedule 2, based on the recommendation from Cawthron, 2016<sup>41</sup> which described these areas as “*worth considering as outstanding habitats in terms of ecological sensitivity (EEZ 2012)...*” We also ask Council to assess the value of Graham Bank as Cawthron indicated that it has not been investigated and “*may be a potentially outstanding area.*”
31. We seek clarifications about the delineation of boundaries of various areas of Outstanding values and their recognition by district councils. There appears to be some mismatch between those on the Coastal Plan (e.g. Map 39 Waitotara<sup>42</sup>) and those in the Proposed South Taranaki District Plan 2016 (e.g. Rural Map 22<sup>43</sup>). Regional and district councils need to align these and other relevant boundaries as well as policies and rules.

<sup>1</sup> Climate Justice Taranaki website. [www.climatejusticetaranaki.info](http://www.climatejusticetaranaki.info)

<sup>2</sup> Climate Justice Taranaki Inc., 18 November 2016. Feedback on Draft Coastal Plan for Taranaki, August 2016.

<https://climatejusticetaranaki.files.wordpress.com/2013/03/cjt-feedback-on-draft-coastal-plan-for-taranaki-18nvo20161.pdf>

<sup>3</sup> Ministry of Justice website – Marine & Coastal Area – Takutai Moana, accessed on 22/04/2018. <https://www.justice.govt.nz/maori-land-treaty/marine-and-coastal-area/applications/taranaki-region/>

<sup>4</sup> RT Hon Jacinda Ardern, 12/04/2018. Planning for the future – no new offshore oil and gas exploration permits.

<https://www.beehive.govt.nz/release/planning-future-no-new-offshore-oil-and-gas-exploration-permits>

<sup>5</sup> Government aims to strike balance ending offshore oil exploration: PM, 12 April 2018 <https://www.stuff.co.nz/business/103031705/ardern-to-end-to-offshore-oil-exploration-with-short-reprieve-for-taranaki>

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27<sup>th</sup> April 2018

Taranaki Regional Council  
Private Bag 713  
Stratford 4352

### **Proposed Coastal Plan for Taranaki**

Please find enclosed the submission by the Minister of Conservation in respect of the Proposed Coastal Plan for Taranaki.

The Minister would like to acknowledge that the proposed plan is well structured, easy to use and would like to commend the Council for creating such a user-friendly plan.

As outlined in the attached submission, the plan does not however give effect to the New Zealand Coastal Policy Statement 2010 and is not in accordance with the provisions of Part 2 of the RMA. The major areas of concern are that the Taranaki Regional Council has not identified the landward extent of the Coastal Environment or mapped any areas of significant indigenous biodiversity. Amendments have been identified which are intended to address the Minister's concerns.

The amendments, additions and deletions sought in the submission relate to the Minister's statutory functions in relation to the coastal marine area, and the conservation of natural resources. The Minister's submission identifies where new objectives, policies, and rules would meet the requirements of the RMA, and in some cases, has included wording for new policies, objectives and rules.

I would welcome an opportunity to meet with you to discuss a way forward.

Please contact Angus Gray if you wish to discuss any of the matters raised in this submission (027 621 8195, agray@doc.govt.nz).

Yours sincerely



David Spiers

Director Operations

Hauraki-Waikato-Taranaki

1. This is a submission on the following proposed plan (**the proposal**):
  - 1.1. Proposed Coastal Plan for Taranaki
2. I could not gain an advantage in trade competition through this submission.
3. The specific provisions of the proposal that my submission relates to are set out in the Submission Table in Attachment A.
4. I oppose the omission of any mapping or spatial identification of any areas, ecosystems, and habitats that have significant indigenous biodiversity values.
5. I oppose the omission of any maps which define the landward extent of the coastal environment.
6. I support in principle the extensive schedule of sites of significance to Māori as part of taking into account the principles of Te Tiriti o Waitangi (the Treaty of Waitangi), depending on the agreement of the iwi o Taranaki.
7. The decisions sought are necessary to ensure that the proposal:
  - 7.1. achieves the purpose and principles of the RMA;
  - 7.2. gives effect to the provisions of the New Zealand Coastal Policy Statement 2010;
  - 7.3. gives effect to the Regional Policy Statement.
8. Further specific reasons are set out in the Submission Table in Attachment A.
9. I seek the following decision from the Council:
  - 9.1. That the provisions of the proposal that I support, as identified in the Submission Table in Attachment A, be retained without amendment.
  - 9.2. That the amendments, additions and deletions to the proposal sought in the Submission Table in Attachment A are made to give effect to the NZCPS, RPS, and the purpose of the RMA.
  - 9.3. Further, consequential or alternative relief to like effect as the relief sought in this submission.

11. I wish to be heard in support of my submission



.....

David Spiers

Director Operations

Hauraki-Waikato-Taranaki

Signed on behalf of the Minister of Conservation pursuant  
to delegated authority.

27 April 2018

Address for service:

RMA Shared Services

Department of Conservation

Private Bag 3072

Hamilton 3240

Attn: Angus Gray

Note: A copy of the Instrument of Delegation may be inspected at the Director-General's office at  
Conservation House Whare Kaupapa Atawhai, 18/32 Manners Street, Wellington 6011

## Attachment A – Submission Table on the Proposed Coastal Plan for Taranaki

The following table sets out further details of the Minister’s submission (with reasons) and the decisions sought with respect to the Taranaki Regional Council’s Proposed Coastal Plan for Taranaki.

The general reasons for the submission are that the decisions sought are necessary for the Proposed Coastal Plan for Taranaki to achieve the purpose of the Resource Management Act 1991 (RMA), and to give effect to the provisions of the New Zealand Coastal Policy Statement 2010 (NZCPS) and the Regional Policy Statement for Taranaki. Further specific reasons and decisions sought are given in the table below.

The specific parts of the Proposed Coastal Plan for Taranaki to which this submission relates, along with the submission (with reasons) and the relief sought, are set out in the table below.

Where any decision sought in the table below seeks specific wording inserted in a specific place, the decision sought includes the following words: ‘or words to the same effect in any other appropriate locations in the Proposed Coastal Plan for Taranaki’.

The specific provision of the Proposed Coastal Plan for Taranaki that my submission relates to:	My submission on this provision is:		I seek the following relief from the Taranaki Regional Council:
	Support/ Oppose	Reasons for my submission:	
<b>General Points</b>			
General	Oppose	Section 64A of the RMA (Imposition of coastal occupation charges) requires that a regional coastal plan must include some consideration of whether a coastal occupation charging regime should be included, and that if the Council considers that it should not be included, a statement to that effect must be included in the regional coastal plan.	Include a statement which contains consideration of whether a coastal occupation charging regime is included in the plan.
Identification of areas of significant indigenous species, including habitats and ecosystems.	Oppose	To give effect to Section 6(c) of the RMA and the Regional Policy Statement for Taranaki (the RPS (Bio Policies 3 and 4, page 82)) Council must prioritise the protection, enhancement and restoration of ecosystems, habitats, and areas that have significant indigenous biodiversity values. The plan does not map any significant ecosystems, habitats or areas. Instead the plan includes a schedule of significant species and ecosystems.	Map areas, ecosystems, and habitats that have significant indigenous biodiversity values.

		<p>Many of the permitted activities in this plan have a condition which requires that it must not have an adverse effect on the species or ecosystems identified in Schedule 4A. However, for a number of these activities it will be difficult for plan-users to determine the effects without a proper ecological assessment. This may result in activities being undertaken on the assumption that there will be no adverse effects on significant species, without there being any assessment of these effects.</p> <p>Schedule 4A does not give effect to the RPS as it only lists species and ecosystems. Council has omitted habitats and areas that have significant indigenous biodiversity values. These habitats and areas could include coastal bird roosting, feeding, and nesting sites, marine mammal resting, feeding and breeding areas, and migratory routes and corridors. Without mapping these areas, they are not prioritised or afforded any protection in the rules of the plan.</p> <p>I consider that relying on Schedule 4A alone to protect all significant indigenous species, ecosystems, habitats and areas is inadequate, and that this approach will not maintain and enhance indigenous biodiversity and is inconsistent with the RMA, NZCPS, and RPS.</p>	
<b>Objectives</b>			
Objective 5	Oppose	To give effect to policy 21 of the NZCPS, objective 5 needs to include provision for the restoration of water quality where appropriate.	Amend objective 5 to: <i>“Water quality in the coastal environment is maintained and enhanced and where quality of water in the coastal environment has deteriorated , restored where practicable.”</i>
Objective 6	Support	Includes provision for the restoration of natural character and is in line with the NZCPS.	Retain as notified.
Objective 8	Oppose	<p>Objective 8 refers to the protection of areas of significant indigenous biodiversity. Schedule 4A identifies species and ecosystems but the plan does not identify or map any <i>areas</i> of significant biodiversity.</p> <p>In order to effectively protect areas of significant biodiversity, Council needs to map areas of significant</p>	Map areas, ecosystems, and habitats that have significant indigenous biodiversity values.

		indigenous biodiversity (see general submission point above).	
Objective 12	Oppose	To give effect to Policy 18 of the NZCPS and improve consistency with Policy 17 of the Plan, the use of the word 'people's' should be avoided. The word <i>people</i> can include private use and instead it should be replaced with 'The public's'.	Amend objective 12 to:  <i>"The public's people's use and enjoyment of the coastal environment, including amenity values, traditional practices and public access to and within the coastal environment, is maintained and enhanced"</i>
<b>Policies</b>			
Policy 1	Oppose	Most of the Taranaki coastal environment is identified in the plan as 'open coast'. The Section 32 Evaluation Report identifies that the coastal waters contain significant marine habitats.  The open coast contains a range of marine biodiversity that none of the other management areas have and should therefore be identified as a characteristic of that area.	Include a new characteristic of the open coast to policy 1(d):  <i>"(v) provide important habitats for marine species"</i>
Policy 2	Oppose	The wording of provision (c) of policy 2 is not clear. The wording is difficult to interpret and requires clarification.	Reword the policy to clarify how provision (c) of policy 2 will provide for integrated management of the coastal environment.
Policy 3	Support	The precautionary approach is supported, when considered with the detailed definition of adaptive management.	Retain as notified
Policy 4	Oppose	The inland boundary of the coastal environment should be defined, delineated and mapped. The plan contains objectives and policies which apply to the coastal environment, including the area landward of the coastal environment but it does not define how far inland these policies apply.  Determining the inland extent of the coastal environment on a case by case consenting level creates uncertainty. Without identifying the geographic extent of the plan's influence, users of the New Plymouth District Plan, South Taranaki District Plan, and other regional plans will not know if the policies and objectives of the Proposed Coastal Plan apply. It is left to the consenting teams of three different councils to determine the landward extent of the coastal environment in isolation from one another.	Identify and map the landward extent of the coastal environment.

		This approach is not an integrated management approach and may result in a lack of consistency when managing coastal resources.	
Policy 8	Oppose	The introductory sentence mentions protecting the areas identified in Schedule 1, but provision a) refers to Schedule 2. For consistency they should both refer Schedule 2.	Amend the introductory sentence to: “Protect the visual quality and the physical, ecological and cultural integrity of coastal areas of outstanding value identified in Schedule 1 <del>1</del> <u>2</u> from inappropriate use and development by...”
Policy 9	Oppose	Policy 9 of the plan refers to “ <i>all other areas not identified in Schedule 2</i> ”, as policy 8 is intended to cover those areas. Policy 9 however, offers a broader, wider range of considerations and policies for the protection of natural character than policy 8, which limits the avoidance of effects to apply to only those values and characteristics identified in Schedule 2. It is inappropriate for coastal areas of outstanding value to have less protection than all other areas. Policy 9 should also apply to coastal areas of outstanding value.	Amend Policy 9 to: “Protect <del>all other areas of</del> <u>the natural character, features, and landscapes of</u> the coastal environment <del>not identified in Schedule 2</del> by:”
Policy 14	Oppose	Policy 14 refers to ‘areas’ of significant indigenous biodiversity, but the plan has not defined or mapped any of these areas. With the same reasoning as the general submission point ‘identification of areas of significant indigenous species, including habitats and ecosystems’, there needs to be mapping of significant indigenous biodiversity.  It is also however inappropriate to protect <i>only</i> those mapped areas. The policy confines biodiversity protection to ‘areas’. To give effect to policy 11 of the NZCPS it must protect all indigenous biodiversity in the coastal environment.	Map areas, ecosystems, and habitats that have significant indigenous biodiversity values, and;  Amend Policy 14 to: “protect <del>areas of</del> significant indigenous biodiversity in the coastal environment and maintain and enhance indigenous biodiversity by...”
Policy 18	Oppose	Policy 18 only applies to surf breaks, coastal areas of outstanding value identified in Schedule 2, and sites with significant amenity value identified in Schedule 6. There is an unnecessary exclusion of the open coast from the policy resulting in there being no protection of the amenity values of the majority of the Taranaki region’s coastal environment. To give effect to policies 6, 13, and 18 of the	Amend policy 18 by including a new provision:  <u>“(e) other areas of the coastal environment with significant amenity values not identified in the Schedules referred to in (a),(b), (c) and (d).”</u>

		NZCPS, policy 18 should be reworded so that the amenity value of areas not listed in Schedule 2 are recognised.	
Policy 28	Support	Support Policy 28 but with a minor amendment. It's not appropriate to refer to "scraping". Cleaning is a general description (scraping is only one type of cleaning), but more importantly, it is a method that should not be used with many types of antifoul coatings used on vessels.	Delete the words "and scraping" from policy 28 (a).
Policy 41	Support	Policy 41 (f) in particular contributes to giving effect to NZCPS policy 12.	Retain as notified
<b>Methods of Implementation</b>			
Method 6.4	Oppose	Include a new method of implementation which addresses the increased number of blue penguin deaths along the beaches of Taranaki by domestic dogs off leashes. District bylaws are likely the primary method for addressing this issue, but regional council can implement its indigenous biodiversity policy by encouraging district councils to enforce their dog control bylaws.	Include new method of implementation under the subsection: 6.4 Natural Heritage: <i><u>"Encourage district councils to <b>enforce dog control bylaws</b> to preserve indigenous biodiversity by reducing the risk of dogs killing or injuring native birds, marine mammals and other indigenous species."</u></i>
Method 6.8, No. 48	Support	Support all of Other Method No.48 but particularly (b) to (e) which contribute to giving effect to NZCPS policy 12.	Retain as notified
<b>Rules</b>			
Rule 1	Oppose	The permitted classification of storm water discharges into the outstanding value coastal management areas and unmodified estuaries is inappropriate. To give effect to policies 13 and 11 of the NZCPS and minimise the potential for adverse effects there needs to be a higher level of control in these areas.	Remove outstanding value and estuaries unmodified from the coastal management area of Rule 1. As a consequence, add a reference to this new rule to rule 3.
New Rule			Include a rule after rule 1 which deals with stormwater discharge in the outstanding value and estuaries unmodified coastal management areas, with a classification of controlled. The matters of control should be to the same effect as the conditions of rule 1.
Rule 5	Support	Prohibiting the discharge of untreated human waste into water or onto land in the coastal environment is supported and gives effect to the NZCPS.	Retain as notified.
Rule 9	Oppose	While rule 9 seeks to be consistent with the Anti-fouling and In-Water Cleaning Guidelines 2013, some amendments are needed to minimise the risk of	i. Delete the words "Sampling, scraping and/or" from the activity description. ii. Insert a new standard (b) "microfouling may be cleaned without capture;"

		<p>introducing or spreading a harmful aquatic organism as follows:</p> <ul style="list-style-type: none"> <li>i. It's not appropriate to refer to "scraping". Cleaning is a general description (scraping is only one type of cleaning), but more importantly, it is a method that should not be used with many types of antifoul coatings used on vessels. "Sampling" should also be removed from the activity description so that it is clear that the rule is about the cleaning of biofouling.</li> <li>ii. Three new standards be included after the notified standard (a) and replacing the notified standard (b) providing that: the cleaning of microfouling and goose barnacles can be undertaken without the need for capture and removal of biological material; and only macrofouling less than or equal to LOF 2 on the LOF scale developed by Floerl et al 2005 be allowed to be cleaned but with capture as notified standard (b) required, for the following reasons: <ul style="list-style-type: none"> <li>a. Microfouling (refer new definitions to be included) is impossible to prevent and begins to develop as soon as a vessel or structure enters water. Microfouling is of low biosecurity risk.</li> <li>b. Goose barnacles are also of low biosecurity risk – they are ubiquitous and distinctive from other types of barnacles. They are able to be identified by divers without the need for taxonomic expertise. For these reasons they have been exempted from MPIs Craft Risk Management Standard for vessel biofouling for long stay vessels. Both the IMO (International Maritime Organisation) Guidelines (2011)<sup>1</sup> and the Anti-fouling and In-water Cleaning Guidelines (2013)<sup>2</sup> seek to encourage maintenance</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>iii. Insert a new standard (c) "goose barnacles may be cleaned without capture;"</li> <li>iv. Insert new standard (d) "macrofouling (other than goose barnacles) coverage on the ship vessel, moveable structure or navigational aid shall be less than or equal to 2 on the Level of Fouling rank (Floerl et al (2005)<sup>3</sup>);</li> <li>v. Insert new standard (e) "all biological material greater than 50 microns in diameter dislodged during cleaning (other than goose barnacles) shall be captured and disposed of at an approved landfill; and"</li> <li>vi. Insert new standard (f) "if any person undertaking or responsible for the cleaning, suspects that harmful or unusual aquatic species (including species designated as unwanted organisms or pest species under the Biosecurity Act 1993) are present on the ship, structure or navigational aid, that person shall take the following steps: <ul style="list-style-type: none"> <li>i. any cleaning activities commenced shall cease immediately, and</li> <li>ii. the Taranaki Regional Council and the Ministry for Primary Industries shall be notified without unreasonable delay; and</li> <li>iii. the cleaning may not recommence until notified by the Council to do so, or in the event a designated unwanted organisms or pest species is found, notified to do so by the Ministry for Primary Industries.</li> </ul> </li> <li>vii. Insert new Note "For the purposes of the above, further guidance is provided in the Anti-fouling and In-water Cleaning Guidelines (June 2013).</li> <li>viii. Insert new Note "International vessels arriving in New Zealand waters have additional obligations under the Craft Risk Management Standard: Biofouling on Vessels Arriving to New Zealand (May 2014).</li> </ul>
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<sup>1</sup> International Maritime Organization (2011) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species. Annex 26. Resolution MEPC.207(62): 25.

<sup>2</sup> Australian Department of Agriculture, Fisheries and Forestry and Department Sustainability, Environment, Water, Population and Communities and New Zealand Ministry for Primary Industries (2013) Anti-fouling and In-water Cleaning Guidelines, Department of Agriculture, Fisheries and Forestry, Canberra. CC BY 3.0.

<sup>3</sup> Floerl, O.; Inglis, G. 2005: Starting the invasion pathway: the interaction between source populations and human transport vectors. Biological Invasions 7: 589–606.

		<p>of vessels and moveable structure to maintain biofouling growth at the microfouling.</p> <p>c. Allowing a vessel that has not been outside the region since it was last cleaned to clean any level of fouling without capture and removal from the CMA carries an unacceptable risk. The more developed macrofouling is the higher the risk it could contain a harmful aquatic organism. In addition, it's possible that a vessel that has not left the region could have come into contact with another vessel or moveable structure that does have harmful aquatic organisms on it.</p> <p>d. "treatment" should not be included in a permitted activity rule. It is more appropriate that treatment be considered case by case given the discharge could contain toxic contaminants (i.e. acetic acid, chlorine etc)</p> <p>iii. Amend notified standard (c), now (f) after the 3 new standards referred to above, that better reflects the legislative requirements under the Biosecurity Act 1993 and also requires the Taranaki Regional Council to be notified</p> <p>iv. Include the following "Notes" to assist plan users:</p> <p>a. For the purposes of the above, further guidance is provided in the Anti-fouling and In-water Cleaning Guidelines (June 2013).</p> <p>b. International vessels arriving in New Zealand waters have additional obligations under the Craft Risk Management Standard: Biofouling on Vessels Arriving to New Zealand (May 2014).</p>	<p>Refer to <b>Attachment B – Revised permitted activity Rule 9 for in-water cleaning of biofouling.</b></p>
Rule 10	Oppose	<p>It's not appropriate to refer to "scraping". Cleaning is a general description (scraping is only one type of cleaning), but more importantly, it is a method that should not be used with many types of antifoul coatings used on vessels. "Sampling" should also be removed from the activity description so that it is clear that the rule is about the cleaning of biofouling.</p>	<p>Delete the words "Sampling, scraping and/or" from the activity description.</p>

Rule 12	Support	The inclusion of the 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Survey Operations is supported. This code of conduct is currently undergoing a review. There are currently investigations into a potential whale sanctuary in the Taranaki coastal environment, and Taranaki Regional Council should reconsider this rule if a sanctuary is established.	Retain as notified.
Rule 18	Oppose	To give effect to the NZCPS and the RPS (page 90) there needs to be more control of potential adverse effects in coastal areas of outstanding value and estuaries unmodified. The permitted classification of outfall structures in these coastal management areas is inappropriate. In these areas there needs to be some form of assessment of effects on historic heritage, indigenous biodiversity, and natural character in order to give effect to policies 11, 13, and 17 of the NZCPS.	Remove outstanding value and estuaries unmodified from the coastal management areas of rule 18.
New Rule		A new rule should be included that deals with outfall structures in coastal areas of outstanding value and estuaries unmodified. This activity should have a controlled classification. This will provide certainty and guarantee an assessment of effects on historic heritage, indigenous biodiversity, and natural character.	Insert a new rule after rule 18 which deals with outfall structures in the outstanding value and estuaries unmodified coastal management areas with a classification of controlled.  Conditions (a), (b), (c), and (d) of rule 18 should also be conditions for this new rule. The matters of control should at a minimum, address any effects on natural character, significant species, historic heritage, and any mitigation of effects on these values.
Rule 20	Support	The Department often uses monitoring moorings in the coastal environment during its operations and supports the permitted classification of mooring structure placement for monitoring or sampling equipment.	Retain as notified.
Rule 21	Oppose	The erection of maritime navigation aids should not be a permitted activity for any member of the public. Instead the activity should be permitted for only the Taranaki Regional Council or its agents, Maritime New Zealand or its agents, or Port Taranaki provided that these agencies agree to this responsibility.	A condition should be inserted before condition (a) as follows:  <i><u>"The activity is undertaken by:</u></i> <i>(i) <u>Taranaki Regional Council or its agents; or</u></i> <i>(ii) <u>Port Taranaki; or</u></i> <i>(iii) <u>Maritime New Zealand or its agents."</u></i>
Rule 22	Oppose	The burial of pipes and cables may have significantly different levels and types of effects compared to attaching a pipe to a bridge and should be a discretionary activity.	Remove "a pipeline that is buried" and "a communication or electricity cable that is buried" from the activity description.

New Rule			Insert a new rule which deals with network utility structure erection or placement where the structure is a pipeline that is buried, or a communication or electricity cable that is buried. This rule should have a restricted discretionary classification.
Rule 24	Support	Whitebait is comprised of the juvenile stage of 5 species of fish. Three of these species ( <i>Galaxias argenteus</i> , <i>Galaxias maculatus</i> , <i>Galaxias brevipinnis</i> ) are at risk-declining, and <i>Galaxias postvectis</i> is at-risk – threatened. Prohibiting the erection of whitebaiting structures is supported.	Retain as notified.
Rule 31	Oppose	Temporary military training in the coastal environment could have very significant effects, especially in unmodified estuaries, where military vehicles may cause adverse effects (including crushing, compaction, tracking, vegetation destruction and surface alteration) on vulnerable areas such as mudflats, shellfish/crab beds, saltmarsh and estuarine vegetation.	Remove “estuaries unmodified” from the applicable coastal management areas.
Rule 32	Oppose	With the same reasoning as above, estuaries unmodified should be removed from this rule due to potentially significant adverse effects, especially as this activity may involve explosives and excavation.  The previous rule (rule 31) includes a condition which limits the occupation for no more than three weeks. This rule (rule 32) refers to <i>temporary</i> military training activities but does not define the time limit for a temporary activity. For consistency this should also be three weeks.  The note should read “...refer to Rule 33 or Rule 34...” instead of Rule 32 and Rule 33.	Remove “estuaries unmodified” from the applicable coastal management areas.  Include a condition after (c): <u>“occupation is for a period of no more than three consecutive weeks”</u>  Amend advice note to: “...refer to Rule <del>32</del> 33 and <del>33</del> 34...” (the exact numbering may change with the insertion of new rules)
New Rule			Include a rule which deals with temporary military training activities that do not come within or comply with rule 31 or rule 32. This rule should have a discretionary activity status.
Rule 35	Oppose	In order to minimise disturbance to the coastal environment and give effect to policy 11 of the NZCPS, conditions need to be included which address possible adverse effects arising from the use of machinery, vehicles, and the storage of materials associated with structure maintenance etc.	Include conditions which address the following matters:  How the use of vehicles and machinery in the coastal environment will be avoided where possible, and minimised/effects mitigated where necessary (including taking the shortest and least sensitive route).

		<p>Vehicles in the coastal environment can result in adverse effects (including crushing, compaction, tracking, vegetation destruction and surface alteration) on vulnerable areas such as mudflats, shellfish/crab beds, saltmarsh and estuarine vegetation.</p> <p>Minimising these impacts can be done by such methods as choosing the shortest and least sensitive route, using small &amp; light machinery where necessary, minimising excavation and managing weed risks.</p>	<p>The requirement for construction equipment including spoil, litter or equipment to be removed within 24 hours of completion of any works.</p> <p>The prohibition of any refuelling or fuel storage occur within the coastal environment. Methods should be employed to avoid any fuel spillage.</p>
Rule 36	Support	The discretionary classification of this activity is supported.	Retain as notified.
Rule 37	Oppose	There needs to be some control on the functional necessity for the structure to be extended beyond its original size.	Amend the rule to Include a provision about limiting the size of any extension.
Rule 38	Oppose	<p>The removal and replacement of structures in the coastal environment is likely to involve the use of vehicles and machinery in the coastal environment. In order to minimise disturbance to the coastal environment and give effect to policy 11 of the NZCPS, conditions need to be included which address possible adverse effects arising from the use of machinery, vehicles, and the storage of materials when removing and placing structures.</p> <p>Vehicles in the coastal environment can result in adverse effects (including crushing, compaction, tracking, vegetation destruction and surface alteration) on vulnerable areas such as mudflats, shellfish/crab beds, saltmarsh and estuarine vegetation.</p> <p>Minimising these impacts can be done by such methods as choosing the shortest and least sensitive route, using small &amp; light machinery where necessary, minimising excavation and managing weed risks.</p>	<p>Include conditions which address the following matters:</p> <p>How the use of vehicles and machinery in the coastal environment will be avoided where possible, and minimised/effects mitigated where necessary (including taking the shortest and least sensitive route).</p> <p>The requirement for construction equipment including spoil, litter or equipment to be removed within 24 hours of completion of any works.</p> <p>The prohibition of any refuelling or fuel storage occur within the coastal environment. Methods should be employed to avoid any fuel spillage.</p>
Rule 44	Oppose	The removal or demolition of structures from the coastal environment is likely to involve the use of vehicles and machinery in the coastal environment. With the same reasoning as above (submission on rule 38), there needs to be greater controls around the use of machinery, vehicles, and the storage of materials when removing and demolishing structures.	<p>Include conditions which address the following matters:</p> <p>How the use of vehicles and machinery in the coastal environment will be avoided where possible, and minimised/effects mitigated where necessary (including taking the shortest and least sensitive route).</p> <p>The requirement for construction equipment including spoil, litter or equipment to be removed within 24 hours of completion of any works.</p>

			The prohibition of any refuelling or fuel storage occur within the coastal environment. Methods should be employed to avoid any fuel spillage.
Rule 45	Oppose	The description of the activity reads “...and the activity does not comply with Rule 45...” when it should refer instead to the previous permitted rule 44.	Amend rule 45 activity description to: “...and the activity does not comply with Rule 45 44...” (the exact numbering may change with the insertion of new rules)
Rule 50	Oppose	Rule should say 47 – 49.	Amend rule to: “...and the activity does not come within or comply with Rules 47- <del>50</del> 49”
Rule 51	Oppose	The activity description should specify lawfully established outfalls.	Amend Rule 51 to: “Clearance of lawfully established outfalls, culverts and intake structures...”
Rule 54	Oppose	Most of the marine mammals that the Department buries are dead seals. The frequency of the burial of dead seals means that it will likely be impractical to consult with iwi for every seal burial. Further, the Taranaki Iwi Deed of Settlement (Section 3.1, paragraph 6.2, page 40) adequately covers the requirement for the Department to cooperate with and advise iwi of any marine mammal stranding and burials. An exception should be made for the notification of iwi when the dead animal to be buried is a seal.	Amend Rule 54(e) to: “ <i>except for seals</i> , where a marine mammal is buried, the relevant iwi authority is notified prior to the burial taking place”
Rule 57	Oppose	Beach replenishment should not allow for material that is significantly different in terms of the particle size of material. To prevent adverse effects on the receiving environment, the rule needs to include some control over the nature of the material, specify a grain size of particle so that the material is similar to that of the receiving environment. Nourishment material should be like-for-like.	Amend activity description to: “deposition of natural <i>marine</i> material...”  Include controls around particle size, and requirements for marine material similar to that of receiving environment.
Rule 58	Support	The discretionary classification of this activity is considered appropriate. Exotic plant species can pose a biosecurity threat to native species and ecosystems and should be avoided where possible.	Retain as notified
Rule 59	Support	The non-complying classification of this activity is considered appropriate. Exotic plant species can pose a biosecurity threat to native species and ecosystems and should be avoided where possible, especially in areas like unmodified estuaries and areas of outstanding value.	Retain as notified.

Rule 62	Support	The non-complying classification of this activity is considered appropriate. This rule gives effect to policy 10 of the NZCPS.	Retain as notified.
Rule 63	Support	The discretionary classification of this activity is considered appropriate. This rule gives effect to policy 10 of the NZCPS.	Retain as notified.
Rule 64	Support	The prohibited classification of this activity is considered appropriate. This rule gives effect to policy 10 of the NZCPS.	Retain as notified.
<b>Definitions</b>			
Adaptive Management	Support	This definition is linked to the effective implementation of policy 3 of the Plan (page 21) and is considered appropriate.	Retain as notified.
Estuary Modified	Oppose	The definition of estuaries should also capture the outlets.	Amend definition to: “means the coastal management area identified in Schedule 1 of the Plan, as the Pātea, Waiwhakaiho or Waitara Estuaries <i>and their outlets</i> , and which are surrounded by urban, extensively modified, environments.”
Estuary Unmodified	Oppose	The definition of estuaries should also capture the outlets.	Amend definition to: “refers to estuaries identified in Schedule 1 of the Plan, <i>and their outlets</i> that are permanently open to tidal movements and are characteristically largely unmodified”
New Definition: Microfouling		Insert the definition of “microfouling” from Appendix 5 of the Anti-fouling and In-water Cleaning Guidelines (2013) <sup>4</sup> . This definition is necessary for the new standard requested to be inserted into rule 9.	Insert a new definition: “Microfouling – is a layer of microscopic organisms including bacteria and diatoms and the slimy substances they produce. Often referred to as a ‘slime layer’, microfouling can usually be removed by gently passing a finger over the surface.”
New Definition: Macrofouling		Insert a definition of macrofouling.	“Macrofouling - is any organism not included in the definition of microfouling”
Natural feature	Oppose	This definition should include more specific references to the identifying characteristics outlined in Policy 15(c) of the NZCPS.	Amend definition to better reflect policy 15 of the NZCPS.
Natural character	Oppose	This definition should have regard to the specific provisions of policy 13 of the NZCPS.	Amend definition to better reflect policy 13 of the NZCPS.

<sup>4</sup>Australian Department of Agriculture, Fisheries and Forestry and Department Sustainability, Environment, Water, Population and Communities and New Zealand Ministry for Primary Industries (2013) Anti-fouling and In-water Cleaning Guidelines, Department of Agriculture, Fisheries and Forestry, Canberra. CC BY 3.0.

## **Attachment B – Revised permitted activity Rule 9 for in-water cleaning of biofouling.**

**Activity:** Cleaning of biofouling from the part of a ship, moveable object or navigation aid that is normally below the water surface, resulting in the discharge of a contaminant into water in the coastal marine area and any associated:

- (a) deposition on the foreshore or seabed.

*Note: If the activity does not meet the standards, terms and conditions in this Rule refer to Rule 13.*

### **Rule: 9**

**Coastal Management Area:** Port

**Classification:** Permitted

#### **Standards/terms/conditions:**

- (a) the anti-foul coating on the ship, moveable structure or navigational aid has not exceeded its planned service life as, specified by the manufacturer, and the cleaning method shall be undertaken in accordance with the coating manufacturer's recommendations;
- (b) microfouling may be cleaned without capture;
- (c) goose barnacles may be cleaned without capture;
- (d) macrofouling (other than goose barnacles) coverage on the ship, moveable structure or navigational aid shall be less than or equal to 2 on the Level of Fouling rank (Floerl et al (2005)<sup>1</sup>);
- (e) all biological material greater than 50 microns in diameter dislodged during cleaning (other than goose barnacles) shall be captured and disposed of at an approved landfill; and
- (f) if any person undertaking or responsible for the cleaning, suspects that harmful or unusual aquatic species (including species designated as unwanted organisms or pest species under the Biosecurity Act 1993) are present on the ship, structure or navigational aid, that person shall take the following steps:
  - i. any cleaning activities commenced shall cease immediately, and
  - ii. the Taranaki District Council and the Ministry for Primary Industries shall be notified without unreasonable delay: and
  - iii. the cleaning may not recommence until notified by the Council to do so, or in the event a designated unwanted organisms or pest species is found, notified to do so by the Ministry for Primary Industries.

#### **Notes**

1. For the purposes of the above, further guidance is provided in the Anti-fouling and In-water Cleaning Guidelines (June 2013).
2. International vessels arriving in New Zealand waters have additional obligations under the Craft Risk Management Standard: Biofouling on Vessels Arriving to New Zealand (May 2014).

#### **Footnotes**

- 1 Defined in Floerl et al (2005) as Light Fouling 1-5% of visible surface covered by very patchy macrofouling. Remaining area often covered in microfouling. Floerl, O.; Inglis, G. 2005: *Starting the invasion pathway: the interaction between source populations and human transport vectors. Biological Invasions 7: 589–606.*

# A Risk-Based Predictive Tool to Prevent Accidental Introductions of Nonindigenous Marine Species

**OLIVER FLOERL\***  
**GRAEME J. INGLIS**  
**BARBARA J. HAYDEN**

National Centre for Aquatic Biodiversity and Biosecurity  
 National Institute of Water and Atmospheric Research  
 P.O. Box 8602  
 Christchurch, New Zealand

**ABSTRACT** / Preventing the introduction of nonindigenous species (NIS) is the most efficient way to avoid the costs and impacts of biological invasions. The transport of fouling species on ship hulls is an important vector for the introduction of marine NIS. We use quantitative risk screening techniques to develop a predictive tool of the abundance and variety of organisms being transported by ocean-going yachts. We developed and calibrated an ordinal rank scale of the abundance of fouling assemblages on the hulls of

international yacht hulls arriving in New Zealand. Fouling ranks were allocated to 783 international yachts that arrived in New Zealand between 2002 and 2004. Classification tree analysis was used to identify relationships between the fouling ranks and predictor variables that described the maintenance and travel history of the yachts. The fouling ranks provided reliable indications of the actual abundance and variety of fouling assemblages on the yachts and identified most (60%) yachts that had fouling on their hulls. However, classification tree models explained comparatively little of the variation in the distribution of fouling ranks (22.1%), had high misclassification rates (~43%), and low predictive power. In agreement with other studies, the best model selected the age of the toxic antifouling paint on yacht hulls as the principal risk factor for hull fouling. Our study shows that the transport probability of fouling organisms is the result of a complex suite of interacting factors and that large sample sizes will be needed for calibration of robust risk models.

Preventing the introduction and establishment of nonindigenous species (NIS) is the safest and most efficient way to avoid the costs and impacts associated with biological invasions (Mack and others 2000, Rejmánek 2000, Leung and others 2002, Marchetti and others 2004). A major goal of research in this area, therefore, is to develop better ways of identifying the species that are likely to cause harm and the circumstances in which they are likely to be introduced, become established, and spread.

International trade and tourism are major pathways for the movement of species between countries and biogeographic ranges (Jenkins 1999, Levine and D'Antonio 2003). Interception systems that effectively identify high-risk species (those likely to cause harm if they become introduced and established) or transport vectors (those likely to carry nonindigenous species or their propagules) before they reach the country are

important measures for preventing or minimizing new introductions. Many countries have now adopted risk-screening protocols to identify species whose importation should be restricted (so-called "dirty lists") or allowed ("clean lists") (e.g., the Weed Risk Assessment of Australia (Steinke 1999) and the Ecological Risk Assessment Framework of the USA (Reichard and Hamilton 1997). Until recently, the development of these lists was based largely on expert opinion or qualitative assessments of putative invasive characteristics, and the predictive ability of the framework was uncertain. Increasingly, more sophisticated, quantitative predictive techniques such as Discriminant Analysis, Logistic Regression, and Classification and Regression Tree Analysis (CART) have been applied to develop more robust, defensible lists that have an estimated measure of prediction success (Reichard and Hamilton 1997, Kolar and Lodge 2002, Grigorovich and others 2003). For example, using classification and regression tree analysis, Kolar and Lodge (2002) categorized established, quickly spreading, and nuisance species of nonindigenous fish in the Great Lakes with 87% to 94% accuracy, and identified species that pose a high risk if introduced from unintentional or intentional pathways. Because they target particular species,

**KEY WORDS:** Aquatic; Dispersal; Hull fouling; Marinas; Nonindigenous species; Risk; Shipping; Yachts

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\*Author to whom correspondence should be addressed; *email:* o.floerl@niwa.co.nz

such techniques hold considerable promise for controlling intentional introductions, but have had limited application in the management of accidental introductions. Variability in the probability of transportation (e.g., not all species in a port will be taken up with ships' ballast water) and survival within the transport pathway adds an extra dimension of stochasticity to the likelihood that any particular species will arrive in a given country (Smith and others 1999, Wonham and others 2000). In these circumstances, it is often more useful to treat all introductions as potentially harmful and to identify high-risk vectors that are likely to contain a large number of individuals or species (Wonham and others 2001).

Most introductions of nonindigenous marine species occur accidentally, through the transport of ballast water or fouling organisms on the hulls of ships and other ocean-going structures (Carlton 1985, Carlton and Geller 1993, Cranfield and others 1998, Hewitt and others 1999, Ruiz and others 2000). Risk-screening models developed for ballast-water transport, such as Australia's Ballast Water Decision Support System (BWDSS), aim to identify high-risk vectors as they arrive in port, but are based mostly on transport probabilities for particular target species (Hayes and Hewitt 2000, Hayes 2003). In this article, we use quantitative risk screening techniques to identify characteristics of vessels or their history that may be useful predictors of the total abundance or variety of fouling organisms being transported by them.

Fouling assemblages develop on the submerged surfaces of commercial and private vessels (for comprehensive reviews refer to AMOG Consulting 2002 and Marine Science and Ecology 2002). Most (60–69%) of the marine NIS recorded in Australia, New Zealand, and Hawaii are fouling organisms that are thought to have been introduced accidentally on the hulls of ships and other floating structures (Cranfield and others 1998, Thresher and others 1999, Eldredge and Carlton 2002). This vector is currently unregulated in most countries and continues to provide a means for unwanted species to be carried into new geographic areas (Gollasch 2002). Ocean-going yachts have been implicated in the introduction and spread of a number of well-known marine NIS worldwide, including the black striped mussel, *Mytilopsis sallei*, the Caribbean tubeworm, *Hydroides sanctaecrucis*, and the marine algae *Undaria pinnatifida* and *Codium fragile* spp. *tomentosoides* (Carlton and Scanlon 1985, Rao and others 1989, Hay 1990, Bird and others 1993, Fletcher and Farrell 1998, Field 1999, Neil 2002). The relative importance of yachts compared to commercial ships as transport vectors for marine NIS has so far not been assessed.

However, a range of recent studies show that the relative extent of hull-fouling assemblages on yachts is usually greater than on commercial vessels (Coutts 1999, James and Hayden 2000, Floerl 2002).

The susceptibility of yachts to fouling is determined by how well they are maintained and how often they are used. Most yacht hulls are coated in toxic "anti-fouling" paint to prevent fouling by marine organisms. The performance of these paints is contingent on frequent use of the yachts, and most paints will only prevent fouling for 9–18 months. Generally, the abundance and diversity of hull fouling assemblages tend to be highest on yachts with old and ineffectual antifouling paint and/or yachts that have not been used (sailed) for extended periods (Hunter and Anderson 2001, Floerl 2002, Floerl and Inglis 2003). Because there is substantial variation in the frequency with which private owners maintain and use their vessels, there is likely to be similar variation in the frequency with which such yachts transport unwanted fouling species. Our aim was to develop a simple predictive tool, using descriptors of the recent travel and maintenance history of the yacht, which would allow authorities to identify high-risk yachts prior to or upon their arrival in a port. Predictive statistical modeling typically requires large samples to act as training and evaluation data sets (Breiman and others 1984, Hosmer and Lemeshow 1989, Guisan and Zimmermann 2000). Using 189 international yachts, we developed and calibrated a simple ordinal rank scale of fouling. This rank scale was used by quarantine inspectors to estimate the abundance of fouling assemblages on a further 594 yachts that arrived in New Zealand from overseas between 2002 and 2004. Characteristics of the maintenance and travel histories of the yachts were then modeled to identify useful predictors of fouling rank.

## Materials and Methods

### Developing a Fouling Index

Between 500 and 800 yachts enter New Zealand waters each year from overseas. Most arrive between November and January, and more than 95% enter the country through four designated arrival ports—Opuha, Whangarei, Auckland, and Tauranga (Inglis 2001, New Zealand Customs Service, personal communication 2002)—where they are met by an officer of the New Zealand Ministry of Agriculture and Forestry (MAF) Quarantine Service. The yachts are generally 5–65 m in length, with a total submerged hull area of 25–1300 m<sup>2</sup> (mean length: 12 m; mean submerged area: 84 m<sup>2</sup>)

Table 1. Ranks of the ordinal fouling scale that was used to quantify hull fouling on private yachts arriving in New Zealand

Rank	Description	Visual estimate of fouling cover
0	No visible fouling. Hull entirely clean, no biofilm <sup>a</sup> on visible submerged parts of the hull.	Nil
1	Slime fouling only. Submerged hull areas partially or entirely covered in biofilm, but absence of any macrofouling.	Nil
2	Light fouling. Hull covered in biofilm and 1–2 very small patches of macrofouling (only one taxon).	1–5 % of visible submerged surfaces
3	Considerable fouling. Presence of biofilm, and macrofouling still patchy but clearly visible and comprised of either one single or several different taxa.	6–15 % of visible submerged surfaces
4	Extensive fouling. Presence of biofilm and abundant fouling assemblages consisting of more than one taxon.	16–40 % of visible submerged surfaces
5	Very heavy fouling. Diverse assemblages covering most of visible hull surfaces.	41–100 % of visible submerged surfaces

<sup>a</sup>Biofilm: Thin layer of bacteria, microalgae, detritus and other particulates that is required for settlement of the larvae of many species of marine invertebrates. Refer to (Todd and Keough 1994, Keough and Raimondi 1995).

(Floerl and others 2003, New Zealand Customs Service, personal communication) We developed an ordinal rank scale of fouling intensity to allow MAF staff to estimate, from the surface, the level of fouling on the hulls of arriving yachts during their routine inspections. The scale was based on relative abundance (approximate percentage cover on hull surfaces visible from the surface) and number of different identifiable taxa of marine invertebrates and plants of fouling assemblages and ranged from 0 (no fouling) to 5 (very heavy fouling). It was designed to enable quarantine personnel to distinguish, from the surface, between yachts that carry no, sparse, or extensive fouling assemblages on their hulls. MAF officers were supplied with catalogues containing instructions on use of the scale and example pictures of hulls typical of each fouling rank. The officers allocated a rank to each yacht from the surface after a brief visual inspection of the submerged areas around the bow, waterline, and stern/rudder (Table 1). To ensure consistency in the allocation of fouling ranks, one of us (O.F.) visited approximately 50 yachts with all concerned MAF officers, and each observer independently allocated ranks to the yachts. Where the rankings were inconsistent between observers, the yacht was revisited and ranked again after discussion. This process was repeated until rank allocation was consistent among the various officers.

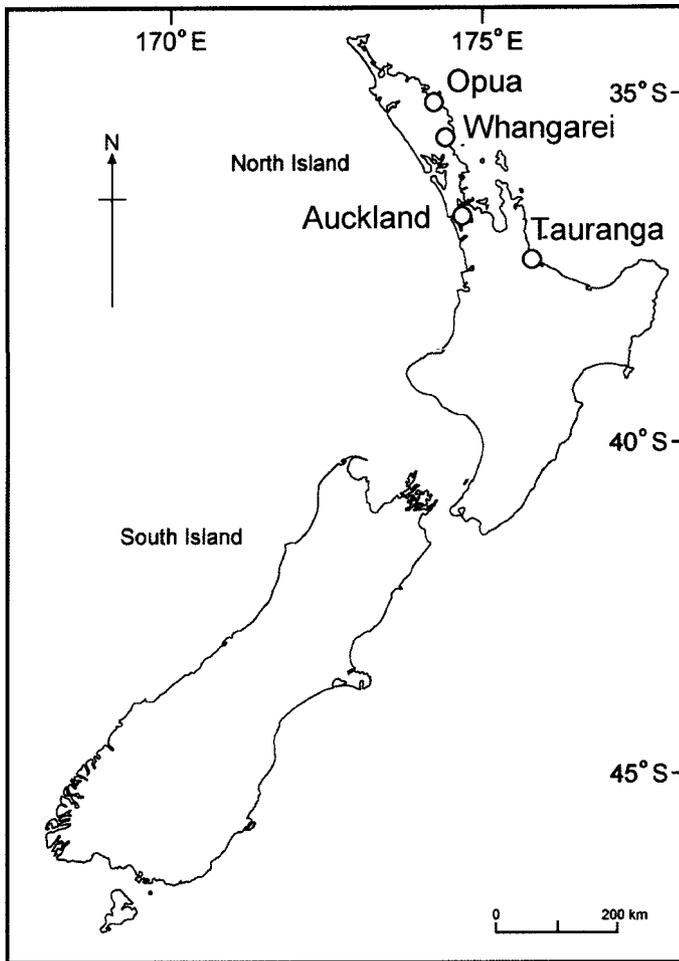
#### Calibration of the Ranks

Because the officers ranked fouling on the yachts from above the water surface, the ranks may not be a true indication of the degree of fouling on deeper,

submerged surfaces of the hull. To test the utility of the ranks as an indicator of overall fouling intensity, we calibrated them against actual measures of the abundance and variety of fouling assemblages on the hulls of 189 vessels that had arrived in New Zealand between October and November 2002 (95 vessels), and in November 2003 (94 vessels). All vessels were sampled within two weeks of arrival in the Opuia Marina, Whangarei Town Basin Marina, Westhaven Marina (Auckland), Bayswater Marina (Auckland), and Gulf Harbour Marina (Auckland) (Figure 1).

Fouling assemblages on the hulls were sampled using a remote-operated video camera (Deep Blue Pro, SplashCam Systems), with twin underwater lights, attached to a sampling frame. The sampling frame was mounted on soft wheels that allowed it to roll along or across a yacht hull while being steered from the surface using a telescopic arm with a single pivot link (see Floerl and others 2003 for details). Moving images from the camera were captured as digital video onto a recorder (Sony DCR-TRV900E) at the water surface.

Samples were taken along five haphazardly placed vertical transects (waterline to keel bottom) on the dockward side of each yacht. One still image (21 × 25 cm) was captured randomly from each of the video transects, and the average fouling cover across the hull was calculated from the five replicates. The percentage cover of broad taxonomic groups of fouling organisms (e.g., barnacles, colonial ascidians, etc.) was determined by projecting each image taken onto a screen and superimposing 64 randomly distributed dots on top of it. We chose this broad taxonomic resolution because our aim was to identify risk factors



**Figure 1.** Sampling of international yachts was carried out in marinas of first-call in Opua, Whangarei, Auckland, and Tauranga.

that determine the presence of fouling organisms on the hulls of international yachts arriving in New Zealand. We anticipated a high variability in the species assemblages on arriving yacht hulls, with some species occurring on only one or a few yachts. The confidence intervals for the probability of presence of these species on a given yacht within each fouling rank would most likely have ranged from close to 0 to close to 1. Because the factors that determine the susceptibility of yacht hulls to colonization by sessile organisms are likely to be similar for species within broad taxonomic groups, more reliable probability estimates can be made by operating at higher taxonomic levels. The use of a relatively broad taxonomic level also allowed us to increase sampling effort and collect data on a large number of replicate yachts, which is a prerequisite for the development of a robust predictive model (Guisan and Zimmermann 2000). Pilot studies on 46 yachts showed that sampling using the surface-driven remote camera gave similar estimates of fouling percentage cover to those

obtained by scuba divers using hand-held underwater video (percentage cover—analysis of variance (ANOVA):  $F_{5,82} = 0.265$ ,  $P = 0.931$ ; number of taxa—ANOVA:  $F_{5,82} = 1.008$ ,  $P = 0.419$ ; O.F. unpublished data). The remote camera was preferred because a larger number of yachts could be sampled at less cost. Scuba divers collected specimens of fouling organisms from a random subset of 25 yachts with visible fouling. These specimens were kept for taxonomic identification and assessment of their native origin.

We used binary logistic regression (LOGIT, Systat 10) to determine the relationship between the ranks and the probability of presence of different fouling taxa. For broad taxonomic groups (e.g., barnacles, erect bryozoans, tubicolous polychaetes), we first regressed the categorical ranks against the presence-absence of each group. Where the model was significant ( $P < 0.05$ ), we also estimated the odds ratios and constructed a quantile table to estimate the probability of the organism being present on yachts of particular ranks. The odds ratio provides an

Table 2. Matrix of percentage cover of fouling organisms on 189 yacht hulls predicted by fouling rank vs. actual percentage cover observed from digital still images<sup>a</sup>

Yachts sampled	Observed fouling cover (% of hull surface)				
	0	1–5%	6–15%	16–40%	41–100%
Rank 0 (n = 20)	95.0	5.0	0	0	0
Rank 1 (n = 83)	90.4	9.6	0	0	0
Rank 2 (n = 34)	5.9	73.5	20.6	0	0
Rank 3 (n = 25)	0	28	48	24	0
Rank 4 (n = 19)	0	5.3	36.8	36.8	21.1
Rank 5 (n = 8)	0	0	0	37.5	62.5

<sup>a</sup>The numbers in the matrix represent the percentage of yachts within the different fouling ranks that were found to cover 0, 1–5%, 6–15%, 16–40% and 41–100% of submerged yacht hull surfaces. For example, 48% of yachts scored with fouling rank 3 had an actual fouling percentage cover of 6–15%.

Table 3. Predictor variables used to construct classification tree models for hull fouling on international yachts arriving in New Zealand

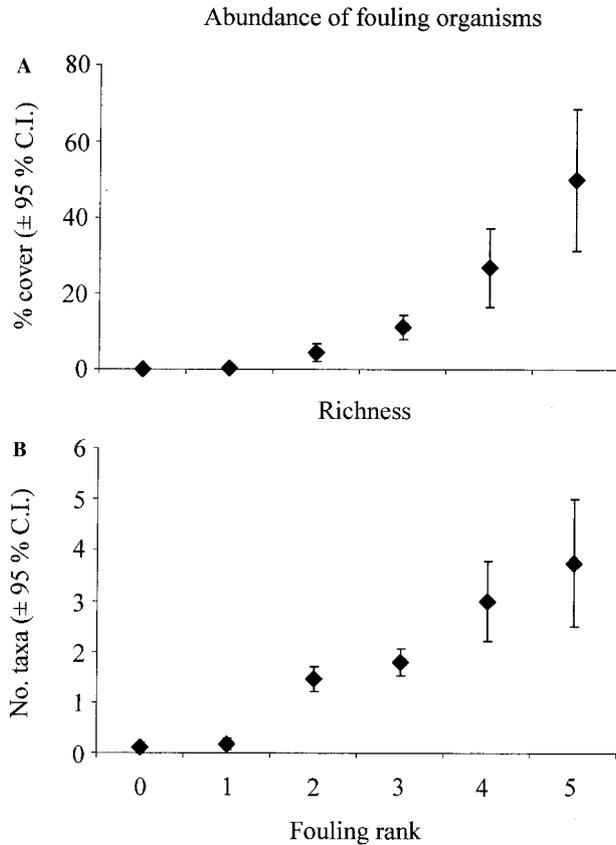
Predictor variables	Levels
1. General information and vessel maintenance	
Origin of yacht	International vessel; New Zealand yacht returning from overseas
Hull material	Fiberglass, steel, wood, concrete, aluminum
Age of current antifouling paint	No. months
Paint application	Private; by professional painter
Manual hull cleaning (scraping/brushing)	Yes/no
Time since last manual hull cleaning	No. months
2. Travel history (past 12 months):	
Last port-of-call	(location)
Time spent moored in last port-of-call	No. days
Longest period of stationary mooring	No. months
Activity	No. days spent sailing

average measure of the relative increase in the likelihood of the taxon being present with each increase of one unit in the fouling rank. The quantile table provides estimates of the probability (and 95 % confidence intervals) of the group being present for each level of the rank index (Hosmer and Lemeshow 1989).

#### Modeling Risk Characters of International Yachts

Between 2002 and 2004, a total of 783 yachts were sampled upon their arrival to New Zealand, which included the initial 189 yachts used to calibrate the fouling ranks. Sampling consisted of two components: (1) allocating a fouling rank to each yacht after visual assessment (see above), and (2) collection of data on the recent travel and maintenance history of each vessel, using a short questionnaire. The questionnaire asked owners of the vessel about (1) their recent use and application of antifouling paints, (2) whether they had cleaned the yacht manually (scrubbing/scraping) between consecutive antifouling paint

treatments, and (3) the vessels' recent ports-of-calls and sailing activity (Table 3). All of the vessels sampled arrived in four first ports-of-call: Opuha, Whangarei, Auckland, and Tauranga (Figure 1). CART was used to model the level of fouling (rank scale) on yachts from a set of predictor variables derived from the questionnaire. The predictor variables were selected on the basis of previous discussions with the yachting industry about likely direct and indirect influences on fouling (Table 3). The Gini-index is suitable for categorical data (Breiman and others 1984) and was used as the splits measure. Twenty iterations were run for each CART analysis. Misclassification rates were calculated using cross-validation by fitting the model to 90% of the data and predicting the remaining 10% with the model. This procedure was repeated 10 times, each time with a different 10% subset of the data. The classification tree size with the smallest cross-validation error was chosen as the "best" tree (Breiman and others 1984, De'ath and Fabricius 2000). Classification trees were constructed



**Figure 2.** Mean abundance (percentage cover on submerged hull areas) (a) and taxonomic richness (number of broad taxonomic groups) (b) on hulls of the various fouling ranks (N = 189). Error bars depict the 95% confidence interval.

using the S-Plus routine “TreePlus” (De’ath and Fabricius 2000).

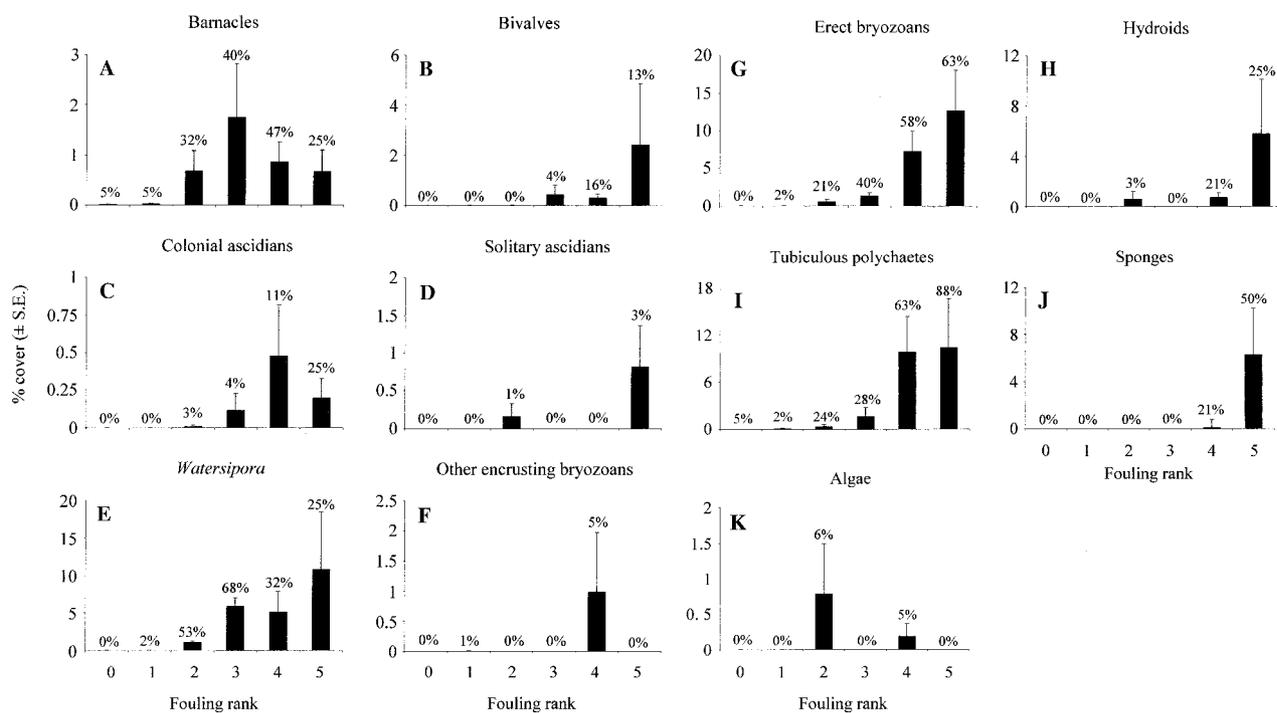
## Results

### Calibration of Fouling Ranks

Of the 189 yachts sampled *in situ*, 55% had been allocated fouling ranks 0 and 1 (i.e., clean of macrofouling) and 45% were given ranks 2, 3, 4, and 5 (presence of fouling assemblages). There was a strong correlation between the fouling ranks allocated by surface observation and the abundance and variety of hull-fouling assemblages determined *in situ*. Most yachts of ranks 0 and 1 (100% and 98.5%, respectively) were devoid of macrofouling, with an average percentage cover of fouling organisms of  $0.1 \pm 0.1\%$  (mean  $\pm 95\%$  confidence intervals) (Table 2). As expected, fouling cover increased with fouling rank (rank 2:  $4.35 \pm 2.39\%$ ; rank 3:  $11.11 \pm 3.25\%$ ; rank 4:  $26.76 \pm 10.33\%$ ; rank 5:  $49.88 \pm 18.5\%$ ; (Pearson’s

$r = 0.733$ ,  $P < 0.001$ ); Figure 2a). For some yachts, the percentage cover of fouling organisms derived from video analyses did not correspond to the fouling rank allocated by the surface observers (Table 2). Overall, 5% and 9.6% of vessels that had been allocated ranks 0 and 1, respectively, were found to carry small amounts of fouling (Table 2). Yachts scored with fouling rank 2 were found to be devoid of fouling in 6% of cases, when thick strands or layers of scuzz and slime were mistaken for macrofouling. Yachts scored with ranks 3, 4, and 5 had in 5% to 37% of cases a fouling percentage cover that corresponded not to the rank allocated (e.g., rank 4) but to an adjacent one (i.e., rank 3 or 5). However, importantly, none of the yachts scored with higher fouling ranks (3–5) were devoid of fouling (Table 2). Also the number of fouling taxa (e.g., erect bryozoans or barnacles) on the hulls increased with fouling rank, with  $3.75 \pm 1.2$  (mean  $\pm 95\%$  confidence intervals) on hulls with a fouling rank of 5 ( $r = 0.794$ ,  $P < 0.001$ ; Figure 2b). Reference specimens collected from 25 yachts included a range of introduced species established or common in New Zealand, including the bryozoans *Bugula neritina* and *Watersipora subtorquata* and the tubeworm *Hydroides elegans* (Cranfield and others 1998). A bryozoan collected from one yacht hull represented a new record for New Zealand waters and was identified as *Scrupocellaria* cf. *diadema* (D. Gordon, unpublished data).

The relative abundance of most taxa (bivalves, colonial and solitary ascidians, encrusting and erect bryozoans, hydroids, tubicolous polychaetes, and sponges) on the hulls was on average highest for yachts of ranks 4 and 5 (Figure 3). The ranking scale was a highly significant predictor of the presence of all taxonomic groups except algae and encrusting bryozoans other than *Watersipora* sp. (binary logistic regression,  $P < 0.05$ ; Table 4). The “odds ratio” calculated by logistic regression represents the multiplicative factor by which the probability of the presence of a taxon changes with a fouling rank increase of 1 (Steinberg and Colla 2000). The mean odds ratios for the taxa analyzed here ranged from 1.90 (barnacles) to 8.5 (sponges). For all groups with the exception of algae and encrusting bryozoans other than *Watersipora* sp., the lower 95% confidence interval of the odds ratio was  $>1$ , indicating that the fouling ranks represent a genuine risk scale for the presence of these taxa on international yacht hulls (Table 4). Fouling taxa varied widely in their probability of occurrence on yacht hulls of the same rank. Yachts with a fouling rank of 0 or 1 had a very low probability (0.001–0.05; 95% confidence interval) of carrying bivalves, colonial and solitary ascidians, hydroids, or sponges on their hulls, and a



**Figure 3.** Relationships between the fouling ranks and mean abundances of different taxonomic groups. Annotations at the top of each bar depict the frequency of occurrence of the taxa on yachts (percentage of all yachts in that rank category).

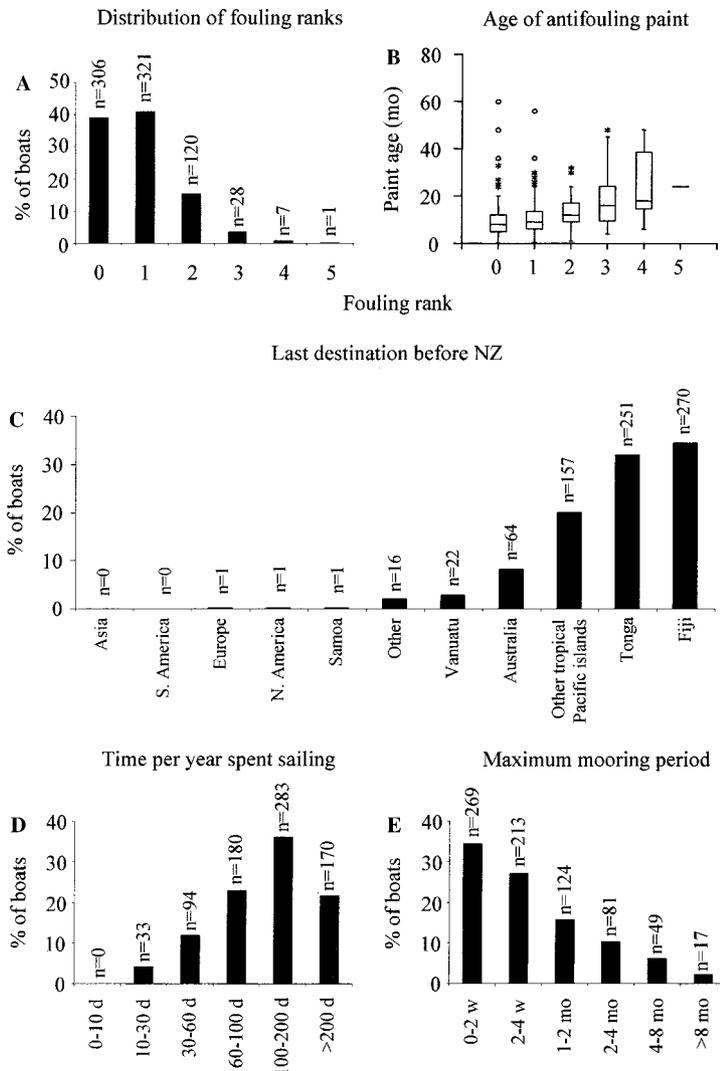
Table 4. Results of logistic regression analysis<sup>a</sup>

	Barnacles	Bivalves	Colonial ascidians	Solitary ascidians	<i>Watersipora</i>	Other encrusting bryozoans
Rank 0	0.025 – 0.100	0.001 – 0.025	0.001 – 0.025	0.001 – 0.025	0.025 – 0.100	0.005
Rank 1	0.050 – 0.100	0.001 – 0.050	0.001 – 0.025	0.001 – 0.025	0.100	N/a
Rank 2	0.100 – 0.250	0.005 – 0.050	0.005 – 0.050	0.001 – 0.050	0.250 – 0.333	0.010
Rank 3	0.250 – 0.333	0.025 – 0.100	0.010 – 0.100	0.005 – 0.100	0.025 – 0.500	N/a
Rank 4	0.333 – 0.500	0.050 – 0.250	0.050 – 0.333	0.025 – 0.250	0.500 – 0.750	N/a
Rank 5	0.500 – 0.750	0.100 – 0.500	0.250 – 0.667	0.100 – 0.750	0.500 – 0.750	0.025
Odds ratio	1.90 (1.44, 2.51)	2.38 (1.28, 4.43)	2.98 (1.47, 6.1)	4.29 (1.44, 12.8)	1.99 (1.51, 2.61)	1.41 (0.56, 3.63)
Significance	$P < 0.001$	$P = 0.006$	$P = 0.002$	$P = 0.009$	$P < 0.001$	$P = 0.468$
	Erect bryozoans	Hydroids	Tubicolous polychaetes	Sponges	Algae	
Rank 0	0.005 – 0.010	0.001 – 0.010	0.005 – 0.050	0.001 – 0.005	N/a	
Rank 1	0.025 – 0.100	0.001 – 0.025	0.025 – 0.100	0.001 – 0.010	0.010	
Rank 2	0.050 – 0.250	0.001 – 0.050	0.050 – 0.250	0.001 – 0.050	N/a	
Rank 3	0.250 – 0.500	0.010 – 0.100	0.250 – 0.500	0.001 – 0.100	0.025	
Rank 4	0.333 – 0.750	0.050 – 0.333	0.500 – 0.750	0.025 – 0.500	N/a	
Rank 5	0.667 – 0.950	0.100 – 0.750	0.667 – 0.950	0.250 – 0.950	0.050	
Odds ratio	2.99 (2.10, 4.26)	3.52 (1.69, 7.34)	3.12 (2.21, 4.53)	8.5 (2.54, 28.8)	1.53 (0.71, 3.3)	
Significance	$P < 0.001$	$P = 0.001$	$P < 0.001$	$P = 0.001$	$P = 0.275$	

<sup>a</sup>Shown are the 95 % confidence interval ranges associated with the probabilities of the various taxa to be present on hulls of the various fouling ranks. The “odds ratio” (shown with 95% confidence interval ranges in parentheses) represents the multiplicative factor by which the probability of the presence of a taxon changes with a fouling rank increase of one.  $P$  values denote the significance of the logit-model. For example, Barnacles had a probability between 0.25 and 0.333 to be present on a hull with a fouling rank of 3.

low probability (0.005–0.1) of carrying barnacles, *Watersipora*, erect bryozoans, and tubicolous polychaetes (Table 4). The latter four taxa were quite likely to

occur on yachts of ranks 2 and 3 (probabilities of 0.05 to 0.50), whereas bivalves, colonial and solitary ascidians, hydroids, or sponges had consistently low



**Figure 4.** Summary plots showing the (a) frequency distribution of yachts in each rank class, (b) maintenance, and (c), (d), and (e) travel history of the 783 yachts sampled upon their arrival in New Zealand. The box plots in (b) depict the median paint age (horizontal lines), 25% quartiles (boxes), midrange (whiskers), and outliers (stars) and extreme values (circles) of observed paint ages.

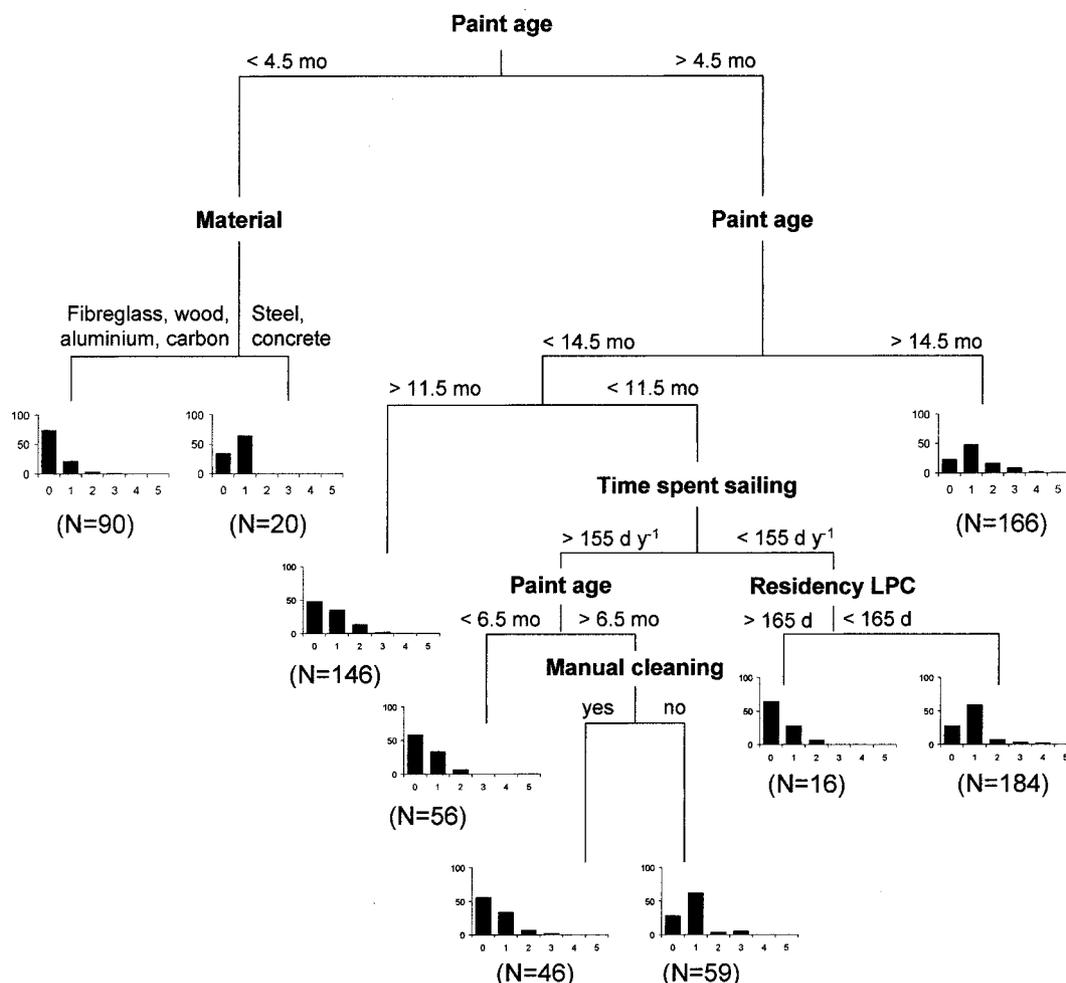
probabilities (0.025–0.05) of occurring on hulls up to fouling rank 4 (Table 4). All taxa were very likely to occur on yachts of ranks 4 and 5, with cumulative probabilities ranging up to 0.95 (Table 4).

#### Risk Characterization and Predictive Modeling

Fouling ranks and questionnaire responses were obtained for a total of 783 yachts. Of these, 626 were international yachts and 157 were New Zealand yachts returning from overseas voyages. The majority of the yachts (85%;  $n = 666$ ) had a fouling rank of 0 or 1 and carried no macrofouling on their hulls. However, 10% ( $n = 78$ ), 4% ( $n = 31$ ), 0.9% ( $n = 7$ ), and 0.1% ( $n = 1$ ) of the yachts had fouling ranks of 2, 3, 4, or 5, respectively, and had visible fouling on their hulls (Figure 4a). The yachts arrived from a total of 31 different destinations, most notably Fiji (34.5% of all

arrivals), Tonga (32%), a range of tropical Pacific island nations (20%), Australia (8.2%), and Vanuatu (2.8%) (Figure 4c). The time the yachts had spent in these locations prior to leaving for New Zealand ranged from 1 day to 6 years (median: 21 days).

Almost all of the yachts (99.6%) had their hulls painted with toxic antifouling paint, which had been applied by the yacht's owner (57%) or a professional company (43%). The paint age at the time of sampling ranged from 1 week to 5 years, and was on average greater for yachts that carried visible fouling on their hulls (rank 2: 13.2 months mean paint age; rank 3: 17.3 months; rank 4: 25.4 months) than on those that did not (rank 0: 9.2 months; rank 1: 11.1 months). More than half of the yachts (54%) had their hull cleaned of fouling organisms by scraping or scrubbing since their last application of antifouling paint. This method is



Variation explained: 22.1 % CV error: 0.90 (s.e. 0.032)

Misclassification rates: Null = 0.55 Model = 0.43

**Figure 5.** Classification tree for predicting fouling rank of the yachts. The proportional reduction in error (PRE) is calculated as  $(1 - \text{relative error})$ , and explains the proportion of the total variation explained by the model. The cross validation (CV) error and its standard error (s.e.) give an indication of the predictive power of the final model. The model also provides a comparison of rank misclassification rates if ranks were allocated at random (Null) and by the fitted model (Model). Splitting variables: Paint age = antifouling paint age; Material = outer hull material; Time spent sailing = no. of days spent sailing last year; Residency LPC = period of residency in the last port-of-call; Manual cleaning = manual removal of fouling assemblages from hull since last antifouling paint treatment.

often used to extend the service life of antifouling paints. On average, yachts that had been manually cleaned had an older antifouling paint age ( $12.8 \pm 0.36$ , mean  $\pm$  SE) than those that had not ( $8.6 \pm 0.37$ ) (ANOVA: Manual cleaning effect,  $F_{1,4} = 5.3$ ;  $p = 0.022$ ).

The majority of the yachts (58%) sampled had been in active use for more than 200 days in the past year. In contrast, only 4% had been actively sailing on 30 days or fewer (Figure 4d). Correspondingly, for most yachts (62%), the maximum time they had spent moored in

ports or marinas since their last antifouling paint treatment was 4 weeks or less (Figure 4e). However, 10.3% of the yachts had been stationary for 2–4 months at a time, and 8.5% had not been in use for extensive periods ranging from 4 months to 5.5 years before sailing to New Zealand (Figure 4e).

The best classification tree model for the fouling ranks comprised nine splitting nodes with a cross-validation error of 0.90. The final model explained only 22.1% of the variation in fouling ranks among the 787 yachts and had a misclassification rate of 0.43, com-

pared to 0.55 for the Null model based on randomized data (Figure 5). Application of antifouling paint (private or professional), maximum period of inactive mooring, and identity of the yachts' last port-of-call had no explanatory power and were excluded from the model. The age of the antifouling paint on yacht hulls explained the largest relative proportion of variation in fouling; four splits of the data were made on the basis of this variable, starting at an age of 4.5 months (Figure 5). The material the hull was constructed from, time spent sailing, manual cleaning, and period of residency in last port-of-call were also variables included in the model, but were of less relative importance in explaining variation in hull fouling. There was no clear pattern in the relative distribution of fouling ranks within the final nine groups of yachts created by CART (Figure 5). Yachts carrying fouling organisms (ranks 2, 3, 4, and, in a single case, 5) were present in all but one group (those with antifouling paint ages of <4.5 months). However, none of the groups contained exclusively yachts that carried fouling organisms: in all nine groups, the majority of yachts (70–100%) had fouling ranks of 0 or 1 (Figure 5).

## Discussion

Human-mediated biotic invasions are a process that consists of several successive stages: (1) engagement of propagules with a transport vector in a source location, (2) transport from source to recipient location, (3) establishment of a self-sustaining population, and (4) spread through the new habitat (Mack and others 2000, Sakai and others 2001). Preventing the transport and release of NIS into native ecosystems are the only sure ways of avoiding the ecological and economic damage caused by invasive species (Leung and others 2002, Marchetti and others 2004). Our aim was to identify useful predictors of the abundance and composition of fouling organisms on international yachts that could be used to identify high-risk transport vectors before (if the relevant information is obtained while a yacht is on its way to New Zealand) or upon their arrival in New Zealand (if the information is obtained in the yacht's first port-of-call) and before they are able to reside in coastal waters for extended periods. The ordinal fouling rank we developed provided reliable indications of the actual abundance and variety of fouling assemblages on arriving yachts. Yachts with low ranks (0 and 1) were very unlikely to carry macrofouling on their hulls, whereas yachts of ranks 2–5 nearly always did. There was considerable variation in the probabilities of different taxa being present on hulls of the various ranks. However, for all taxa there

was a positive relationship between fouling rank and probability of presence. One shortcoming of our sampling methodology during the rank calibration was that our remote-operated camera did not sample rudder and propeller surfaces, which are frequently occupied by fouling organisms. However, our personal observations suggest that fouling on propellers and rudders usually occurs in conjunction with fouling on hull and keel areas. This is supported by James and Hayden (2000), who sampled 26 yacht hulls in New Zealand marinas using a stratified approach. All of these yachts were found to carry fouling organisms on rudder and propeller, and in all instances fouling organisms were also encountered on hull and keel areas (James and Hayden 2000).

It has been argued that, from a precautionary perspective, all introductions should be treated as potentially harmful (Ruesink and others 1995) and to identify and target high-risk vectors that are likely to contain a large number of individuals or species (Wonham and others 2001). Although yachts of ranks 4 and 5 consistently harbored the largest number of fouling taxa, they only comprised a total of 7% of the yachts that arrived in New Zealand with fouling on their hulls in 2002–2004. Hulls of yachts with ranks 2 and 3 contained substantially (approximately 50%) fewer taxa, but comprised 93% of all "fouled" yachts. If the aim is to intercept a large proportion of the species that arrive in New Zealand on international yacht hulls, therefore, it may be inadvisable not to focus exclusively on yachts of the highest fouling ranks.

The observed abundance of fouling organisms on yacht hulls could not be reliably related to the yachts' travel or maintenance history or their owners' maintenance behavior. The models derived from CART analyses explained comparatively little variation in the distribution of fouling ranks (22.1%), had high misclassification rates (~43%) and, consequently, low predictive power. This was somewhat surprising, because we constructed the models using predictor variables associated with yacht maintenance and travel history that have repeatedly been demonstrated to influence hull fouling on commercial and private vessels (Coutts 1999, Floerl 2002). Antifouling paint age was the single most important risk factor for hull fouling on ocean-going yachts. Modern antifouling paints for yachts have a service life of 9–18 months given proper application and regular use of the vessels (Marine Science and Ecology 2002, J. Millett, personal communication 2001). In our sample, yachts lacking macrofouling (ranks 0 and 1) on average had a lower antifouling paint age (mean  $\pm$  SE: 10.2  $\pm$  0.28 months) than yachts with macrofouling (ranks 2–5; 15.1  $\pm$  0.8

months). Also, the time a yacht had spent sailing was identified as a risk factor, and is indeed an important influencing factor on the performance and service life of modern antifouling paints (Christie and Dalley 1987, J. Millett, personal communication 2002). The recent travel history of the yachts was not identified as an important risk factor. We suspect this was because a potential influence of particular source locations on fouling abundance was masked by the overriding influence of antifouling paint age (yachts with low fouling ranks) or the lack of finer taxonomic resolution in the fouling data (yachts with high fouling ranks). The low predictive power of our model most likely reflects the complex suite of factors that determine the composition and abundance of fouling organisms in local ports, including variability in the composition of source populations of organisms (Floerl and Inglis in press) and the timing and intensity of recruitment at different phases of yacht maintenance (Floerl and Inglis 2003, Floerl and others in press). The various stages of biotic invasions—transport, introduction, establishment, spread and impact (Sakai and others 2001)—are each inherently idiosyncratic and of a highly multivariate nature (Marchetti and others 2004). Other, recent attempts to develop predictive models for the success of invaders have encountered similarly complex ecological determinants of invasion patterns. For example, Marchetti and others (2004) found that the model that best predicted establishment success of invasive fishes in California watersheds was the fully fitted model that used all eight available predictor variables. In our case, an additional complicating factor was the rarity of particularly high-risk cases (ranks 4 and 5) for model calibration. The development of robust predictive models relies upon relatively even numbers of cases across all sampling strata (Guisan and Zimmermann 2000). Although, during the timeframe of our study, we sampled *all* yachts arriving in New Zealand, only a small proportion of these (15%) had fouling ranks  $\geq 2$ . Because CART uses 90% of the data as training sets to test the model, one or two cases from these rare ranks could produce comparatively high misclassification rates and poor performance of the model (Breiman and others 1984, Hosmer and Lemeshow 1989, De'ath and Fabricius 2000, S. Delean personal communication 2003).

### Implications for Border Management and Prevention of NIS Introductions

Predictive modeling has had several applications in invasion science, including attempts to predict (a pos-

teriori) successful invaders or their impacts, future invaders, and locations or habitats that are likely to be invaded (Rejmánek and Richardson 1996, Reichard and Hamilton 1997, Hengeveld 1999, Ricciardi and MacIsaac 2000, Kolar and Lodge 2002, Inglis unpublished data). In contrast to most of these studies, which focused on individual species with relatively fixed ecological and physiological traits and requirements, our model targets a whole transportation vector and incorporates the wide variation in maintenance and travel behavior of private yachts and their owners. Collection of data over a larger time frame, or simultaneous collection of standardized data in several locations worldwide would lead to a more comprehensive dataset that includes a large sample of yachts of all fouling ranks. If models with higher predictive power can be constructed from such data, they are likely to be robust and applicable for a wide range of geographic locations (Breiman and others 1984, De'ath and Fabricius 2000). The advantage of managing international yachts on the basis of risk-based predictive models is that these could be implemented at a pre-border stage, and allow yacht owners to assess and act on the condition and risk of their yacht prior to leaving their last port-of-call.

To our knowledge, few countries have implemented procedures to limit the accidental introduction of hull fouling organisms by ocean-going vessels. In Darwin, northern Australia, one of the only such cases known to us, management authorities have potentially prevented approximately 30 introductions of NIS as a result of the inspection of more than 700 international yachts since 1999 (A. Marshall, personal communication 2003). Our study shows that the use of the fouling rank scale proved to be an effective border-based observational technique to identify clean and fouled yachts after their arrival. The majority of yachts (90%) in this study arrived from tropical locations such as Fiji, Tonga, or French Polynesia. Many of the fouling organisms they carry are unlikely to survive in the colder waters of New Zealand. However, the NIS *Scrupocellaria* cf. *diadema* (not recorded in New Zealand before), *Bugula neritina*, *Watersipora subtorquata* and *Hydroides elegans* were collected from yachts whose last ports-of-call were in Noumea, Tonga, and Fiji, and all of the specimens were alive at the time of collection. Around 7% of the yachts we surveyed arrived from temperate Australian ports, most notably Hobart, Sydney, and Melbourne, which have a climate similar to that of northern New Zealand. In all of these ports, there are established populations of well-known NIS, including the crab *Carcinus maenas*, the seastar *Asterias amurensis*, the fanworm *Sabella spallanzanii*, the algae

*Caulerpa taxifolia* and *Undaria pinnatifida*, and other species (Hewitt and others 1999, Murphy and Schaffelke 2003). Considerable resources have been spent on eradication efforts and development of management tools for each of these species (Bax and others 2001, Secord 2003). A stronger commitment to the prevention of further NIS introductions and biological invasions will require appropriate attention to all vectors capable of transporting these and other high-risk species to new locations (Leung and others 2002), and the development and use of predictive tools may be a cost-effective way of achieving this (Mack and others 2000).

### Acknowledgments

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# Submission on Taranaki Regional Council (TRC) Proposed Coastal Plan (PCP)

Lyndon DeVantier, Okato

27<sup>th</sup> April 2018

1. As a resident of Okato, my submission is based on my long-standing personal surfing experience in the area, and relates specifically to Policies 17 - 19 and Rule 47 in the PCP.
2. I refer TRC to my previous submission on the Draft Coastal Plan (DCP). Many of the points I raised in that submission remain relevant.
3. I support policies that are designed to avoid adverse effects on seascape and surf breaks, including all development that would have an adverse effect on the remote feel of the area. Generations of locals and visitors have been able to experience this remote aspect, and many wish for this to continue for their children.
4. I remain unconvinced that TRC has the legislative capacity or political will to properly address the main adverse, and potentially adverse, effects, notably industrial dairying, coastal development for housing, fossil fuel extraction and waste disposal, and seabed mining.
5. I strongly oppose inclusion of Rule 47 (previously Rule 46 in the DCP) in the PCP, where it could be used to enable temporary closure to the general, recreational, surfing public of prime surf breaks. This proposal for permitting temporary closure is also noted in Policy 17 (viii).
6. There should be no permitted closures of surf breaks in the proposed Significant Surfing Area (SSA), or elsewhere in South Taranaki for that matter, particularly for major surf contests that will bring more crowds, more pollution and more surf rage to an already congested surfing scene.
7. I note that in Rule 47 the proposed closure time has been reduced from 10 days in any two week period in the DCP to four days in the PCP. This may be viewed as some form of concession by TRC to locals and others who clearly indicated their opposition to closure. It does not however, address the major philosophical divide at the heart of this issue.
8. As was readily apparent at the public meeting held at Warea Hall in October 2016, most local people concerned about this issue are philosophically opposed to any closure of a surf break. It is not an issue of the length of time a section of the coast is closed, but rather the closure itself.
9. This view is likely to be shared by the vast majority of recreational surfers in the broader Taranaki region, those who prefer not to be affiliated with surf clubs and their competitive, contest-oriented philosophy.
10. Those surfing clubs represent only a small minority of the surfers that live in or visit this region. Such vested interests should never be given private use of a public resource, nor their self-interested views more 'weight' in decision making than those of the general public.
11. Furthermore, given that most oceanic swells that impact the Taranaki coast only last for one to three consecutive days, and given that there are long periods (often more than a month) between such swells coinciding with good surfing conditions (eg. light offshore winds, clement weather), the reduction from 10 to four day closure will have no effect on reducing the exclusion of public access to prime surf conditions. It still means that the public are excluded from the best surf for the entire duration of the all too rare quality surf conditions at a prime break.
12. To permit closure of surf breaks for competitions will bring division and animosity where it need not exist.

13. It will alienate the majority of the surfing public, and it will potentially lead to conflict. Sadly, surf rage is already a serious issue in the region, with verbal abuse commonplace and episodic physical assaults.
14. If TRC permit this activity, there will, by default, be the need for security staff to patrol the venue, on land and sea, as occurs everywhere else such contests are held. This is necessary to restrict public access and physically herd recreational surfers out of the contest zone.
15. Unfortunately, with the introduction of significant prize money and development of so-called 'professional surfing', the original spirit of a few friends engaging in friendly competition has been buried under the 'win at all costs, dog-eat-dog' mentality, fostering the rise of a small elite, all fuelled by multi-national corporate interests focused on making profit at the expense of the environment and social justice.
16. Because most recreational surfers are not represented by clubs and do not compete, their views are unlikely to be articulated to TRC, other than at venues like the public meeting at Warea Hall.
17. Following that meeting and prior to release of the PCP, it would have been appropriate for TRC, and those advocating for the closure of surf-breaks, to have organized a meeting to discuss these issues with affected locals. To my knowledge this has not happened. Certainly I did not receive any notification of such a meeting, despite submitting on the issue in the DCP.
18. Notably that initial meeting at Warea Hall was organized by a private individual and there was a strong view at that meeting of a serious lack of consultation with local people. Particularly those that live adjacent to this newly-named SSA, and hence will be affected by any such events, and the flow-on effects, in future.
19. From the logistical standpoint, the coastal area south of Oakura simply does not have the infrastructure - roadwork, parking space or facilities - to support major surf competitions, which according to one contest promoter, 'Surfing Taranaki' CEO and TRC councillor Craig Williamson, will bring many thousands of people (Williamson letter to Taranaki Daily News 16<sup>th</sup> September 2016).
20. The coastal roads accessing the surf breaks in the SSA and South Taranaki more generally are narrow. Some are unpaved, particularly at their seaward ends, and used mainly by local families (Maori and Pakeha), dairy farmers, tanker drivers, fisher-folk and local and visiting surfers.
21. These roads, and the coastal areas they lead to, are totally unsuited for Mr Williamson's many thousands of spectators.
22. Parking is already an issue for locals and visitors, including recreational surfers, the numbers of which have increased rapidly in the past decade following branding of 'Surf Highway 45' and national and international publicity surrounding the Women's 'Dream Tour' surf contest.
23. Tourism promoters would no doubt view this as a success, bringing more full pockets to the region to be emptied. But at what cost to local people? Crowded surf conditions are dangerous and breed aggression.
24. This is a classic example of the 'Tragedy of the Commons', directly attributable to the surf-related publicity for the region.
25. This in turn has contributed to significant pollution from littering and human waste, particularly from 'freedom campers' without on-board waste facilities.
26. This point-source pollution is under TRC's direct remit, an issue I raised with TRC by phone some months ago, when large amounts of plastic and other pollution were apparent along the coast, from both point and diffuse sources.
27. At present, the relevant governing bodies, also including South Taranaki District Council and New Plymouth District Council (for Kaihihi Rd. Lower), do not appear to have an effective plan or enforcement process in place to manage coastal pollution, or indeed freedom camping in this area, despite an apparent 'three van - three night only camping rule' at some surf breaks, and signage prohibiting the practice elsewhere.

28. This apparent lack of preparedness is contrary to the fine aspirations espoused in Policies 17, 18 and 19, other than 17 (viii).
29. Visitor numbers and waste management issues have now exceeded the present capacity, or political will, of councils to manage, such that freedom camping should no longer be permitted within the designated SSA, an issue for the relevant councils.
30. Designated camping locations that do contribute to the local economy are provided in New Plymouth, Oakura and Opunake, and guest accommodation elsewhere.
31. The areas surrounding the surf breaks should be for day-use only, and remain in as close to natural, and/or rural condition as is possible, consistent with policies of maintaining the remote feel of the area.
32. Any closures for competitions, and the crowds they bring, are not consistent with these policies.
33. Any future significant expansion of the roads, parking or toilet and waste facilities, all necessary for major contests, will inevitably detract from this 'remote feel', and hence are also counter to the stated policy objectives. It will also facilitate more crowding and associated problems.
34. In respect of maintaining the remote feel of the area, I do not support additions of facilities at any more surf breaks. These actually create more problems than solutions, notably in terms of maintenance and pollution from careless or over-use, and seriously detract from the wilderness nature of the experience.
35. As noted above, the level of local concern about some of the issues raised herein was highly evident at the public meeting at Warea Hall, attended by many local surfers and coastal users, including Maori representatives, and by several TRC personnel.
36. Significant concern was expressed in respect of pollution issues, while no one from the audience spoke in favour of holding surf contests that would restrict public access in the area. Indeed the proposal was strongly criticized.
37. Notably Stent Road, arguably the best surf-break in the SSA, considered as nationally significant and highly coveted by contest promoters, is not a suitable competition venue based on the above-mentioned policies.
38. It has private homes opposite the surf break and also hosts the nationally rare plant species *Lepidium flexicaule*. In Taranaki, as far as I am aware, *L. flexicaule* is known from only this one site on the South Taranaki Coast, where it is already at significant risk from trampling by the rapidly growing numbers of recreational surfers and spectators, most ignorant of its presence.
39. There should be increased focus on protection of such sites, and on appropriate native revegetation of suitable sites in the coastal management area. Such replanting, as occurs at Komene Beach and Lagoon, Sandy Bay and elsewhere, may help to slow coastal erosion in the short-term, 'buying a little time', although continuing sea level rise over coming decades and centuries will ultimately make such initiatives futile.
40. For those vested interests that wish to continue promoting and running major surf competitions, these should be held in our major coastal city, New Plymouth, where the on-site facilities for the 'many thousands' of visitors are adequate, and where the major promoters are based.
41. Finally, there is, in my view, serious potential for conflict of interest if professional surfing contests are permitted by TRC via Rule 47, with closure of surf breaks to the general public for the financial benefit of vested interests, if any member(s) of TRC staff are among those vested interests, and hence benefitted from such closures.
42. I sincerely hope that these concerns are properly addressed in the next stage of the planning process.

Lyndon DeVantier

27<sup>th</sup> April 2018.



## Federated Farmers of New Zealand

### Submission to the Taranaki Regional Council on the Proposed Coastal Plan for Taranaki

8 March 2018



To: Taranaki Regional Council

Name of submitter: Federated Farmers of New Zealand

Contact person: Lisa Harper  
Regional Policy Advisor

Address for service: Federated Farmers Taranaki  
15 Young St  
PO Box 422,  
New Plymouth

Phone: 06 7573425  
Email: lharper@fedfarm.org.nz

Federated Farmers could not gain an advantage in trade competition through this submission.

Federated Farmers wishes to be heard in support of this submission.

## **1. INTRODUCTION**

We appreciate the opportunity to submit on the proposed Coastal Plan. This submission is representative of member views and their first-hand experiences with farming on the coast. Coastal issues are of importance to us, as many farms border the coast and a number of them extend down to the coastal marine area.

Federated Farmers supports the aspirations of the Council in developing a Plan that has the wellbeing of Taranaki people and communities at its heart. We support the general approach taken with the Plan, with relatively few proposed changes (recognising that the Plan has proved fit-for-purpose during its lifetime and there are few if any new pressures on the coast and/or these are covered by other Plans). We also endorse the effort to make the Plan more streamlined and easier to use.

Overall we consider that the Proposed Coastal Plan takes a practical approach to the management of the coast. While objectives and policies may affect farming, we note that rules are confined to the 'Coastal Marine Area'.

Our main feedback will centre on cross-boundary effects and where any provisions may (perhaps accidentally) pick up farming activities. Federated Farmers does not want to see regulations that intend to restrict inappropriate development inadvertently restrict common or existing farming activities. Where the coastline is rural and the natural character is rural, then farming activities should be considered appropriate.

Where we have not made a specific submission, we seek to retain the provisions as notified.

## **2. ABOUT FEDERATED FARMERS**

Federated Farmers is a not-for-profit primary sector policy and advocacy organisation that represents the majority of farming businesses in New Zealand. Federated Farmers has a long and proud history of representing the interests of New Zealand's farmers.

The Federation aims to add value to its members' farming businesses. Our key strategic outcomes include the need for New Zealand to provide an economic and social environment within which:

- Our members may operate their business in a fair and flexible commercial environment;
- Our members' families and their staff have access to services essential to the needs of the rural community; and
- Our members adopt responsible management and environmental practices.

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
<b>THE PROPOSED PLAN</b>			
General structure of the Plan	Support in part	<p>Federated Farmers is broadly supportive of the planning approach taken within the proposed plan, including the application of rules only to the Coastal Marine Area.</p> <p>The plan is of interest to Federated Farmers due to the number of farms that occupy the coast line. Moveable boundaries from erosion and adverse weather events may mean that farm property titles extend into the coastal marine area. Also, sometimes esplanade reserves will not be continuous, but be interspersed with private land.</p> <p>Farmers need to the ability to continue to carry out normal activities that may involve the coastal marine area, including but not limited to vehicle and machinery access along the coastal marine area.</p>	That normal farming activities that occur in the coastal marine area, where this is adjacent to farms or where the farm boundary extends down into the Coastal Marine Area (CMA), are permitted.
<b>OBJECTIVES</b>			
Objective 1: Integrated management	Support	Integrated management promotes efficiency and effectiveness. This extends to the avoidance of duplication with other plans and policies. The objective also aligns with higher order policy documents e.g. Policy 4 of the New	Adopt the objective as notified.

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		Zealand Coastal Policy Statement (NZCPS).	
Objective 2: Appropriate use and development	Support	Federated Farmers supports the recognition of use and development as fundamental to the continued sustainability of rural communities. It also aligns with higher order policy documents e.g. Objective 6 of the NZCPS.	Adopt the objective as notified.
Objective 3: Reverse sensitivity	Support	Existing businesses and infrastructure on the coast are a vital component of the region's social and economic fabric. These should be protected from tensions arising from new, incompatible activities.	Adopt the objective as notified.
Objective 12: Public use and enjoyment	Oppose in part	We support in principle the maintenance and enhancement of public access to the Coastal Marine Area (noting that the objective uses the broader term 'coastal environment'), but have concerns over unrestricted public access, particularly over private land. We submit that it is more appropriate for the term Coastal Marine Area, the area traditionally reserved for public use, to be referenced here, at least in relation to public access. See submission points for Policy 17 for further detail.	Amend the objective as below or similar:  <i>People's use and enjoyment of the coastal environment, including amenity values, traditional practices and public access to and within the coastal <del>environment</del> <u>marine area</u>, is maintained and enhanced.</i>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
Objective 13: Coastal hazard risk and public health and safety	Support	Coastal farmers are well aware of and actively manage these issues.	Adopt objective as notified.
<b>POLICIES</b>			
Policy 2: Integrated management	Support	See reasons given above (Objective 1).	Adopt the policy as notified.
Policy 4: Extent and characteristics of the coastal environment	Support in part	The Federation is in favour of mapping, in preference to the case by case determination of the extent of coastal environment referenced in this policy. Mapping creates certainty for landowners who can see at a glance into which overlays their land may fall. However, otherwise, we support the wording of this policy, where the inland extent of the coastal environment is determined ' <i>having regard to areas where coastal processes, influences or qualities are significant</i> ' (following the NZCPS).	Mapping is provided to give certainty.
Policy 5: Appropriate use and	Support	See reasons given above (Objective 2).	Adopt the policy as notified.

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
development of the coastal environment			
Policy 6: Activities important to the well-being of people and communities	Support in part	We submit that there should be enabling of appropriate activities / industries within the coast (not simply new and existing infrastructure), where there is the need for people and communities to provide for their well-being.	Amend policy as below: <i>Recognise and provide for new and existing infrastructure <u>and farming activities</u> of regional importance or of significant to the social, economic and cultural well-being of people and communities in Taranaki, subject to appropriate management of adverse environmental effects.</i>
Policy 7: Impacts on established operations and activities	Support	See reasons given above (Objective 3).	Adopt the policy as notified.
Policy 8: Areas of outstanding value	Oppose in part	<p>Federated Farmers has concerns with the reference to protection of amenity values both within and near areas of outstanding value. This could capture a large and undefined area of land surrounding the scheduled features.</p> <p>We are concerned that, by the inclusion of the term 'or adjoining' and by reference to maintaining views of the landscapes and features, this policy seeks to manage areas beyond the coastal marine area and beyond the</p>	<p>Amend the policy as below:</p> <p><i>Protect the visual quality and the physical, ecological and cultural integrity of coastal areas of outstanding value identified in Schedule 1 from inappropriate use and development by:</i></p> <p><i>(a) avoiding adverse effects of activities on the values and characteristics identified in Schedule 2 that contribute to areas:</i></p> <p><i>(i) having outstanding natural character; and/or</i></p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		<p>scheduled features. The Coastal Plan should only regulate activities within the coastal marine area, not seek to manage activities that are controlled by other regulation e.g. District Plans.</p> <p>It is the Federation's position that where farm land is a feature of ONF/Ls and ONCs, this needs to be recognised and provided for when considering future decisions around the management of activities in these areas. Where a landscape identified is part of a working farm environment, it needs to be recognised that these areas are dynamic in nature.</p> <p>The case law has indicated that it may be acceptable to allow activities that have minor or transitory adverse effects in outstanding areas and still give effect to Policies 11, 13, and 15 of the NZCPS.</p>	<p><i>(ii) being outstanding natural features and landscape'</i></p> <p><i>Within <del>or adjoining</del> coastal management area – Outstanding Value; <del>and</del></i></p> <p><i><del>(b) maintaining significant seascapes and visual corridors associated with outstanding natural features and landscapes, including views from within the landscapes or features, and views of the landscapes and features.</del></i></p>
<p>Policy 9: Natural character and natural features and landscapes</p>	<p>Support in part</p>	<p>We support the list of matters to have regard to in this policy as it is clear and comprehensive.</p>	<p>Adopt the list of matters to have regard to in the policy as notified.</p>
<p>Policy 15:</p>	<p>Support in part</p>	<p>We support the principle of protecting the values</p>	<p>Historic heritage sites are accurately mapped to give certainty.</p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
Historic heritage		<p>of significant historic sites.</p> <p>Information for landowners regarding archaeological sites or sites of significance to Maori on their property is often hard to find. Landowners appreciate a personal approach by organisations, rather than blanket regulation that is often difficult to apply on the ground.</p> <p>Some other issues commonly reported by farmers in relation to historic heritage include:</p> <ul style="list-style-type: none"> <li>• Imprecise or inaccurate mapping of sites, leading to confusion over which areas are subject to provisions and which are not. We support the Council's efforts to identify and/or map all known historic heritage sites in the Coastal Marine Area.</li> <li>• Recognition in plans and policies that some farming activities have no adverse effect on the protected values or can aid in the maintenance of historic sites, including appropriate grazing, fencing repairs, road or path maintenance / upgrading, and weed control.</li> </ul>	<p>Normal farming activities are recognised as co-existing with heritage values and enabled to continue.</p>
Policy 17: Public access	Oppose in part	<p>While Federated Farmers is supportive of the principle of enhancing public access, we do not consider it appropriate in all instances to manage access to and along the coastal marine</p>	<p>Add to Policy 17 as below or similar:</p> <p><i>Maintain and <u>as far as practical</u> enhance <u>where a demand exists</u>, public access to, along and adjacent to the coastal</i></p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		<p>area in a manner that maximises public use; this may in some circumstances unduly restrict common farming practices. Public access across private land may sometimes need to be restricted, for reasons of the health and safety of visitors, or for the security of the people living and working on site. At lambing or calving time, public access may also be denied to protect vulnerable livestock.</p> <p>We note and support the inclusion of (b)(v) which talks about protecting public health or safety. However, this is in the context of 'maintaining and enhancing public access to, along and adjacent to the coastal environment', with no mention of the need of landowners to manage and at times restrict public access through their properties.</p> <p>It is only appropriate to facilitate public access where there is an identified public need for it, and the circumstances appropriately allow for it. It must be noted, there is also no legal requirement for public access to privately owned land and access must be negotiated with the landowner. If members of the public have to walk across private property to get to the coast, it requires landowner permission; in our experience this is readily granted if the request</p>	<p><del>environment</del> <u>marine area, while minimising conflict with other land users</u> by:</p> <p>(a) <i>avoiding, remedying or mitigating any adverse effects of activities on public access;</i></p> <p>(b) <i>promoting the enhancement or restoration of public access including for the connection of areas of public open space, access to mahinga kai, access to sites of historical and/or cultural importance, improving outdoor recreation opportunities, access to surf breaks and providing access for people with disabilities; and</i></p> <p>(c) <del>only</del> <i>imposing a restriction on public access, including vehicles, where such a restriction is necessary to:</i></p> <p>(i) <i>protect significant natural or historic heritage values;</i></p> <p>(ii) <i>protect dunes, estuaries and other sensitive natural areas or habitats;</i></p> <p>(iii) <i>protect sites and activities of cultural value to Maori;</i></p> <p>(iv) <i>protect threatened or at risk indigenous species and rare and uncommon ecosystem types as identified in Schedule 4A;</i></p> <p>(v) <i>protect public health or safety, including where the safety of other coastal or beach users is threatened by inappropriate use of vehicles on beaches and vessels offshore;</i></p> <p>(vi) <i>provide for defence purposes in accordance with the</i></p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		<p>is reasonable.</p> <p>This policy should also recognise the need to minimise conflicts with other users of land in the coastal environment. Farmers living near popular beaches report past difficulties with members of the public crossing their land or parking in paddocks without permission, leaving gates open, letting livestock out or disturbing stock, leaving litter and glass, lighting fires and driving vehicles over electric fences used to manage grazing. While many people are considerate, farmers stress the importance of talking to the landowner and asking permission for access.</p> <p>These type of considerations are not included in the policy at present; we submit wording be added, to recognise that public access over private land is at the discretion of the landowner and may sometimes need to be restricted.</p> <p>Landowners should not be impacted or controlled in their farming activities simply because they neighbour a coastal marine area. Federated Farmers is concerned that by referring to access to the coastal environment, this objective concerns public access to private land beyond the coastal marine area.</p>	<p><i>Defence Act 1990 or port or airport purposes;</i></p> <p><i>(vii) avoid or reduce conflict between public uses of the coastal marine area and its margins;</i></p> <p><i>(viii) provide for temporary activities or special events;</i></p> <p><i>(ix) ensure a level of security consistent with the activity, including protection of equipment; or</i></p> <p><u><i>(x) To maintain a level of security for lawfully established activities, uses and management of areas within or adjacent to the coastal marine areas.</i></u></p> <p><u><i>(xi) Where the coastal marine area is in private ownership; or</i></u></p> <p><i>(xii) provide for other exceptional circumstances where restriction to public access is justifiable;</i></p> <p><i>and alternative access routes for the public have been considered and provided where practicable.</i></p> <p><u><i>Public access over private land remains at the discretion of the landowner.</i></u></p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
<p>Policy 19: Surf breaks and Significant Surfing Area</p>	<p>Oppose in part</p>	<p>There is a considerable amount of farmland in the new Significant Surfing Area zone, both paddocks and farm buildings. It is unclear from the Proposed Plan whether farming activities could be captured by Policy 19 and we would appreciate clarification on this. If they were, we would have significant concerns with this Policy. We note that the information sheets supplied with other supporting documents suggest that it was not the intention to prioritise surfing at the expense of other coastal activities.</p> <p>Normal farming activities should be able to continue unhindered by the creation of a new zone for the benefit of surfers. We understand that the intention is to provide a high level of protection for recreational surfing, but we seek to also protect farms, where people live and work along the coast. We are unaware of farming activities impacting on surf breaks, but well aware that poorly managed public access has affected farming businesses in the past. We would advocate for a 'live and let live' attitude that allows both activities to continue without undue restrictions.</p>	<p>We submit that the inland boundary of the Significant Surfing Area be moved seaward to mean high water springs or similar, to avoid potential (and probably unintended) restrictions on normal farming activities.</p> <p>We submit that Policy 19 be amended as below:</p> <p><i>Protect surf breaks and their use and enjoyment from the adverse effects of other activities <u>in the Coastal Marine Area</u> by:</i></p> <p><i>(a) avoiding adverse effects on:</i></p> <p><i>(i) all nationally significant surf breaks as identified in Schedule 7; and</i></p> <p><i>(ii) all surf breaks within the designated Significant Surfing Area as identified in Schedule 7</i></p> <p><i>(b) avoiding adverse effects on all regionally significant surf breaks, identified in Schedule 7, that are outside of the Significant Surfing Area;</i></p> <p><i>Unless the activity is necessary for the provision of regionally important infrastructure <u>or farming activities</u><sup>1</sup>, avoidance of effects is not possible and adverse effects are remedied or mitigated.</i></p> <p><i>(c) avoiding, remedying or mitigating adverse effects on all</i></p>

<sup>1</sup> If the Policy is amended to confine itself to the Coastal Marine Area as submitted, this addition may not be needed.

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		<p>As Council will be aware, since the Supreme Court's <i>King Salmon</i> decision, policies that reference avoiding (all) adverse effects have been interpreted as meaning that activities causing even minor adverse effects should be prohibited. We therefore seek clarity around where and why zone boundaries have been drawn to include substantial areas of farmland and exactly what adverse effects are in view. The 'avoid' provisions are after all a very high bar.</p> <p>We note that the vast majority of activities mentioned in the MetOcean Solutions report ('Taranaki Surf Breaks of National Significance', p.21-22) that could adversely affect surfing are located in the Coastal Marine Area and therefore do not occur on farms e.g. groynes, dredging, sea walls, pipelines installed on the seabed, sand and gravel mining, breakwater and jetties, occupation of the foreshore and seabed, windfarms and offshore structures. Access is mentioned (but also described as primarily a District Council matter, p.22), as is water quality (sewerage and river discharges, regulated under the Regional Fresh Water Plan). All the potential adverse effects described therefore either occur in the Coastal Marine Area, or are already regulated by other plans.</p>	<p><i>locally significant surf breaks listed in Schedule 7;</i></p> <p><i>(d) within the Significant Surfing Area, avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects on seascape, including development <u>within the Coastal Marine Area</u> which would have an adverse effect on the remote feel of the area; and</i></p> <p><i>(e) in managing adverse effects in accordance with clauses (a), (b) and (c), having regard to:</i></p> <p><i>(i) effects on the quality or consistency of the surf break by considering the extent to which the activity may change or interrupt coastal sediment dynamics; change or interrupt swell within the swell corridor including through the reflection, refraction or diffraction of wave energy; or change the morphology of the foreshore or seabed; and</i></p> <p><i>(ii) the effects on <del>access to</del> surf breaks and other qualities of surf breaks, including natural character, water quality and amenity values.</i></p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		<p>We submit that the Policy could therefore confine itself to activities within Coastal Marine Area, without any reduction in effectiveness and that this would be appropriate.</p> <p>For the Significant Surfing Area, the simplest solution may be to alter its boundaries to exclude farmland. We submit that the inland boundary of the Significant Surfing Area be moved seaward to avoid capturing farmland in a zone designed to protect recreational surfing activity; we suggest aligning the boundary to mean high water springs, as this is where the rules are in effect.</p> <p>We also submit that the exemption in policy 19 (b) should include farming activities (not only regionally important infrastructure).</p> <p>We have concerns about Policy 19 (d); terrestrial activities next to the surf zone should not be expected to avoid, remedy or mitigate effects on surf zone. Policy should be limited to activities in the surf that could affect the surf.</p> <p>Also, (d) refers to '<i>development which would have an adverse effect on the remote feel of the area</i>'. This is an extremely subjective phrase</p>	

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		<p>and it is unclear whether farm buildings could be captured in the idea of 'development'; the Plan should provide for the ongoing maintenance and development of the rural farm businesses along the coast. We would have concerns if for example the view of the land from a surf board became an impediment to the building of necessary farm infrastructure.</p> <p>We support the list of matters to have regard to in Policy 19 (e) (i): <i>'effects on the quality or consistency of the surf break by considering the extent to which the activity may change or interrupt coastal sediment dynamics; change or interrupt swell within the swell corridor including through the reflection, refraction or diffraction of wave energy; or change the morphology of the foreshore or seabed'</i>, as this provides useful focus on the effects in view.</p> <p>We oppose the reference to access in Policy 19 (e) (ii). We have already outlined issues with public access and access would best be dealt with in Policy 17.</p>	
<p>Policy 20: Avoidance of increasing</p>	<p>Support in part</p>	<p>We support the principles contained in these policies, of avoiding <i>'increasing the risk of social, environmental and economic harm from coastal hazards or posing a threat to public</i></p>	<p>That provisions designed to protect against coastal hazards avoid unnecessarily capturing farm infrastructure.</p>

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
coastal hazard or public safety risks  And  Policy 21: Natural hazard defences		<p><i>health and safety' ...</i></p> <p>Provisions intended to manage coastal hazard risk should not accidentally regulate farm building or fences; these are not inhabited and such sheds / fences will not make coastal hazards worse. There is obviously no need to regulate a shed with a dirt floor used to park tractors in the same manner as a residential building: no lives are at risk and there will be no displacement of people compared to a house at risk of erosion. Rural properties also have plenty of space available for managed retreat of buildings and structures.</p>	
<b>METHODS OF IMPLEMENTATION</b>			
6.1 General	Support	This section provides a useful list of actions that could be used to maintain or enhance coastal values e.g. provision of information, consideration of the use of economic instruments and state of the environment monitoring.	Adopt Section 6.1 as notified.
6.4 Natural heritage	Support	This section provides a useful list of actions that could be used to maintain or enhance coastal	Adopt Section 6.4 as notified.

Section of plan	Support or Oppose	Reason for Submission	Decision Sought
		values.	
6.6 (34)	Support	We support the establishment of a working group, including landowners, relevant agencies, iwi and interest groups to protect and enhance the values of the Significant Surfing Area.	Adopt Section 6.6(34) as notified.
Note in 9.1.1	Support	We support the limitation of the financial contributions section to mitigating restrictions on access caused by activities within the coastal marine area, not to activities conducted solely above mean high water springs.	Adopt as notified.

27 April 2018

Taranaki Regional Council  
Private Bag 713  
Stratford 4352

Our ref: 18150

To whom it may concern,

*RE: Submission on the Proposed Coastal Plan on behalf of First Gas Ltd*

First Gas Ltd owns and operates more than 2,500 kms of high pressure gas transmission pipelines and stations that supply natural gas from Taranaki to industrial consumers throughout the North Island. Their gas distribution network supplies more than 60,000 commercial and residential customers. As a key Network Utility Provider, their operation has to be efficient and easy to maintain and manage, as the pipelines are nationally and regionally important infrastructure.

First Gas Ltd is making this submission to oppose some of the rules in the Proposed Coastal Plan that may affect the efficient operation of their gas transmission network. The specific provisions of the plan being opposed as part of the submission are listed on Table 1 (see attached), along with suggested amendments that recognise the significance of the infrastructure and the scale of effects associated with specific activities.

In relation to the rules as proposed, it is noted that First Gas sought differentiation from petroleum installations under the South Taranaki District Plan as it infers contamination potential, and we seek the same from the TRC Coastal Plan. The natural gas transmission network serves a differing purpose to that of the petroleum and provides for the social, economic and well being of communities both within Taranaki and the North Island. First Gas would prefer a separate rule to petroleum, as their infrastructure is existing within these environments, and this fact cannot be changed. In order to provide for downstream communities the plan also needs to cater to network operational and maintenance activities in a timely manner.



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**Cromwell**  
13 Pinot Noir Drive  
PO Box 302  
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+64 3 445 9905

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23 Medway Street  
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**New Plymouth**  
46 Vivian Street  
New Plymouth 4342  
+64 6 769 5631

0800 023 318  
info@landpro.co.nz  
www.landpro.co.nz



First Gas Ltd could not gain an advantage in trade competition through this submission.

First Gas Ltd would like to be heard and would consider presenting a joint case at a hearing with others who have made similar submissions. We would also be pleased to discuss this submission with the Taranaki Regional Council at any time, particularly if there are any areas we have not interpreted correctly.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Zen Gerente', written in a cursive style.

Zen Gerente

Resource Management Planner

46 Vivian Street | PO Box 8235 | New Plymouth 4310

M 027 528 0683

[zen@landpro.co.nz](mailto:zen@landpro.co.nz) | [www.landpro.co.nz](http://www.landpro.co.nz)

Table 1. Details of submission of First Gas Ltd on specific provisions of Proposed Coastal Plan

Specific Provisions of the Proposed Plan Being Opposed	Submission – change sought	Reasons
<p>Rule 34: Network utility structure erection or placement within Outstanding Value as a Non-Complying Activity</p>	<p>Network Utility Pipeline Erection or Placement be classified as a Controlled Activity in the Outstanding Value area for underground pipelines or pipelines attached to existing bridge or access structures.</p>	<p>Additional erection or placement of new network utility pipelines may be necessary in the future for public safety, efficient operation or increasing capacity and it is likely that any additional pipeline infrastructure would be placed in existing network corridors. Some of these corridors cross areas the TRC has identified as 'Outstanding Value' – at the Patea River Mouth, Tongaporutu Estuary and potentially at Waitotara River Mouth<sup>1</sup>. The erection or placement of new pipelines has potential to have temporary adverse effects but if properly designed, located and installed, these can be avoided, remedied or mitigated. In the long term, where the pipelines are buried/under-bored or attached to existing lawfully established bridges or access structures, there are negligible effects on landscape and scenic values and permanent effects on ecological values are unlikely.</p> <p>As a controlled activity, such activities would still be assessed against relevant policies and objectives, and would have to adhere to performance criteria. Non-complying activities suggest that consent will only be granted in exceptional circumstances, and accordingly First Gas consider this onerous given</p>

Specific Provisions of the Proposed Plan Being Opposed	Submission – change sought	Reasons
		<p>the temporary and minor effects of their activities, the fact that their structures already exist in the corridors identified, and their overall national importance.</p> <p>Allowing for underground pipelines or pipelines attached to existing bridge or access structures as a controlled activity would be consistent with Policies 31 and 32 which allow placement of structures that provide for efficient operation of nationally and regionally important infrastructure subject to the appropriate management of adverse effects. Standards terms and conditions we would suggest be similar to Rule 22.</p> <p><i><sup>1</sup> Confirmation that the First Gas Pipeline at the Waitotara River is outside the area of outstanding value as identified on planning maps 38-39 is also sought. It appears that the First Gas corridor is the boundary of this area however it is unclear whether it is intended that the existing pipeline corridor be within or outside the area of outstanding value. If the intention is that it be within this area, First Gas submit that it should be excluded.</i></p>

Specific Provisions of the Proposed Plan Being Opposed	Submission – change sought	Reasons
<p>Rule 37: Network utility structure repair, alteration and extension as a Controlled Activity within Estuaries Unmodified, Estuaries Modified, Open Coast and Port areas (becomes non-complying in the Outstanding Value area).</p>	<p>Network utility pipeline repair, alteration or extension within Outstanding Value, Estuaries Unmodified, Estuaries Modified, Open Coast and Port be classified as a Permitted Activity</p>	<p>Repair, alteration or extension is necessary for public safety and efficient operation and more than often need to be immediately done. It is considered that this can be appropriately managed by way of permitted activity standards, terms and conditions that reflect the values of the area of the works, rather than having to seek consent in every case.</p>
<p>Rule 38: Structure removal and replacement - gas pipelines fall under petroleum production installations and pipelines and these are excluded in this rule, making them discretionary in the Estuaries Modified, Open Coast and Port areas and non-complying within the Estuaries Unmodified, and Outstanding value areas.</p>	<p>Network utility pipeline removal and replacement within Outstanding Value and Estuaries Unmodified, Estuaries Modified and Port be classified as Permitted and be included under Rule 38, or under a separate rule. <i>*As per the cover letter to this submission - It is noted that First Gas sought differentiation from petroleum installations under the South Taranaki District Plan as it infers contamination potential. The natural gas transmission network serves a differing purpose to that of the petroleum and provides for the social, economic and well being of communities both within Taranaki and the North Island. First Gas would prefer a separate rule to petroleum, as their infrastructure is existing within these environments, and this fact cannot be changed. In order to provide for downstream communities the plan also needs to cater to network operational and maintenance activities in a timely manner.</i></p>	<p>Structure removal and maintenance is sometimes necessary for public safety and efficient operation of Transmission networks.</p>

27 April 2018

Basil Chamberlain  
Chief Executive Officer  
Taranaki Regional Council  
Private Bag 713  
Stratford 4352

Dear Mr Chamberlain

**RE: FONTERRA SUBMISSIONS ON THE PROPOSED COASTAL PLAN FOR TARANAKI**

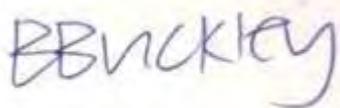
Fonterra Limited (Fonterra) is grateful for the opportunity to lodge a submission on the Proposed Coastal Plan for Taranaki (Proposed Plan).

Fonterra appreciates the time and effort that Taranaki Regional Council has invested in the development of the Proposed Plan, and the constructive way in which Council staff have worked with Fonterra in the development of the Proposed Plan to date. Fonterra looks forward to continuing this constructive and collaborative way of working as the development of the Proposed Plan continues.

Fonterra generally supports the Proposed Plan and the direction it sets for managing, using and protecting the natural and physical resources of Taranaki's coastal environment. The amendments and changes to the Proposed Plan sought by Fonterra are set out in the attached submission. Fonterra considers that the suggested changes in the attached submission will better achieve the sustainable management purpose of the Resource Management Act 1991.

If you have any questions or would like further information, please do not hesitate to contact Brigid Buckley on 027 886 0431 or via email: [brigid.buckley@fonterra.com](mailto:brigid.buckley@fonterra.com).

Yours sincerely



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Brigid Buckley

**National Policy and Planning Manager – NZ Milk Products**  
FONTERRA LIMITED

# FONTERRA LIMITED

## SUBMISSION ON THE PROPOSED COASTAL PLAN FOR TARANAKI

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**To:** Taranaki Regional Council  
Private Bag 713  
STRATFORD 4352  
  
via email: [coastal@trc.govt.nz](mailto:coastal@trc.govt.nz)

**SUBMITTER:** FONTERRA LIMITED  
**Contact:** Brigid Buckley

**Address for Service:** Fonterra Limited  
C/- Russell McVeagh  
P O Box 8  
AUCKLAND 1140

**Attention: Rachel Robilliard**  
T +64 9 367 8059  
E [rachel.robilliard@russellmcveagh.com](mailto:rachel.robilliard@russellmcveagh.com)

Fonterra wishes to be heard in support of this submission.

I confirm that I am authorised on behalf of Fonterra Limited to make this submission.

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## 1. OVERVIEW OF SUBMISSION

- 1.1. Fonterra Limited (Fonterra) generally supports the Proposed Coastal Plan for Taranaki (Proposed Plan). However, Fonterra considers that amendments are required to ensure that its activities are appropriately recognised and provided for; that the New Zealand Coastal Policy Statement (NZCPS) is given effect to; and that certain matters are clarified to improve the usability of the Proposed Plan.

- 1.2. The structure of this submission is as follows:
- Overview of Fonterra's activities and operations (**Section 2**);
  - Specific submissions on the Proposed Plan (**Section 3**);
  - Overall Conclusion

## 2. FONTERRA IN THE TARANAKI REGION

- 2.1. Fonterra is a global co-operative dairy nutrition company based in New Zealand. It is owned by approximately 10,600 farming families and it is supported by approximately 20,000 employees around the world.
- 2.2. It is the world's leading milk processor and dairy exporter and, through a "grass to glass" supply chain, delivers high quality dairy ingredients and a portfolio of respected consumer brands to customers and consumers around the world.
- 2.3. Fonterra has four dairy manufacturing sites in Taranaki at Whareroa near Hawera, Kapuni, Collingwood Street and Fonterra Brands New Zealand Bridge Street in Eltham. Taranaki is the home of more than 1,800 Fonterra shareholders and dairy farmers.
- 2.4. The key site affected by the provisions of the Proposed Plan is the Whareroa dairy manufacturing site.

### WHAREROA DAIRY MANUFACTURING SITE

- 2.5. Established in 1972, the Whareroa manufacturing site collects up to 14 million litres of milk a day and produces the largest volume of dairy ingredients from a single factory anywhere in the world. The site processes a fifth of Fonterra's dairy production in New Zealand. It makes 428,000 tonnes of milk powder, cheese, cream, protein and lactic casein ingredients every year and employs 1,000 people.
- 2.6. The site holds a number of resource consents issued by Taranaki Regional Council (Council). These include permits to take water, discharge contaminants to air, land and water including the Tasman Sea and erect and maintain structures in a waterbody and the coastal marine area (CMA). These resource consents enable Fonterra to operate five milk powder plants, two cheese plants, one cream plant, one protein plant and one casein plant on the site.
- 2.7. Water for the site comes from the Tawhiti Stream and Tangahoe River and dairy manufacturing wastewater is treated on-site and discharged to the Tasman Sea via a marine outfall. The wastewater discharge infrastructure associated with Fonterra's Whareroa site is also utilised by South Taranaki District Council for the discharge of municipal wastewater from the Hawera township.

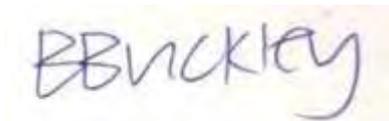
## 3. SPECIFIC SUBMISSION POINTS

- 3.1. Fonterra's specific submission points are provided in **Attachment A**.
- 3.2. In respect of all of those submission points in **Attachment A**, Fonterra seeks:
- Where specific wording has been proposed, words or provisions to similar effect;
  - All necessary and consequential amendments, including any amendments to the provisions themselves or to other provisions linked to those provisions submitted on, including any necessary changes to the Proposed Plan maps, and including any cross references in other chapters; and
  - All further relief that is considered necessary to give effect to the concerns described above and in **Appendix A** to follow, and any changes required to give effect to the Taranaki Regional Policy Statement.

## 4. OVERALL CONCLUSION

- 4.1. In relation to the provisions that Fonterra has raised concerns about, those provisions require amendment because without amendment, those provisions:
- will not promote sustainable management of resources and will not achieve the purpose of the RMA;
  - are contrary to Part 2 and other provisions of the RMA;
  - will not enable the social and economic well-being of the community;
  - will not meet the reasonably foreseeable needs of future generations;
  - will not achieve integrated management of the effects of use, development or protection of land and associated resources of the Taranaki region.
  - will not enable the efficient use and development of Fonterra's assets and operations, and of those resources; and
  - do not represent the most appropriate way to achieve the objectives of the Proposed Plan, in terms of section 32 of the RMA.
- 4.2. Fonterra could not gain an advantage in trade competition through this submission.
- 4.3. Fonterra wishes to be heard in support of this submission.
- 4.4. If others are making a similar submission, Fonterra will consider presenting a joint case with them at the hearing.

Dated: 27 April 2018



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Brigid Buckley

**National Policy and Planning Manager – NZ Milk Products**  
FONTERRA LIMITED

## ATTACHMENT A:

### FONTERRA LIMITED'S SUBMISSIONS ON THE PROPOSED COASTAL PLAN FOR TARANAKI

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
<b>SECTION 4 – OBJECTIVES</b>					
1	Objective 1 Integrated Management	17	Support	Fonterra supports Objective 1, which seeks to ensure that the coastal environment is managed in an integrated way.	Retain <b>Objective 1</b> as notified.
2	Objective 2: Appropriate use and development	17	Support in part	<p>The economic and social wellbeing of Taranaki's communities are reliant on industry, businesses and infrastructure that utilise the coastal marine area. However, of the 12 objectives, only Objective 2 provides for use and development of natural and physical resources, and only in a confined manner. Policy 5 outlines the matters to which regard will be had when determining whether use and development of the coastal environment is appropriate, while Policy 6 provides for activities important to the wellbeing of people and communities, although the content of Policy 6 only refers to infrastructure.</p> <p>It appears that Objective 2 and Policies 5 and 6 are the primary provisions of the Proposed Plan that are intended to give effect to the first two bullet points of Objective 6 of the NZCPS. Objective 6 of the NZCPS and the first two bullet points state:</p> <p><i>To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through</i></p>	<p>Amend <b>Objective 2</b> as follows:</p> <p>Natural and physical resources of the coastal environment are used efficiently, and activities, <u>including regionally important industry and infrastructure</u>, that depend on the use and development of these resources are provided for in appropriate locations.</p>

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				<p><i>subdivision, use, and development, recognising that:</i></p> <ul style="list-style-type: none"> <li>• <i>the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;</i></li> <li>• <i>some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;</i></li> <li>• ...</li> </ul> <p>Fonterra considers that Objective 2, Policy 5 and Policy 6 should be amended to better give effect to the heading and first two bullet points of Objective 6 of the NZCPS.</p> <p>Following recent decisions, such as <i>New Zealand King Salmon</i> and <i>RJ Davison Family Trust</i> and the cases that have followed those decisions, Fonterra considers it critically important to ensure that plans contain provisions that provide for an appropriate balance between enabling people and communities to provide for their economic, social and cultural wellbeing, and appropriate management of adverse effects. Under the above cases, recourse to Part 2 of the RMA in resource consent decision making may be precluded, so it is becoming increasingly important to ensure plans include specific provisions providing for the activities that enable people to provide for their wellbeing.</p>	

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
				<p>If plans are not cast appropriately, including such enabling provisions, future resource consent applications could be declined, preventing business and industry from operating or locating in the coastal environment. This could have significant economic and social consequences for the region and its people. Accordingly, it is appropriate that activities that play an important role in the regional economy are recognised. This includes regionally important infrastructure and regionally important industry, such as the dairy industry.</p> <p>The dairy industry has always had a significant presence in Taranaki. The industry currently employs more than 4,000 people and contributes several hundred million dollars to the regional economy annually.<sup>1</sup> In the South Taranaki district alone, the dairy industry provides over 25% of all jobs,<sup>1</sup> and the Whareroa dairy manufacturing site employs more than 1,000 people. The dairy industry is therefore regionally important for Taranaki.</p> <p>Accordingly, Fonterra seeks an amendment to Objective 2 to provide appropriate recognition for significant infrastructure and industry and to better give effect to the first two bullet points of Objective 6 of the NZCPS.</p>	
3	Objective 3 Reverse sensitivity	17	Support	Fonterra supports the protection of existing lawfully established activities from reverse sensitivity effects.	Retain <b>Objective 3</b> as notified.

<sup>1</sup> Dairy's role in sustaining New Zealand – the sector's contribution to the economy, NZIER, December 2010.

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
4	Objective 5 Coastal water quality	17	Support in part	Fonterra does not consider that it is technically possible to both maintain and enhance water quality at the same time. Instead, Fonterra proposes an amendment to Objective 5 to direct the circumstances in which water quality should be maintained or enhanced.	Amend <b>Objective 5</b> as follows: Water quality in the coastal environment is maintained <u>where it is good</u> , and enhanced <u>where it is degraded</u> .
5	Objective 6	17	Support	Fonterra supports Objective 6, which seeks to protect the natural character of the coastal environment from inappropriate use and development.	Retain <b>Objective 6</b> as notified.
6	Objective 7	17	Support	Fonterra supports Objective 7, which seeks to protect natural features and landscapes of the coastal environment from inappropriate use and development.	Retain <b>Objective 7</b> as notified.
7	Objective 12 Public use and enjoyment	17	Support in part	Fonterra supports the general intent of Objective 12, which provides for the maintenance and enhancement of public access to, and within, the coastal environment. However, there may be situations where it may be necessary to limit public access, even if only temporarily. For example, in areas where infrastructure such as coastal outfalls are located, allowing public access could result in a risk to public safety. It is therefore appropriate to amend the objective to allow for access to be restricted in some circumstances. This is consistent with Policy 19(3) of the NZCPS.  A further amendment is proposed for clarity, as Fonterra does not consider it is possible to maintain and enhance public access at the same time.	Amend <b>Objective 12</b> as follows: People's use and enjoyment of the coastal environment, including amenity values, traditional practices and public access to and within the coastal environment, is maintained <del>and</del> <u>or</u> enhanced <u>where appropriate</u> .

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
<b>SECTION 5.1 – GENERAL POLICIES</b>					
8	Policy 1 Coastal management areas	20	Support in part	Fonterra supports Policy 1 in part, and seeks an amendment to sub-clause (d) to specifically recognise the presence of infrastructure and activities in the Open Coast that are necessary to enable people and communities to provide for their economic and social wellbeing.	Amend <b>Policy 1</b> as follows:  (d) Open Coast: Areas of the open coast not identified in (a), (b), (c) and (e) of this Policy characteristically:  ...  <u>(v) may contain infrastructure, structures and activities that enable people and communities to provide for their economic and social well-being.</u>
9	Policy 2 Integrated management	21	Support in part	Fonterra generally supports Policy 2, which recognises the importance of managing the region's coastal resources in a way that provides for social, cultural and economic well-being of the community.  Fonterra also supports the recognition provided in Policy 2(f) of the functional and locational constraints of nationally and regionally important infrastructure to locate in the coastal environment but considers that the policy should be extended to include regionally significant industry, such as dairy manufacturing. Fonterra considers that it is appropriate to recognise nationally and regionally important industry to the same extent as infrastructure, given the contribution of significant industry to the social and economic wellbeing of the region.	Amend <b>Policy 2(f)</b> as follows:  (f) managing natural and physical coastal resources in a manner that has regard to the social, economic and cultural objectives and well-being of the community and the functional and/or location constraints of nationally or regionally important infrastructure <u>and industry</u> ; and
10	Policy 4	21	Support	Fonterra supports Policy 4, which describes the method for determining the inland extent of the coastal environment.	Retain <b>Policy 4</b> as notified

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
	Extent and characteristics of the coastal environment				
11	Policy 5 Appropriate use and development of the coastal environment	22	Support in part	<p>Fonterra generally supports Policy 5, which provides for the appropriate use and development of the coastal environment.</p> <p>Fonterra supports sub-clause (a), but seeks that activities that have an <i>operational requirement</i> to be located in the coastal environment are also provided for, subject to avoiding, remedying or mitigating adverse effects.</p> <p>Fonterra considers that it is appropriate to provide for structures in the CMA where they have an operational requirement to be located there. For example, a road across an estuary may not be functionally required to locate in the CMA - the road could instead follow the coastline around the estuary edge. There could however be significant time and cost savings to both road users and the road controlling authority as a result of constructing a bridge across the estuary. In such circumstances, the operational requirement to provide an efficient and effective transport route may justify the location of a bridge in the CMA.</p> <p>There are a number of other structures that are located in the CMA for operational reasons, including discharge outfalls, power lines and telecommunication cables. Whilst there may not be a functional need for these structures to be located in the CMA, operational requirements or constraints justify their presence there.</p>	<p>Retain <b>Policy 5</b> as notified except that:</p> <p><b>Policy 5(a)</b> should be amended as follows:</p> <p>(a) the functional need <u>or operational requirement</u> of the activity to be located in the coastal marine area. Conversely, activities that do not have a functional need <u>or operational requirement</u> to be located in the coastal marine area generally should not be located there (unless the non-marine related activity complements the intended use and function of the area);</p>

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				<p>This change will also provide specific policy support for the standard set out in Rule 38(a) of the Plan.</p> <p>Fonterra also seeks that sub-clause (b) of Policy 5 is amended to include specific recognition of the contribution that industries, such as dairy processing, make to the economic and social well-being of the region. The inclusion of dairy manufacturing in Policy 5(b) would appropriately recognise the significance of Fonterra's wastewater discharge infrastructure that is necessary for the operation of the Whareroa manufacturing site.</p> <p>Fonterra supports the specific consideration of best practicable option when assessing the appropriateness of the use and development of the coastal environment in Policy 5(c).</p>	<p><b>Policy 5(b)</b> should be amended as follows:</p> <p>(b) the benefits to be derived from the activity at a local, regional and national level, including the potential contribution of <u>dairy manufacturing</u>, aquaculture and marine based renewable resources.</p>
12	Policy 6 Activities important to the well-being of people and communities	22	Support in part	<p>Fonterra considers that Policy 6 should be extended to recognise and provide for new and existing industry, such as dairy manufacturing. The wastewater discharge infrastructure associated with Fonterra's Whareroa site is located in the CMA, and utilised by South Taranaki District Council for the discharge of municipal wastewater. It is critical to enabling the social and economic well-being of the local and regional communities. Providing for new, as well as existing, infrastructure and industry would appropriately provide for the expansion or substantial upgrading of necessary infrastructure and industry, while still being subject to appropriate management of adverse environmental effects.</p>	<p>Amend <b>Policy 6</b> as follows:</p> <p>Recognise and provide for new and existing infrastructure <u>and industry</u> of regional importance or of significance to the social, economic and cultural well-being of people and communities in Taranaki, subject to appropriate management of adverse environmental effects.</p>

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
				This would also give better effect to the first two bullet points of Policy 6 in the NZCPS as discussed in <b>Submission Point 2</b> .	
13	Policy 7 Impacts on established operations and activities	22	Support in part	Fonterra supports the implied intent in Policy 7, to give effect to Objective 3 and protect existing lawfully established activities from reverse sensitivity effects. However, as drafted, the policy is unclear and requires amendment.	Amend <b>Policy 7</b> as follows: Avoid, <del>remedy or mitigate</del> the <del>adverse effects</del> <u>reverse sensitivity effects from</u> <del>of new</del> activities, <del>including reverse sensitivity impacts</del> , on existing lawfully established activities.
14	Policy 11 Coastal water quality	23	Support in part	Fonterra does not consider that it is technically possible to maintain and enhance water quality at the same time and therefore suggests an amendment to Policy 11 to better convey the Council's intent. This would ensure Policy 11 is consistent with the relief sought in <b>Submission Point 4</b> above.	Amend <b>Policy 11</b> as follows: Maintain <u>coastal water quality where it is good</u> and enhance coastal water quality <u>where it is degraded</u> by avoiding, remedying and mitigating the adverse effects of activities on: ...
15	Policy 14 Indigenous biodiversity	24	Support	Fonterra supports Policy 14, which seeks to avoid significant adverse effects and avoiding, remedying or mitigating other adverse effects on indigenous biodiversity in the coastal environment.	Retain <b>Policy 14</b> as notified.
16	Policy 17 Public access	26	Support	Fonterra supports Policy 17 which provides for the maintenance and enhancement of public access to the coastal environment.  In particular, Fonterra supports sub-clause (c), which recognises that public access to the coastal environment may not be appropriate in some circumstances, including those where there is a risk to public health and safety, a level of security is required to protect equipment or to reduce conflict	Retain <b>Policy 17</b> as notified.

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
				between activities, particularly where those activities are incompatible.	
17	Policy 18 Amenity values	26	Support	Fonterra supports Policy 18, which seeks to maintain and enhance significant amenity values in the coastal environment.	Retain <b>Policy 18</b> as notified.
<b>SECTION 5.2 – ACTIVITY-BASED POLICIES</b>					
18	Policy 22 Discharge of water or contaminants to coastal waters	28	Support in part	<p>Fonterra supports Policy 22 but considers three minor amendments are necessary:</p> <p>Fonterra considers that Policy 22(c) as currently drafted does not sufficiently identify the circumstances in which best practicable option should be implemented, and therefore seeks amendment to clarify that it is the treatment and discharge for which the best practicable option is adopted. This amendment would ensure consistency with the definition of best practicable option in the RMA.</p> <p>Fonterra supports recognition of a reduction in adverse environmental effects through a defined programme of works in Policy 22(d), but considers that it is necessary to make reference to the programme of works occurring over an appropriate timeframe, for example, to allow time to take into account the benefits sought to be achieved and the costs associated with those works.</p> <p>Policy 22(e) should be amended to refer to the adverse effects on life supporting capacity within the mixing zone, in order to maintain consistency with Policy 23(1)(e) and (f) of the NZCPS (which Policy 22(e) of the Proposed Plan closely reflects).</p>	<p>Retain <b>Policy 22</b> as notified except for the following amendments.</p> <p>Amend <b>Policy 22(c)</b> as follows: Adopt the best practicable option <b>for the treatment and discharge</b> to prevent or minimise adverse effects on the environment...</p> <p>Amend <b>Policy 22(d)</b> as follows: be required, where appropriate, to reduce adverse environmental effects through a defined programme of works <b>over an appropriate timeframe</b> set out as a condition of consent for either new resource consents or during a renewal or review process for existing resource consents;</p> <p>Amend <b>Policy 22(e)</b> as follows: use the smallest mixing zone necessary to achieve the required water quality in the receiving environment and minimise as far as practicable the</p>

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
				<p>adverse effects <u>on life supporting capacity</u> within the mixing zone; and</p> <p>Fonterra specifically supports Policy 22(f), as it allows for sufficient mixing prior to requiring adverse effects to be avoided, remedied or mitigated.</p>	<p>Retain <b>Policy 22(f)</b> as notified.</p>
19	Policy 26 Improving existing wastewater discharges	29	Support in part	<p>Fonterra supports Policy 26, which requires the improvement of existing wastewater discharges subject to the implementation of the best practicable option.</p>	<p>Retain <b>Policy 26</b> as notified.</p>
20	Policy 27 Discharge of stormwater	29	Support in part	<p>Fonterra generally supports Policy 27, which requires the appropriate management of stormwater discharges to the coastal marine area.</p> <p>However, Fonterra considers that the policy should also refer to the implementation of the best practicable option for the treatment and discharge of stormwater into the coastal environment.</p>	<p>Retain <b>Policy 27</b> as notified subject to the addition of a new subclause (d) as follows:</p> <p><u>(d) the adoption of the best practicable option for the treatment and discharge of stormwater to the coastal marine area to minimise adverse effects.</u></p>
21	Policy 30 Discharges of contaminants to air	30	Support	<p>Fonterra supports Policy 30, in particular the requirement to adopt the best practicable option to prevent or minimise adverse effects on the environment associated with discharges of contaminants to air.</p>	<p>Retain <b>Policy 30</b> as notified.</p>
22	Policy 32 Placement of structures	30	Support in part	<p>For the reasons discussed in <b>Submission Point 11</b> above, Fonterra seeks that structures with an operational requirement to be located in the coastal marine area are also provided for in the policy.</p> <p>Fonterra supports subclause (e) and, in particular, the limitations to access where it is not appropriate for safety reasons.</p>	<p>Retain <b>Policy 32</b> as notified, except for an amendment to subclause (a) as follows:</p> <p>Structures in the coastal marine area:</p> <p>(a) will generally be limited to those that have a functional need <u>or operational requirement</u> to be located in the coastal marine area and that do not</p>

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
					cause duplication of a function for which existing structures or facilities are adequate;
23	Policy 34	31	Oppose in part	Fonterra uses a hard protection structure to protect the discharge outfall for the Whareroa dairy manufacturing site, which is the only practical means of protecting the outfall. Fonterra therefore considers that the first sentence of this policy should be amended to also refer to nationally and regionally important industry.	Amend <b>Policy 34</b> as follows: Hard protection structures will be discouraged and the use of alternatives promoted, whilst recognising that hard protection structures may be the only practical means to protect existing nationally and regionally important <u>industry and</u> infrastructure.
24	Policy 36 Maintenance, repair, replacement and minor upgrading of existing structures	31	Support	Fonterra supports Policy 36, which enables the maintenance, repair, replacement and minor upgrading of existing lawful structures in the coastal environment subject to the management of adverse effects.	Retain <b>Policy 36</b> as notified.
<b>SECTION 8.1 – Rules Discharges</b>					
25	Rule 2 Stormwater Discharges Discretionary Activity	48	Support	Fonterra supports the discretionary activity status for stormwater discharges into water or onto land in the coastal marine area.	Retain <b>Rule 2</b> as notified.
26	Rule 6 Wastewater treatment plant discharges Discretionary activity	50	Support	Fonterra supports the discretionary activity status for wastewater discharges that contain treated sewage into water or onto land in the coastal marine area.	Retain <b>Rule 6</b> as notified.
27	Rule 13 Other discharges to water and land not provided for in Rules 1 to 12	53	Support	Fonterra supports the discretionary activity status for "other" wastewater discharges into water or onto land in the coastal marine area.	Retain <b>Rule 13</b> as notified.

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
	Discretionary activity				
28	Rule 17 Other discharges to air not provided for in Rules 15 and 16 Discretionary activity	55	Support	Fonterra supports the discretionary activity status for "other" discharges of contaminants into air from industrial and trade premises in the coastal marine area.	Retain <b>Rule 17</b> as notified.
29	Rule 33 Other structure erection or placement not provided for in Rules 18 to 32 Discretionary activity	72	Support	Fonterra supports the discretionary activity status for erection or placement of "other" structures not provided in Rules 18 to 32.	Retain <b>Rule 33</b> as notified.
30	Rule 35 Structure maintenance, repair or minor alteration Permitted activity	73	Support	Fonterra supports the permitted activity status for the maintenance, repair or minor alteration of existing structures in the coastal environment.	Retain <b>Rule 35</b> as notified.
31	Rule 38 Structure removal and replacement Permitted activity	77	Support	Fonterra supports the permitted activity status for the removal or replacement of structures in the coastal environment.  Fonterra particularly supports permitted activity standard (a), which requires that the structure has a functional need or operational requirement to be located in the coastal marine area.	Retain <b>Rule 38</b> as notified.
32	Rule 42 Other structure repair, alteration, extension or	81	Support	Fonterra supports the discretionary activity status for the repair, alteration, extension, removal or replacement of structures in the coastal	Retain <b>Rule 42</b> as notified.

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
	removal and replacement that is not provided for in Rules 35 to 41 Discretionary activity			environment that are not provided for in Rules 35 to 41.	
33	Rule 48 Continued occupation Permitted activity	86	Support	Fonterra supports the permitted activity status for the continued occupation of structures in the coastal environment that were lawfully established and were permitted at the time of placement or erection.	Retain <b>Rule 48</b> as notified.
34	Rule 49 Continued occupation Controlled activity	87	Support	Fonterra supports the controlled activity status for the continued occupation of structures in the coastal environment that were lawfully established and were a controlled activity at the time of placement or erection.	Retain <b>Rule 49</b> as notified.
35	Rule 50 Other occupation that is not provided for in Rules 47 to 49 Discretionary activity	88	Support	Fonterra supports the discretionary activity status for occupation activities not otherwise provided for.	Retain <b>Rule 50</b> as notified.
36	Rule 51 Clearance of outfalls, culverts and intake structures Permitted activity	89	Support in part	Fonterra generally supports the permitted activity rule for the clearance of outfalls, culverts and intakes that involves the disturbance of the foreshore and seabed.  Fonterra seeks that the timeframe provided for in permitted activity standard (e) is increased to seven days, to recognise that the clearance activity on a large structure may take longer than one day, due to weather (for example), and that these structures	Retain <b>Rule 51</b> as notified except that standard (e) should be amended as follows:  ... (e) activity does not restrict public access for more than <u>seven days 24 hours</u> .

REF	PROVISION	PAGE	SUPPORT / OPPOSE	FONTERRA'S SUBMISSION	RELIEF SOUGHT
				are located in areas where there may be a low level of demand for access.	
37	Rule 60 Other disturbance, damage, destruction, removal or deposition that is not provided for in Rules 51 to 59 Discretionary activity	95	Support	Fonterra supports the discretionary activity status for the disturbance, damage, or destruction of the foreshore and seabed not provided for in Rules 51 to 59.	Retain <b>Rule 60</b> as notified.
<b>SECTION – DEFINITIONS AND ACRONYMS</b>					
38	Functional need	111	New definition	Fonterra seeks a definition of "functional need" to give effect to the relief sought in <b>Submission Point 11</b> above.	<b>Functional need</b> means the need for a proposal or activity to traverse, locate or operate in a particular environment because it can only occur in that environment.
39	Operational requirement	114	New definition	Fonterra seeks a definition of "operational requirement" to give effect to the relief sought in <b>Submission Point 11</b> above	<b>Operational requirement</b> means the requirement for a proposal or activity to traverse, locate or operate in a particular environment because of technical or operational characteristics or constraints.
40	Repair	116	Support	Fonterra supports the definition of repair and the clarification that the Proposed Plan authorises both repair and reconstruction.	Retain the definition of <b>Repair</b> as notified.
<b>SECTION – PLAN MAPS</b>					
41	Map 31		Support	Fonterra supports the classification of the coastal marine environment in the vicinity of Whareroa as Open Coast.	Retain the classification of coastal marine environment in the vicinity of Whareroa as notified.