

Coastal Environment of Otago

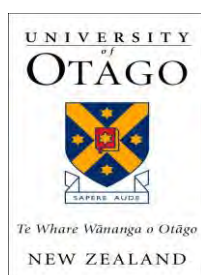
Natural Character and Outstanding Natural Features and Landscapes Assessment

Clutha District Section Report

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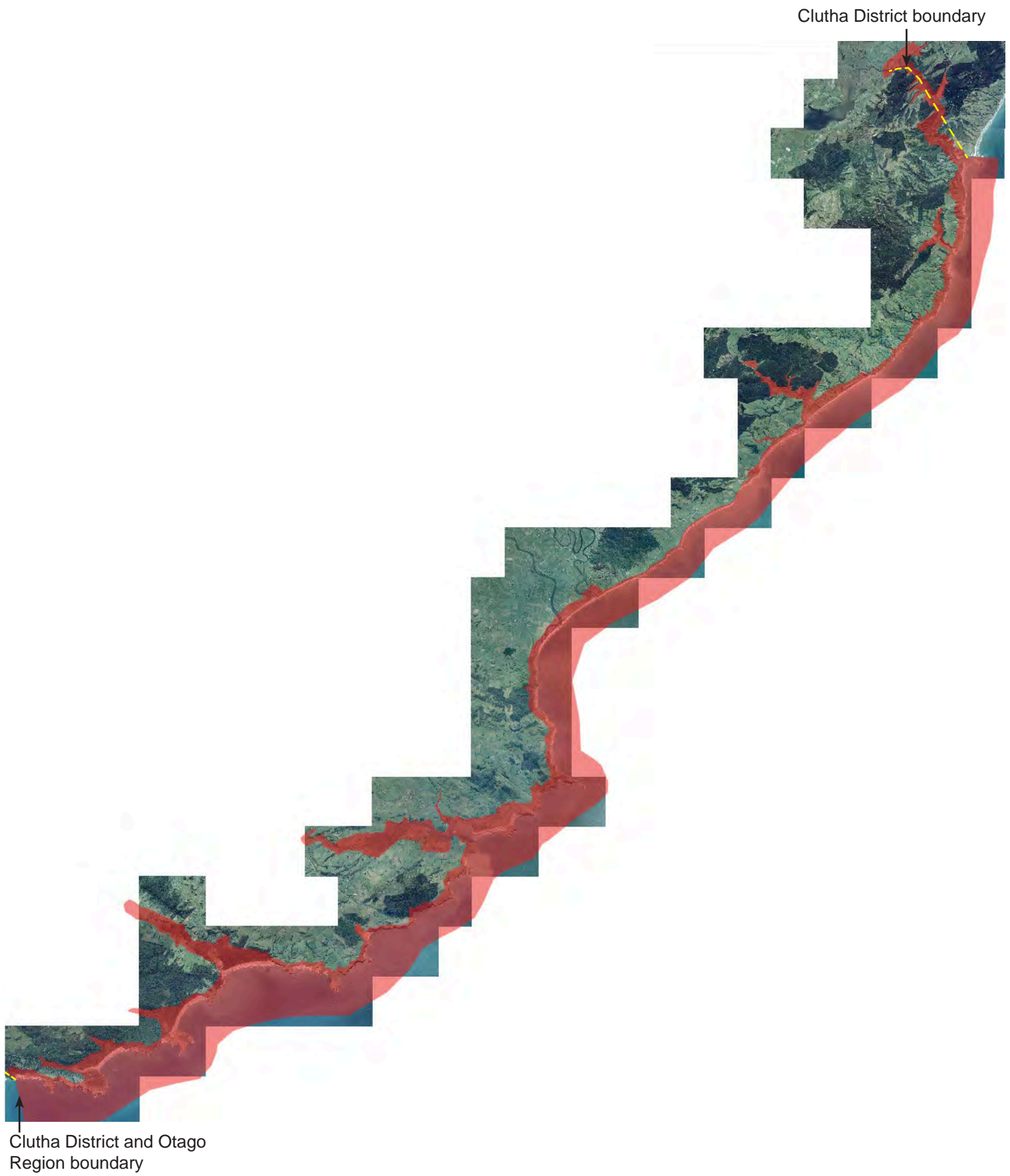


Figure 1 : Clutha District Coastal Environment

Introduction

This report has been commissioned by the Otago Regional Council, and Clutha District Council to inform the reviews of the Otago Regional Policy Statement and Clutha District Plan. It is required to assist the Councils to fulfil their obligations under Section 6 of the Resource Management Act 1991 (RMA) and the New Zealand Coastal Policy Statement 2010 (NZCPS).

Section 6 of the RMA deals with 'matters of national importance' and requires councils to 'recognise and provide for':

- (a) 'The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development.*
- (b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.'*

Regional policy statements, regional plans and district plans must all give effect to the NZCPS. Of particular relevance to this report is Policy 13 which requires:

- (1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use and development:*
- (2) Recognise that natural character is not the same as natural features and landscapes or amenity values...*

and Policy 15 which is:

To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use and development:

This report presents the results of the assessment of the coastline of Clutha District and explains the background to the assessment and the methods utilised.

The report and assessment work have been undertaken by a team put together for the project. The team members are:

- Mike Hilton and Teresa Konlechner, University of Otago (Coastal geomorphology)
- Brian Stewart, Ryder Consulting Ltd (Marine ecology)
- Mark Sanders, Ryder Consulting Ltd (Terrestrial ecology)
- Marion Read, Read Landscapes Ltd (Landscape assessment)
- Mike Moore, Mike Moore Landscape Architect (Landscape Assessment)

GIS mapping was provided by Ryder Consulting Ltd.

The Coastal Environment – Clutha District

The Clutha District coastline extends from Taieri Mouth in the north, to Wallace Beach in the south (Figure 1). The coastal environment spans Mean High Water Springs (MHWS), with Clutha District Council holding jurisdiction above this, and Otago Regional Council below. Although not reflected in the maps (which adopt an approximate 2km off-shore limit for convenience) the coastal environment includes the Coastal Marine Area (CMA), the outer limit of which extends to the limit of the territorial sea.

The character of the Clutha District coast varies considerably along this length. In very broad terms, it can be described as follows:

From Taieri Mouth to Chrystalls Beach (see Figure 2) the ancient erosion surface of the Otago peneplain meets the ocean and is expressed as uniform, gentle pasture-covered slopes with bush in the gullies. Schist rock, interspersed by sandy pocket beaches, is exposed along the coast and rivers cut through creating distinctive gorges, the most significant of which is the Taieri River Gorge. Tidal and saline influence extends up the Taieri to Henley and the entire gorge is within the coastal environment. There are estuaries and wetlands associated with impeded drainage west of the Akatore Fault near the mouths of both the Akatore Creek and Tokomairiro River.

Between Chrystalls Beach and the Clutha River Mouth (see Figure 3), the geology changes to sedimentary and the coast is characterised by long sandy beaches. Dunes are a significant element at the northern end of this section and a low coastal cliff is a feature of the southern end, with pastoral land use behind. The beaches, farmed flats and wetlands

associated with the two branches of the Clutha River Mouth form an area of distinct coastal character between this area and the Catlins coastline to the south (see Figure 4).



Figure 2: View northward from near Quoin Point toward Moturata Island and Taieri Mouth



Figure 3: View southward toward Wangaloa from near Measly Beach



Figure 4: View of the Clutha River mouth looking southward toward the Koau Branch

Just north of Kaka Point, the Little Hillfoot fault marks the change to rocks associated with the Southland Syncline, which continues all the way southward along the Clutha District coast to its southern boundary. The distinctive strike ridges associated with the syncline result in spectacular headlands where they reach the coast (e.g. Nugget Point), particularly in the northern Catlins area where the substrate is vertical. The Catlins coast (see Figure 5) can generally be described as a series of often spectacular headlands and cliffs with small off shore islands and stacks, interspersed by sandy beaches of various scales and backed by indigenous forest or pastoral farmland. There are some significant estuaries along this section of the coast, most notably those associated with the Catlins, Tahakopa, Tautuku and Waipati Rivers.

Whilst there are parts of the coast, in the Catlins in particular, where there is indigenous forest cover, the majority of the coast of the district has been modified by agriculture, and dune morphology and ecology has been extensively modified, primarily by non-native dune plants. Settlements however, are generally located away from the coast, the exceptions being Taieri Mouth, Toko Mouth, Kaka Point, Pounaweia and Papatowai, as well as a few smaller informal crib settlements. In general, the main roads are also located away from the coast and this gives the coastline an often remote and isolated character. The southern scenic route is close to the coast at Tautuku, Papatowai, Catlins Lake, Kaka Point and Taieri

Mouth and coastal natural character and scenic values underpin an increasingly important tourism industry.



Figure 5: View westward toward Tahakopa Bay from near Pillans Head

Definition of the Coastal Environment

Policy 1 of the New Zealand Coastal Policy Statement 2010 provides guidance on the extent of the coastal environment, and states that it includes:

- a) the coastal marine area;
- b) islands within the coastal marine area;
- c) areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these;
- d) areas at risk from coastal hazards;
- e) coastal vegetation and the habitat of indigenous coastal species including migratory birds;
- f) elements and features that contribute to the natural character, landscape, visual qualities or amenity values;
- g) items of cultural and historic heritage in the coastal marine area or on the coast;

- h) inter-related coastal marine and terrestrial systems, including the intertidal zone; and
- i) physical resources and built facilities, including infrastructure, that have modified the coastal environment.

The key parameters that have been used in defining the inland extent of the coastal environment are as follows:

In the case of estuaries, rivers and low lying areas the coastal environment has been defined with regard to:

- The extent of areas previously mapped as being subject to coastal hazards and / or;
- The extent of tidal reach (where salinity affects the ecology rather than simply water movement) and / or;
- The top of the coastal escarpment where this exists and / or;
- The extent of landforms which are primarily a product of coastal processes.

In the case of cliffed or hilly areas the coastal environment has been defined with regard to:

- Significant changes of slope defining land adjacent to the coast with coastal aspect and / or;
- The extent of landforms which are primarily a product of coastal processes and / or;
- Areas that are visually prominent in wider coastal views (e.g. headlands).

Assessment method

General comments

It is fairly standard, for a project like this, to present the research method as a linear process.

This would normally follow the following structure:

- Desk top analysis
- Preliminary mapping
- Field work
- Natural character assessment
- Landscape assessment
- Report preparation.

While this format provides the basic structure of the investigation, the actual process was iterative, particularly with regard to the identification of natural character areas which were modified following the field survey.

Field work was undertaken by helicopter, the entire length of the Otago coastline being flown at low altitude over two days. A photographic record of the entire coastline was created during this time, save for the seaward sides of Taiaroa Head and Moeraki Peninsula, both of which have no-fly zones around them (Taiaroa Head was subsequently photographed from the sea). Rivers were surveyed as far as the tidal reach and / or saline influence extended, and the edges of estuaries were followed.

The inland extent of the coastal environment was mapped and natural character units were identified. These are defined as areas of generally similar character in terms of their geomorphological, ecological and human use characteristics. Where required, the boundaries of the coastal environment and natural character units were modified as a consequence of the observations made during the field work.

Natural character assessments

The assessment of the natural character of each unit was undertaken using the criteria provided by the Otago Regional Council. These were:

- Geomorphological and hydrological naturalness, broken into the following aspects:
 - The degree to which the landforms / seabed are the product of natural processes
 - The degree to which natural geomorphological and hydrological processes are operating unconstrained
 - The degree to which water quality and quantity are unaffected by land use activities

- Ecological naturalness, broken into the following aspects:
 - The degree to which the vegetation patterns are a product of natural processes
 - The degree to which the vegetation cover is indigenous to the area

- The (apparent) health and level of modification of intertidal and aquatic habitats
- The degree to which wildlife is present and sustained;
- Experiential naturalness, broken into the following aspects:
 - The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape.
 - The degree to which there are wild and scenic qualities.

A scale of five possible ratings (high, medium - high, medium, medium – low, low) was used for the assessment of each of these aspects.

Geomorphological and hydrological naturalness

The assessments of the geomorphological and hydrological naturalness were made with regard to the photographic record, the background knowledge of the areas involved by the team members and published data from a variety of sources including investigations commissioned by local authorities (ORC and DCC) and local commercial enterprises, research projects undertaken by staff and students at the University of Otago, and books detailing the natural history of the Otago coastline.

To assess the degree to which landforms are the result of natural processes and the degree to which these processes are operating unconstrained, the effect of structures, non-native species and landuse, both past and present, were considered. Important processes in the terrestrial coastal environment for this assessment included aeolian sand transport from the beach inland on sandy coasts and wave erosion on rocky coasts. Important processes in the marine coastal environment were alongshore and onshore/offshore movements of sediment, and tidal water circulation and freshwater inflows in estuarine environments. Consideration was given to whether modification of these processes has altered both landforms/seabed and the overall geomorphic or hydrologic 'function' of the unit.

Assessments of water quality and quantity were based on published data where available. Where no data was available assessments were based on the geomorphology and geology of the unit in question, the regional marine process and the history of land management.

Ecological naturalness

Ecological assessments are based largely on Abby Smith's (Smith 1994) "Eastward to the Sea", prepared as a background report for the preparation of the current Regional Plan: Coast. This current assessment updates Smith's work by including data that has come to hand since. These data are derived from a variety of sources, including investigations commissioned by local authorities (ORC and DCC) and local commercial enterprises, research projects undertaken by staff and students at the University of Otago, publications from the Department of Conservation (DoC) and Ministry of Fisheries (now MPI), and books detailing the natural history of the Otago coastline.

For example, investigations of estuaries were undertaken as part of the ORC's state of the environment (SOE) monitoring and were carried out in accordance with the New Zealand Estuary Monitoring Protocol (Robertson *et al.* 2002). Likewise, investigations of many of the local inlets have been undertaken at the behest of local aquaculture concerns (e.g. Southern Clams Ltd). These conform to standard ecological methods investigating shellfish resources and associated community structure. Investigations within the harbour comprise assessments of the shoreline, carried out as ecological assessments of likely effects of road improvement and road maintenance work, and assessments of the wider harbour to gauge the effects of dredging operations and clam harvesting. Other investigations include assessments of the effects of sewage disposal, both offshore and coastal, stormwater discharges to the harbour and local coastline and effects of other human activities on the CMA. A list of investigations, reports and accounts used in making ecological assessments is contained in the references section.

First-hand accounts have also been obtained from DoC staff, representatives from local iwi, representatives of the fishing and aquaculture industries, and through personal field experience gathered over the past twenty five years.

Experiential naturalness

The assessments of the influence of buildings, structures and earthworks, and of experiential naturalness were made with regard to the photographic record and the background knowledge of the team members.

Overall natural character rating

Once each specialised aspect of the natural character assessment was concluded a composite assessment was undertaken to identify the overall natural character rating, again using the five point scale. Areas assessed as having high natural character required high or predominantly high scores in all disciplinary areas. The areas assessed as having high natural character ratings were then reviewed and a judgement made as to which could be considered 'outstanding'. Reasons were recorded.

Natural features, landscapes and seascapes assessments

Landscape / seascape character units (hereafter referred to as 'landscape units) and natural features within the coastal environment were identified in parallel with the natural character assessments. The landscape units, defined as areas of generally similar character, were sometimes similar in extent to the natural character units, but were generally a composite of several (sometimes with the boundaries slightly adjusted to reflect spatial and experimental factors). In most cases the landscape units extend inland beyond the coastal environment, but this assessment focusses only on that part within the coastal environment. Seaward, the character units become increasingly indistinct with distance from the shore.

'Natural features' are distinct elements or groupings of elements forming subsets within a landscape. Natural features considered to be potential candidates for 'outstanding' status were identified through field observation, desktop research and the natural character assessments. An important source in identifying potentially outstanding natural features was the Inventory and Maps of Important Geological Sites and Landforms in the Otago Region (Hayward and Kenny, 1998).

Both the landscape units and natural features identified were described and assessed in accordance with the amended Pigeon Bay factors as listed below. These factors encompass all the factors listed in Policy 15 (c) of the NZCPS and reorganise them in a more useful manner for assessment (see Appendix 1).

- Natural science factors / legibility / expressiveness
- Aesthetic values (naturalness / memorability) wild and scenic
- Transient values

- Shared and recognized values
- Tangata whenua values
- Historic heritage values

Comments were recorded for each assessment factor and a rating applied using a five point scale. It is important to note that these are not criteria, *per se*, but rather, comprise important aspects of landscape appreciation and significance, and are not of equal value. Consequently there are no benchmarks for attainment; rather an overall judgement of pre-eminence is made on the basis of the defined qualities. Those that were rated as high were reassessed with regard to whether 'outstanding natural landscape' or 'outstanding natural feature' status in terms of S6b of the RMA was warranted (i.e. were they 'notable due to the expression of natural elements, patterns and processes' (NZILA 2010)). Those which were considered outstanding natural landscapes in the terms of S6b of the RMA were identified and the reasons recorded. A level of exceptionality within the Otago context is required for a landscape or feature to be assessed as outstanding.

The natural feature and landscape assessments have been informed by the natural character assessments and by desktop research, field observation and a high level of familiarity (amongst the assessors), with the coastal areas involved. Important information sources on landscape values include the following:

- Otago Regional Plan Coast, Otago Regional Council 2001.
- Otago Regional Plan Water, Otago Regional Council 2004
- Clutha District Plan, Clutha District Council 1998.
- Otago Conservation Management Strategy, Department of Conservation, 2013
- Otago Conservation Management Strategy, Department of Conservation, 1998
- Kai Tahu ki Otago Natural Resource Management Plan, Kai Tahu ki Otago Ltd, 2005
- Review of the Manawhenua Section, Clutha District Plan, Kai Tahu ki Otago Ltd, 2008.

The assessments are based on the input of two landscape architects, and have been peer reviewed by the other team members.

Results - Natural Character

Overview

A total of 44 natural character areas were defined. These, along with the natural character ratings assigned are shown in Figures 6(a) – 6(d) and summarised in Table 1.

Table 1 : Natural character unit ratings – Summary table

| Clutha NC Unit Number | Unit NC Name | NC Unit Rating | Outstanding? |
|-----------------------|---------------------------------------|----------------|--------------|
| CNC1 | Henley | Medium Low | |
| CNC2 | Taieri River Gorge (upper) | Medium Low | |
| CNC3 | Taieri River Gorge (lower) | High | |
| CNC4 | Moturata | High | Yes |
| CNC5 | Taieri Mouth | Medium | |
| CNC6 | Coutts Gully wetland | Medium High | |
| CNC7 | Taieri Beach | Medium High | |
| CNC8 | Akatore gorge | Medium High | |
| CNC9 | Akatore wetland | Medium High | |
| CNC10 | Quoin Point | Medium High | |
| CNC11 | Chrystalls Beach | Medium | |
| CNC12 | Tokomairiro wetland | Medium | |
| CNC13 | Toko Mouth | Medium | |
| CNC14 | Measly Beach | Medium High | |
| CNC15 | Wangaloa to Clutha River Matau branch | Medium | |
| CNC16 | Inch Clutha | Medium Low | |
| CNC17 | Molyneux Bay | Medium | |
| CNC18 | Kaka Point | Medium | |
| CNC19 | Nugget Point | High | Yes |
| CNC20 | Sandy Bay | High | |
| CNC21 | False Islet | High | |
| CNC22 | Cannibal / Surat Bay | Medium High | |
| CNC23 | Catlins River | Medium | |
| CNC24 | Catlins Lake | Medium High | |
| CNC25 | Catlins Heads | Medium High | |
| CNC26 | Jacks Bay | Medium | |
| CNC27 | Tuhawaiki Island and Tunnel Rocks | High | |
| CNC28 | Penguin Bay | High | |
| CNC29 | Hinahina Cove | High | Yes |

| | | | |
|-------|-----------------------------------|-------------|-----|
| CNC30 | Purakaunui Bay | Medium High | |
| CNC31 | Cosgrove Island | High | Yes |
| CNC32 | Long Point | High | |
| CNC33 | Haywards Point | Medium High | |
| CNC34 | Pillans Head | Medium High | |
| CNC35 | Tahakopa Bay | High | Yes |
| CNC36 | Tahakopa River | Medium High | |
| CNC37 | Mahaka Point | High | |
| CNC38 | Tautuku Bay | High | Yes |
| CNC39 | Tautuku River | High | Yes |
| CNC40 | Tautuku Peninsula | Medium High | |
| CNC41 | Frances Pillars / Cathedral Caves | High | Yes |
| CNC42 | Waipati Beach | High | Yes |
| CNC43 | Waipati Estuary | High | Yes |
| CNC44 | Makati | High | |

No areas in the Clutha District rated low for overall natural character. The majority of natural character units were rated medium, or medium – high. These were typically areas where rural land use has impacted the landscape to various degrees, and / or where non-native plants have altered the morphology and ecology of the unit. Seventeen units rated ‘high’ for natural character and ten of these were also assessed as outstanding.

Areas of high and outstanding natural character

Eighteen units rated high for natural character as follows. Those that were also considered to be outstanding are highlighted in bold.

- Taieri River Gorge (lower) (CNC3)
- **Moturata (CNC4)**
- **Nugget Point (CNC19)**
- Sandy Bay (CNC20)
- False Islet (CNC21)
- Tuhawaiki Island and Tunnel Rocks (CNC27)
- Penguin Bay (CNC28)
- **Hinahina Cove (CNC29)**
- **Cosgrove Island (CNC31)**
- Long Point (CNC32)

- **Tahakopa Bay (CNC35)**
- Mahaka Point (CNC37)
- **Tautuku Bay (CNC38)**
- **Tautuku River (CNC39)**
- **Frances Pillars / Cathedral Caves (CNC41)**
- **Waipati Beach (CNC42)**
- **Waipati Estuary (CNC43)**
- Makati (CNC44)

These are briefly discussed below.

Key : Natural Character Rating

- High and Outstanding
- High
- Medium – high
- Medium
- Medium – low
- Low

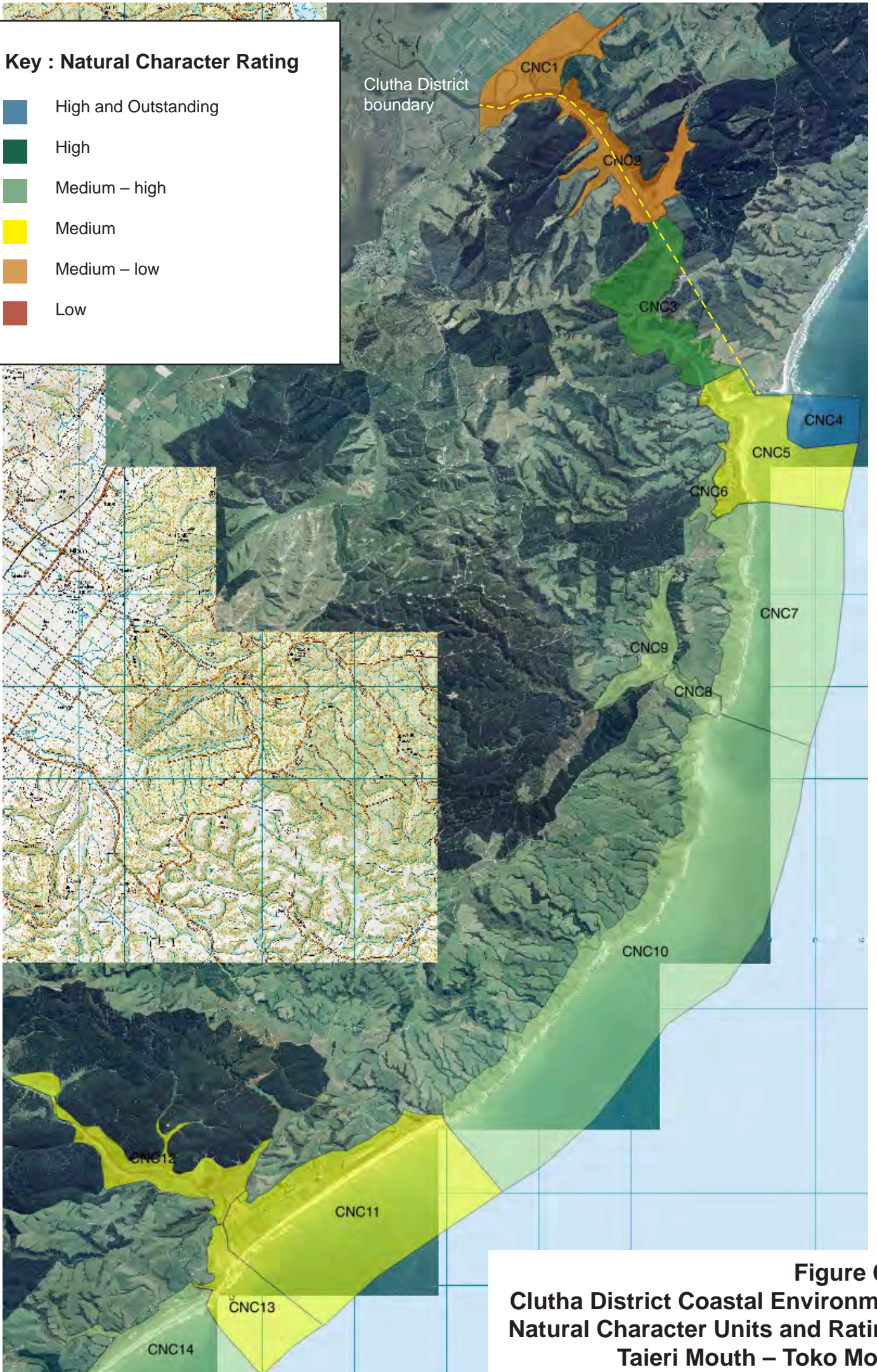
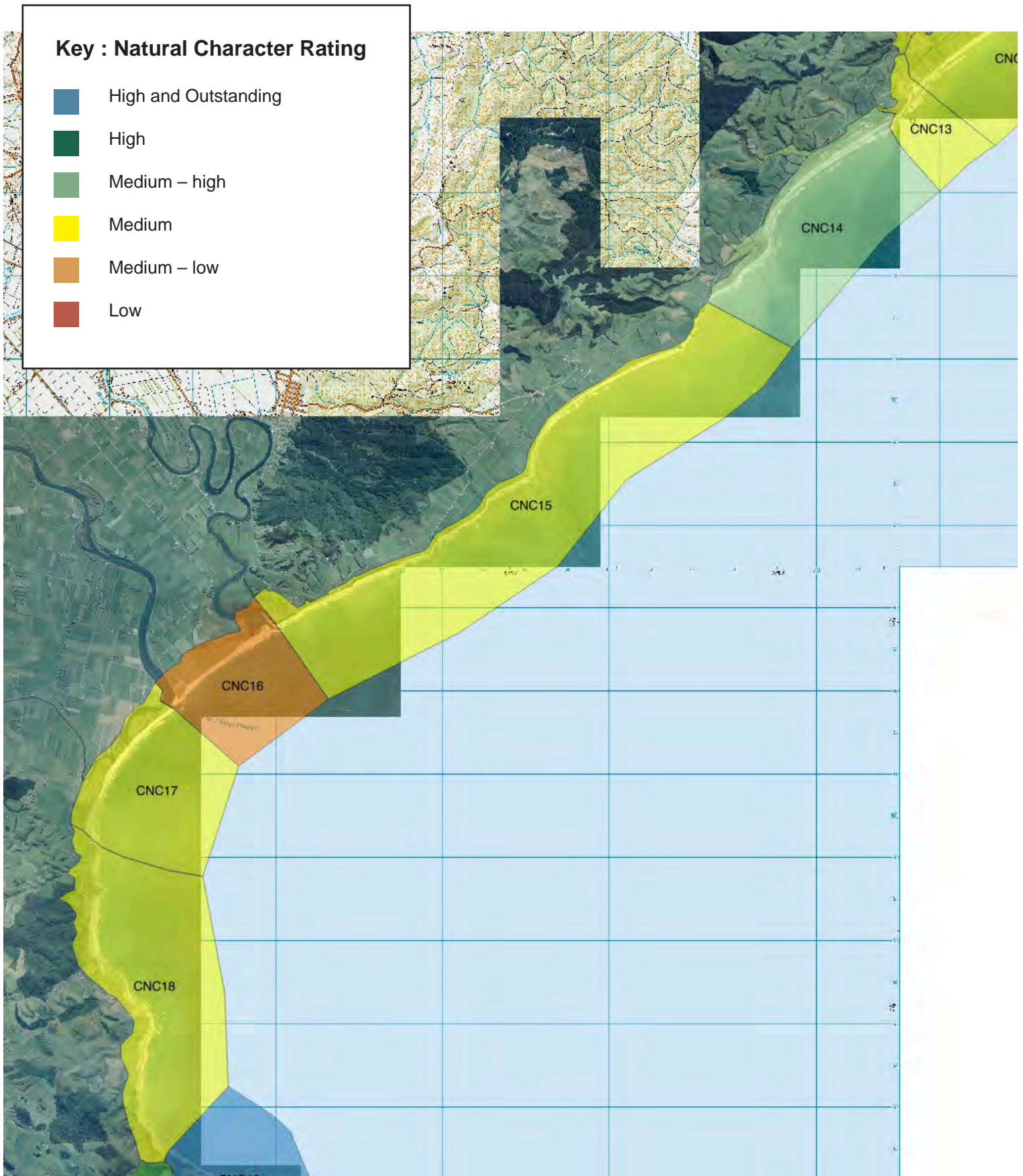
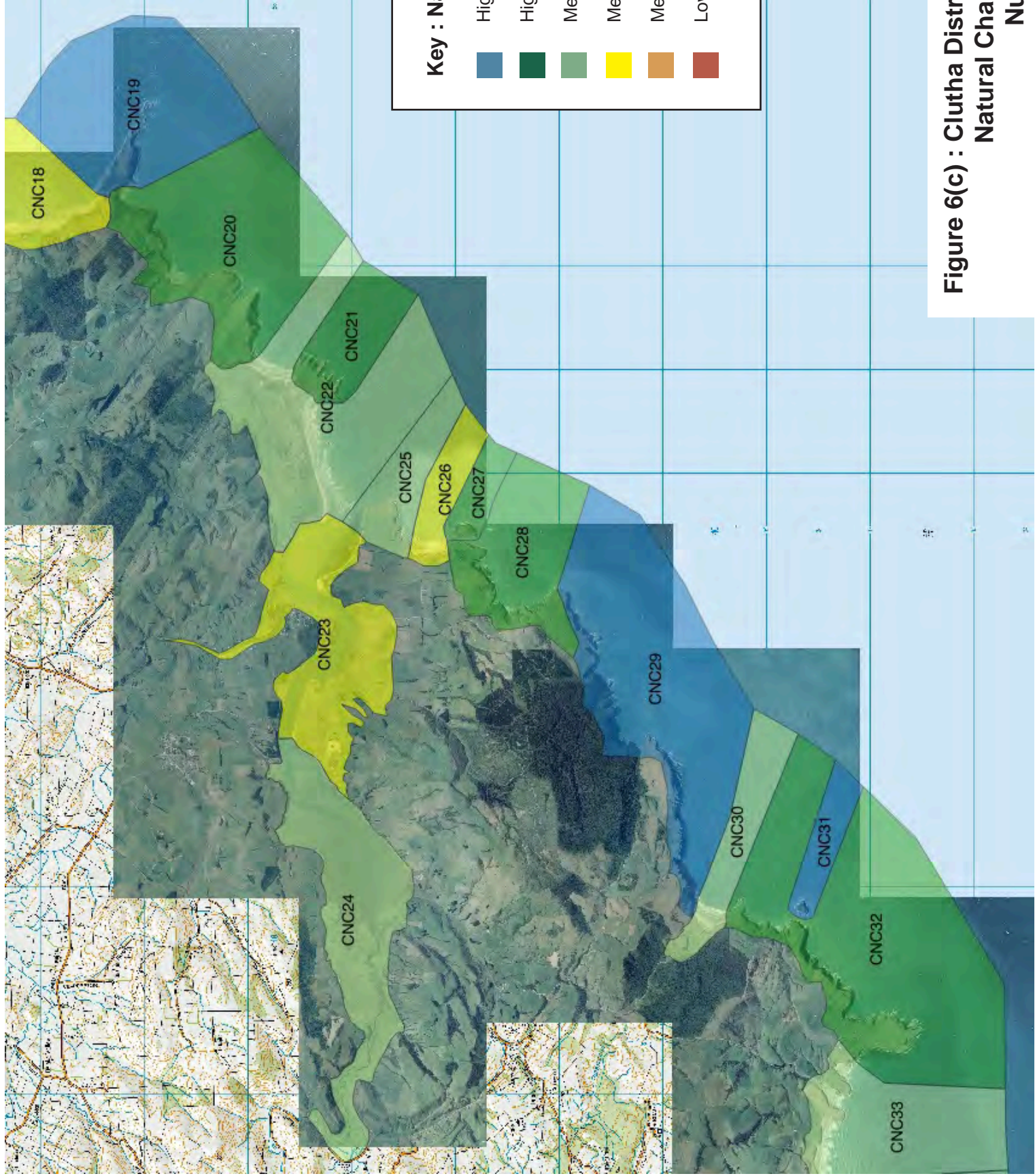


Figure 6(a)
Clutha District Coastal Environment
Natural Character Units and Ratings
Taieri Mouth – Toko Mouth



**Figure 6(b) : Clutha District Coastal Environment
Natural Character Units and Ratings
Toko Mouth – Nugget Point**



**Figure 6(c) : Clutha District Coastal Environment
Natural Character Units and Ratings
Nugget Point – Long Point**

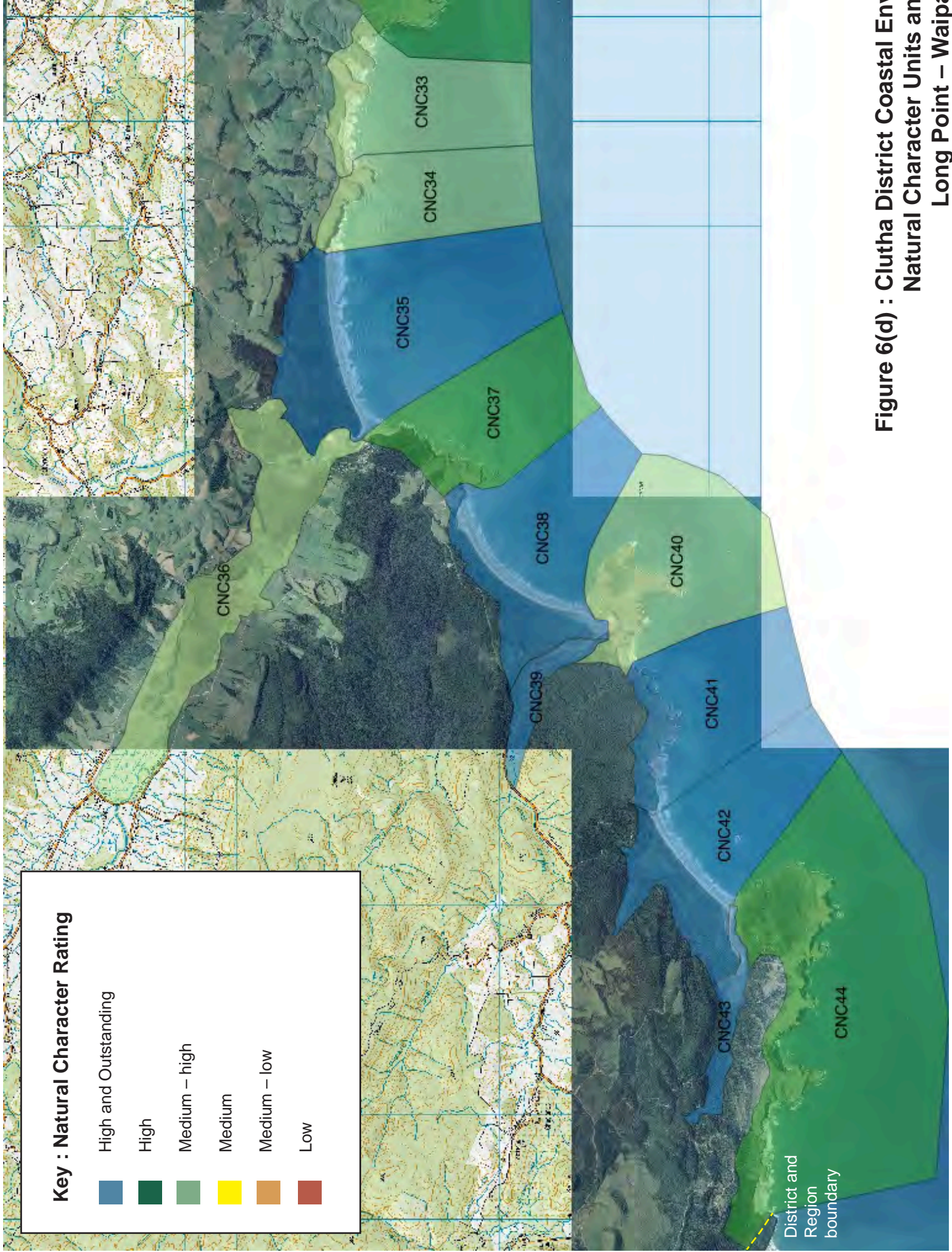


Figure 6(d) : Clutha District Coastal Environment Natural Character Units and Ratings Long Point – Waiparau Head

Taieri River Gorge (lower) (CNC3)



The Taieri River Gorge (lower) unit is largely within Clutha District but extends into Dunedin City at its northern end. For the purposes of this study it is included in both areas as a landscape feature of significance and one which, as such, raises potential cross boundary issues. This unit encompasses the seaward end of the Taieri River Gorge where the geology is schist. The coastal environment boundaries are defined by the extent of the gorge landform.

This is a highly scenic gorge with regenerating indigenous vegetation along both sides and scores 'high' or 'medium – high' for geomorphological naturalness, the degree to which buildings, structures and earthworks influence the character of the landscape, and for wild and scenic qualities. Whilst there are significant ecological values, water quality (and possibly quantity) in the river is modified, with flow-on effects on the apparent health and level of modification of intertidal and aquatic habitats and the degree to which wildlife is present and sustained. Overall the unit has been assessed as having high, but not outstanding natural character.

Moturata (CNC4)



Moturata is a small schist island located off the mouth of the Taieri River, and connected to the land by a tombola which is exposed at low tide. The island is vegetated, in the main, with indigenous vegetation and the surrounding marine environment has high ecological integrity also. It provides important habitat for marine mammals and sea birds. The unit has high perceptual naturalness and high wild and scenic value. Its high rankings across all disciplines led it to be assessed as having outstanding natural character.

Nugget Point (CNC19)



The Nugget Point is a prominent headland extending into the sea with an associated grouping of stacks and reefs (known as the Nuggets). A lighthouse is present on the point and a house and farm buildings originally associated with it are located on the point also. Access to these has been provided by a road which now provides access to tourists and visitors. The headland is considered, overall, to be essentially of natural form, however. It has modified terrestrial ecology, mainly resulting from the presence of exotic grasses on the less precipitous slopes, but the marine ecology has a high degree of naturalness. Nugget Point provides habitat for a wide range of marine mammals and sea birds. It has high perceptual natural character and high wild and scenic value. Its high rankings across all disciplines led it to be assessed as having outstanding natural character.

Sandy Bay (CNC20)



The landforms of this unit comprise coastal cliffs and sandy bays and are considered to be highly natural. Pasture extends almost to the very edge of the cliffs, but the cliff faces are clad with a mix of indigenous vegetation. Consequently the terrestrial ecology is modified. This unit is also less important as wildlife habitat. Thus, while the unit has high perceptual naturalness and high wild and scenic value, it is not considered, overall, to be of outstanding natural character.

False Islet (CNC21)



False Islet is a conglomerate headland attached to the mainland by a tombolo which forms Cannibal and Surat Bays. The geomorphological and hydrological systems of the unit are largely intact. The vegetation on the upper surfaces of the headland is predominantly exotic grasses, however, resulting in the terrestrial ecology being significantly compromised. The marine ecology has retained more integrity. The unit is assessed as having high natural character but is too compromised to be considered to be outstanding.

Tuhawaiki Island and the Tunnel Rocks (CNC27)



This unit is located to the south west of Jacks Bay. The island is flat topped and underlain with conglomerate. The unit has high geomorphological and hydrological naturalness. The terrestrial ecology is compromised by the extensive spread of exotic vegetation on the top of the island, but indigenous vegetation is present and regenerating. The marine ecology is predominantly natural and the site provides important habitat for seals and sea birds. The unit has high perceptual naturalness and high wild and scenic value. The degree to which its ecology is compromised precluded it being assessed as having outstanding natural character, however.

Penguin Bay (CNC28)



The Penguin Bay unit is immediately adjacent to and south west of the previous unit. It comprises a series of lower sandstone cliffs with some gravel beaches. The geomorphological and hydrological processes are largely intact in this unit, but the terrestrial ecology is compromised by farming, although patches of remnant and regenerating indigenous vegetation are present. The marine ecology is more intact and the unit provides important habitat for seals and sea birds. It has high perceptual naturalness and moderately high wild and scenic value, its lower cliffs and pastoral margins taming it somewhat. Overall, while it is considered to have high natural character it is not considered to be outstanding.

Hinahina Cove (CNC29)



The Hinahina Cove unit is immediately adjacent to and south west of the Penguin Bay unit. This area comprises high sandstone cliffs with gravel beaches and while agricultural land use has come close to the cliff tops in some areas a substantial area of forest extends right to the cliff edge over part of the unit. The geomorphological and hydrological systems of the unit are considered to be largely intact. The terrestrial ecology is compromised to a slight degree by farming, but the marine ecology is largely intact and the unit is important habitat for seals and sea birds. It has high perceptual naturalness and high wild and scenic value. Overall it is considered that this unit has outstanding natural character.

Cosgrove Island (CNC31)



Cosgrove Island is a small sandstone island located off the coast south west of Purakaunui Bay. The geomorphological and hydrological systems of this unit are considered to be largely intact and the terrestrial and marine ecology are similarly intact. The island has high perceptual naturalness and high wild and scenic value. Overall the unit is considered to have outstanding natural character.

Long Point (CNC32)



Long Point comprises a large sandstone headland with some gravel and some sandy beaches. While its geomorphological and hydrological processes are largely intact, farming on the top of the headland has resulted in the terrestrial ecology being significantly compromised. The marine ecology has retained higher integrity and the headland provides important habitat for seals and sea birds. Long Point has high perceptual naturalness, but its use as farmland reduces its wild and scenic value somewhat. Consequently, while the unit is considered to have high natural character it is not considered to be outstanding.

Tahakopa Bay (CNC35)



The Tahakopa Bay unit comprises a prograded Holocene barrier between relict sea-cliffs to north and the Tahakopa River to south. The geomorphological and hydrological processes of the unit are considered to be largely intact, as is the terrestrial ecology. The marine ecology is slightly compromised by sedimentation and runoff, however, and the unit is moderately important as a wildlife habitat. The unit has high perceptual naturalness, being largely clad in indigenous forest, and has high wild and scenic value. As a consequence of its generally high rankings over all disciplines the unit is considered to have outstanding natural character.

Mahaka Point (CNC37)



This unit comprises a small sand and siltstone headland and the associated Rainbow Isles which is a small island with associated reefs just off the headland. The unit's geomorphological and hydrological systems are relatively intact. The terrestrial ecology of the unit is compromised by the presence of exotic vegetation but the marine ecology is predominantly intact and the unit provides important habitat for seals and sea birds. It has high perceptual naturalness, and high wild and scenic value. The level of modification to the ecological systems of the unit are such that it cannot be considered to have outstanding natural character.

Tautuku Bay (CNC38)



This unit comprises a prograded Holocene barrier with dune lakes and almost entirely indigenous vegetation cover right to the beach margins. Its geomorphological and hydrological systems are relatively intact and its terrestrial ecosystems are similarly relatively intact. Whilst the marine ecology is not outstanding the area provides moderately important habitat for wildlife. It has high perceptual naturalness and high wild and scenic value. Overall the unit is considered to be of outstanding natural character.

Tautuku River (CNC39)



The Tautuku River unit comprises the tidal river and estuary comprising sand flats and multiple river channels. Its geomorphological and hydrological systems are relatively intact and its water quality is considered to be better than most Otago Rivers. From an ecological perspective the salt marsh and estuarine communities are considered to be pristine, but other vegetation is slightly compromised by exotic grasses. The marine ecology is considered to be of high quality and the unit provides important habitat for wildlife. It has high perceptual naturalness and high wild and scenic character. Because of its high ranking over all disciplines it is considered to have outstanding natural character.

Frances Pillars / Cathedral Caves (CNC41)



This unit comprises sandstone and conglomerate cliffs with arches, caves, sea stacks and a sandy beach. The geomorphological and hydrological process of this unit are predominantly intact. The terrestrial and marine ecologies of the unit have been compromised to a degree, but the unit remains important habitat for wildlife. The unit has high perceptual naturalness and high wild and scenic value. Because of the high rankings over all disciplines the unit is considered to exhibit outstanding natural character.

Waipati Beach (CNC42)



This unit comprises a prograded Holocene barrier clad with indigenous forest. The geomorphological and hydrological processes of the unit are largely intact, as are the terrestrial and marine ecologies. The unit has high perceptual naturalness and high wild and scenic value. Overall the unit is considered to exhibit outstanding natural character.

Waipati Estuary (CNC43)



This unit comprises a tidal river and estuary with sand flats and multiple channels. The geomorphological and hydrological processes of the unit are largely intact, as are the terrestrial and marine ecologies which are described as almost pristine. The unit has high perceptual naturalness and high wild and scenic value. Overall the unit is considered to exhibit outstanding natural character.

Makati (CNC44)



This unit comprises sandstone cliffs and sandy beaches. The geomorphological and hydrological process of the unit are relatively intact. The terrestrial ecology is compromised by exotic vegetation but the marine ecology remains moderately intact. The unit has high perceptual naturalness and high wild and scenic value. Because of the degree to which the ecology of the unit has been compromised, it is considered to have high but not outstanding natural character.

Results – Natural landscapes and seascapes

Overview

A total of 21 landscape / seascape character units (referred to as landscape character units) were identified, most being composites of the natural character units, sometimes with minor amendments to boundaries to account for spatial / experiential factors. Natural character units were combined when it was clear that they formed a single landscape. For example, the Tahakopa Bay landscape unit is an amalgam of the Pillans Head, Tahakopa Bay and Mahaka Point natural character units and includes Tahakopa Bay with its defining headlands.

The landscape character units, along with the landscape value ratings assigned are shown in Figures 7(a) – 7(d) and summarised in Table 2.

Table 2 : Landscape character unit value ratings – Summary table

| Unit Number | Unit Name | Overall landscape values rating | Outstanding |
|-------------|-------------------------|---------------------------------|-------------|
| CL1 | Henley | Medium - Low | |
| CL2 | Taieri River Gorge | Medium - High | |
| CL3 | Taieri Mouth | Medium - High | |
| CL4 | Akatore Coast | Medium - High | |
| CL5 | Akatore Wetland | Medium - High | |
| CL6 | Toko Mouth | Medium - High | |
| CL7 | Tokomairiro Wetland | Medium | |
| CL8 | Wangaloa | Medium - High | |
| CL9 | Clutha Mouth | Medium - High | |
| CL10 | Kaka Point | Medium - High | |
| CL11 | Sandy Bay | High | Yes |
| CL12 | Cannibal / Surat Bay | High | Yes |
| CL13 | Catlins Lake | Medium - High | |
| CL14 | Jacks Bay / Penguin Bay | High | Yes |
| CL15 | Hinahina | High | Yes |
| CL16 | Long Point | High | Yes |
| CL17 | Tahakopa Bay | High | Yes |
| CL18 | Tahakopa River | High | Yes |
| CL19 | Tautuku | High | Yes |
| CL20 | Waipati | High | Yes |
| CL21 | Wallace Head | High | Yes |

Just two units rated medium or less and nine were assessed as medium – high. Ten units rated high for landscape values and all of these were also considered to be outstanding as follows:

- Sandy Bay (CL11)
- Cannibal / Surat Bay (CL12)
- Jacks Bay / Penguin Bay (CL14)
- Hinahina (CL15)
- Long Point (CL16)
- Tahakopa Bay (CL17)
- Tahakopa River (CL18)
- Tautuku (CL19)
- Waipati (CL20)
- Wallace Head (CL21)

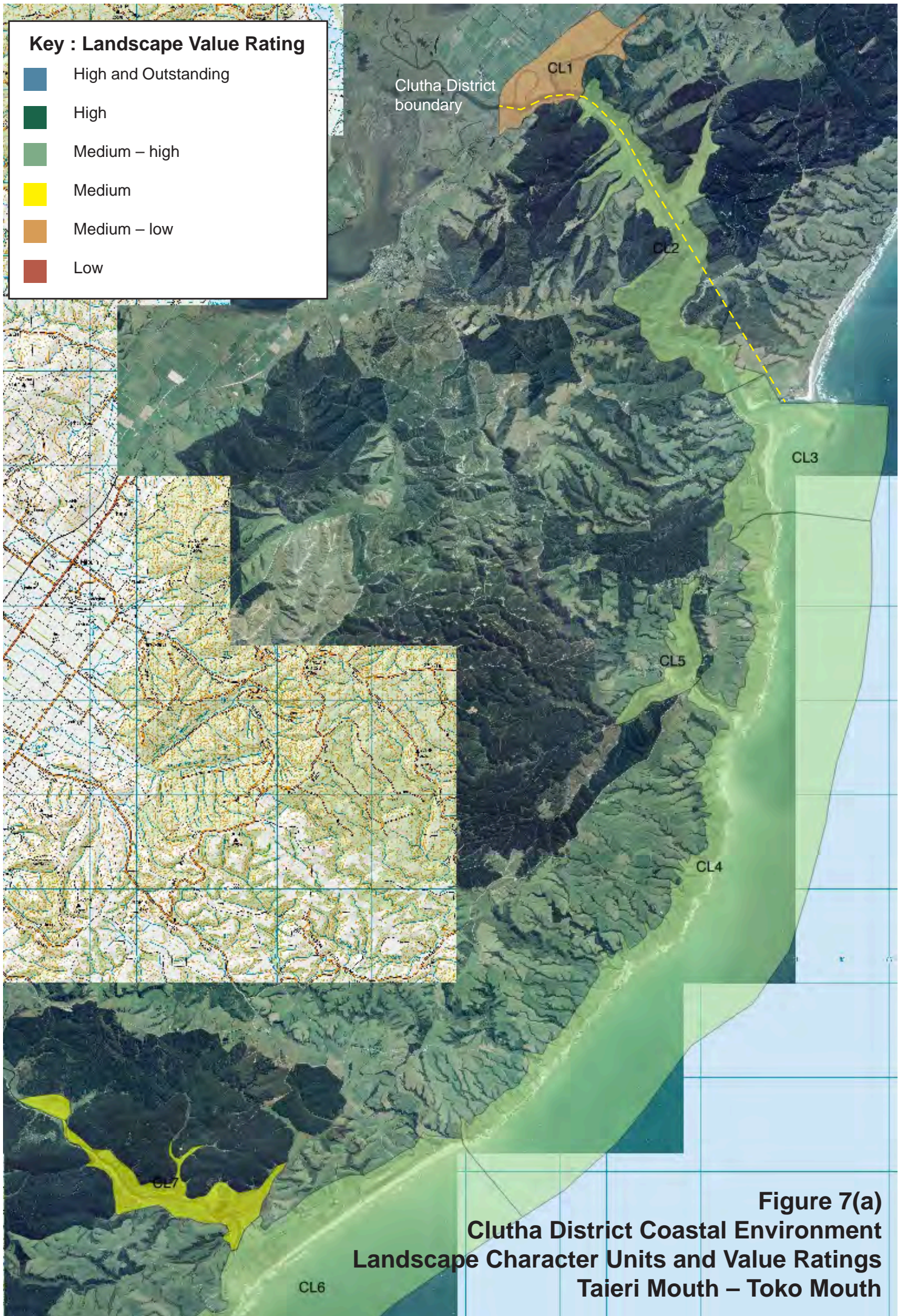


Figure 7(a)
Clutha District Coastal Environment
Landscape Character Units and Value Ratings
Taieri Mouth – Toko Mouth

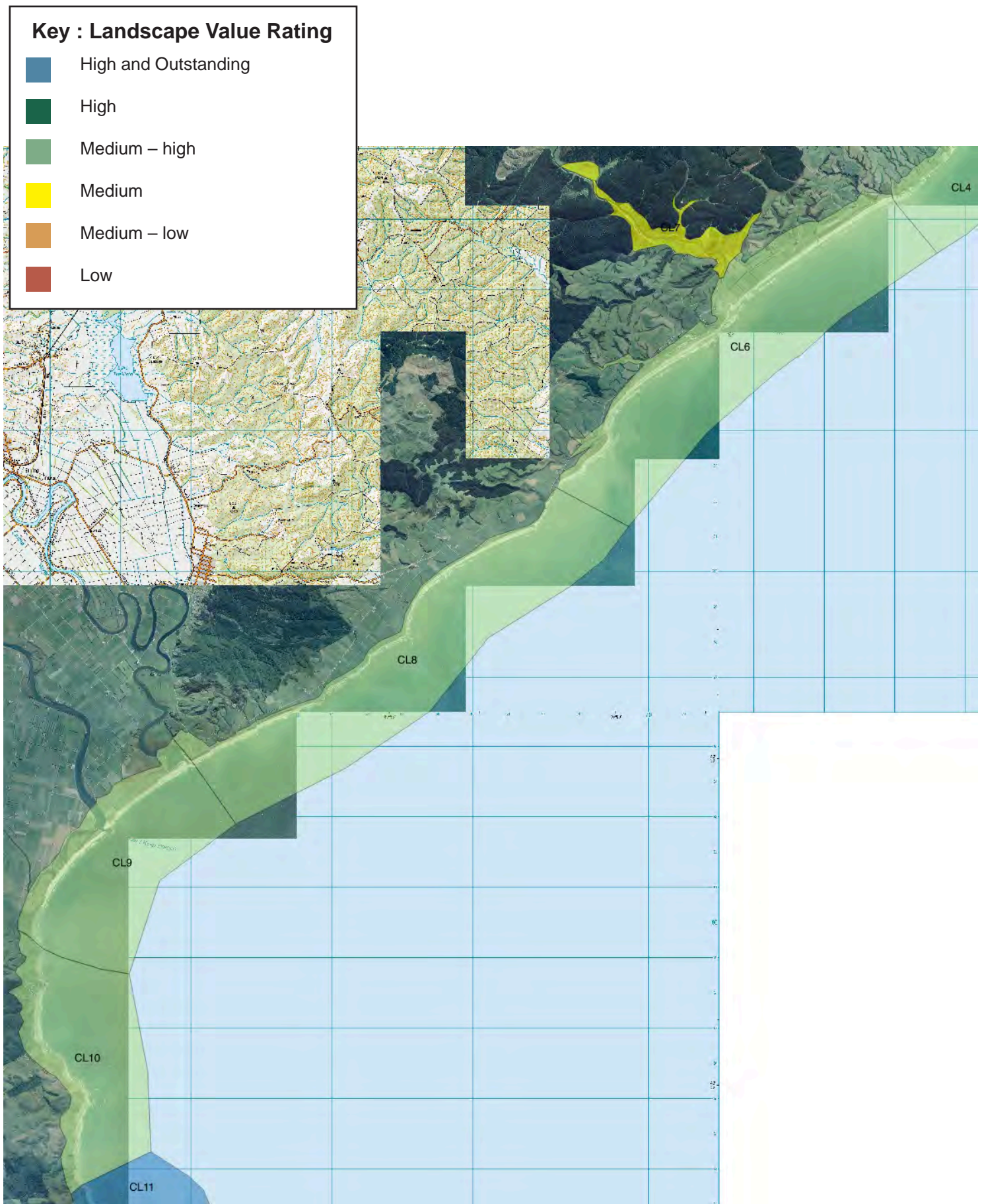
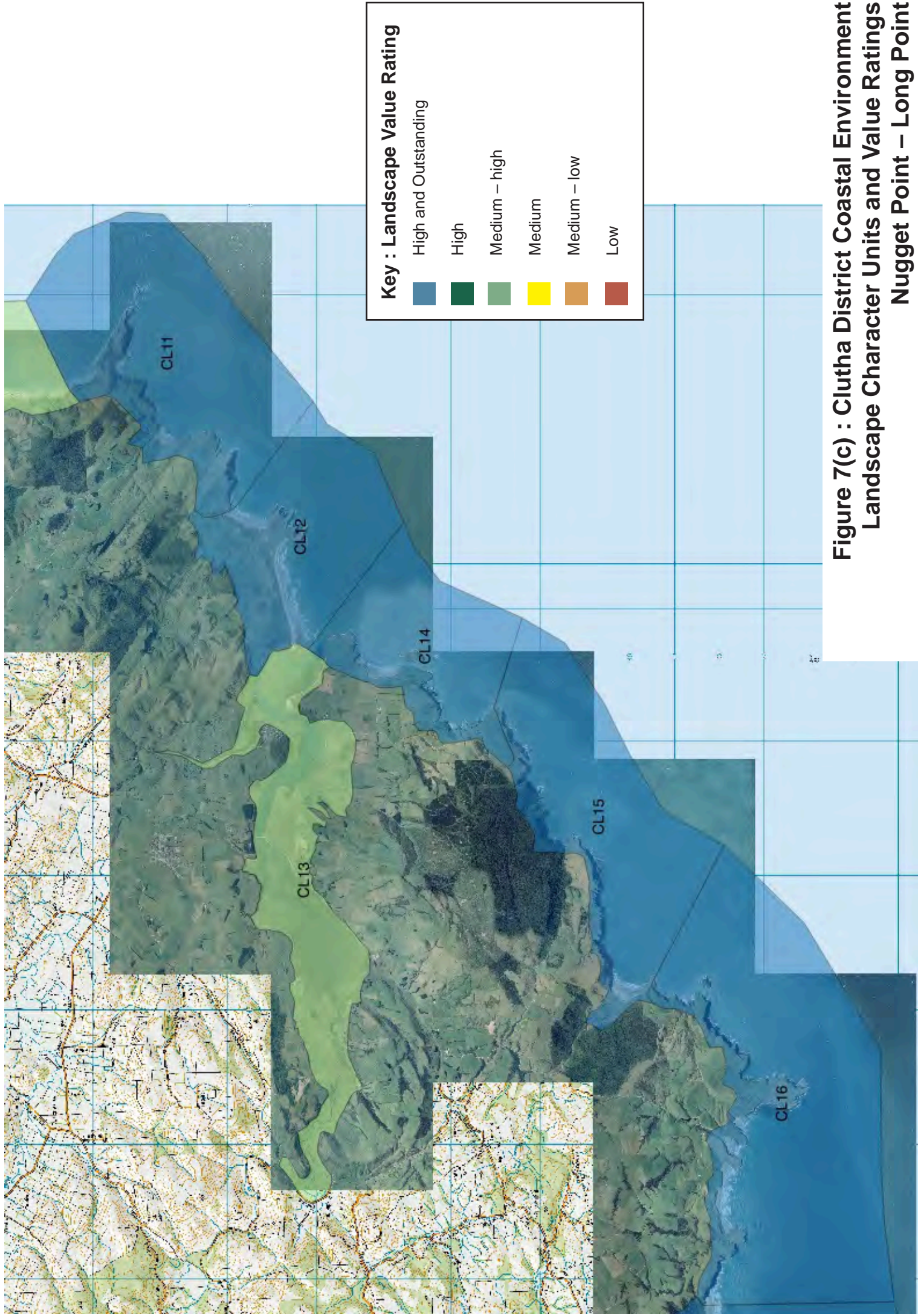
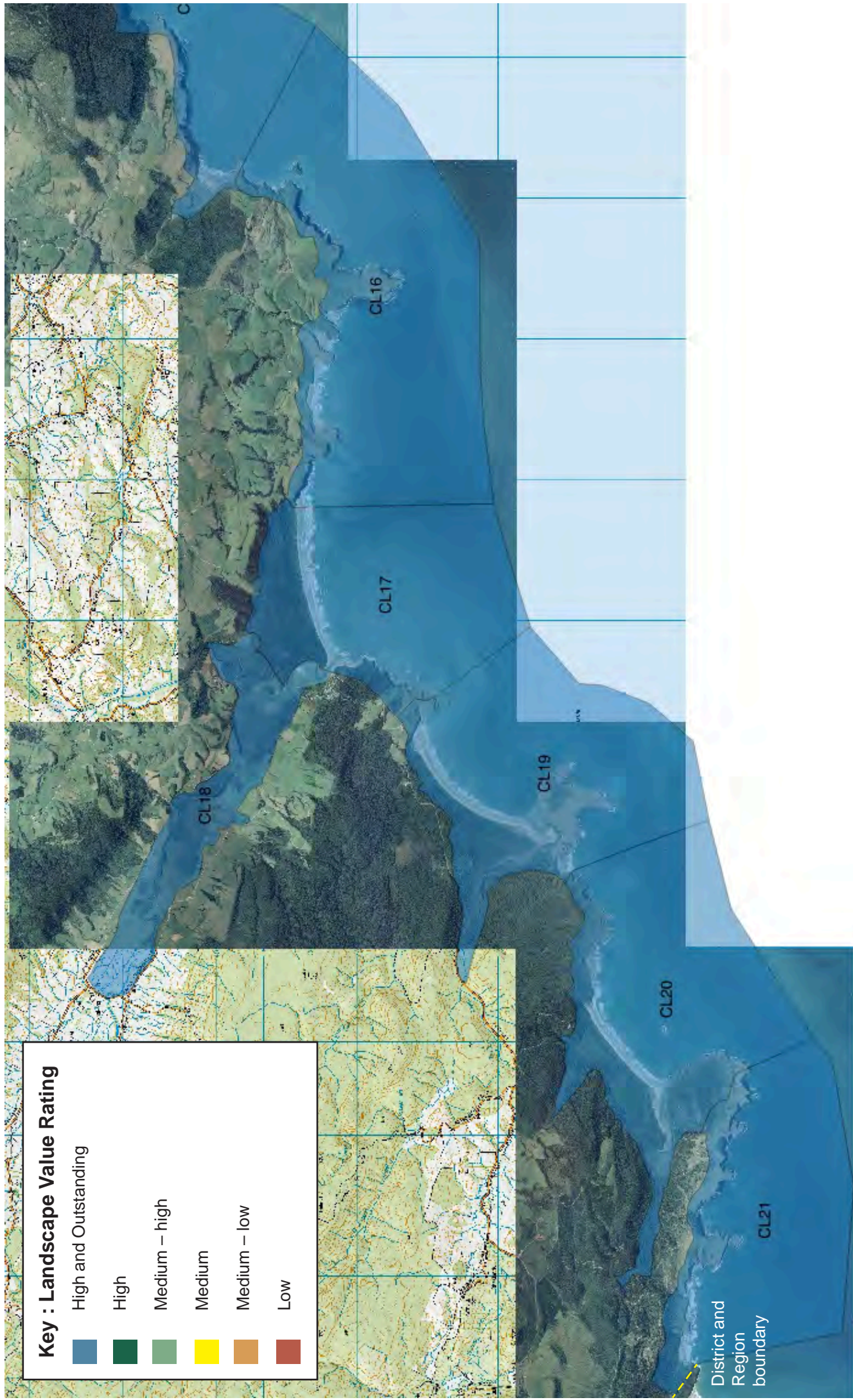


Figure 7(b) : Clutha District Coastal Environment Landscape Character Units and Value Ratings Toko Mouth – Nugget Point



**Figure 7(c) : Clutha District Coastal Environment Landscape Character Units and Value Ratings
Nugget Point – Long Point**



**Figure 7(d) : Clutha District Coastal Environment Landscape Character Units and Value Ratings
Long Point – Waiparau Head**

Outstanding natural landscapes and seascapes

Unit CL11. Sandy Bay



The Sandy Bay unit extends from Cannibal Bay in the south to (and including) Nugget Point in the north. This is a landscape of rugged cliffed sandstone and siltstone headlands with caves, arches, stacks and reefs separating bays of various scales, the main ones being Sandy Bay and Roaring Bay. The headlands and cliffs have distinctive vertical strata and are the coastal expression of the Southland syncline with its strike ridges and lineal valleys. There are beaches, variously rocky and sandy, in the embayments. Nugget Point is a distinctive headland with a number of associated rocky stacks (The Nuggets) (see C11 / F1).

Where the coast is not cliffed, it is generally steeply sloping and the dominant land cover is pasture. There is native scrub on the steeper scarps and in gullies, as well as a woodlot and vehicular tracks associated with the agricultural landuse. Except at Nugget Point there are no buildings.

This unit has been assessed as outstanding based largely on the following factors:

- It includes features of significant geological and ecological value

- It is a highly coherent landscape, expressive of the southern syncline geology and marine processes.
- It has very high naturalness, memorability and wild and scenic values
- It has significant transient values.
- It rates highly in terms of shared and recognized values.
- It has significant cultural value to both tangata whenua and pakeha.

Unit CL12. Cannibal / Surat Bay



The Cannibal / Surat Bay unit comprises a prograded sand barrier and tombolo linking False Islet with the mainland. It encompasses the False Islet headland as well as the sandy beaches of Cannibal Bay and Surat Bay. The inland extent of the coastal environment coincides with the extent of the flat land and is defined by a coastal scarp.

The flats are characterized by dunes which become less defined with distance from the sea. The area is predominantly under pasture cover including scattered areas of indigenous scrub or bush. Adjacent to the beaches there are reserves or conservation areas and within these, the land cover is largely marram or coastal scrub, as well as some areas of indigenous forest. Roads extend into the unit at either end and there are small crib settlements at New Haven and Cannibal Bay.

The landscape focus of this unit is False Islet (see C12 / F1), an eroded promontory in which the characteristic vertical rock strata of this section of the Southland Syncline is strongly expressed in the forms of the headlands and associated reefs. There is pastoral land use on this feature as well. A group of rocks called the Triplets lie just off the beach at Surat Bay

This unit has been assessed as outstanding based on the following factors:

- It includes features of geological and ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high naturalness, memorability and wild and scenic values
- It has significant transient values
- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua and some historic heritage significance.

Unit CL14. Jacks Bay / Penguin Bay



The Jacks Bay / Penguin Bay unit extends from Catlins Head to White head and encompasses Jacks Bay, Tuhawaiki Island and Penguin Bay. The boundary of the coastal environment has been defined to include the visually prominent headlands and slopes with seaward aspect above the coastal cliffs. At Jacks Bay it follows the top of the coastal scarp.

This landscape is characterized by moderately high sandstone / mudstone cliffs with pasture covered slopes above. In the gullies and on steeper coastal faces there are considerable areas of indigenous coastal scrub. The coastal landforms include caves, stacks, benches and reefs and in this area the rock strata is almost horizontal (as compared with the vertical strata further north). The landscape is domesticated to the extent it is farmed, with a few woodlots / plantations in the wider context, but there are few buildings. The exception to this is at Jacks Bay, where there is a small crib settlement set back from the sandy beach and dunes.

Whilst the physical relief in this unit is more subdued than in other parts of the Catlins Coast, this is still a dramatic and memorable landscape with numerous natural features of significance and high tangata whenua values. Outstanding status is justified on the following basis:

- It includes features of geological and ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high naturalness, memorability and wild and scenic values
- It has significant transient values
- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua and some historic heritage significance.

Unit CL15. Hinahina



The Hinahina unit extends from Purakaunui Bay in the south to White Head in the north, and encompasses Purakaunui Bay, Hinahina Cove and the Duff Islands. This is a coastline of high sandstone / mudstone cliffs with caves, coves, rock platforms and stacks. The rock stratum is nearly horizontal (dipping gently to the north-east) in this section and in places bands of native scrub cling to the cliff faces. Above the cliffs, the slopes orientating toward the sea are often short and for much of the length the main ridge defines the extent of the coastal environment.

At either end of the unit the predominant land cover is pasture with native bush in the gullies. In the central section there is a large swathe of native forest protected by the Hinahina Cove Scenic Reserve. At the southern end, Purakaunui Bay has a sandy beach with dunes and is backed by pasture and bushland. Purakanui River meets the coast at this point. Apart from road to Purakaunui Bay the unit is devoid of significant human structures.

This unit has been assessed as outstanding based on the following factors:

- It includes features of ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high naturalness, memorability and wild and scenic values

- It has significant transient values
- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua.

Unit CL16. Long Point



The Long Point unit is between Tahakopa Bay and Purakaunui Bay and includes Long Point and Cosgrove Island (see C16 / F1). This is a coastline of sandstone / mudstone cliffs of variable height with rocky benches, reefs and small sandy pocket beaches with dunes. The rock stratum is nearly horizontal (dipping gently to the north-east) in this section and in places bands of native scrub cling to the cliff faces. Above the cliffs and coastal scarps, the land is predominantly under pasture cover and there is little indigenous vegetation remaining. There are farm buildings near Long Point but otherwise no significant structures. The coastal environment boundary has been identified to include the areas with a seaward aspect.

Whilst this unit lacks the degree of naturalness and drama of some other Catlins Coast units, it is still a highly scenic coastline with high natural science, transient, shared and recognized and tangata whenua values. Outstanding status is justified on the following basis:

- It includes features of geological and ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high aesthetic values, particularly memorability and wild and scenic.
- It has significant transient values

- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua.

Unit CL17. Tahakopa Bay



The Tahakopa Bay unit is defined by Skeleton Point and the eastern end of Tahakopa Beach. Upriver, it adjoins the Tahakopa River unit, with the Papatowai Highway bridge forming a logical boundary. This unit encompasses the prograded sand barrier between relict cliffs and the Tahakopa Bay beach, the Tahakopa River mouth and a section of rocky shoreline and headland between the river mouth and Skeleton Point.

Mature coastal forest backs the stable, marram covered dunes behind the Tahakopa Beach. There is more forest on the slopes south of the river mouth, with pasture nearer Skeleton Point. The coastline in this stretch can be described as a sandstone / siltstone headland with cliffs, intertidal and offshore reefs and sandy coves. The tidal river mouth is characterized by channels and a flood tide sand delta.

The coastal environment is defined variously by the relict cliffs north of Tahakopa Bay, the coastal scarp on the true right of the estuary, and the extent of visually significant slopes on the headland. There are no significant structures within the identified coastal environment but the wider landscape context includes the main Catlins highway and the township of Papatowai.

This unit has been assessed as outstanding based on the following factors:

- It includes features of ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high naturalness, memorability and wild and scenic values
- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua and some sites of historic heritage significance.

Unit CL18. Tahakopa River



The Tahakopa River unit covers the estuary and tidal sections of the Tahakopa and Maclennan River's (to the extent of saline influence) along with the associated wetlands. For much of the unit, the river channels are bordered by saltmarsh which transitions back through scrub to forest. In other parts, roads border the river banks and there is pasture land with areas of scrub or bush. There are two bridges and a few buildings within the unit. The wider landscape context is farmed valley flats and hillslopes.

This unit has high ecological and cultural values. It does not have the visual drama of the open coast landscapes but forms an interesting contrast to these that helps to round out understanding of the Catlins Coast landscape. Overall values have been assessed as high and outstanding on the following basis:

- It includes features of ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high aesthetic values based on its memorability and scenic qualities.
- It has significant transient values.
- It rates highly in terms of shared and recognized values

- It has significant cultural value to tangata whenua.

Unit CL19. Tautuku



The Tautuku unit extends from Skeleton Point to the southern end of Lathyrus Bay and includes Taututu Peninsula, the Tautuku River estuary, Tautuku Beach and Rainbow Isles. Tautuku Peninsula is a broad flat topped sandstone and mudstone peninsula with cliffs, intertidal reefs and small coves connected to the mainland by a narrow neck. The Tautuku river mouth reaches the bay on the northern side of the peninsula and is characterised by multiple tidal channels with sandflats. North of the river, is a prograded Holocene barrier characterised by stable dunes and the approximately 3km sweep of Tautuku Beach. The beach abuts a low sandstone / siltstone headland at its northern end, with cliffs, intertidal and offshore reefs, and sandy coves. The coastal environment has been variously defined to include the visually prominent headlands, the extent of the Holocene barrier sediments, and in the case of the Tautuku River, the extent of saline influence and the coastal scarp.

Apart from the headland areas, this unit is largely covered in indigenous vegetation including intact sequences from saltmarsh to Podocarp forest (although marram has established on the dunes). In contrast, the northern headland and Tautuku Peninsula are under pasture cover with areas of native scrub. There is a scattering of cribs on the sheltered northern side of the peninsula and the Chaslans Highway skirts the coastal environment, both adjacent to the left bank of the Tautuku River and above the northern end of the beach. The

wider landscape context is that of hills and valleys under indigenous forest cover with large areas of wetland.

This unit scores highly across virtually all the assessment factors. It is one of the more accessible units and has particularly high shared and recognised values. Outstanding status is justified on the following basis:

- It includes features of ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high naturalness, memorability and wild and scenic values
- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua.
- It includes sites of historic heritage significance.

Unit CL20. Waipati



The Waipati unit covers the coastline from Makati (Chaslands Mistake) headland to the Frances Pillars, including Waipati beach and estuary and Kinakina Island. The southern (Chaslands Mistake) headland is characterised by sandstone cliffs with caves, seastacks, intertidal reefs and coves. The Waipati River mouth meets the sea directly to the north of this and is described as a tidal river and estuary with sandflats and multiple channels. The flats behind Waipati Beach are a prograded Holocene barrier. There is a narrow margin of previously active sand dunes on the seaward margin, now largely stabilised with marram and transgressive dune forms present along estuary. Hukihuki Creek, a significant tributary of the Waipati River, runs south-westward at the rear of this barrier. North of Waipati Beach there is an approximately 3km length of rocky coastline characterised by sandstone / mudstone cliffs with arches, sea-stacks, intertidal platforms and caves. The Cathedral Caves (see C20 / F2) and Frances Pillars (see C20 / F1) are located at either end of this stretch. Kinakina Island (see C20 / F3) is a small rocky island approximately 1km off Waipati Beach.

The coastal environment has been variously defined to include the visually prominent headlands, the extent of the Holocene barrier sediments, and in the case of the Waipati River, the extent of saline influence and the coastal scarp.

The vegetation cover in this unit is predominantly indigenous (except that marram has established on the dunes) and includes clifftop scrub, salt marsh and coastal forest. On the headland areas there has obviously been past clearance of native bush and some areas / patches of pasture grassland are evident. Other than two cribs located near the right bank of the Waipati Estuary and some rough vehicle tracks, there are no significant structures. The wider landscape is predominantly under native forest or wetland cover except that on the upper slopes south of the Waipati River there is pasture and a band of plantation forestry.

This is a highly natural (though not completely unmodified) area with high values across almost all the assessment factors. Outstanding status is justified on the following basis:

- It includes features of geological and ecological significance
- It is a highly coherent landscape, expressive of its formative processes
- It has high naturalness, memorability and wild and scenic values
- It has significant transient values.
- It rates highly in terms of shared and recognized values
- It has significant cultural value to tangata whenua.

Unit CL21. Wallace Head



This coastal landscape character unit extends from the western end of Wallace Beach, to Makati (Chaslans Mistake) headland. Eastward of Wallace Head the coastline is characterized by sandstone / mudstone cliffs with caves, sea stacks, intertidal reefs and coves some with rocky beaches. The slopes above the cliffs are mainly in rough pasture cover with scattered indigenous scrub although there is also a patch of exotic forestry on the periphery of the coastal environment in one place. The coast westward of Wallace Head is a series of sandy bays separated by sandstone headlands and sometimes extensive reefs. Narrow marram covered dune systems are present at Wallace Beach. In this section a considerable part of the land back from the cliffs or beaches is under indigenous scrub or forest cover and there are no structures of significance.

The coastal environment has been defined to include the seaward facing slopes to the main ridgeline toward Makati and the main seaward facing slopes in the vicinity of Wallace Beach. This landscape character unit has been assessed overall as having high and outstanding landscape values on the following basis:

- It includes features of ecological significance
- It is a highly coherent landscape, expressive of its formative processes

- It has high naturalness, memorability and wild and scenic values
- It has significant transient values.
- It rates moderately highly in terms of shared and recognized values – a high rating precluded only by its remoteness and relatively unknown status.
- It has significant cultural value to tangata whenua and some sites of historic heritage significance.

This unit abuts Southland Region and District, and it should be noted that there is no recognition of significant landscape values in the Regional Coastal Plan for Southland, or the operative or proposed District Plans for Southland. This represents a possible cross boundary inconsistency.

Results - Natural Features

Overview

A total of 15 potentially outstanding natural features were identified and these, along with the landscape value ratings assigned are shown in Figures 8(a) – 8(d) and summarised in Table 3.

Table 3 : Natural Feature value ratings – Summary table




| Unit Number | Feature Name | Overall landscape values rating | Outstanding |
|-------------|------------------------------------|---------------------------------|-------------|
| CL2/F1 | Lower Taieri River Gorge | High | Yes |
| CL3/F1 | Moturata Island | High | Yes |
| CL3/F2 | Taieri Beach Faulted Coastal Plain | Medium - Low | |
| CL6/F1 | Cooks Head Rock | High | Yes |
| CL6/F2 | Chrystalls Beach | Medium - High | |
| CL11/F1 | Nugget Point | High | Yes |
| CL12/F1 | False Islet | High | Yes |
| CL14/F1 | Jacks Blowhole | High | Yes |
| CL14/F2 | Tuhawaiki Island | High | Yes |
| CL16/F1 | Cosgrove Island | High | Yes |
| CL19/F1 | Rainbow Isles | High | Yes |
| CL19/F2 | Lake Wilkie | High | Yes |
| CL20/F1 | Frances Pillars | High | Yes |
| CL20/F2 | Cathedral Caves | High | Yes |
| CL20/F3 | Kinakina Island | High | Yes |

Of the 15 features considered, 13 were assessed as outstanding as follows:

- Lower Taieri River Gorge (CL2/F1)
- Moturata Island (CL3/F1)
- Cooks Head Rock (CL6/F1)
- Nugget Point (CL11/F1)
- False Islet (CL12/F1)
- Jacks Blowhole (CL14/F1)
- Tuhawaiki Island (CL14/F2)

- Cosgrove Island (CL16/F1)
- Rainbow Isles (CL19/F1)
- Lake Wilkie (CL19/F2)
- Frances Pillars (CL20/F1)
- Cathedral Caves (CL20/F2)
- Kinakina Island (CL20/F3)


Key : Landscape Value Rating

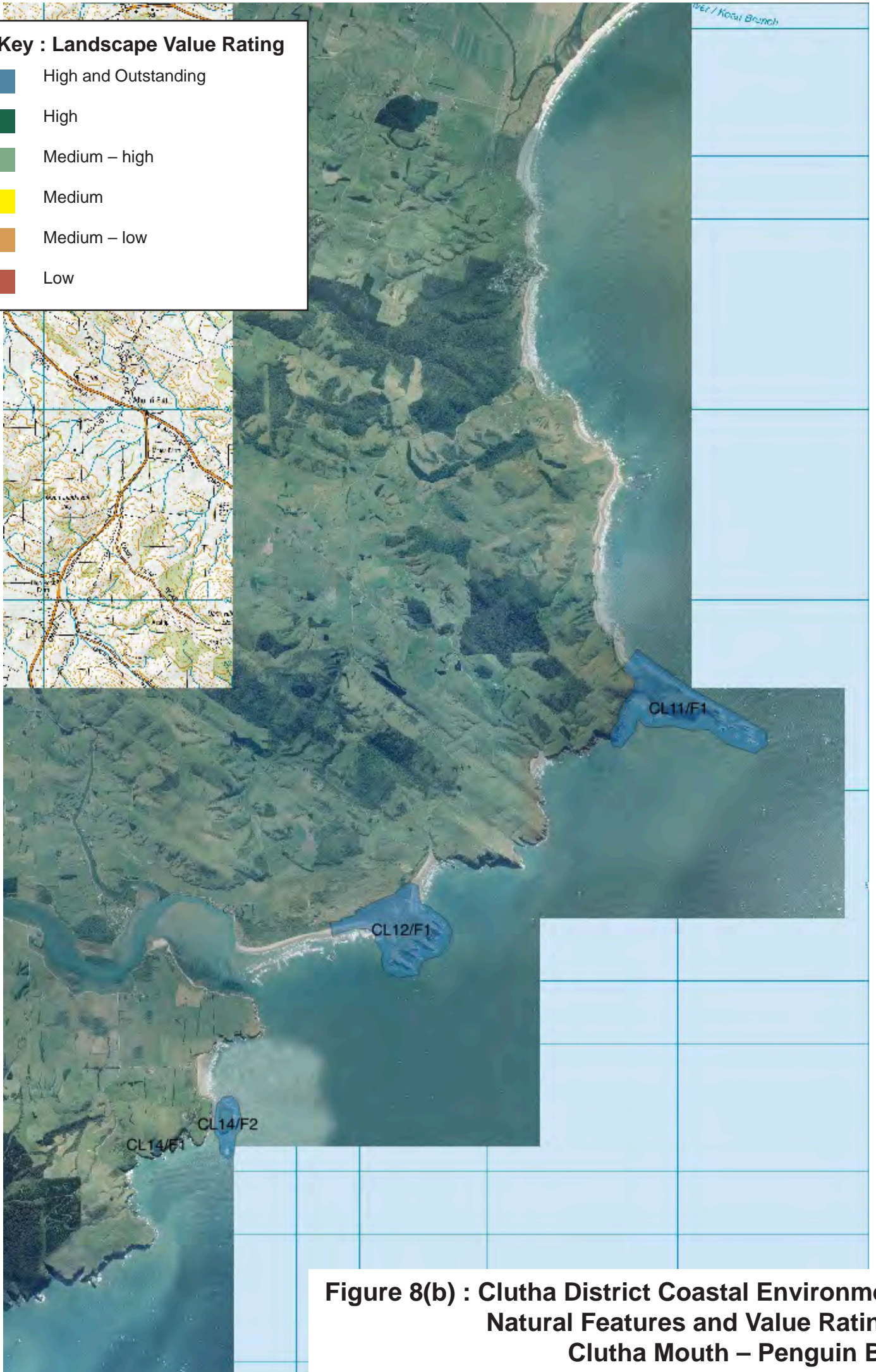
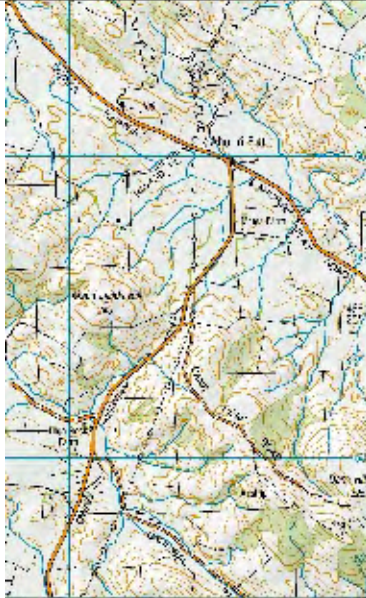
-  High and Outstanding
-  High
-  Medium – high
-  Medium
-  Medium – low
-  Low



**Figure 8(a) : Clutha District Coastal Environment
Natural Features and Value Ratings
Taieri Mouth – Toko Mouth**

Key : Landscape Value Rating

-  High and Outstanding
-  High
-  Medium – high
-  Medium
-  Medium – low
-  Low



**Figure 8(b) : Clutha District Coastal Environment
Natural Features and Value Ratings
Clutha Mouth – Penguin Bay**



**Figure 8(c) : Clutha District Coastal Environment
Natural Features and Value Ratings
Cosgrove Island – Makati**

Outstanding natural features

Feature CL2/F1. Lower Taieri River Gorge



This feature encompasses the lower section of the Taieri River gorge from the Taieri Mouth bridge to the end of the schist section and includes the gorge defining slopes either side of the river as well as significant tidal side streams and wetlands. Whilst most of this area is within Clutha District, a small part extends into Dunedin City. The Taieri River is tidal with significant marine influence right through this gorge. The lower gorge is protected to a large degree by the Taieri River Scenic Reserve and has high natural values including areas of significant podocarp forest, impressive rock bluffs and saltmarsh wetland margins. The Lower Taieri River Gorge has high values across all the assessment factors. Overall, landscape values are assessed as high and outstanding.

Feature CL3/F1. Moturata Island



Moturata (Rata Island) is a 6.8ha island often joined to the mainland at low tide by a sand bar (depending on the river channels). Its geology is schist and its location reflects the trace of the Akatore fault. Whilst now devoid of structures, the island has a history of occupation by Maori and by European whalers. The vegetation cover reflects previous modification by people as well as by the invasion of rabbits and is now dominated by flax. It is an important habitat for titi (sooty shearwater). Erosion due to burrowing birds and rabbits has been an issue and is being managed via revegetation programmes. The island is a scenic reserve.

Moturata scores highly across the range of factors with natural science, aesthetic and tangata whenua values being particularly significant. Overall, landscape values are assessed as high and outstanding.

Feature CL6/F1. Cooks Head Rock



Cooks Head Rock is an isolated basalt stack on Chrystalls Beach. It has hexagonal columns and phosphate deposits in the joints in the rock (associated with guano) that are known as Cooks Head taranakite and are the only known occurrence of taranakite in the South Island. These are listed in the inventory of important geological sites and landforms in the Otago region. Cooks Head Rock is a well-known landmark with high natural science, shared and recognized and tangata whenua values. Outstanding status is considered justified, mainly on the basis of its natural science and cultural significance.

Feature CL11/F1. Nugget Point



Nugget Point is a rugged promontory with near vertical rock strata expressing the eastern end of the northern edge of the Southland Syncline. Extending from the end of the promontory is a series of off-shore stacks known as The Nuggets. The landforms include cliffs, rock platforms, reefs, caves and boulder beaches. The headland creates different exposure conditions to either side and this, along with the diversity of landforms, creates a rich variety of marine and terrestrial habitats. The boundary to this feature has been identified to include Roaring Bay and the sites listed in the inventory of important geological sites and landforms in the Otago Region. There has been a lighthouse on the headland since 1870 and other structures present include a house and shed, as well as the access road and walking tracks and parking areas. The vegetation cover is a mixture of rough grassland, indigenous scrub and a couple of exotic shelterbelts associated with the buildings.

Nugget Point is a spectacular landform with high values across all the assessment factors. Overall, landscape values are assessed as high and outstanding.

Feature CL12/F1. False Islet



False Islet is a conglomerate headland connected to the adjacent coastline by a tombolo. The characteristic vertical rock stratum of this section of the Southland Syncline is strongly expressed in the forms of the headlands and associated reefs. Landforms include cliffs, sea-arches, coves, intertidal and subtidal reefs. The gentler landward side is under pasture cover. The feature assessed is the headland and tombolo with the boundary coinciding with the western side of the False Islet Wetland Management Area. False Islet has high natural science, aesthetic, and shared and recognized values. It is also rated medium – high for tangata whenua values. Overall, landscape values are assessed as high and outstanding.

Feature CL14/F1. Jacks Blowhole



This feature is located in Tunnel Rocks Scenic Reserve to the south of Jacks Bay. The blowhole is approximately 55m deep and 200m from the sea, and has been formed by the collapse of an underground cavern. It can make a spectacular display of blown spray given the right tides and sea conditions. It is surrounded by regenerating bush and the mapped boundaries of the feature correspond to the extent of the fenced off area. This is a well-known natural feature with high natural science, aesthetic, transient and shared and recognised values. Overall, landscape values are assessed as high and outstanding.

Feature CL14/F2. Tuhawaiki Island



Tuhawaiki Island is a flat-topped sandstone / mudstone island with cliffs, intertidal and subtidal reefs, and sea-caves. The vegetation cover is predominantly grassland with flax as well as some more diverse indigenous scrub on the more sheltered northern cliff faces. The Island has significant habitat, natural character and cultural values. It rates highly aesthetically and is assessed as having high and outstanding values overall.

Feature CL16/F1. Cosgrove Island



Cosgrove Island is a small flat topped island approximately 150m off the coast, south of Purakaunui Bay. It is characterized by cliffs and intertidal and subtidal reefs. Its vegetation is indigenous scrub that has been modified by the effects of bird roosting. The Island has significant habitat, natural character and cultural values. It rates highly aesthetically and is assessed as having high and outstanding values overall.

Feature CL19/F1. Rainbow Isles



Rainbow Isles is a small low relief island off Skeleton Point at the northern end of Tautuku Bay. It has low cliffs along its southern side and a more gently sloping northern side with rock benches and reefs surrounding. A 'spouting cave' called Rere Kohu is located at its eastern end. The island is covered in native scrub. Rainbow Isles has high naturalness and wild and scenic values. Memorability and shared values are more modest but it rates highly for its ecological and cultural values, and associated statutory recognition. Overall, landscape values are assessed as high and outstanding.

Feature CL19/F2. Lake Wilkie



Lake Wilkie is a small, shallow bog lake formed by water filling a depression between ancient sand dunes. It is gradually infilling with vegetative material and features intact natural sequences from marsh to forest. It is a regionally significant wetland and described as an important example of hydrarch succession for *Elocharis* at the lake margin to mature podocarp – rata – kamahi forest. The boundaries of the feature are proposed to coincide with the identified wetland boundaries. Lake Wilkie has high natural science, aesthetic and shared and recognised values. It is a widely appreciated natural feature and popular attraction on the southern scenic route. Overall, landscape values are assessed as high and outstanding.

Feature CL20/F1. Frances Pillars



The Frances Pillars are group of spectacular sandstone / mudstone sea stacks at the western side of Lathyrus Bay. The feature identified includes the adjacent cliff section, which is of similar geology and which includes an arch, rocky cove, benches and reefs. The higher stacks have some sparse vegetation cover on their summits. This feature does not rate particularly highly across the range of Amended Pigeon Bay Factors but is assessed as outstanding on the basis of its visually spectacular qualities (incorporating expressiveness, memorability, naturalness and wild and scenic qualities).

Feature CL20/F2. Cathedral Caves



The Cathedral Caves are a series of joint controlled sea caves in the sandstone / mudstone cliffs at the northern end of Waipati Beach. The tallest cave is approximately 30m high and the two main cave systems join together. The caves are only accessible at low tide. Cathedral Caves are assessed as high and outstanding overall, on the basis of their natural science, aesthetic, transient and shared and recognised values.

Feature CL20/F3. Kinakina Island



Kinakina Island is a small sandstone / mudstone Island approximately 1km off Waipati Beach. It is largely un-vegetated and has rock benches particularly on its southern side. The Island is assessed as outstanding on the basis of its high aesthetic, transient, shared and recognised, and tangata whenua values in particular.

Conclusion

The coastal environment within Clutha District exhibits a wide variation in character including the degree of natural character. Of forty-four natural character units identified, eighteen were assessed as having high natural character. Ten of these were identified as outstanding. The outstanding areas included islands and stacks, headlands, cliffed coastlines, beaches and estuaries where indigenous forest extends to the cliff, beach or wetland edges.

Twenty-two landscape character units were identified and eleven were assessed as outstanding in terms of section 6(b) of the RMA, using the Amended Pigeon Bay assessment factors. The areas considered outstanding are all within the Catlins area and encompass the entire Catlins coastline (within the District) with the exception of the more modified Catlins Lake unit.

Desktop research and field observation suggested sixteen potential candidates for outstanding natural feature status. Assessment using the Amended Pigeon Bay factors has confirmed fourteen of these. These include a tidal river gorge, islands, stacks, headlands, blowholes, caves and a dune lake.

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Appendix 1 : Comparison Table – Amended Pigeon Bay Factors and NZCPS Policy 15 Assessment Factors

| Amended Pigeon Bay Factors as outlined in this report | NZCPS Policy 15 assessment factors (reordered to relate) |
|--|---|
| Natural science factors / legibility / expressiveness | (i) natural science factors, including geological, topographical, ecological and dynamic components (ii) The presence of water including in seas, lakes, rivers and streams (iii) Legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes. (v) Vegetation (native and exotic) |
| Aesthetic values (naturalness / memorability) Wild and scenic | (iv) Aesthetic values including memorability and naturalness (x) Wild or scenic values |
| Transient values | (vi) Transient values, including presence of wildlife or other values at certain times of the day or year |
| Shared and recognised values | (vii) Whether the values are shared and recognised |
| Tangata whenua values | (viii) Cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Maori; including their expression as cultural landscapes and features. |
| Historic heritage values | (ix) Historical and heritage associations |

Appendix 2 : Natural Character Assessment Sheets

Appendix 3 : Natural Features and Natural Landscapes Assessment Sheets