

# Assessment of West Coast Region coastal sites against indigenous ecological significance criteria

*Prepared for West Coast Regional Council*

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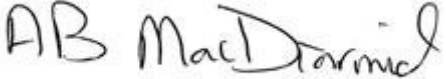
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## Executive summary

The West Coast Regional Council (WCRC) requested an assessment of the alignment of the Department of Conservation's (DOC) proposed schedule of significant coastal indigenous biodiversity against criteria for ecological significance. These criteria were developed by Fenwick (2018) for assessing the ecological significance of coastal areas to assist in fulfilling its obligations under Policy 11 of the New Zealand Coastal Policy Statement (NZCPS) and Section 6(c) of the Resource Management Act (RMA). The assessment will inform the inclusion of coastal sites of ecological significance in the WCRC's proposed Regional Coastal Plan.

DOC's proposed schedule includes 19 Coastal Protection Areas (CPAs) and 29 Marine Mammal, Bird, and Reptile (MMB) sites within the WCRC's area of jurisdiction. Of these, 11 CPA and 2 MMB sites were visually assessed with WCRC staff during site visits in May 2019; all other sites were assessed based only on available published and unpublished documents and communications with local experts. Sites were assessed against each of the eight ecological significance criteria specified in Fenwick (2018). This report presents the findings from these site visits and additional desk-top based assessments, including notes on the ecological significance of one additional site (Monro Beach) that is not currently listed on the DOC schedule.

# 1 Introduction and background

Protection of significant indigenous biodiversity areas in the Coastal Marine Area (CMA) is a legislative requirement for the West Coast Regional Council's (WCRC) proposed Regional Coastal Plan (pRCP). Through Ministry of Business, Innovation and Employment (MBIE) Envirolink Grant WCRC169, NIWA developed a set of eight significance criteria for WCRC (Fenwick 2018) which are appropriate for the CMA and aligned with the New Zealand Coastal Policy Statement (NZCPS) (DOC 2010). A schedule of sites of significant coastal indigenous biodiversity has been proposed by the Department of Conservation (DOC), however the sites have not been assessed against the eight significance criteria.

Identifying significant indigenous biodiversity areas in the CMA is a key component required to move the WCRC pRCP towards a hearing and becoming operative, thus contributing to the protection of significant sites in the CMA. Policy 11 of the NZCPS requires avoidance of adverse effects of activities and the avoidance of significant adverse effects on specific types of indigenous biodiversity which have been assessed as meeting the relevant significance criteria. Without being able to identify areas where significant indigenous biodiversity is located, appropriate protection is not able to be provided. Conversely areas where development does not need to be constrained may be unnecessarily constrained.

Once provisions to protect significant areas are identified and the pRCP is operative, adverse effects of other resource use on these values can be managed through the resource consent process. Where a proposed activity requiring consent may adversely affect an identified significant area, an ecological assessment of the impacts can be requested to ensure the significant values are not affected. The appropriate scheduling and protection of the sites will also contribute to a better national understanding of coastal indigenous biodiversity.

This project for WCRC, funded through MBIE Envirolink Advice Grant WCRC175, assessed alignment of DOC's proposed schedule of significant coastal indigenous biodiversity against the significance criteria suggested by Fenwick (2018) to inform recommendation of sites to include in the pRCP. It involved a site visit by seabird and estuarine ecologists and WCRC staff in May 2019 and a review of available reports provided by WCRC staff.

## 2 Ecological significance criteria

Fenwick (2018) reviewed national and international criteria for ecological significance, recommending a set of eight criteria for the West Coast CMA (Table 2-1). As the pRCP only covers the CMA, and not the coastal environment on the landward side of the Mean High Water Springs, the significance criteria are intended to only apply to the foreshore and inshore areas of the CMA. The eight criteria are:

1. Species of conservation concern;
2. Important area for life history stage;
3. Representativeness;
4. Unique and rare habitat [or ecosystems];
5. Restricted-range species;
6. Biological diversity;
7. Ecological integrity; and
8. Fragile and sensitive habitat.

Application of the criteria was suggested, as well as their relevance to the NZCPS and to Environment Court guidance criteria (Table 2-1).



**Table 2-1: Alignment of the universal criteria for identifying areas important for biodiversity conservation.** Universal criteria (Asaad et al. 2017); Resource Management Act 1991 Section 6(c) requirements implemented via NZCPS Policy 11 entities to be protected and Environment Court guidance criteria. Columns 1-2 from Asaad et al. (2017) Table 2; columns 3-4 from NZCPS (DOC 2010). Adapted from Fenwick (2018).

Universal criteria for identifying AIBCs	Application	NZCPS Policy 11 section and description of entities protected	Environment Court Guidance Criteria
Species of conservation concern	An area that is inhabited by species that are categorized as threatened or protected (e.g., Listed in the IUCN Red List of Threatened species, CITES Appendix, EU Bird and Habitat Directive Annex or other regional/national legislations).	<p>a(i) Indigenous taxa that are listed as threatened or at risk in the NZ Threat Classification System list.</p> <p>a(ii) Taxa that are listed by the International Union for Conservation of Nature as threatened.</p> <p>a(iii)?? Indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare.</p> <p>a(vi)? Areas set aside for full or partial protection of indigenous biological diversity under other legislation.</p>	<p>Vulnerability, Rarity</p> <p>Vulnerability, Rarity</p> <p>Vulnerability, Rarity</p> <p>Vulnerability, Diversity</p>
Important area for life history stage	An area that is important for evolution and/or life history, such as areas of species' aggregation, refugia, spawning, breeding, nursery or migratory routes.	<p>b(ii) Habitats in the coastal environment that are important during the vulnerable life stages of indigenous species.</p> <p>b(v) Habitats, including areas and routes, important to migratory species.</p> <p>b(vi)? Ecological corridors, and areas important for linking or maintaining biological values identified under this policy.</p>	<p>Relationship</p> <p>Relationship</p> <p>Diversity</p>
Representativeness	An area that enables a network to encompass a full range of biodiversity.	a(v)?? Areas containing nationally significant examples of indigenous community types.	Representativeness, Diversity, Rarity
Unique and rare habitat [or ecosystems]	A habitat that occurs only at a specific site or a small number of sites.	<p>a(iii)?? Indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare.</p> <p>a(iv) Habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare.</p>	<p>Vulnerability, Rarity</p> <p>Vulnerability, Diversity</p>
Restricted-range species	An area inhabited by a species that has a restricted geographic distribution. If naturally restricted this is an 'endemic' species.	a(iv)? Habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare.	Vulnerability, Diversity

Universal criteria for identifying AIBCs	Application	NZCPS Policy 11 section and description of entities protected	Environment Court Guidance Criteria
Biological diversity	An area that is inhabited by a large number of species, and/or will increase the number of species in the network of areas.	None, or possibly many NZCPS habitats/areas: a(v), a(vi), b(i), b(ii), b(iii), b(v), b(vi)??	Diversity, Relationship
Ecological integrity	An area that exhibits a contiguous natural habitat with negligible anthropogenic disturbance.	a(v)? Areas containing nationally significant examples of indigenous community types.	Representativeness, Diversity, Rarity, Naturalness
Fragile and sensitive habitat	A habitat that is highly susceptible to natural or human-induced threats.	b(i)?? Areas of predominantly indigenous vegetation in the coastal environment. b(iii) Indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh.	Vulnerability Vulnerability, Rarity

## 3 Assessment of ecological significance

### 3.1 Schedule of significant coastal indigenous biodiversity

Coastal Protection Areas (CPAs) on the West Coast are listed in the Department of Conservation (DOC) Schedule 3H – Coastal Protection Areas (Figure 3-1, Table 3-1). CPAs are areas below Mean High Water Springs that are considered to be of regional, national or international importance in terms of their ecological features. Values found adjacent to the coastal marine area that could be adversely affected by activities are also identified, for example dune or shingle beach ridge communities.

Most West Coast estuaries are included as CPAs as they are particularly valuable in terms of their biological productivity, diversity and/or significance to indigenous flora (e.g. wetlands) or fauna, such as whitebait species (an iconic West Coast recreational fishery recognised nationally) and feeding areas for diverse waders and waterfowl such as the iconic species kotuku (white heron) which nest adjacent to the Waitangiroto River.

Marine Mammal, Bird, and Reptile (MMB) areas on the West Coast (Figure 3-1, Table 3-1) are listed in DOC Schedule 3I – Cross Boundary Areas. MMBs are areas located above Mean High Water Springs that are important for marine mammals and birds. Designation as MMBs provides a mechanism for recognising the importance for these species of unimpeded access to these sites across the nearshore coastal waters and foreshore. In undertaking activities within or adjacent to any MMB, priority will be given to avoiding adverse effects of activities on indigenous taxa that are listed as threatened or at risk, or avoiding, remedying or mitigating adverse effects on values associated with the area in accordance with Policy 11 of the NZCPS (DOC 2010).

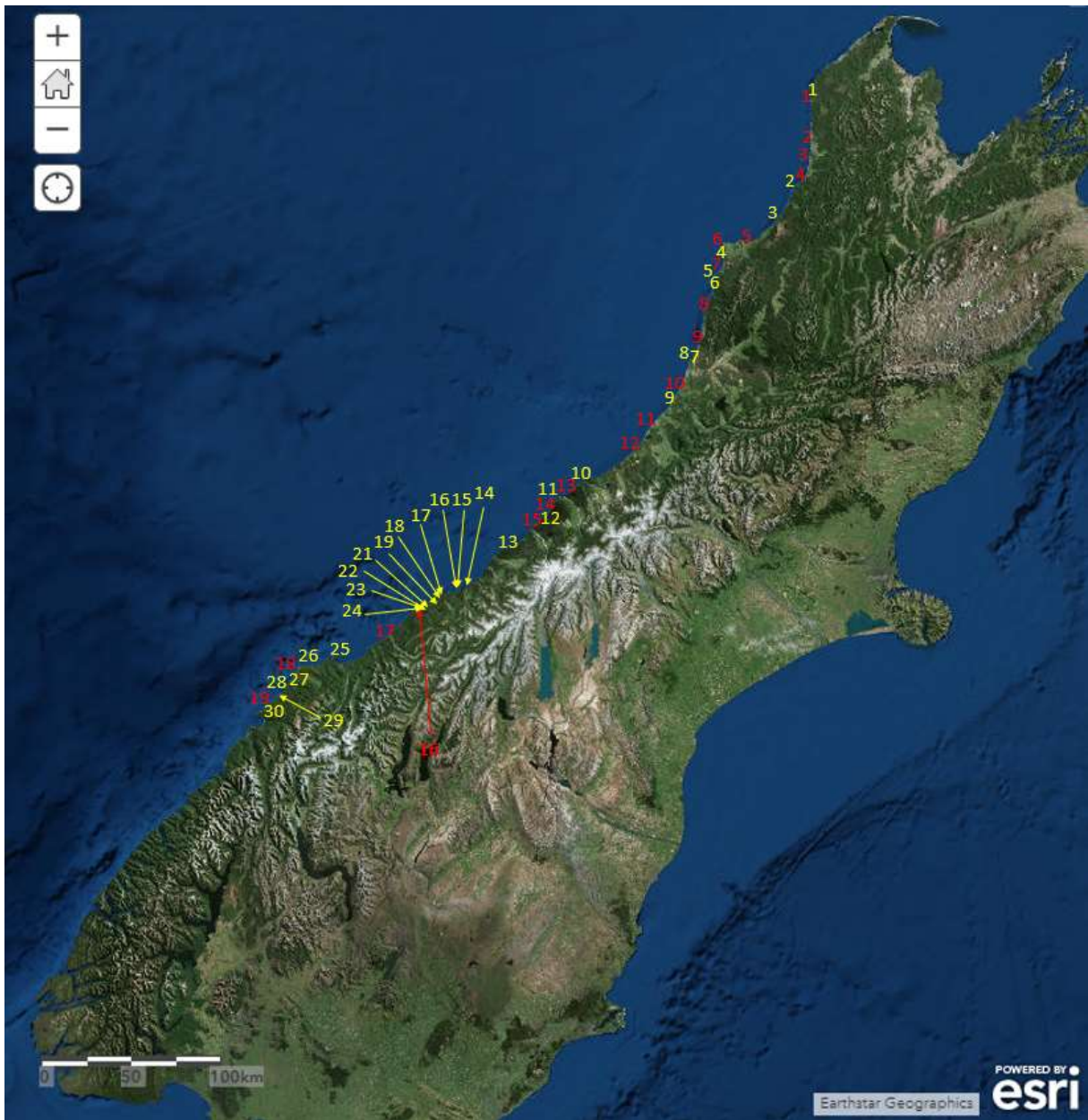


Figure 3-1: South Island of New Zealand, with approximate locations of 19 CPA sites (Red) and 29 MMB sites (Yellow) that fall within the WCRC’s jurisdiction. Aerial imagery sourced from WCRC Aerial Photos from ArcGIS.

**Table 3-1: CPA and MMB sites.**

Site ID	Location	Latitude	Longitude	Visited in May 2019
CPA1	Kahurangi Marine Reserve	40°59'13"S	172°06'20"E	No
CPA2	Oparara Estuary	41°12'48.40"S	172°06'26.12"E	Yes
CPA3	Karamea/Otumahana Estuary	41°15'47.79"S	172°06'15.59"E	Yes
CPA4	Little Wanganui Head and River	41°23'28.28"S	172° 3'30.59"E	Yes
CPA5	Orowaiti Lagoon	41°45'2.95"S	171°37'24.63"E	Yes
CPA6	Cape Foulwind and Offshore Islands	41°44'54"S	171°27'50"E	Yes
CPA7	Okari Lagoon	41°48'45"S	171°27'52"E	No
CPA8	Punakaiki Coastline (Seal Island to Perpendicular Point to Dolomite Point and Punakaiki Marine Reserve and recreational fishing areas)	42° 1'51.86"S	171°23'3.41"E	Yes
CPA9	Greigs to Nine Mile Bluff	42°18'49.43"S	171°16'49.34"E	Yes
CPA10	New River/Kaimata Saltwater River Lagoon Paroa	42°31'5.47"S	171° 9'43.87"E	Yes
CPA11	Mahinapua Creek / Tūwharewhare	42°43'41"S	170°56'50"E	No
CPA12	Totara Lagoon	42°51'06"S	170°49'50"E	No
CPA13	Saltwater Lagoon	43°06'16.32"S	170°20'47.38"E	No
CPA14	Okarito Lagoon	43°13'16.89"S	170°10'7.04"E	Yes
CPA15	Waiiau Glacier Coast Marine Reserve, Three Mile Lagoon, Five Mile Lagoon	43°14'23.97"S	170°07'32.57"E	Yes
CPA16	Tauparikākā Marine Reserve and within 1 nautical mile of the Reserve (Ship Creek)	43°45'28.36"S	169°08'52.17"E	Yes
CPA17	Open Bay Islands	43°51'40"S	168°52'51"E	No
CPA18	Cascade River Mouth	44°01'49"S	168°21'51"E	No
CPA19	Hautai Marine Reserve	44°13'11"S	168°08'13"E	No
MMB1	Toropuihi to Wekakura Point	40°54'38"S	172°05'57"E	No
MMB2	Kongahu Point	41°26'44"S	171°59'11"E	No
MMB3	Granity Shoreline	41°37'49"S	171°51'58"E	No
MMB4	North End of Nine Mile Beach (Buller)	41°46'39"S	171°27'17"E	No
MMB5	Charleston	41°54'08"S	171°26'12"E	Yes

Site ID	Location	Latitude	Longitude	Visited in May 2019
MMB6	South of Deep Creek	41°54'55"S	171°25'12"E	No
MMB7	Cobden Beach	42°22'38"S	171°14'16"E	No
MMB8	Point Elizabeth (including Shag Rock and Big Rock)	42°22'46"S	171°13'08"E	No
MMB9	Chesterfield Shoreline	42°36'11"S	171°05'39"E	No
MMB10	Wanganui Bluff	43°01'48"S	170°26'30"E	No
MMB11	Abut Head	43°06'31"S	170°15'36"E	No
MMB12	Okarito Bluffs	43°13'44"S	170°08'21"E	Yes
MMB13	Galway Point to Gillespies Point	43°23'44"S	169°52'04"E	No
MMB14	Heretaniwha Point	43°35'11"S	169°33'18"E	No
MMB15	Buttress Point	43°37'19"S	169°29'14"E	No
MMB16	Hanata Island	43°37'03"S	169°27'23"E	No
MMB17	Tititira Head	43°37'31"S	169°25'36"E	No
MMB18	Awataikato Point	43°38'20"S	169°22'58"E	No
MMB19	Abbey Rocks	43°40'09"S	169°19'54"E	No
MMB21	Otumotu Point	43°41'46"S	169°15'55"E	No
MMB22	Murphy Beach	43°42'44"S	169°13'59"E	No
MMB23	Arnott Point	43°43'09"S	169°12'34"E	No
MMB24	Seal Point	43°43'50"S	169°11'29"E	No
MMB25	Jackson Head	43°57'36"S	168°37'22"E	No
MMB26	Stafford Bay to Cascade Point	44°00'14"S	168°30'04"E	No
MMB27	Halfway Bluff	44°03'03"S	168°19'34"E	No
MMB28	Cascade Bay to Gorge River	44°08'45"S	168°15'19"E	No
MMB29	Browne Island	44°08'29"S	168°15'04"E	No
MMB30	Gorge River to Awarua Point	44°14'17"S	168°06'37"E	No
MMB X	Monro Beach	43°42'04"S	169°15'33"E	Yes

### 3.2 Alignment of sites with ecological significance criteria

Sites were assessed against the eight ecological significance criteria (Table 3-2), using observations from the May 2019 site visit as well as available reports from the grey literature as provided by WCRC staff, including information compiled for the West Coast Marine Protected Area Forum, and survey reports/memos of penguin and other seabird colony abundances by various individuals associated with the West Coast Penguin Trust.

As a caveat, only a subset of identified sites in the schedule were able to be visited. The identification of a schedule of sites for ecological significance may also need to be expanded in future to include sites that have not yet been discovered, particularly for marine mammals or other key species. Protocols should therefore be put in place such that new areas (e.g. a new penguin breeding colony) could be easily added into the schedule. For a number of sites that were not visited, further site visits should occur to confirm their value as MMBs, such as the area from the Taramakau to Greymouth which is believed to have high numbers of blue penguins in several colonies, notably at Camerons and Paroa, or the area immediately north of Hokitika (Richards Drive to Houhou Creek, where the West Coast Penguin Trust reports that there are perhaps 30-40 pairs or more of blue penguins). Further, a number of CPAs or MMBs are described only vaguely as to their exact boundaries, such that further extension of some CPAs or clarification of boundaries should be made to confirm if they cover key species or if new MMBs should be scheduled to cover gaps in protection.

The New Zealand Biodiversity Strategy (NZBS) 2000-2020 was published in February 2000, and details New Zealand's international responsibility under the Convention of Biological Diversity (DOC 2000). The current NZBS expires in 2020, and a discussion document will be released shortly to update the NZBS (see <https://www.doc.govt.nz/get-involved/have-your-say/all-consultations/2018/new-zealand-biodiversity-strategy/>). Should the draft NZBS propose national ecological significance criteria, the West Coast criteria and the schedule of sites of ecological significance should be compared to ensure alignment, once these national criteria have been finalised.

**Table 3-2: Alignment of individual CPAs and MMBs with proposed ecological significance criteria.**

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA1	Kahurangi Marine Reserve	Hector's dolphin; coastal cress ( <i>Lepidium flexicaule</i> )		Northern West Coast marine ecosystems (intertidal sands, boulder and bedrock habitats, shallow subtidal sand and rocky reefs, deep sand and mud habitats)			Diversity of habitats		Dune habitats
CPA2	Oparara Estuary	Inanga and koaro; Observed bird taxa of concern include variable oystercatcher, South Island pied oystercatcher, pied shag, red-billed gull, and white-fronted tern	Roosting, nesting, feeding of waterfowl and waders (including migratory godwits and turnstones); Spawning, feeding and migration of inanga, banded kokopu and koaro				Diversity of tidal flat habitats	International significance criteria – estuary	Tidal flat estuary, coastal wetland vegetation



Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA3	Karamea/Otumahana Estuary	Inanga, shortjaw kokopu, koaro; Waterfowl and indigenous waders. Observed taxa of concern include variable oystercatcher, South Island pied oystercatcher, banded dotterel, pied shag, bar-tailed godwit, grey duck	Spawning, feeding and migration of inanga, banded kokopu, shortjaw kokopu, koaro; Roosting, nesting, feeding of waterfowl and waders	Nationally important estuary with wetland ecosystems sequences from salt marsh to freshwater wetlands protected under Conservation Act (1987)	Southernmost limit for bubble shell (gastropod)		Diverse coastal wetland flora	International significance criteria – estuary for saltmarsh, sandflat, wetland habitats	Lagoon, coastal wetland

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA4	Little Wanganui Head and River	Inanga, giant kokopu; Waterfowl and indigenous waders. Observed taxa of concern include variable oystercatcher, red-billed gull, black-billed gull, grey duck	Spawning, feeding and migration of inanga, banded kokopu, giant kokopu; Roosting, nesting, feeding of waterfowl and waders	Unrestricted tidal river mouth					

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA5	Orowaiti Lagoon	Inanga, shortjaw kokopu; Coastal cress <i>Lepidium flexicaule</i> ; Waterfowl and indigenous waders. Observed taxa of concern include variable oystercatcher, South Island pied oystercatcher, white heron, banded dotterel, bar-tailed godwit	Spawning, feeding and migration of inanga, banded kokopu, shortjaw kokopu; Roosting, nesting, feeding of waterfowl and waders	Estuarine ecosystem with high natural ecosystem values	<i>Macra tristis</i> (southern limit)		Diverse coastal wetland vegetation	International significance criteria – estuary for saltmarsh, sandflat	

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA6	Cape Foulwind and Offshore Islands	Hector's dolphin; Waterfowl and indigenous waders. Known taxa of concern include white-fronted tern, sooty shearwater, little blue penguin, fairy prion	Breeding, roosting and foraging area for seabirds including southern white-fronted tern, spotted shag, sooty shearwater, little blue penguin, fairy prion; breeding site for NZ fur seal	Examples of northern West Coast rocky coastal habitats, typical seaweed communities			Diverse rocky reef communities, especially on offshore reefs		
CPA7	Okari Lagoon	Inanga, shortjaw kokopu; Waterfowl and indigenous waders. Known taxa of concern include variable oystercatcher, banded dotterel	Spawning, feeding and migration of inanga, banded kokopu, shortjaw kokopu; Roosting, nesting, feeding of waterfowl and waders	Tidal lagoon with elongate platform; wetland ecosystem with high natural ecosystem values				International significance criteria – estuary for saltmarsh, sandflat; Okari Spit Scenic Reserve, Okari Lagoon marginal strip and Conservation Area	

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA8	Punakaiki Coastline (Seal Island to Perpendicular Point to Dolomite Point and Punakaiki Marine Reserve and recreational fishing areas)	Waterfowl and indigenous waders. Known taxa of concern include white-fronted tern, Westland petrel, sooty shearwater, fairy prion, banded dotterel, little blue penguin; other species observed include: red-billed gull	NZ fur seal haul out; little blue penguin nesting; Roosting, nesting, feeding of waterfowl and waders	Outstanding natural feature and landscape of Dolomite Point and its Putai Blowhole			Diversity of habitats – wide open coastal rocky and gravel shores, offshore bull kelp forests, sandy habitats		Significant risk of sea level rise to narrow shoreline; invasive vegetation
CPA9	Greigs to Nine Mile Bluff			Important rocky reef/cobble beach habitats, rocky shore platforms				Rocky shore platforms are geological site of regional significance	Risk of coastal erosion; high level of human-disturbance to maintain shoreline access / state highway

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA10	New River/Kaimata Saltwater River Lagoon Paroa	Inanga, shortjaw kokopu, koaro, longfin eel, lamprey, torrentfish, bluegill bully; Waterfowl and indigenous waders. Observed taxa of concern include white heron	Spawning, feeding and migration of inanga, banded kokopu, shortjaw kokopu, koaro; Roosting, nesting, feeding of waterfowl and waders	Regionally significant intermittent opening beach stream mouth with riverine ribbon lagoon				Regionally significant tidal river lagoon; wetland protected within Paroa Wildlife Management Reserve	
CPA11	Mahinapua Creek / Tūwharewhare	Inanga; Waterfowl and indigenous waders (not observed)	Spawning, feeding and migration of inanga, banded kokopu	Example of estuarine stream mouth, part of a larger composite tidal system				High natural values, margin remain largely in indigenous vegetation	

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA12	Totara Lagoon	Inanga, koaro, longfin eel; Waterfowl and indigenous waders (not observed)	Spawning, feeding and migration of inanga, banded kokopu, koaro, longfin eel; Roosting, nesting, feeding of waterfowl and waders in lagoon and adjacent to CMA	Beach stream mouth and composite system including river mouth with long riverine tidal ribbon lagoon				Wetlands included in Totara Lagoon Wildlife Management Reserve	
CPA13	Saltwater Lagoon	Inanga; Waterfowl and indigenous waders (not observed); <i>Deschampsia cespitosa</i>	Spawning, feeding and migration of inanga; Roosting, nesting, feeding of waterfowl and waders in lagoon and adjacent to CMA	Naturally opening and closing lagoon system, either as freshwater lagoon enclosed by barrier beach or estuarine tidal lagoon			Diverse estuarine habitats: tidal flats, channels, open water, saltmarsh, rocky shore habitats	International significance criteria – estuary with pristine margins; scenic reserve part of Te Wāhipounamu South West New Zealand World Heritage Area	

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA14	Okarito Lagoon	Inanga, longfin eel, <i>Deschampsia cespitosa</i> ; Waterfowl and indigenous waders. Observed species included kotuku (white heron), variable oystercatcher, South Island pied oystercatcher, Caspian tern	Spawning, feeding and migration of inanga and longfin eel (feeding); Roosting, nesting, feeding of waterfowl and waders in lagoon and adjacent to CMA	Largest intact natural coastal lagoon in NZ; nationally and internationally important wetland			Tidal flats, channels, open water, saltmarsh grading into freshwater wetlands habitats	International significance criteria – estuary for saltmarsh, sandflat, mudflat, tidal channels; margins are part of Te Wāhipounamu South West New Zealand World Heritage Area	



Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA15	Waiau Glacier Coast Marine Reserve, Three Mile Lagoon, Five Mile Lagoon	Little blue penguin	Little blue penguin nesting (large stable colony)	Estuarine wetland ecosystem ribbon lagoon wetland ecosystem with high natural ecosystem values; good example of central West Coast marine ecosystem			Diverse natural landscape with boulder moraine headlands, gravelly beaches, muddy seabeds, gravel bed river mouth, estuarine wetland ecosystems with diverse tidal flat and estuarine vegetated habitats	Three Mile Lagoon: International significance criteria – estuary	
CPA16	Tauparikākā Marine Reserve and within 1 nautical mile of the Reserve (Ship Creek)	Hector's dolphin; fairy prion		Submarine canyon				Adjoins natural coastlines and catchments within Te Wāhipounamu South West New Zealand World Heritage Area and the Tauparikākā Mātaitai Reserve	Indigenous coastal vegetation (esp. pingao)

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA17	Open Bay Islands	Fiordland crested penguin, little blue penguin, sooty shearwater, fairy prion, variable oystercatcher, Open Bay Islands skink and gecko	Breeding and roosting area for Fiordland crested penguin, little blue penguin, spotted shag, sooty shearwater, fairy prion, variable oystercatcher; One of two islands for Open Bay Islands skink and only island for Open Bay Islands gecko	Rocky shore island ecosystem with high natural ecosystem values					
CPA18	Cascade River Mouth	Inanga	Spawning, feeding and migration site for inanga; Roosting, nesting, feeding of waterfowl and waders in lagoon and adjacent to CMA	Only substantial river mouth dune system; longest sandspit in Westland/Fiordland				River mouth is part of the Cascade Conservation Area and part of the Te Wāhipounamu South West New Zealand World Heritage Area	Dune system

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
CPA19	Hautai Marine Reserve	Fiordland crested penguin		Example of submarine canyons, southern West Coast marine ecosystem				Adjoins natural coastlines and catchments that are part of the Te Wāhipounamu South West New Zealand World Heritage Area	
MMB1	Toropuihi to Wekakura Point		NZ fur seal rookery (breeding and haul out)						Susceptibility to sea level rise
MMB2	Kongahu Point		NZ fur seal rookery (breeding and haul out)						Susceptibility to sea level rise
MMB3	Granity Shoreline	Speckled skink (undescribed taxa, genetically distinct); little blue penguin	Little blue penguin nesting			Speckled skink (undescribed taxa, genetically distinct)			Susceptibility to coastal erosion and sea level rise
MMB4	North End of Nine Mile Beach (Buller)	Little blue penguin	Little blue penguin nesting						

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
MMB5	Charleston	Little blue penguin	Little blue penguin nesting (largest West Coast population)						
MMB6	South of Deep Creek	Little blue penguin, sooty shearwater	NZ fur seal rookery (breeding and haul out), little blue penguin nesting						
MMB7	Cobden Beach	Speckled skink				Speckled skink			Susceptibility to coastal erosion and sea level rise
MMB8	Point Elizabeth (including Shag Rock and Big Rock)	Little blue penguin, sooty shearwater	NZ fur seal rookery (breeding and haul out)						
MMB9	Chesterfield Shoreline	Speckled skink (undescribed taxa, genetically distinct)				Speckled skink (undescribed taxa, genetically distinct)			Susceptibility to coastal erosion and sea level rise
MMB10	Wanganui Bluff		NZ fur seal haul out						

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
MMB11	Abut Head		NZ fur seal haul out						
MMB12	Okarito Bluffs	Little blue penguin	NZ fur seal haul out; little blue penguin nesting						
MMB13	Galway Point to Gillespies Point		NZ fur seal winter haul out						
MMB14	Heretaniwha Point	Fiordland crested penguin	Fiordland crested penguin - nesting, roosting, moulting area		Fiordland crested penguin (northernmost breeding site)				
MMB15	Buttress Point	Fiordland crested penguin	Fiordland crested penguin - nesting						
MMB16	Hanata Island		NZ fur seal haul out						
MMB17	Tititira Head		NZ fur seal haul out						

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
MMB18	Awataikato Point	Fiordland crested penguin	Fiordland crested penguin - nesting						
MMB19	Abbey Rocks	Fiordland crested penguin	Fiordland crested penguin - nesting						
MMB21	Otumotu Point	Fiordland crested penguin	Fiordland crested penguin – nesting, roosting, moulting						
MMB22	Murphy Beach	Fiordland crested penguin	Fiordland crested penguin – nesting, roosting, moulting						
MMB23	Arnott Point		NZ fur seal haul out						
MMB24	Seal Point	Fiordland crested penguin	Fiordland crested penguin - nesting						

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
MMB25	Jackson Head	Fiordland crested penguin	Fiordland crested penguin – nesting, roosting, moulting						
MMB26	Stafford Bay to Cascade Point	Fiordland crested penguin	Fiordland crested penguin – nesting; NZ fur seal haul out						
MMB27	Halfway Bluff	Fiordland crested penguin	Fiordland crested penguin – nesting						
MMB28	Cascade Bay to Gorge River	Fiordland crested penguin	Fiordland crested penguin – nesting						
MMB29	Browne Island		NZ fur seal haul out						
MMB30	Gorge River to Awarua Point	Fiordland crested penguin	Fiordland crested penguin – nesting						

Site ID	Location	Species of conservation concern	Important area for life history stage	Representativeness	Unique and rare habitat [or ecosystems]	Restricted-range species	Biological diversity	Ecological integrity	Fragile and sensitive habitat
MMB X	Monro Beach	Fiordland crested penguin	Fiordland crested penguin nesting						



## 4 Acknowledgements

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## Appendix A Site descriptions and site photos of CPAs (Coastal Protection Areas) and MMBs (Marine Mammal, Bird and Reptile Cross Boundary Areas)

### CPA 1 Kahurangi Marine Reserve

Location: 40°59'13"S, 172°06'20"E. Not visited in May 2019.

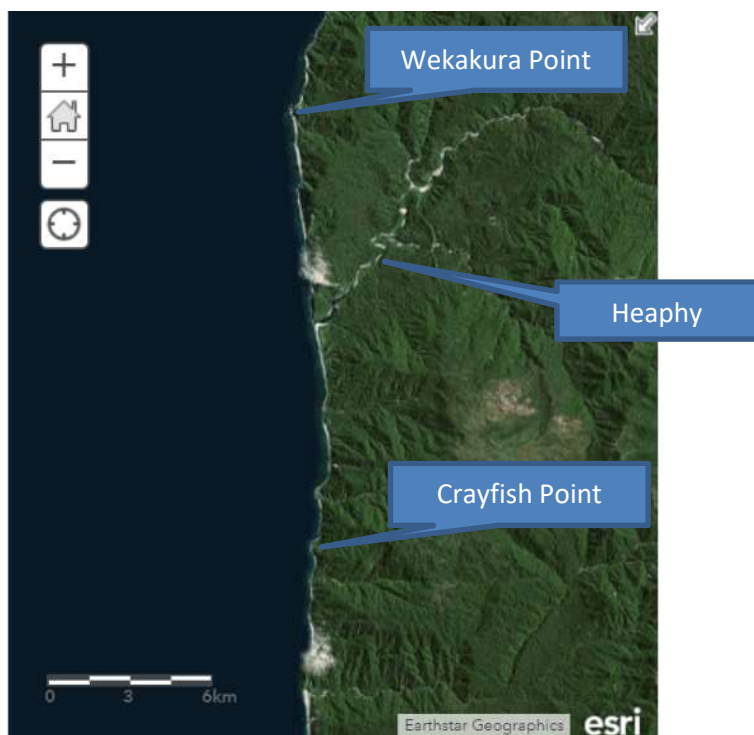


Figure A-1: CPA1 - Kahurangi Marine Reserve locality, sourced from WCRC aerial photos from ArcGIS.

#### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Marine Reserve: Between Wekakura Point and Crayfish Point and out to five kilometres offshore. It excludes the Heaphy River bed that is in the coastal marine area. It is a representative example of northern West Coast marine ecosystems which generally adjoins Kahurangi National Park. It contains eight habitat types which are representative examples of intertidal sands, boulder and bed rock habitats, extensive shallow subtidal sand habitats and rock reef habitats and deepwater sand and mud habitats. On the sand habitats are tuatua, tauki /hakiari (surf clams) and kuhakuha /purimu (including a West Coast endemic *Maetra murshsoni* and Waikaka/pupu (Mudsnail)). Reefs have bull kelp and agar seaweed (*Pterocladia lucida*) and are a significant habitat of a diverse reef fish fauna including northern coastal reef fish. Hector's dolphins are found in the near shore zone. Plants found on the fore dunes and strandline immediately adjacent to the coast marine area include sand tussocks (*Poa billardierei*, declining), pingao (*Ficinia spiralis*, declining), sand coprosma (*Coprosma acerosa*, declining) and New Zealand spinach (*Tetragonia tetragonoides*, declining). Coastal cress (*Lepidium flexicaule*, nationally vulnerable) and native sow thistle (*Sonchus kirkii*, declining) are found on cliffs including their base. Toe slopes plants include *Carex littoralis* (declining) and poroporo (*Solanum aviculare* var *aviculare*, declining).”

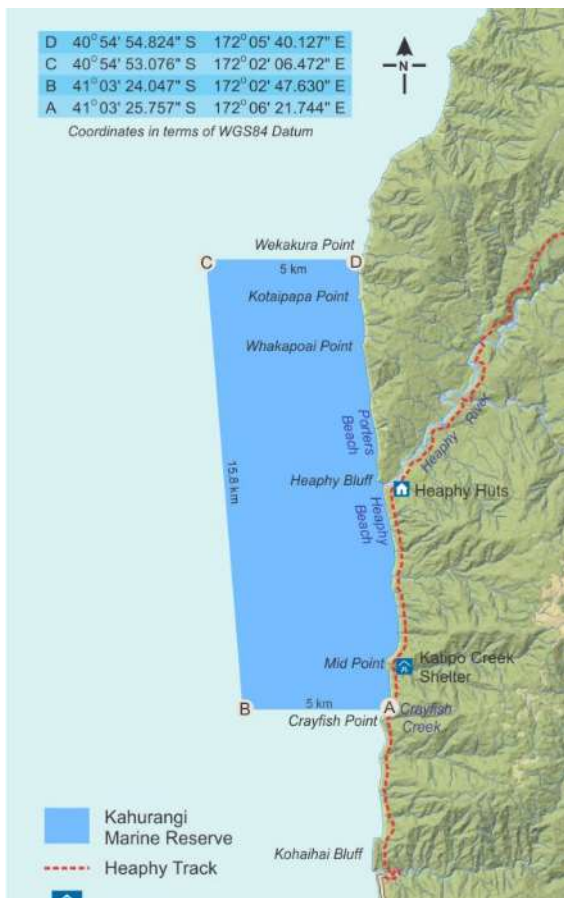
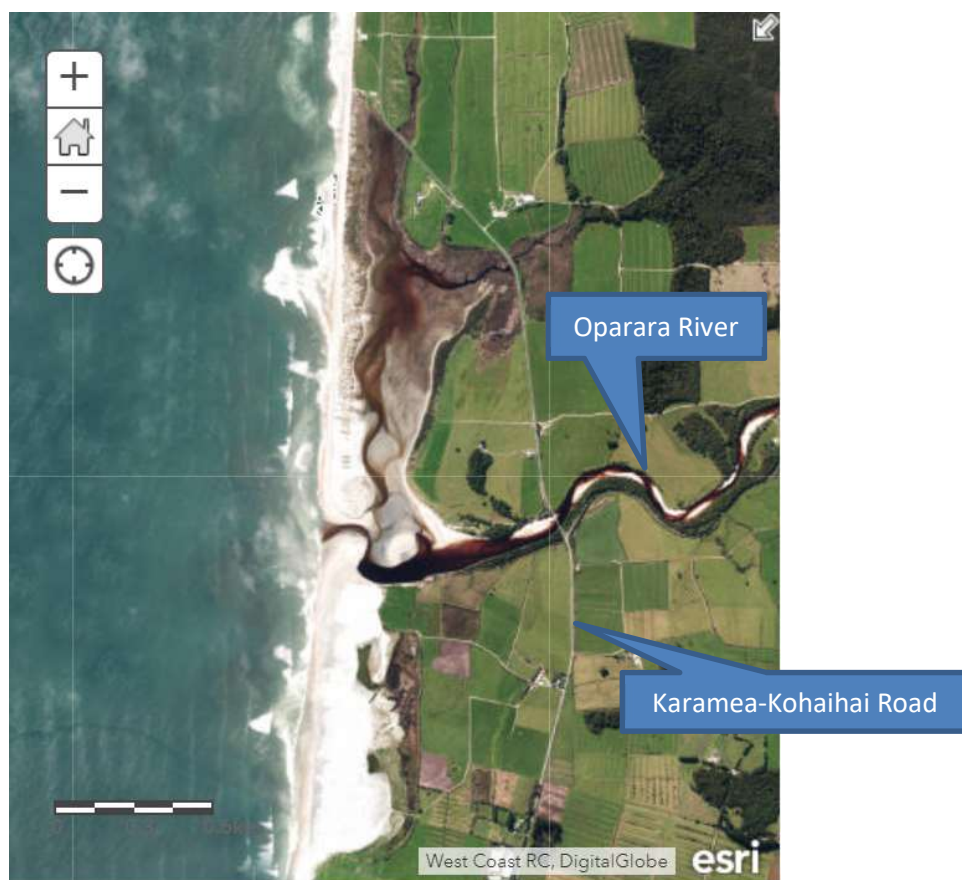


Figure A-2: CPA1 - Kahurangi Marine Reserve Boundaries (sourced from DOC website, 13 June 2019).

## CPA2 Oparara Estuary

Location: 41°12'48.40S, 172°06'26.12E.



**Figure A-3: CPA2 - Oparara Estuary locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

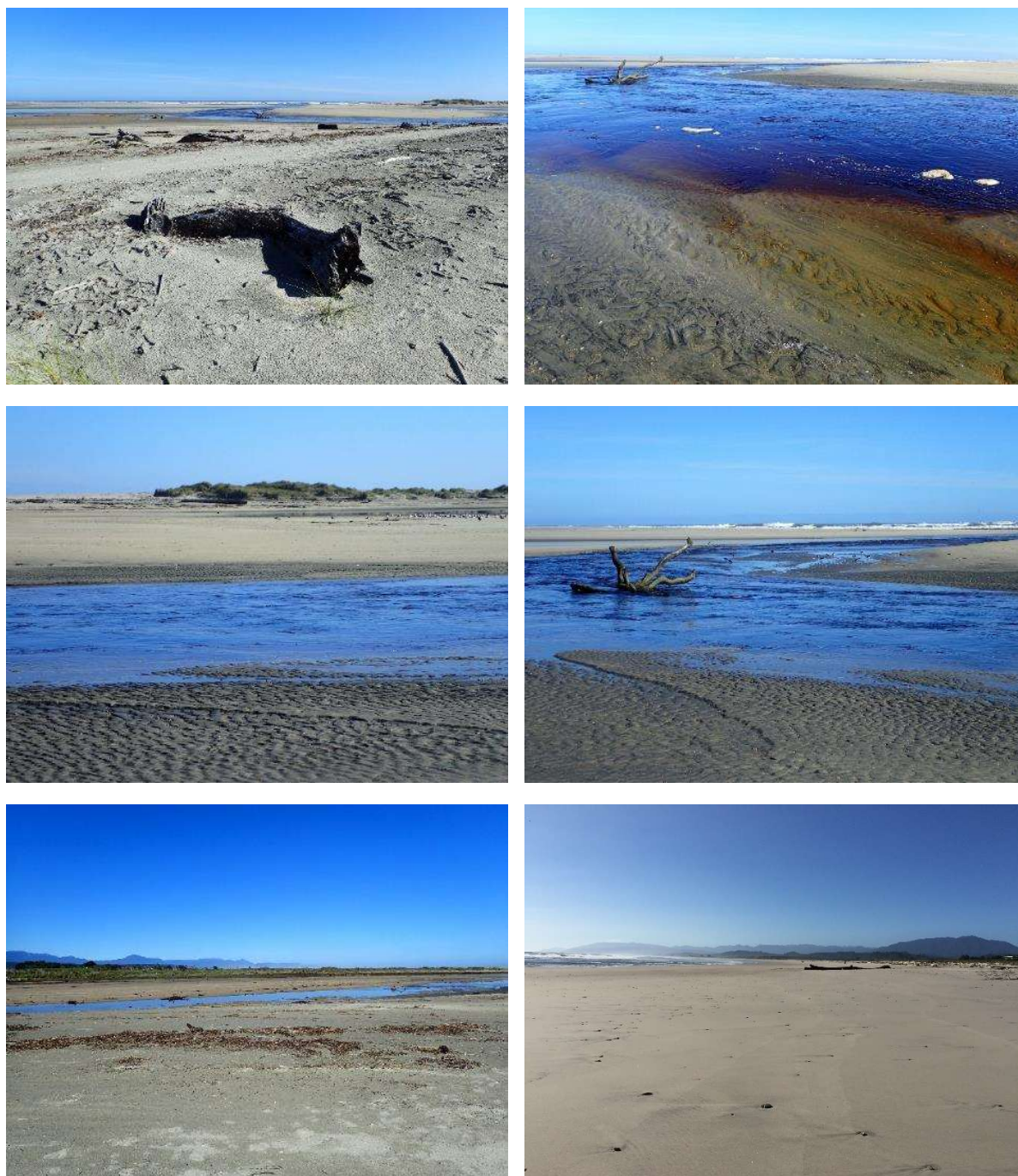
“Oparara Estuary is a tidal river mouth with open lagoon which has important estuarine wetland ecosystem with high natural ecosystem values. Tidal flats, channels, saltmarsh and naturally rare coastal turfs on the margins provide a diversity of habitats for estuarine flora and invertebrates. There is habitat for indigenous fish (in particular whitebait species such as inanga, banded kokopu and koaro), including spawning, feeding and migration. Oparara is an important habitat for wetland and coastal birds on the West Coast. High numbers of waterfowl and waders use the estuary as a feeding habitat. Roosting and nesting of water fowl and indigenous waders occurs in the area adjacent to the coastal marine area. In summer migratory waders such as godwits and turnstone are present.”

### Site observations, May 2019

The tidal lagoon is fed by a tidal creek with the stream bottom stained a reddish hue from tannins. Substantial woody debris was observed in the estuary, with 3-4 apparent debris lines approaching the saltmarsh habitat. Substantial shell hash accumulated in the wrack line, including juvenile (10-30 mm) pipis *Paphies australis* and *Mactra* sp., with shell hash abundance of 10-20 shells/m<sup>2</sup> on the wrack line. The shellbank source of this shellhash was not found during our limited visit to the site. A 1-2 m high dune is along the seaward edge of the lagoon. Coarse granite sand (feldspar) with occasional cobbles and pebbles and ripples 5-10 width, 2-3 cm in height were observed on the shoreward side of the tidal creek, with a raised sandflat approaching the sandspit on the shoreward side of the creek. At the shoreward edge, common species on the saltmarsh edge of the estuary included invasive marram grass

*Ammophila arenaria* (tentative identification via photo, Paul Champion, NIWA) and the small herb shore bindweed *Calystegia soldanella*.

A number of bird species were observed in the estuary, including: variable oystercatcher, South Island pied oystercatcher, pied stilt, pied shag, little shag, kingfisher, red-billed gull, black-backed gull and white-fronted tern. The adjacent land is pasture, with no fencing apparent.



**Figure A-4: CPA2 - Oparara Estuary site photos, May 2019.** Clockwise from top left: looking seaward, sandspit and inshore woody debris wrack lines; tannin stained stream with woody debris; ripples inshore of stream; coarse sand and woody debris looking northwest; wrack line looking south toward shore; sediment ripples near seaward sandspit.



**Figure A-5: CPA2 - Oparara Estuary site photos, May 2019, continued.** Clockwise from top left: close up of wrack line with woody debris and shell hash; coarse gravel; pipi debris amongst cobbles; invasive marram grass *Ammophila arenaria*; shore bindweed *Calystegia soldanella*; shell hash close-up.

## CPA3 Karamea/Otumahana Estuary

Location: 41°15'47.79"S, 172°06'15.59"E.



**Figure A-6: CPA3 – Karamea/Otumahana Estuary locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H Coastal Protected Areas (as provided by WCRC)

“Karamea/Otumahana Estuary is a large dynamic estuary that is a tidal river mouth with open lagoon. Until at least 2007 Karamea/Otumahana Estuary was notable as a composite system which had two mouths – a large double estuary enclosed by sand spits and barrier island(s). Subsequently longshore drift of sand to the North has closed the Otumahana Estuary mouth. The new mouth is highly mobile and reflects the surf and the Karamea River battle for dominance. Within this nationally important estuary are wetland ecosystems sequences from salt marsh to freshwater wetlands. Several of the wetlands are protected under the Conservation Act 1987. These wetlands have a diverse flora including *Carex litorosa* (declining). Channels, tidal flats, and salt marsh provide a diversity of habitats for estuarine flora and invertebrates including cockles and pipis. It is the southernmost limit for bubble shell (a snail) and the glasswort (a salt marsh plant). It is a significant habitat for indigenous fish (e.g. inanga, koaro, giant kokopu and shortjaw kokopu (nationally vulnerable)), especially for spawning, feeding and migration.

The estuary is a significant habitat for wetland and coastal birds. It has high diversity (forty species) and high numbers of waterfowl and waders. White herons (nationally critical) use this estuary for feeding after breeding. Roosting and nesting occurs in the area adjacent to the coastal marine area. High natural character values.”

### Site observations, May 2019

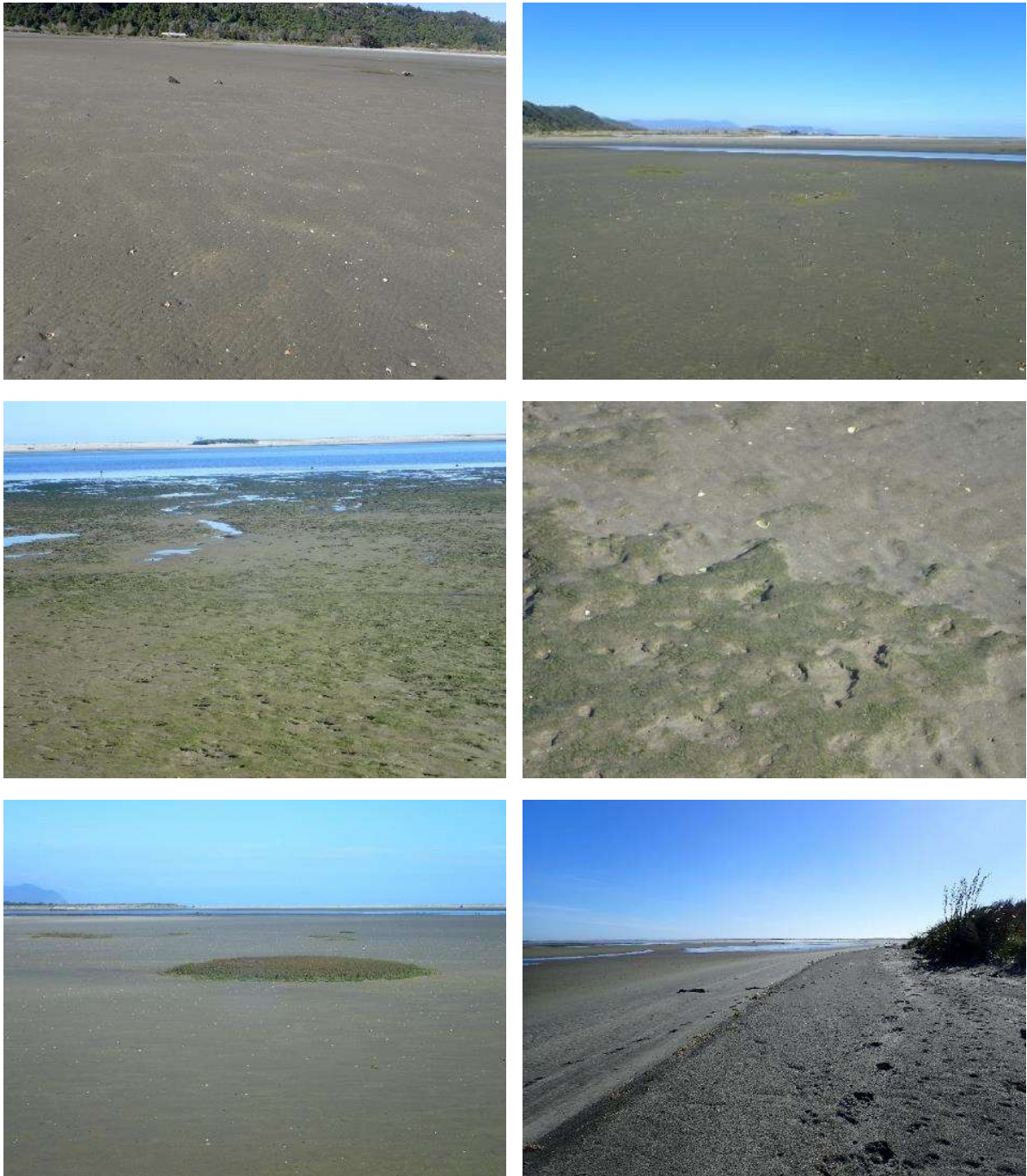
Visited at low tide at the small tidal creek entrance and at Granite Creek identified in Figure A-6, WCRC staff clarified that a dramatic river shift had occurred within the prior 2-3 years, and that the river mouth is manually reopened to maintain flow in this tidal lagoon. A diverse mosaic of intertidal habitats was observed, from hard-packed fine sandflat seaward toward the south, to areas of sparse abundance of pipis and cockle shell hash (~1-5/m<sup>2</sup>) with small ripples, to hard-packed medium sand



with occasional Ulvaceae (green tubular algae) and unidentified green filamentous algae forming multi-species patches ranging from small hummocks to extensive continuous areas adjacent to the channel prior to the sandspit. These algal blooms are unusual, and often a sign of eutrophication or other disturbance to estuarine hydrodynamics (i.e. reduced flushing). Near the channel edge were abundant crab holes, with evidence of extensive predation by migratory waders (presumably oystercatchers). Closer to shore, small hummocks of saltmarsh species appeared to be colonising (presumably due to low rates of tidal inundation due to changes in tidal mouth), ranging from 5-10 cm patches to 2-3 m patches of multi-species saltmarsh communities. Alongside the small freshwater inlet, the gastropods *Amphibola crenata* and *Potamopyrgus antipodarum* (freshwater snail also found in brackish locations in estuaries) were abundant. Woody debris was present but sparse in seaward locations, and more abundant shoreward at the saltmarsh edge. Evidence of cyclone damage was apparent in the neighbouring terrestrial vegetation.

At the Granite Creek entrance at the south end of the Otamuhana Estuary, significant damage was observed from recent storm activity, with extensive woody debris observed upstream, and evidence of digger activity clearing sediment and woody debris. Granite Creek was noticeably red in colour from tannins.

A number of bird species were observed near the channel inshore of the main tidal sandspit, including: variable oystercatcher, South Island pied oystercatcher, banded dotterel (several), white-faced heron, pied shag, black shag, grey duck, bar-tailed godwit and kingfisher (2 observed in carpark <20 m from estuary).



**Figure A-7: CPA3 - Otumahana/Karamea site photos, May 2019.** Clockwise from top left: sandflat with scattered shellhash toward southern headland; toward southern headland showing occasional patches of green algae; close-up of green algae, likely of family Ulvaceae; entrance from carpark looking northward; saltmarsh hummock mid-sandflat; broader view out toward sandspit, showing extent of green algal bloom.



**Figure A-8: CPA3 - Otumahana/Karamea site photos, May 2019, continued.** Clockwise from top left: crab holes and evidence of wading bird predation; crab holes; thin (<5 m) saltmarsh verge with sea rush and remuremu; sea rush, *Juncus kraussii* var. *australiensis*; cyclone damage to coastal vegetation; remuremu *Selliera radicans* (tentative identification as not flowering) colonising mid-sandflat.



**Figure A-9: CPA3 – Granite Creek entrance site photos, May 2019.** Clockwise from top left: extensive digger operations; extensive woody debris upstream; sediment debris (in background of photo) near road.

## CPA 4 Little Wanganui Head and River Mouth

Location: 41°23'28.28"S, 172° 3'30.59"E.



Figure A-10: CPA4 - Little Wanganui River Mouth and Head, sourced from WCRC aerial photos from ArcGIS.

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Little Wanganui Head and River is an important unrestricted tidal river mouth with a wetland ecosystem with high natural ecosystem values. Tidal flats, channels and saltmarsh provide a diversity of habitats for estuarine and coastal flora including eel grass beds and invertebrates. Habitat for indigenous fish (e.g. inanga, giant kokopu, banded kokopu), including spawning, feeding and migration. Habitat for wetland and coastal birds, including variable oystercatchers (at risk).

Roosting and nesting occurs in the area adjacent to the coastal marine area. Limestone shore platform is a fossil site of regional significance. Extensive mussel beds are also present. The headland and mouth are part of an outstanding natural landscape.”

### Site observations, May 2019

Visited at low tide at river mouth and upstream at river bend. Fed by tannin stained river. At river bend near whitebait stream, the opposite bank appears to be hard-packed clay with some small woody debris. On the shoreward side, tan to grey natural sediment at river bend.

At the river mouth, primary exposed sandy beach (narrow, ~50 m) with cobble beach at edge of subtidal zone. Woody debris found with a substantial wrack line. Apparent erosion of weedy edge, 30-50 cm erosion apparent in some locations. At road edge, gorse and weeds are abundant, with few native saltmarsh species. Kikuyu grass (*Cenchrus clandestinus*) (tentative identification by photograph, Paul Champion, NIWA) (see Figure A-11) was abundant on verge. Site description suggests eel grass beds, but none observed either in main river channel or on seaward edge of river mouth, though could be found deep in channel and not visible (unlikely).

Several bird species were observed including: variable oystercatcher, black shag, little shag, grey duck, paradise shelduck, pied stilt, red-billed gull, black-billed gull, black-backed gull, and spur-winged plover.



**Figure A-11: CPA4 - Little Wanganui River site photos, May 2019.** Clockwise from top left: woody debris looking upstream; sandbank at river bend; sandbank looking upstream; upstream view; invasive kikuyu grass *Cenchrus clandestinus*; woody debris on verge.



**Figure A-12: CPA4 - Little Wanganui River Mouth site photos, May 2019.** Clockwise from top left: shoreward at tidal mouth; tidal mouth sandy beach showing erosion of coastal vegetation and sand deposition; woody debris on beach; tannin coloured tidal creek, looking upstream; wading birds on far shore around bend in tidal creek; cobble beach on seaward edge looking southward.

## CPA5 Orowaiti Lagoon

Location: 41°45'2.95"S, 171°37'24.63"E.



Figure A-13: CPA5 - Orowaiti Lagoon locality, sourced from WCRC aerial photos from ArcGIS.

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Orowaiti Lagoon is a tidal lagoon with elongate planform. It is an important estuarine wetland ecosystem with high natural ecosystem values. Channels with pipi beds, tidal flats with cockle and eel grass beds and beds of *Macraa tristis* (southern limit), saltmarsh and herbfields provide a diversity of habitats for estuarine flora and invertebrates. Flora includes *Sonchus kirkii* (declining – damp banks), *Myriophyllum robustum* (declining – wetlands), *Lepidium flexicaule* (nationally endangered – coastal turf). Significant habitat for indigenous fish (eg inanga, Shortjaw kokopu (nationally vulnerable), banded kokopu), including spawning, feeding and migration. Important habitats for wetland and coastal birds. High numbers of waterfowl and waders feed within the estuary. Roosting and nesting occurs in the area adjacent to the coastal marine area. Lagoon has natural character and scenic values. Part of the estuary is a scenic reserve.”

### Site observations, May 2019

A limited visit occurred at an upstream site near the township where substrate consisted of hard packed sand with a red-tinge from tannins. Fringing vegetation was primarily rushes (not identified to species) with sparse herbfields, adjacent to modified urban grass cover. Patches of saltmarsh were visible on the opposite channel side, but were not close enough to identify.

A number of bird species were observed including: variable oystercatcher, South Island pied oystercatcher, little shag, little black shag, grey duck (hybrid), pied stilt, white-faced heron, white heron, banded dotterel, bar-tailed godwit, spur-winged plover, and European starling.

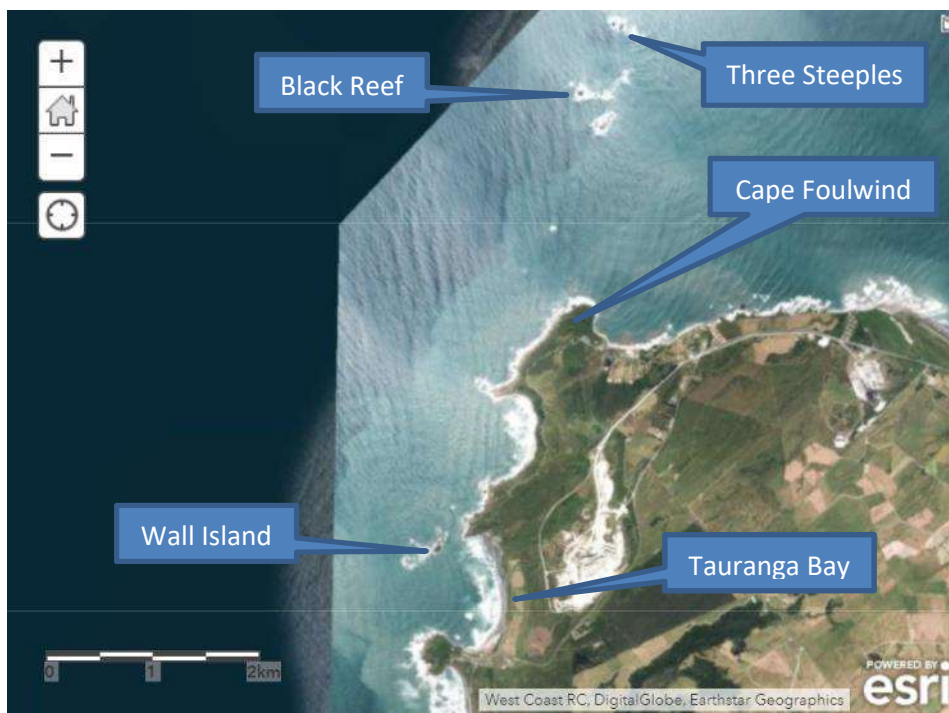




**Figure A-14: CPA5 - Orowaiti Lagoon site photo (white heron), May 2019.**

### CPA 6 Cape Foulwind and offshore islands

Location: 41°44'54"S, 171°27'50"E.



**Figure A-15: CPA6 - Cape Foulwind and islands, sourced from WCRC aerial photos from ArcGIS.**

#### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“The rocky shores and reefs around Cape Foulwind and Tauranga Bay and offshore at Black and Gibson’s Reefs, Three Steeples and Wall Island are good examples of northern West Coast rocky coastal habitats, being significantly influenced by wave exposure and sedimentation typically turbid waters and sand scour. This creates a distinctive environment for species that are adapted to such dynamic conditions – filter-feeding invertebrates (e.g. mussels and bryozoans), robust seaweeds (e.g. bull kelp, coralline algae) and grazing molluscs (e.g. limpets, paua). Greater biological diversity is found on offshore reefs where there is less sand scour and a greater depth range. The coastal reef fish population of moderate diversity (27 species) and seaweeds communities are typical of the northern West Coast. Both mainland species of bull kelp are abundant in the Cape Foulwind area. A significant

population of Hector's dolphins is found in this area. Breeding, roosting and foraging area for coastal birds, including southern white fronted terns (at risk), spotted shags (not threatened), sooty shearwaters (at risk), little blue penguins (at risk) which require unimpeded access to and across foreshore, fairy prion (at risk). Area is breeding site for New Zealand fur seal. On shore there are two recreational reserves with walkways to facilitate viewing of these marine mammals."

#### Site observations, May 2019

Only limited observations occurred from the walkway to the lighthouse, allowing views of the exposed coastline and some offshore islands.

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019, suggest that Wall Island has particular ecological significance as the largest off shore seabird colony between Cook Strait and Foveaux Strait, providing habitat for fairy prions, sooty shearwaters and other seabirds. Predator control is in place to protect sooty shearwaters on the island. The Trust also reports that a small number of blue penguins are found here, but abundances have not recovered from a massacre by a dog or dogs several years ago. Surveys in 2011 by Rohl (2012), a student intern with the Trust, show distributions of little blue penguin activity around Cape Foulwind with pockets of moderate to high penguin activity from the cape itself south toward Wall Island. Key threats were listed as cats, dogs, and human activity. Lane (2012) documented penguin activity and burrows following the 2012 dog massacre.

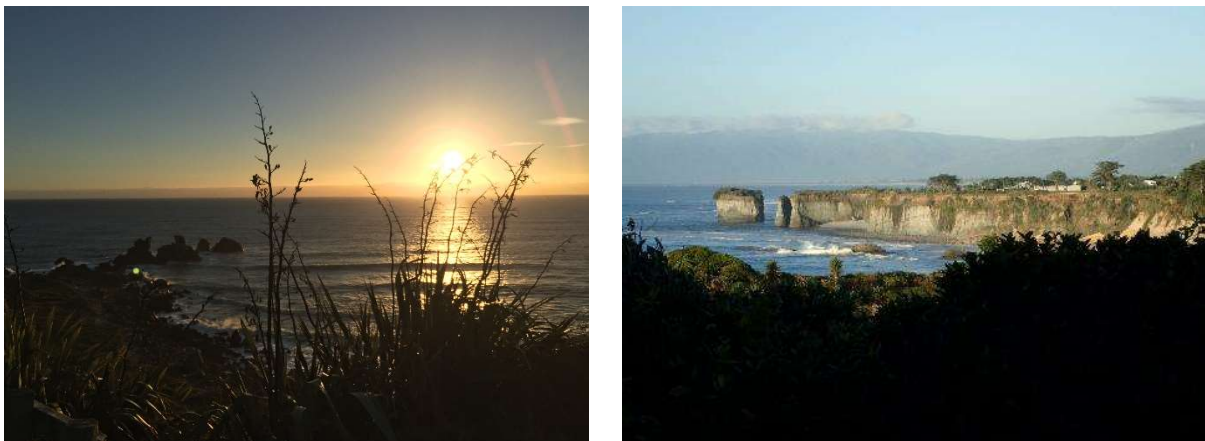


Figure A-16: CPA6 - Cape Foulwind site photos, May 2019.

## CPA 7 Okari Lagoon

Location: 41°48'45"S, 171°27'52"E. Not visited in May 2019.



**Figure A-17: CPA7 - Okari Lagoon locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Okari Lagoon is an important tidal lagoon with elongate planform that has a wetland ecosystem with high natural ecosystem values. Tidal flats, channels and saltmarsh habitats provide a diversity of habitats for estuarine flora and invertebrates. Extensive cockle, pipi and other shellfish beds are present. Habitat for indigenous fish (e.g. inanga, Shortjaw kokopu (nationally vulnerable), banded kokopu), including spawning, feeding and migration.

A significant habitat for wetland and coastal birds including high numbers of waterfowl and waders. Significant numbers of variable oystercatcher (at risk) and banded dotterel (nationally vulnerable) are found primarily feeding at Okari. Roosting and nesting occurs in the area adjacent to the coastal marine area. High natural character and scenic values. The western part of the estuary and its spit is land managed by the Department of Conservation including Okari Spit Scenic Reserve, Okari Lagoon marginal strip and Conservation Area.”

CPA 8 Seal Island to Perpendicular Point to Dolomite Point and Punakaiki Marine Reserve and recreational fishing areas

Location: 42° 1'51.86"S, 171°23'3.41"E.

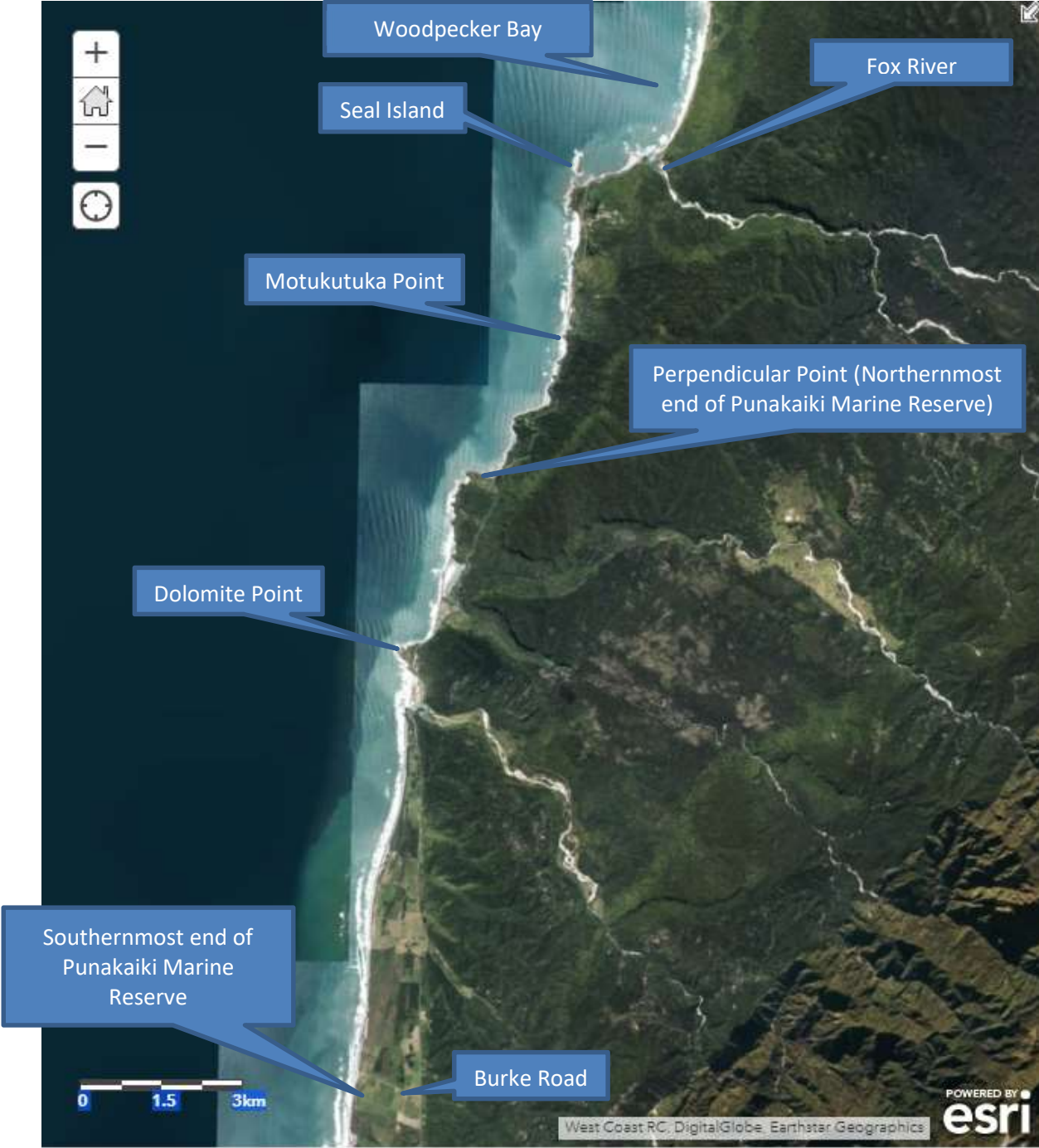


Figure A-18: CPA8 - Punakaiki coastline, sourced from WCRC aerial photos from ArcGIS.



Figure A-19: CPA8 - Punakaiki Marine Reserve Boundaries (sourced from DOC website, 13 June 2019).

Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“The coastline from Seal Island to Perpendicular Point is a NZ fur seal haul out. Unimpeded access to and across the foreshore is required.

Breeding and roosting area for coastal birds (including little blue penguins (at risk) which require unimpeded access across foreshore, white fronted terns (at risk), spotted shags (not threatened, largest colony in NZ), sooty shearwaters (at risk), fairy prions (at risk), banded dotterels (nationally vulnerable) which feed on foreshore and nest above Mean High Water Spring.

Up to one nautical mile offshore this area is used as a foraging area for seabirds including white fronted tern (at risk) and fairy prions (at risk).

The Punakaiki Marine Reserve and the adjacent recreational fishing areas around the Punakaiki Area are dominated by the outstanding natural feature and landscape of Dolomite Point and its Putai Blowhole, part of Paparoa National Park. A walkway enables visitors to view this blowhole. The marine

reserve extends approximately two nautical offshore. It is a representative area of the northern West Coast with six habitat types of a wide open coast rocky and gravel shores with offshore bull kelp forests habitat. Sand habitats contain surf clams and worms. Fisheries present include gurnard and dogfish.

Westland petrels (at risk) fly over the marine reserve to access their nesting area primarily in the Te Ara Taiko Nature Reserve and Paparoa National Park (including the Westland Petrel Specially Protected Area).”

### Site observations, May 2019

Many sites were visited while driving this coastline section, with a few brief stops at Crow Bay, Fox River Mouth and Punakaiki. At Woodpecker Bay (just north of this CPA), a typical example of many of the small bays along this coastline, we observed red-billed gulls and juvenile black-backed gulls. This small embayment had about 10 m width of sand on the upper shore, with low shore composed of cobble and gravel, and many large deformed rocks and flax onshore. Still north of the CPA is the Fox River Mouth, with an extensive berm built up for storm surge, and recent cyclone damage and debris. A narrow sandy beach with a few large (~10 cm) rocks is found at the mouth. Large strips of the coastal road are reinforced with rocks due to erosion along this stretch of coastline. Landcover is native bush in the Paparoa National Park, with steep-sloped catchments.

South of the Fox River, much of the roadside is fenced for little blue penguin protection. Seal Island is visible from the road, and water visibility is reasonably clear, with distinction between rock platform and soft sediments noticeable during the visit. Penguins must climb a steep cliffside to nest, as currently there is already very limited shoreline between the sea and the roadside in this area, and sea level rise is a significant issue that will further limit nesting space. The coastline from Seal Island is steep, primarily rocky shoreline with small sandy bay inlets, and many offshore rock pinnacles. Meybille Bay, south of Hatters Bay and Motukutuka Point, was pointed out as another likely blue penguin nesting site, though difficult to access from the roadside.

Approaching Dolomite Point and the Punakaiki Marine Reserve, part of the Paparoa National Park, significant cyclone damage to nikau ferns is apparent just north of the township. Bull kelp is visible at low tide on offshore rocks and pinnacles near Dolomite Point. The Marine Reserve includes a narrow sandy beach with strong surf and gravelly sand and substantial woody debris. On the foreshore are sparse rushes with gorse within 1 m of the sandy beach, and a further 100 m width of coastal vegetation dominated by gorse, with flax bushes and sparse nikau ferns. The catchment is forested, though WCRC notes it also includes both deer and sheep grazing consents, particularly south of where photos were taken on this site visit.

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019, suggest that the area between Seal Island to Perpendicular Point now includes about 3 km of penguin protection fence, resulting in keeping four colonies of blue penguins off the highway where several penguins were previously being killed every year. The Trust suggests that colonies are slowly recovering following construction of the fence. The Trust further notes the area around North Barrytown Flats (south of Punakaiki) may have some blue penguins, but also is the location of the only breeding colony of the Westland petrel in the world. The Trust further notes that “restricting lights on the coast is most critical here as young birds in particular are distracted and come down, often on the road and may then be hit by vehicles.”



**Figure A-20: Just north of CPA8 - Punakaiki coastline site photos, May 2019.** Clockwise from top left: Woodpecker Bay looking south; Woodpecker Bay looking north; debris from Fox River mouth; looking seaward from Fox River mouth beach; Fox River mouth and debris; looking north from Fox River mouth.



**Figure A-21: CPA8 - Punakaiki coastline site photos, May 2019.** Clockwise from top left: Hatters Bay fencing and tunnels for little blue penguins; penguin fencing; view down cliff to shore at Hatters Bay; roadside erosion and roadworks at Hatters Bay looking out toward Motukutuka Point.





**Figure A-22: CPA8 - Punakaiki coastline photos, May 2019.** Dolomite Point and its Putai Blowhole, part of Paparoa National Park



**Figure A-23: CPA8 - Punakaiki Marine Reserve, May 2019.** Clockwise from top left: coastal vegetation on verge, dominated by flaxes and gorse; woody debris on exposed sandy shore; invasive marram grass *Ammophila arenaria* (tentative identification by photo, Paul Champion, NIWA); saltmarsh verge; alongshore view of narrow exposed beach, woody debris, and saltmarsh; close-up on marram grass with gorse directly adjacent.

## CPA 9 Greigs to Nine Mile Bluff

Location: 42°18'49.43"S, 171°16'49.34"E.



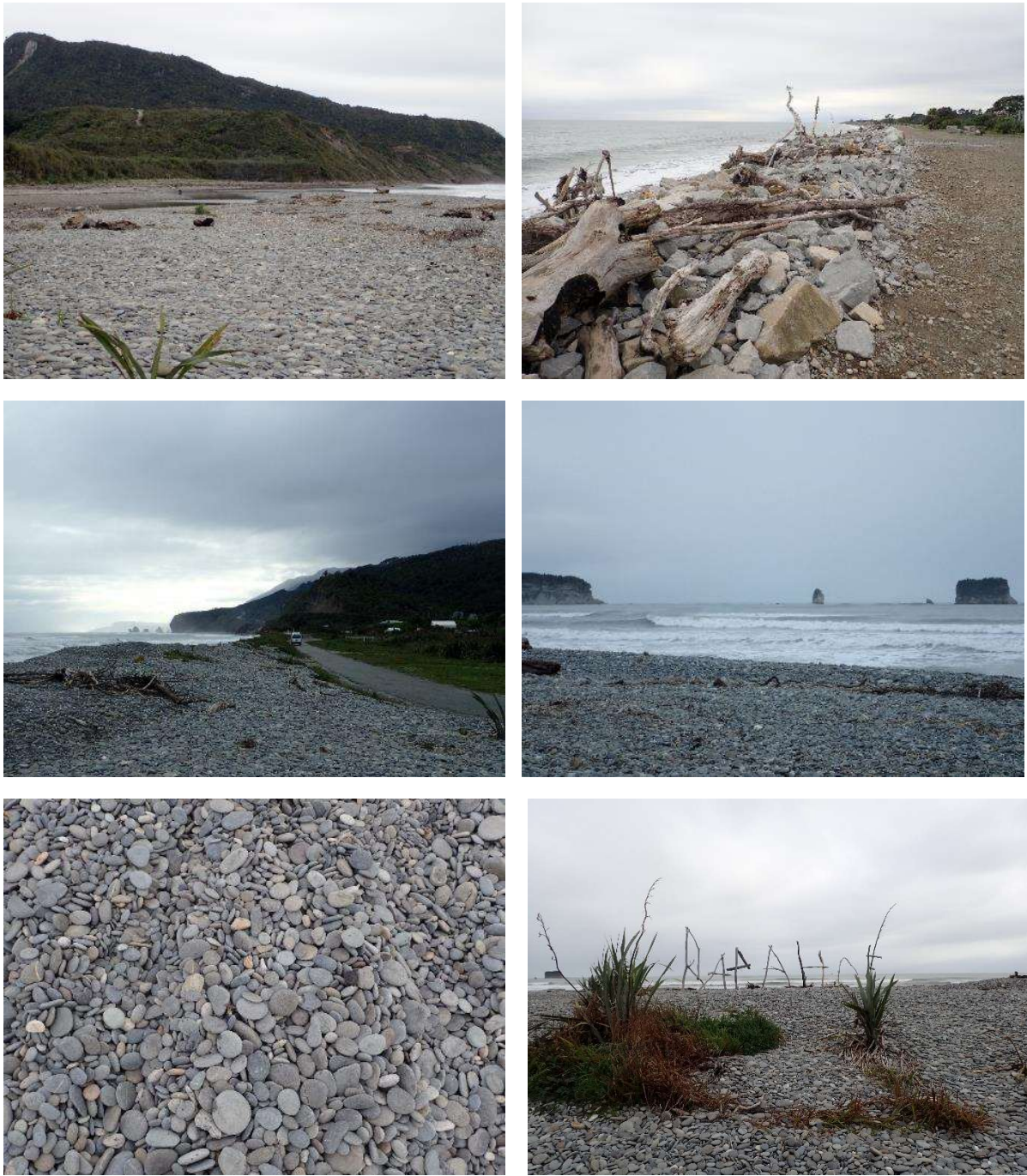
Figure A-24: CPA9 - Greigs to Nine Mile Bluff locality, sourced from WCRC aerial photos from ArcGIS.

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Important rocky shore ecosystem with high nature ecosystem values. Habitat for coastal flora and invertebrates (including shellfish) and wildlife. Shore platform is a geological site of regional significance.”

### Site observations, May 2019

This section of coast was dominated by cobble beaches, with strong surf, and abundant offshore pinnacles. Flax was observed growing on cobble beaches, but otherwise little native saltmarsh vegetation was observed between the cobble beach and terrestrial habitats, likely due to the sites visited having high rates of human disturbance due to carparks or holiday parks nearby. At Rapahoe, coastal works with large rock barriers were evident to protect against coastal erosion.



**Figure A-25: CPA9 - Greigs to Nine Mile Bluff site photos, May 2019.** Clockwise from top left: Cobble beach at Rapahoe; rock reinforcement of coastline; offshore pinnacles; flax growing on cobble beach at Rapahoe; close-up of cobbles at Rapahoe; northward view from Rapahoe.

## CPA 10 New River / Kaimata Saltwater River Lagoon Paroa

Location: 42°31'5.47"S, 171° 9'43.87"E.

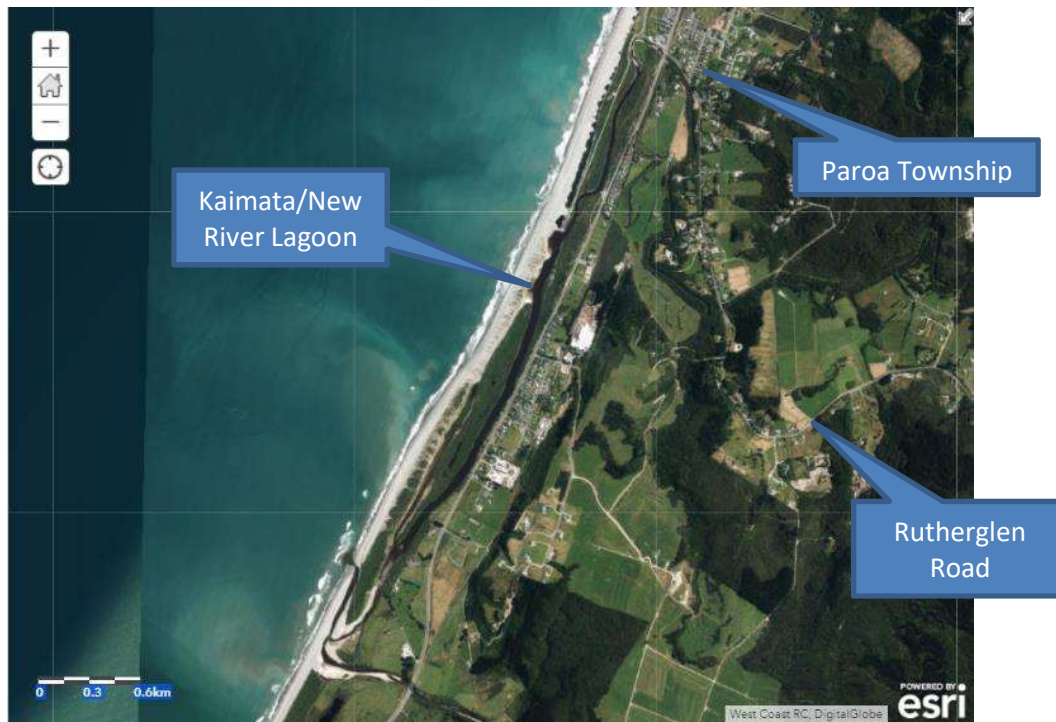


Figure A-26: CPA10 - New River / Kaimata Lagoon locality, sourced from WCRC aerial photos from ArcGIS.

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“This intermittent opening beach stream mouth with a riverine ribbon lagoon is of regional significance. It has wetlands protected in part as the Paroa Wildlife Management Reserve. It is a significant habitat of water fowl. Marsh birds are also present. It is a habitat for indigenous fish (e.g. inanga, koaro, banded kokopu and shortjaw kokopu (nationally vulnerable)), especially for spawning, feeding and migration. Longfin and shortfin eels, lamprey and common smelt, torrentfish and blue gill bullies are also present.”

### Site observations, May 2019

This primarily land-locked lagoon has exposed rock and cobble beaches with abundant woody debris, enclosing a long and narrow lagoon, apparently with an intermittently opening stream (not open when we visited). The lagoon was apparently formed by the sea pushing the dunes shoreward and closing the mouth of the tidal lagoon. The now fully enclosed lake (Hapua Lagoon) is gradually infilling, and New River formed. WCRC relocated the mouth of New River with a groin. There is a second saltwater lagoon on the other side which is now enclosed. Vegetation included flax and cabbage trees, with the similar species composition to Punakaiki (invasive marram grass and occasional native rushes), but also with abundant gorse and pampas grass.

Birds observed included: white heron, white-faced heron, black shag, black-backed gull, and little shag.



Figure A-27: CPA10 - New River Lagoon site photos, May 2019.

## CPA 11 Mahinapua Creek / Tūwharewhare

Location: 42°43'41"S, 170°56'50"E. Not visited in May 2019.



**Figure A-28: CPA11 - Mahinapua Creek/Tūwharewhare locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“The most seaward portion of Mahināpua Creek/Tūwharewhare is within the coastal marine area. This tidal creek flows from Lake Mahinapua. It is a habitat for indigenous fish (e.g. inanga, banded kokopu), including spawning, feeding and migration. It is closed to whitebait fishing. It is a good example of an estuarine stream mouth, part of a larger composite tidal system: the Hokitika River mouth. It has high natural values and its margins remain largely in indigenous vegetation. Its marginal vegetation and adjoining swampland are ecologically important. The creek provides excellent habitat for waterfowl.”

## CPA 12 Totara Lagoon

Location: 42°51'06"S, 170°49'50"E. Not visited in May 2019.



**Figure 29:** CPA12 - Totara Lagoon locality, sourced from WCRC aerial photos from ArcGIS.

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

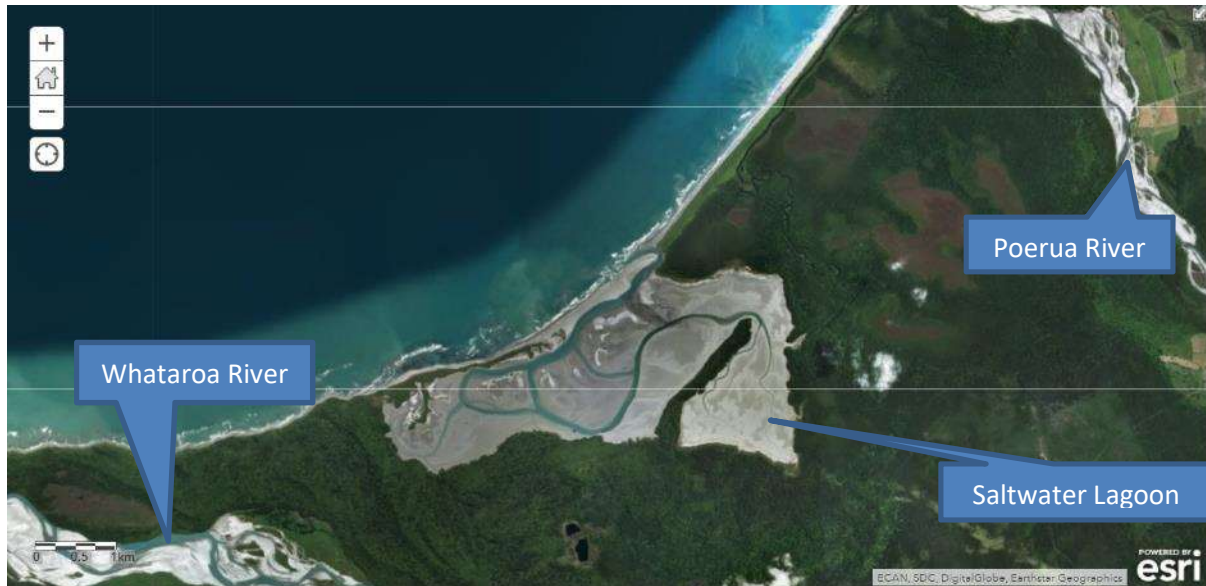
“Totara Lagoon is beach stream mouth and composite system including river mouth with a long riverine tidal ribbon lagoon. The lagoon is an important wetland ecosystem with high natural ecosystem values. Parts of the wetlands are included in Totara Lagoon Wildlife Management Reserve. Tidal channels, flats and marginal vegetation provide a diversity of habitats for coastal wetland flora and invertebrates. It is a habitat for indigenous fish (e.g. inanga, banded kokopu and koaro), including spawning, feeding and migration. It is a habitat for eels. Waterfowl, waders and marsh birds feed in the lagoon. Roosting and nesting occurs in the area adjacent to the coastal marine area.”



## CPA 13 Saltwater Lagoon

Location: 43°06'16.32"S, 170°20'47.38"E. Not visited in May 2019.

\*\*\*Note that while the site was not visited in May 2019, Google Earth images (dated 2019) suggest further erosion of the sandspit to the north of the river mouth, and that the mouth has further widened relative to WCRC images, and it is functioning as an estuarine tidal lagoon.



**Figure A-30: CPA13 - Saltwater Lagoon locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Saltwater Lagoon is one of the very rare New Zealand lagoon system where the opening and closing is entirely natural. When closed, it is a freshwater lagoon enclosed by a barrier beach. When open it becomes an estuarine tidal lagoon. A wetland ecosystem with high natural ecosystem values including *Deschampsia cespitosa* (at risk). Tidal flats, channels, open water, salt marsh and rocky shore habitats provide a diversity of habitats for estuarine and coastal flora and invertebrates. Habitat for indigenous fish, (e.g. inanga), including for spawning, feeding and migration. Habitat for wetland and coastal birds, including a high number of water fowl and waders, especially for feeding. Roosting and nesting occurs in the area adjacent to the coastal marine area. Outstanding landscape and natural character values. It is a scenic reserve and is part of Te Wāhipounamu South West New Zealand World Heritage Area.”

## CPA 14 Okarito Lagoon

Location: 43°13'16.89"S, 170°10'7.04"E.



Figure 31: CPA14 - Okarito Lagoon locality, sourced from WCRC aerial photos from ArcGIS.

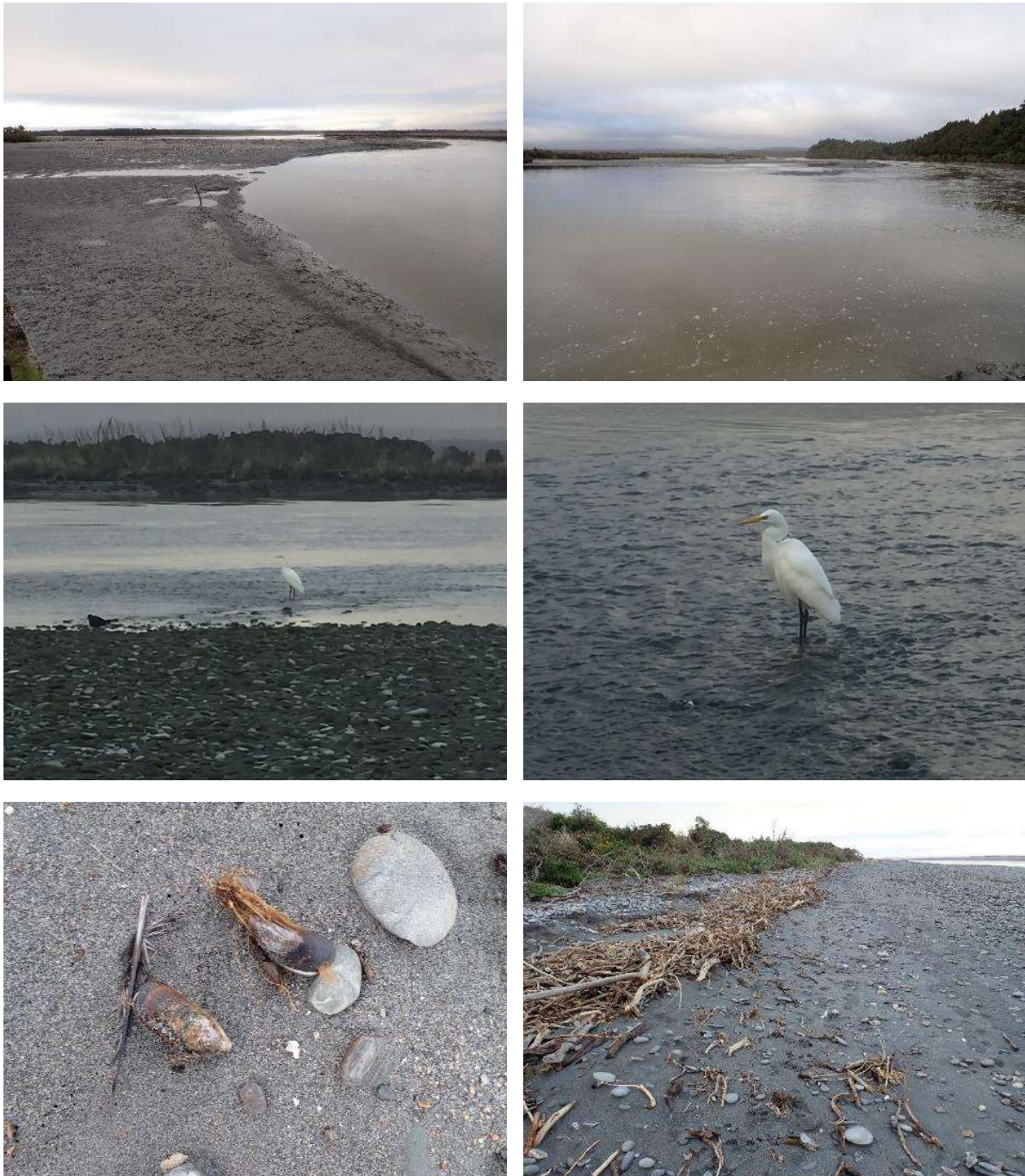
### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Okarito Lagoon is one of the largest intact natural coastal lagoons in New Zealand. Its mouth intermittently closes. It has a wetland ecosystem with nationally and internationally important natural ecosystem values. Tidal flats, channels, open water, saltmarsh grading into freshwater wetlands habitats provide a diversity of habitats for estuarine and coastal flora and invertebrates. Large shellfish beds of cockles and pipis. *Deschampsia cespitosa* (at risk) is present. Wetland habitat for indigenous fish (e.g. inanga), including for spawning, feeding and migration. A feeding habitat for eels. A feeding habitat for wetland and coastal birds, including high numbers of water fowl and waders. Roosting and nesting occurs in the area adjacent to the coastal marine area. Important feeding area for kotuku [white heron] (nationally critical) that nest in a nearby colony. Margins are part of Te Wāhipounamu South West New Zealand World Heritage Area.”

### Site observations, May 2019

This important coastal lagoon was visited both at the lagoon mouth, and at a birdwatching station near the Okarito township on the southern side of the lagoon. The mouth opens to a sandy exposed beach, with coastal vegetation including some rushes, flax and gorse. Near the bird shed, there is hardpacked fine sand with ripples and sparse shell hash, primarily of relatively old cockle shells with eroded ridges. The gastropod *Amphibola crenata* is abundant shoreward on the tidal flat. Green lip mussels are present in wrack on the beach moving seaward where there is a cobble/rock beach at the river bend toward the lagoon mouth.

Birds observed included: white heron, little shag, black-backed gull, variable oystercatcher, South Island pied oystercatcher and Caspian tern.



**Figure A-32: CPA14 - Okarito Lagoon site photos, May 2019.** Clockwise from top left: view from near birdwatch station toward lagoon mouth; view upstream from birdwatch station; white heron; wrack on verge closer to lagoon mouth; green lip mussels in wrack; white heron.



**Figure A-33: CPA14 - Okarito Lagoon site photos, May 2019.** Clockwise from top left: close-up of cockle shell hash near birdwatch station; cockle shell hash; flax; vegetation on verge near birdwatch station; upstream view from birdwatch station; sand ripples near birdwatch station.



**Figure A-34: CPA14 - Okarito Lagoon Site Photos, May 2019.** Clockwise from top left: dune vegetation at lagoon mouth; close up of *Spinifex sericeus* (tentative identification from photo, Paul Champion, NIWA); flax and gorse at entry point to beach with heavy human foot traffic; beach view from entry point; vehicle tracking at entry point; nobby clubrush *Ficinia nodosa* (tentative identification by photo, Paul Champion NIWA).

## CPA 15 Waiiau Glacier Coast Marine Reserve, Three Mile Lagoon, Five Mile Lagoon

Location: 43°14'23.97"S, 170°07'32.57"E.



Figure A-35: Waiiau Glacier Coast Marine Reserve locality, Three and Five Mile Lagoons, sourced from WCRC aerial photos from ArcGIS.

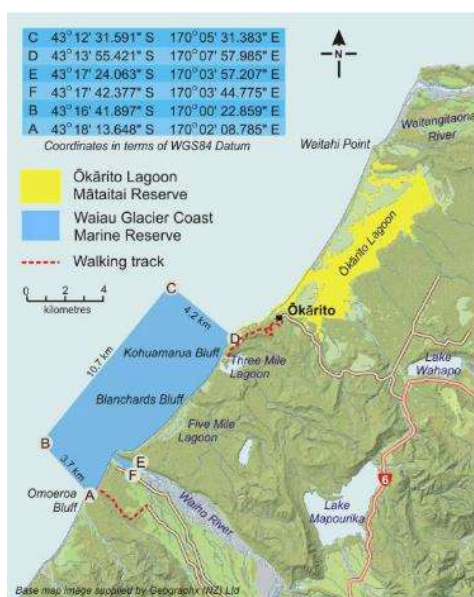


Figure A-36: CPA15 - Waiiau Glacier Coast Marine Reserve boundaries (sourced from DOC website, 13 June 2019).

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“The Waiau Glacier Coast Marine Reserve extends the protection of a natural landscape from mountains to sea, including glaciers, forests, lakes, rivers and now the marine environment. Covering 46 km<sup>2</sup> from Kohuamarua Bluff to the Omoeroa Bluff, this reserve includes natural examples of five habitat types and is a good example of the central West Coast marine ecosystems. It is one of the largest marine reserves in mainland New Zealand. The marine reserve includes some classic features carved into the landscape by past and present glaciers, including bouldery moraine headlands, the silty and flood-prone Waiho River, gravelly beaches and muddy seabeds offshore to depths of about 25m. Moraine bluffs of glacial origin and the gravel-bed river mouth of the Waiho River also feature. The marine reserve adjoins natural coastlines and catchments primarily within Westland Tai Poutini National Park, Te Wāhipounamu South West New Zealand World Heritage Area. Within Westland National Park and part of the coastal marine area is Three Mile and Five Mile Lagoons.”

“Three Mile Lagoon is an important estuarine wetland ecosystem with high nature ecosystem values. Tidal flats, channels, open water and saltmarsh provide a diversity of habitats for estuarine flora and invertebrates. Habitat for indigenous fish (e.g. inanga), including spawning, feeding and migration. Habitat for wetland and coastal birds, including high numbers of waterfowl and birds, including high numbers of waterfowl and waders, especially for feeding. Roosting and nesting occurs in the area adjacent to the coastal marine area.”

“Further South is Five Mile Lagoon and important ribbon lagoon wetland ecosystem with high nature ecosystem values. Tidal flats, channels and marginal vegetation provide a diversity of habitats for coastal wetland flora and invertebrates. Habitat for indigenous fish (e.g. inanga), including spawning, feeding and migration. Habitat for wetland and coastal birds, including high numbers of waterfowl, waders and marsh birds, especially for feeding. Roosting and nesting occurs in the area adjacent to the coastal marine area.”

### Site observations, May 2019

Three Mile Lagoon was visited via the coastal track, walking back along the beachfront of the Okarito Bluffs. Abundant saltmarsh vegetation with diverse species composition. Two little blue penguin nests (tagged) were located, though individuals were not present during the visit. Penguin tracks were observed on the beach, implying that the burrows were being used.

Regular surveys of little blue penguin burrows occur at the North and South ends of Three Mile Beach south of Three Mile Lagoon, with population size and chick rearing success suggested to be generally consistent since 2008 (Lane 2013, Chandler 2018). This site supports a substantial colony of burrows, with 27 burrows revisited, 9 not found, and 3 new burrows found in the North and 48 burrows revisited, 22 not found, and 3 new burrows found in the South (Chandler 2018). There appears to be migration from North to South (and presumably vice versa) between surveys (Chandler 2018). Threats are low due to restricted access for vehicles, no dogs were observed, though humans do visit regularly on the walking tracks.



**Figure A-37: CPA15 - Three Mile Lagoon – Little Blue Penguin nests and tracks, May 2019.** Clockwise from top left: coastal forest where nesting penguins are found; penguin nest; close-up of knotted club rush *Ficinia nodosa*; penguin tracks on beach near nesting site; close-up penguin tracks; alongshore view of beach south of Three Mile Lagoon toward Five Mile Lagoon.





**Figure A-38: CPA15 - Three Mile Lagoon, May 2019.** Clockwise from top left: inner lagoon; *Calystegia soldanella* (shore bindweed); coast outside lagoon mouth; pingao; coastal forest between beach and inner lagoon where penguin nests are found; alongshore view of exposed beach between Three Mile and Five Mile Lagoons.

## CPA16 Tauparikākā Marine Reserve and within 1 nautical mile of the Reserve

Location: 43°45'28.36"S, 169°08'52.17"E.



**Figure A-39: CPA16 - Ship Creek and Tauparikaka Marine Reserve locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“The Tauparikākā Marine Reserve is the smallest marine reserve in New Zealand at just 17 hectares. It includes the tidal river mouth and lagoon and beach foreshore at Ship Creek. The site includes natural examples of three habitat types and it is a good example of the southern West Coast coastal ecosystems. From Tauparikaka Point to near the southern lookout on the Ship Creek Dune Lake walk, the Tauparikākā Marine Reserve adjoins natural coastlines and catchments within Te Wāhipounamu South West New Zealand World Heritage Area and the Tauparikākā Mātaitai Reserve. The reserve is typical of southern sandy beaches, and includes the stream mouth of Ship Creek and shore habitats reaching out to depths of about 5 m. It lies within a narrow inner shelf zone, inshore of deeply incised submarine canyons. Tutumairekurai/Hector’s dolphins are commonly seen surfing the waves in the reserve, just metres off the shore. Seabirds such as fairy prions, muttonbirds feed in this area.”

### Site observations, May 2019

The site visit included the short dune walk with predominantly pingao and small herb fields. Approximately six Hector’s dolphins, possibly in two separate groups, were observed less than 5 m from the shore.

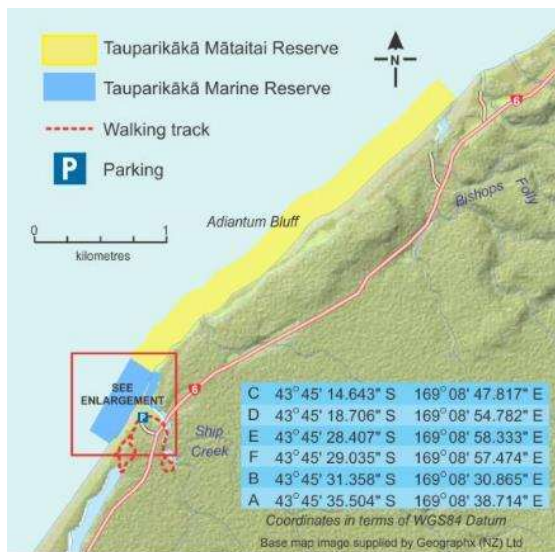


Figure A-40: CPA16 - Tauparikaka Marine Reserve Boundaries (sourced from DOC website, 13 June 2019).



**Figure A-41: CPA16 - Tauparikaka Marine Reserve shoreline site photos, May 2019.** Clockwise from top left: southward alongshore view illustrating woody debris; close-up of *Spinifex sericeus* (tentative identification from photo); dune vegetation; pair of Hector's dolphins travelling back and forth outside surf zone; close-up of *Senecio lautus* (tentative identification from photo); northward alongshore view.

## CPA 17 Open Bay Islands

Location: 43°51'40"S, 168°52'51"E. Not visited in May 2019.



**Figure A-42: CPA17 - Open Bay Islands locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“Important rocky Island shore ecosystem with high nature ecosystem values. Habitat for coastal and marine flora, invertebrates, fish and wildlife (including NZ fur seals). Breeding and roosting area for coastal birds (including Fiordland crested penguins (nationally endangered), little blue penguins (at risk) which both species require unimpeded access to and across the foreshore, spotted shags (not threatened), sooty shearwaters (at risk), fairy prions (at risk) and variable oyster catchers). One of two islands for Open Bay Islands skink and only island for Open Bay Islands gecko.”

## CPA 18 Cascade River Mouth

Location: 44°01'49"S, 168°21'51"E. Not visited in May 2019.



**Figure A-43: CPA18 - Cascade River Mouth locality, sourced from WCRC aerial photos from ArcGIS.**

### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“An important tidal river mouth with lagoon wetland ecosystem with high natural ecosystem values. Tidal flats, channels and marginal indigenous vegetation provide a diversity of habitats for coastal wetland flora and invertebrates. Habitat for indigenous fish (e.g. inanga), including spawning, feeding and migration. Habitat for wetland and coastal birds, including high numbers of waterfowl, waders and marsh birds, especially for feeding. Roosting and nesting occurs in the area adjacent to the coastal marine area. It is the only substantial river mouth dune system and longest spit in southernmost Westland and northernmost Fiordland. One of the few beaches in this largely unmodified region that is not interspersed with rocky reefs. The river mouth is part of the Cascade Conservation Area and part of the Te Wāhipounamu South West New Zealand World Heritage Area.”

## CPA 19 Hautai Marine Reserve

Location: 44°13'11"S, 168°08'13"E. Not visited in May 2019.



Figure A-44: CPA19 - Hautai Marine Reserve locality, sourced from WCRC aerial photos from ArcGIS.

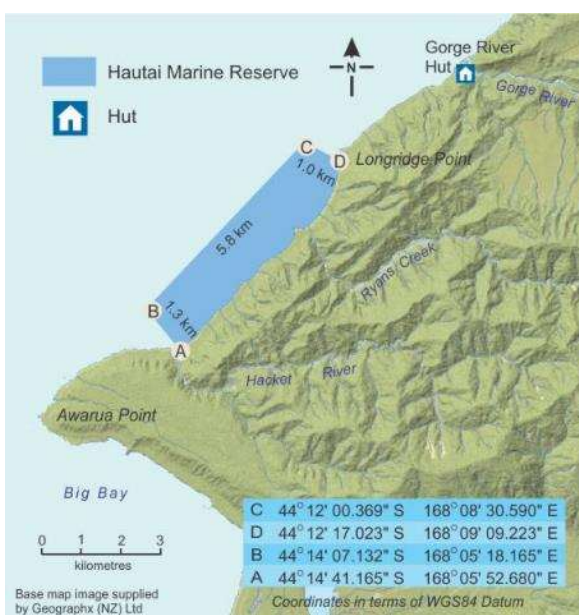


Figure A-45: CPA19 - Hautai Marine Reserve Boundaries (sourced from DOC website, 13 June 2019).

#### Site Description from DOC Schedule 3H – Coastal Protection Areas (as provided by WCRC)

“The Hautai Marine Reserve showcases the wilderness and beauty of the southern parts of the West Coast. The reserve covers about 8.5 km<sup>2</sup> from near Longridge Point south to the Hacket River and includes boulder and sandy marine habitats out to more than 30 m depth. Beyond this lies a zone of deeply incised submarine canyons. The area is home to wildlife such as kekeno/New Zealand fur seals and tawaki/Fiordland crested penguins. The Hautai Marine Reserve is a good example of the southern West Coast marine ecosystems, and adjoins natural coastlines and catchments that are part of the Te Wāhipounamu South West New Zealand World Heritage Area. The reserve extends the protection of natural environments to places beyond the waves.”



## MMB 1 Toropuihi to Wekakura Point

Location: 41°26'44"S, 171°59'11"E. Not visited in May 2019.

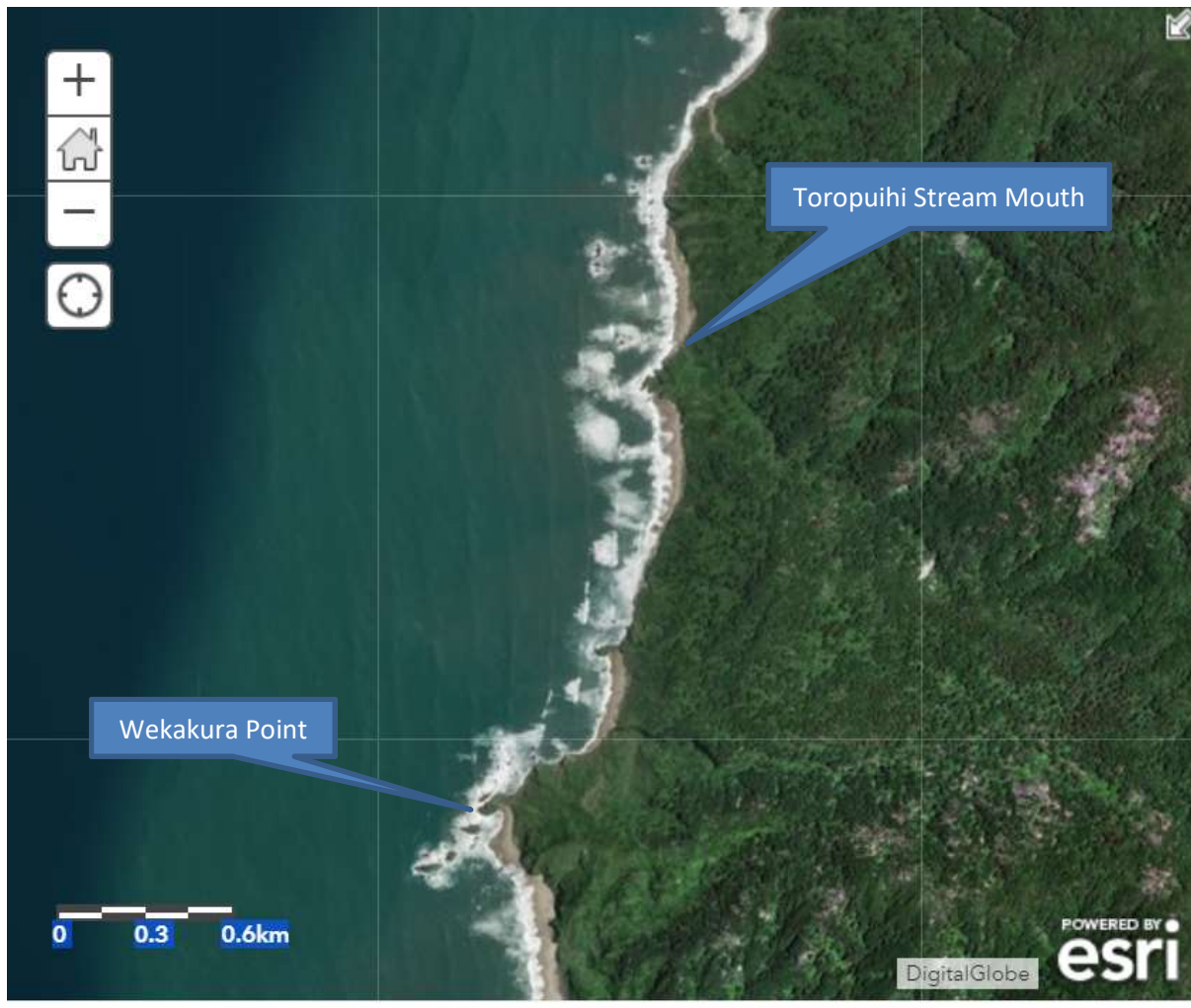


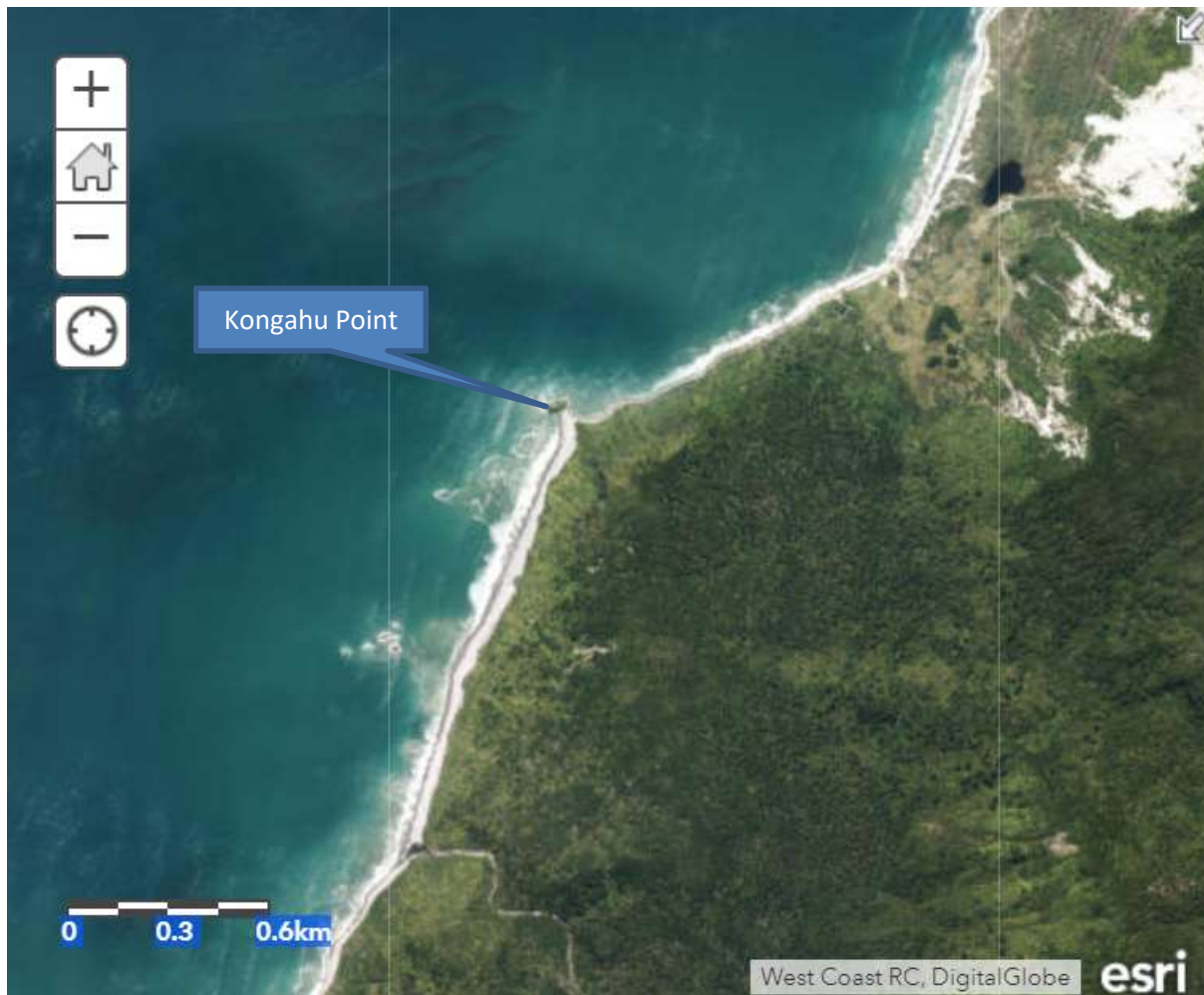
Figure A-46: MMB61 - Toropuihi to Wekakura Point, sourced from WCRC aerial photos from ArcGIS. x

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“A large NZ Fur Seal rookery (breeding and haul out site). Unimpeded access to and across foreshore to breeding and haul out site is required.”

## MMB 2 Kongahu Point

Location: 41°26'44"S, 171°59'11"E. Not visited in May 2019.



**Figure A-47: MMB2 - Kongahu Point, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal rookery (breeding and haul out site). Unimpeded access to and across foreshore to breeding and haul out site required.”

## MMB 3 Granity shoreline

Location: 41°37'49"S, 171°51'58"E. Not visited in May 2019.



**Figure A-48: MMB3 - Granity locality, sourced from WCRC aerial photos from ArcGIS.**

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Undescribed taxa of Speckled skink (nationally critical), but is genetically distinct and different. Genetics being investigated at the moment. Habitat includes upper foreshore.”

### Additional information

WCRC staff were notified by Joy Comrie, DOC, that due to foreshore habitat erosion, the site was extensively searched for speckled skinks, which were temporarily translocated to Auckland Zoo; it is anticipated that the skinks will be returned in the near future.

Lane (2012) observed evidence of little blue penguin nesting activity both north and south of the Ngakawau River in this area. Dogs, cats and stouts were listed as key threats to penguins in this area.

## MMB 4 North End of Nine Mile Beach (Buller)

Location: 41°46'39"S, 171°27'17"E. Not visited in May 2019.



Figure A-49: MMB4 - North end of Nine Mile Beach, sourced from WCRC aerial photos from ArcGIS.

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Little Blue Penguin (at risk) nesting site. Unimpeded access to and across foreshore required.”

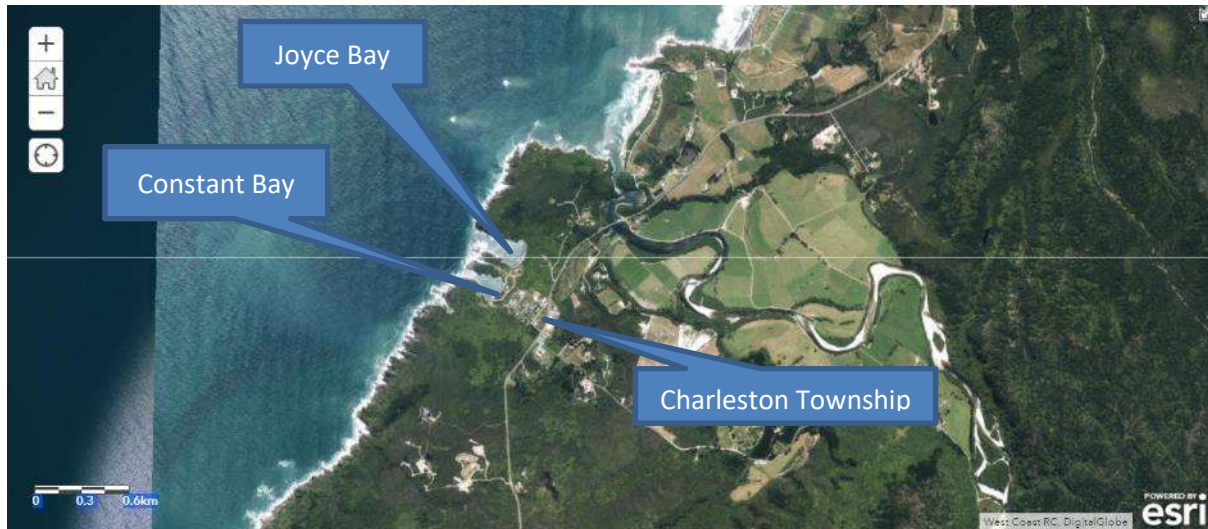
### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019, suggest that this area is highly modified habitat with low penguin abundance, and high disturbance due to human recreational use. Rohl (2012) surveyed the Buller area to the north of this MMB, finding pockets of medium to high penguin activity particularly just south of the Buller River mouth, and at Carter’s Beach/Buller Bay with highest activity noted approximately where Bulls Road intersects the bay. High vehicle use, cats, dogs and human activity were noted as key threats. Further surveys by Lane (2012) near Buller noted penguin tracks, burrows, and dead penguins and fur seals found, with some areas surveyed in response to reports of dog attacks on penguins. Tracks were located north of Buller, with many burrows located at Carter’s Beach, and tracks and few burrows at the north of Carter’s Beach near the Buller River mouth. Few tracks were seen north of Buller River mouth on the southern sandspit of the Orowaiti Lagoon. Additional tracks were found from just south of the Whareatea River (with burrows located inside the river mouth) northward toward the Waimangaroa River. Some tracks on the beach south of Jones River/Birchfield suggest likely active burrows in this area.

Future coastal plan reviews could consider expanding this MMB to include the broader area north of Buller where regular penguin activity has been observed, or alternatively consider additional individual MMB sites to denote areas of particularly high penguin activity and nesting sites.

## MMB 5 Charleston

Location: 41°54'08"S, 171°26'12"E.



**Figure A-50: MMB5 - Charleston locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Little Blue Penguin (at risk) nesting site. Unimpeded access to and across foreshore required.”

### Site observations, May 2019

Constant Bay is a small bay with narrow entrance. Sandy beach with cobbles, rock substrate on bay sides and some rocky outcrops emerging at low tide in the bay. While appearing to be perfect habitat for little blue penguins, we did not investigate into the bush habitat for nests. Also, significant disturbance appears to occur regularly, with dogs observed off lead at sunrise while we were on site.

### Additional information

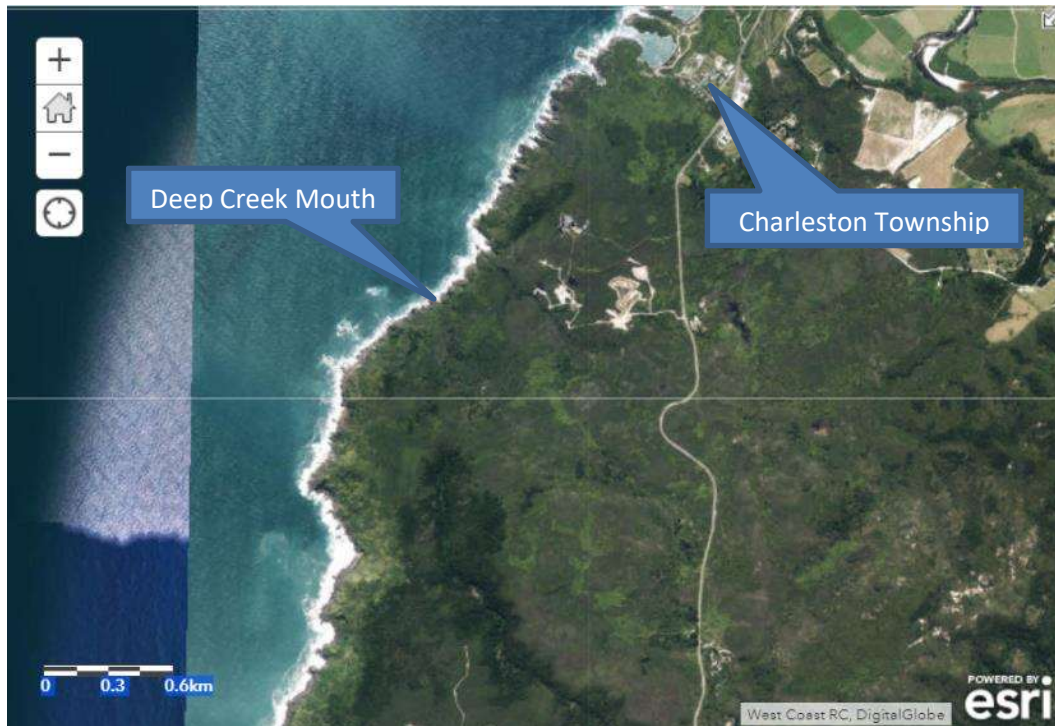
\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that the Charleston area is the primary study site of the Trust, which reports large but declining little blue penguin colonies. Blyth (2007) in a survey of West Coast little blue penguin notes that this area is thought to be one of the largest penguin populations on the West Coast. The primary location for blue penguins is on the northern side of the Nile River mouth, with 67 burrows observed in 2006/2007, and use of approximately half of 14 nest boxes. Blyth (2007) further note that “in December 2006 Robyn Blyth surveyed many areas surrounding the colony including Little Beach (between E2381097, N5922714 and E2380892, N5922239) and searched the Nile River banks upstream to the Nile River Bridge (E2380872, N5921789),” finding 7 additional active burrow sites and a number of likely burrow sites. Rats and stoats are noted as key threats.



**Figure A-51: MMB5 - Charleston.** Clockwise from top left: sandy beach with cobbles in Constant Bay, suitable for little blue penguin nesting habitat if not disturbed; view of bay; view of cobble beach on southern shore; historic site marker and view of walking trail around bay.

## MMB 6 South of Deep Creek

Location: 41°54'55"S, 171°25'12"E. Not visited in May 2019.



**Figure A-52: MMB6 - Deep Creek locality, sourced from WCRC aerial photos from ArcGIS.**

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal rookery (breeding and haul out site). Unimpeded access to and across foreshore required.”

### Additional information

Communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, suggest the Deep Creek locality from Charleston to Whitehorse Creek (neighbouring the National Park border) is an unmodified coastline of high importance of little blue penguins, NZ fur seals, and sooty shearwaters. The border of the MMB was confirmed to extend south to Whitehorse Creek.



## MMB 7 Cobden Beach

Location: 42°22'46"S, 171°13'08"E. Not visited in May 2019 as unlikely to find skinks without trained herpetologist.



Figure A-53: MMB7 - Cobden Beach locality, sourced from WCRC aerial photos from ArcGIS. x

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Good site for Speckled skink (at risk). Habitat includes upper foreshore.”

## MMB 8 Point Elizabeth, including Shag Rock and Big Rock

Location: 42°22'46"S, 171°13'08"E. Not visited in May 2019; vegetation overgrowth blocked view to haul out site.



Figure A-54: MMB8 - Point Elizabeth locality, sourced from WCRC aerial photos from ArcGIS.

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal rookery (breeding and haul out site). Access across foreshore.”

## MMB 9 Chesterfield shoreline

Location: 42°36'11"S, 171°05'39"E. Not visited in May 2019 as unlikely to find skinks without trained herpetologist.



**Figure A-55: MMB9 - Chesterfield locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Undescribed taxa of Speckled skink, but is genetically distinct and different. Paper to be completed shortly. Threat status is “Taxonomically distinct: Critically endangered”.”

### Additional information

\*\*Note WCRC staff have been notified by Joy Comrie, DOC, that the skinks were evacuated for Cyclone Fehi, but believe they have since been returned.

## MMB 10 Wanganui Bluff

Location: 43°01'48"S, 170°26'30"E. Not visited in May 2019.



**Figure A-56: MMB10 - Wanganui Bluff locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal haul out site. Unimpeded access to and across foreshore to haul out site is required.”

## MMB 11 Abut Head

Location: 43°06'31"S, 170°15'36"E. Not visited in May 2019.



**Figure A-57: MMB11 - Abut Head locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal winter haul out site. Unimpeded access to and across foreshore required.”

## MMB 12 Okarito Bluffs

Location: 43°13'44"S, 170°08'21"E.



Figure A-58: MMB12 - Okarito Bluffs locality, sourced from WCRC aerial photos from ArcGIS.

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal haul out site. Unimpeded access to and across foreshore required.”

### Site observations, May 2019

The Okarito Bluffs are accessible at low tides, forming a narrow coarse sandy beach with occasional cobble areas and large rocks adjacent to a steep cliffside. Sand crab holes were observed as the tide came in.

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019, note the area is significant for blue penguins with large colonies along the bluffs as well as along the dunes enclosing Okarito Lagoon.



Figure A-59: MMB12 - Okarito Bluffs, May 2019.

## MMB 13 Galway Point to Gillespies Point

Location: 43°23'44"S, 169°52'04"E. Not visited in May 2019.



**Figure A-60: MMB13 - Galway Point to Gillespies Point, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ Fur Seal winter haul out site. Unimpeded access to and across foreshore required.”



## MMB 14 Heretaniwha Point

Location: 43°35'11"S, 169°33'18"E. Not visited in May 2019.



**Figure A-61: MMB14 - Heretaniwha Point locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Breeding, roosting and moulting area for Fiordland crested penguins (nationally endangered). Unimpeded access to and across foreshore is required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 that confirm that Heretaniwha Point has a colony of around 70 Fiordland crested penguin nests, and is also the northernmost breeding site.

## MMB 15 Buttress Point

Location: 43°37'19"S, 169°29'14"E. Not visited in May 2019.



**Figure A-62: MMB15 - Buttress Point locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

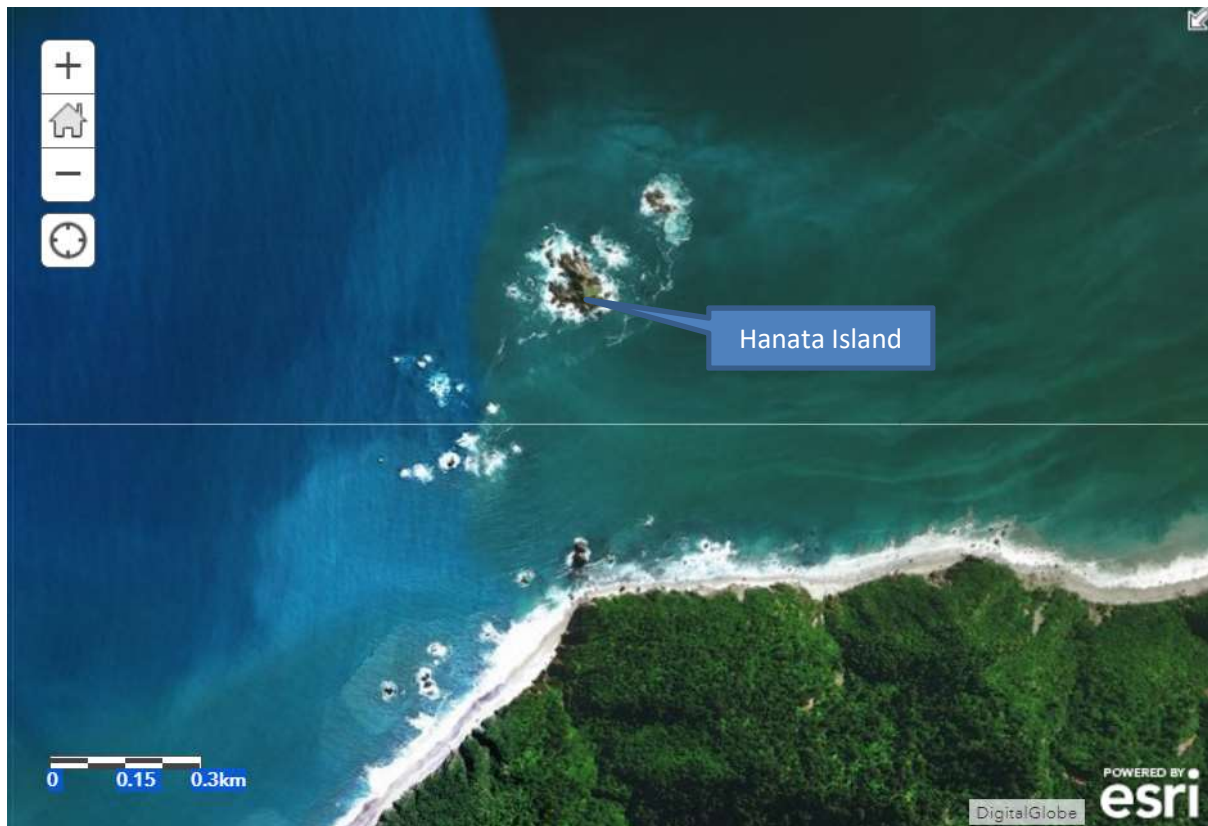
“Nesting site for Fiordland crested penguins (nationally endangered). Access to and across foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 that confirm that Buttress Point has a colony of only 18 Fiordland crested penguin nests.

## MMB 16 Hanata Island

Location: 43°37'03"S, 169°27'23"E. Not visited in May 2019.



**Figure A-63: MMB16 - Hanata Island locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ fur seal haul out site. Unimpeded access to and across foreshore required.”

## MMB 17 Tititira Head

Location: 43°37'31"S, 169°25'36"E. Not visited in May 2019.



**Figure A-64: MMB17 - Tititira Head locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ fur seal haul out site. Unimpeded access to and across foreshore required.”

## MMB 18 Awataikato Point

Location: 43°38'20"S, 169°22'58"E. Not visited in May 2019.



Figure A-65: MMB18 - Awataikato Point locality, sourced from WCRC aerial photos from ArcGIS.

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Nesting site for Fiordland crested penguins (nationally endangered). Unimpeded access to and across foreshore to the nesting sites is required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that they do not survey this site for Fiordland crested penguin nests, and suggest confirmation with DOC penguin survey.

## MMB 19 Abbey Rocks

Location: 43°40'09"S, 169°19'54"E. Not visited in May 2019.



Figure A-66: MMB19 - Abbey Rocks locality, sourced from WCRC aerial photos from ArcGIS.

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Nesting site for Fiordland crested penguins (nationally endangered). Unimpeded access to and across foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that they do not survey this site for Fiordland crested penguin nests, and suggest confirmation with DOC penguin survey.

## MMB 21 Otumotu Point

Location: 43°41'46"S, 169°15'55"E. Not visited in May 2019.



Figure A-67: MMB21 - Otumotu Point locality, sourced from WCRC aerial photos from ArcGIS.

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Breeding, roosting and moulting area for Fiordland crested penguins. Unimpeded access to and across foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest this site has 12 Fiordland crested penguin nests, and suggest it is subject to high levels of human disturbance.

## MMB 22 Murphy Beach

Location: 43°42'44"S, 169°13'59"E. Not visited in May 2019.

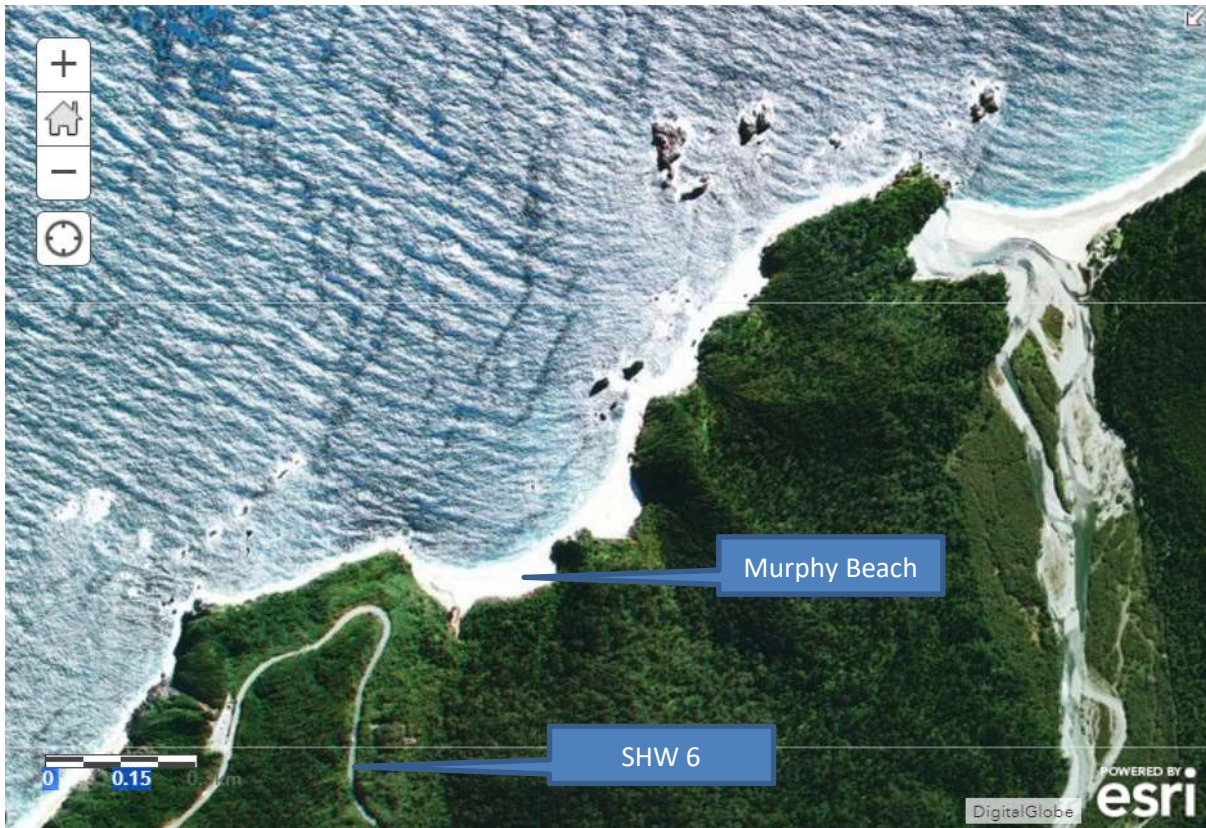


Figure A-68: MMB22 - Murphy Beach locality, sourced from WCRC aerial photos from ArcGIS.

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Breeding, roosting and moulting area for Fiordland crested penguins (nationally endangered). Unimpeded access to and across foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest this site has a larger colony of Fiordland crested penguin nests than Otumotu Point, and with lower levels of human disturbance.



## MMB 23 Arnott Point

Location: 43°43'09"S, 169°12'34"E. Not visited in May 2019.



Figure A-69: MMB23 - Arnott Point locality, sourced from WCRC aerial photos from ArcGIS.

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ fur seal haul out site. Unimpeded access to and across foreshore required.”

## MMB 24 Seal Point

Location: 43°43'50"S, 169°11'29"E. Not visited in May 2019.



**Figure A-70: MMB24 - Seal Point locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Nesting site for Fiordland crested penguins. Unimpeded access to and across foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that they do not survey this site for Fiordland crested penguin nests, and suggest confirmation with DOC penguin survey.

## MMB 25 Jackson Head

Location: 43°57'36"S, 168°37'22"E. Not visited in May 2019.



**Figure A-71: MMB25 - Jackson Head locality, sourced from WCRC aerial photos from ArcGIS.**

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

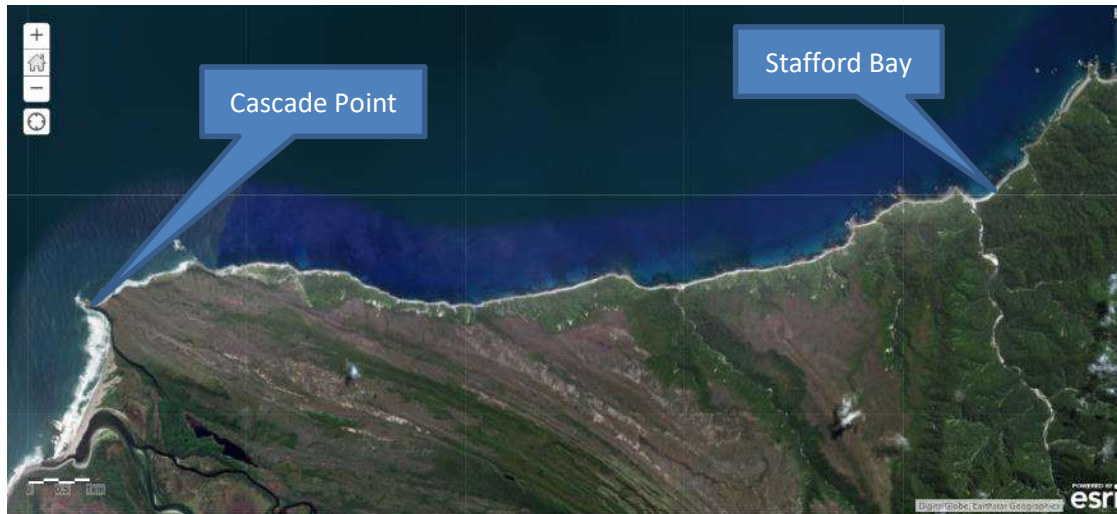
“A major breeding, roosting and moulting area for Fiordland crested penguins (nationally endangered). Unimpeded access across foreshore and adjacent coastal water required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that this is a highly significant area with several hundred Fiordland crested penguin nests.

## MMB 26 Stafford Bay to Cascade Point

Location: 44°00'14"S, 168°30'04"E. Not visited in May 2019.



**Figure A-72: MMB26 - Stafford Bay to Cascade Point, sourced from WCRC aerial photos from ArcGIS.**

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Nesting site for Fiordland crested penguins (nationally endangered). Also, there is a large NZ fur seal rookery at Cascade Point. Unimpeded access to and across the foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that this is a highly significant area with >200 Fiordland crested penguin nests with very low rates of human disturbance.

## MMB 27 Halfway Bluff

Location: 44°03'03"S, 168°19'34"E. Not visited in May 2019.



**Figure A-73: MMB27 - Halfway Bluff locality, sourced from WCRC aerial photos from ArcGIS.**

### Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Nesting site for Fiordland crested penguins (nationally endangered). Unimpeded access to and across the foreshore required.”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that this is a highly significant area with >100 Fiordland crested penguin nests with very low rates of human disturbance.

## MMB 28 Cascade Bay to Gorge River

Location: 44°08'45"S, 168°15'19"E. Not visited in May 2019.



**Figure A-74: MMB28 - Cascade Bay to Gorge River, sourced from WCRC aerial photos from ArcGIS.**

**Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)**

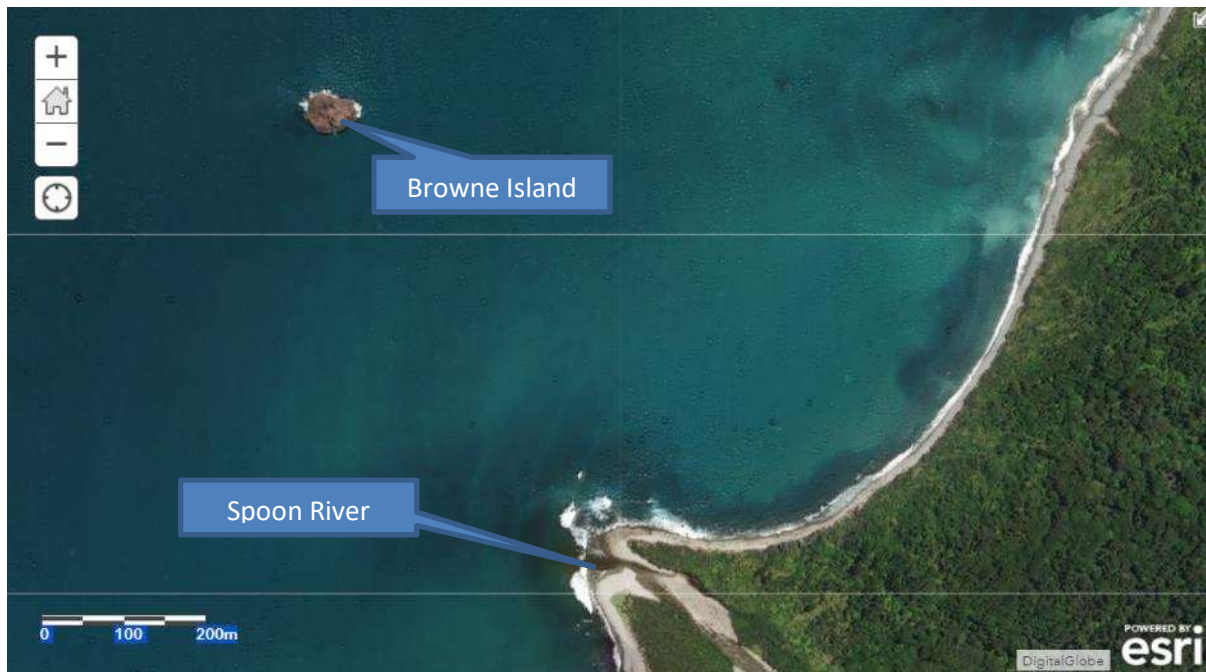
“Nesting site for Fiordland crested penguins (nationally endangered). Unimpeded access to and across the foreshore required.”

### **Additional information**

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that this is a highly significant area with >250 Fiordland crested penguin nests with very low rates of human disturbance.

## MMB 29 Browne Island

Location: 44°08'29"S, 168°15'04"E. Not visited in May 2019.



**Figure A-75: MMB29 - Browne Island locality, sourced from WCRC aerial photos from ArcGIS.**

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“NZ fur seal haul out site. Unimpeded access to and across the foreshore required.”

## MMB 30 Gorge River to Awarua Point

Location: 44°14'17"S, 168°06'37"E. Not visited in May 2019.



Figure A-76: MMB30 - Gorge River to Awarua Point, sourced from WCRC aerial photos from ArcGIS.

Distinguishing features, from DOC Schedule 3I – Cross Boundary Areas (as provided by WCRC)

“Nesting site for Fiordland crested penguins (nationally endangered).”

### Additional information

\*\*Note communications between WCRC staff and Inger Perkins, Manager, West Coast Penguin Trust, in March 2019 suggest that this is a highly significant area with >550 Fiordland crested penguin nests with very low rates of human disturbance.



## MMB NEW Monro Beach

Location: 43°42'04"S, 169°15'33"E. Visited in May 2019.

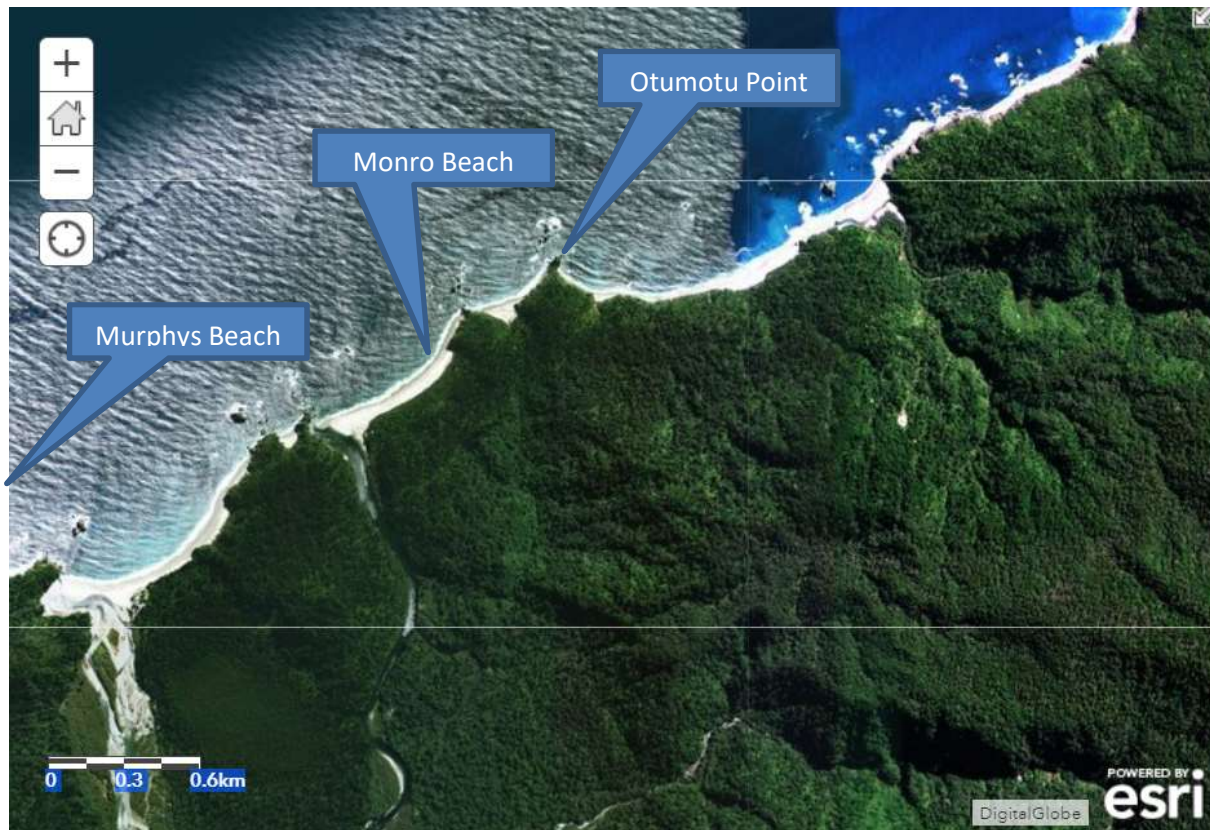


Figure A-77: MMB NEW Monro Beach locality, sourced from WCRC aerial photos from ArcGIS.

### Distinguishing features noted on site visit

“Breeding, roosting and moulting area for Fiordland crested penguins. Unimpeded access to and across foreshore required.”

### Site observations, May 2019

Bush track with regular human visitors to beach site where tawaki nest on steep cliffside. 12 tawaki nests, though penguin nests not currently occupied as it is not breeding season. Open exposed beach with gravel substrate and occasion rocks onshore and in shallow water.

Other birds seen at Monro Beach were white-fronted tern and variable oystercatcher, plus two black morph fantails.



**Figure A-78: MMB NEW – Monro Beach site photos, May 2019.** Clockwise from top left: view from top of track; tawaki (Fiordland crested penguin) nest site (unoccupied); cliff base under penguin nests; exposed beach and offshore pinnacles at northern end of beach; pied morph fantail; exposed beach and offshore pinnacles at southern end of beach.