# COASTAL RESOURCE INVENTORY

# FIRST ORDER SURVEY

# CANTERBURY CONSERVANCY

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## PREFACE

The Coastal Resource Inventory (CRI) programme is an ongoing project of the Department of Conservation. The programme is organized into First, Second and Third Order Surveys which span the coastal zone of New Zealand. The First Order Survey provides the basis for a national overview of coastal conservation values and is derived from information on the physical, biological and human resources of the coastal zone. The Second Order CRI Surveys will provide regional overviews for each of the Departments Conservancies. Third Order Surveys will provide detailed information at a site specific level for a specific purpose.

The coastal zone covered by the Coastal Resource Inventory is an area bounded by the outer limits of the New Zealand Territorial Sea, 12 nautical miles offshore and the landward limit of marine influence. The latter varies from place to place depending on site specific physical, biological and human factors.

The First Order Coastal Resource Inventory presented here covers the coastal zone of one of the thirteen coastal conservancies of the Department. It is based on existing information compiled by conservancy staff from regional and national databases, published and unpublished reports, limited field surveys and personal or anecdotal information from various experts. The information has been compiled according to guidelines and standards set by the Departments' Coastal Resource Inventory Taskforce.

As one might expect, the First Order Survey has revealed a substantial variation in the quality and quantity of information between Conservancies and also between information categories. In general there is more information about the resources and attributes of the landward part of the coastal zone than the seaward part, especially offshore. Conservancies with large metropolitan centres such as Auckland have more information than the remote coastal areas of New Zealand such as the East Coast. This does not mean that the latter areas are lower in coastal conservation values or resources. Rather, it simply reflects the lack of knowledge and possible directions for further work, so that a balanced national overview of coastal conservation values and resources is eventually obtained.

The First Order CRI provides essential information for managers, planners and users of the coastal zone of New Zealand. The national overview provided by the First Order Survey will be updated from time to time by the Department as new information comes to hand.

**Bill Mansfield**
**DIRECTOR GENERAL**
**DEPARTMENT OF CONSERVATION**

# NATIONAL OVERVIEW

## INTRODUCTION

The Coastal Resource Inventory (CRI) programme was initiated in 1987 as the Department of Conservation's principal tool for breaking the cycle of reactive management that has characterised coastal management in New Zealand in the past. CRI provides important information on the physical, biological, recreational, cultural, historic, archaeological, human modification, uses, protection and threats to the coast.

The First Order Survey consists of thirteen volumes, one from each coastal conservancy (Northland, Auckland, Waikato, Bay of Plenty, East Coast, Hawke's Bay, Wanganui, Wellington, Nelson/Marlborough, Canterbury, West Coast, Otago, Southland). Each volume includes a brief description of the conservancies' coastal zone, a summary of the conservation values, a list of issues of concern and recommendations for further work. The information is described on site sheets and plotted on maps at a scale of 1:250 000 to give a broad, overall impression of the coastal conservation values within each conservancy.

In addition to its primary use for coastal management, First Order CRI information will help identify areas suitable for marine reserves and aid in the advocacy role of the Department at both the national and conservancy level.

Mission Statement:

The primary mission of the First Order Survey was:

> *"To provide information for the maintenance, enhancement and restoration of natural character and qualities of coasts and their sensitive use."*

The following specific tasks were developed to achieve the mission:

1. *"To identify coasts with important natural, scientific, historic, cultural and spiritual values;*
2. *to identify coasts currently protected and warranting protection;*
3. *to identify coastal conservation values susceptible to existing and potential threats;*
4. *to identify human modification and uses of coasts".*

# INSTRUCTIONS FOR USE OF THE COASTAL RESOURCE INVENTORY

This folder consists of an introduction, summary, site record forms, and maps. The site record form gives written information on each site and is to be used with corresponding maps for that site.

Read the site record form with its corresponding maps by following these steps:

## SITE RECORD FORMS

1. Turn to the site record forms.
2. Find the site number in the top right-hand corner of the page e.g. CRI 01 0001.
   The number 01 represents a conservancy coastline. Refer to map of New Zealand below e.g. 01= Northland Conservancy.
   The number 0001 refers to a particular site e.g. Firth of Thames.
3. Each site record form gives written information on the following:

   natural values, cultural values, historic values } site of conservation value

   existing threats
   human use and modification
   existing protection

4. Letter codes (a,b,c,d,e,f,g ) give detail for each part of the information on the site record form. A key is provided on the maps and the codes are listed in the "Methods" section.

## MAPS

5. Turn to the map index overleaf.
   The index gives the site number and its corresponding maps.
6. Find the corresponding maps in the second part of the folder.
7. Accompanying the maps are two transparent map overlays:

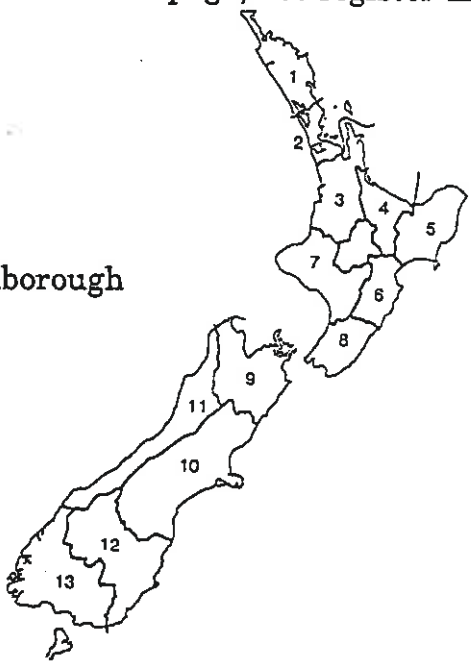
   i) CONSERVATION VALUES overlay
   ii) BASE MAP overlay

8. The BASE MAP and CONSERVATION VALUES overlays are designed to lift out and overlay onto each of the previous pages (i.e. natural, cultural, historic, human modification and use, existing threats, existing protection etc.)
9. To accurately overlay the base map with each page, use register marks which are found on each map.

   i.e. ⊕ overlays on ⊕

## DEPARTMENT OF CONSERVATION COASTAL CONSERVANCIES

1. Northland
2. Auckland
3. Waikato
4. Bay of Plenty
5. East Coast
6. Hawkes Bay
7. Wanganui
8. Wellington
9. Nelson/ Marlborough
10 Canterbury
11 West Coast
12. Otago
13. Southland



## MAP INDEX -CANTERBURY

| Site No. | Map Grp. | Site No. | Map Grp. |
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| 0002 | 15.1 | 0045 | Chat Is. |
| 0003 | 15.1 | 0046 | Chat Is. |
| 0004 | 15.1 | 0047 | Chat Is. |
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| 0009 | 13.4 | 0052 | Chat Is. |
| 0010 | 13.4 | 0053 | Chat Is. |
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| 0026 | 13.1 | | |
| 0027 | 13.1 | | |
| 0028 | 13.1 | | |
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| 0040 | 11.3 | | |
| 0041 | Chatham Is. | | |
| 0042 | Chatham Is. | | |
| 0043 | Chatham Is. | | |

## METHODS

The information for the First Order Survey has been collated and mapped in six major categories: natural, historic, cultural, existing threats, human modification and use, and existing protection.

1. Natural Values:

   Information on known areas of physical, biological and ecological value in the coastal zone under the following headings:

   a - High degree of naturalness
   b - Rare/unique species, communities or habitats
   c - Important breeding/feeding/roosting/haulout/nursery areas
   d - Fragile/environmentally sensitive areas
   e - Unique or unusual landforms
   f - Representativeness
   g - Known scientific value
   h - National or international importance
   i - Other

2. Cultural Values:

   Areas of important Maori and non-Maori cultural values in the coastal zone under the following headings:

   a - Traditional values
   b - Aesthetic value
   c - Landscape (seascape) value
   d - Spiritual value
   e - Educational value
   f - Other

3. Historic Values:

   Areas of important historic and archaeological value in the coastal zone under the following headings:

   a - Known historic value
   b - Archaeological value - Maori origin
   c - Archaeological value - Non-Maori origin
   d - Shipwrecks and wreck sites
   e - Known national or international significance
   f - Other

**Explanatory Notes**

(i) The decision to include the attributes "high degree of naturalness", "representativeness", aesthetic value", "land/seascape value" and "spiritual" value was based on the experience of the data recorder.

The Natural, Cultural and Historic categories of information were combined to form the Conservation Value overlay map, where all features of natural, historic or cultural value were overlaid then amalgamated to form sites of conservation value (Conservation Sites). For each of these sites a brief description was provided on the Site Record Form. The Site Record Form contains details of the conservation values mapped and includes the following three other categories (4-6) that impact on these values:

4. Existing Threats:

Threats may be natural or human induced activites that are or have a history of damage or destruction of the coastal resources. Information on the following was collated and mapped:

a - Erosion, flooding, landslip
b - Siltation
c - Noxious and invasive exotic plants
d - Noxious or farmed animals
e - Water pollution
f - Mining
g - Shore stabilisation works
h - Aquaculture
i - Fishing techniques
j - Spoil and refuse dumping
k - Recreation
l - Coastal subdivision
i - Other

**Explanatory Notes**

(ii) The inclusion of "recreation", "mining", "aquaculture" and "fishing techniques" in the "Existing Threats" category was only used where these activities threatened conservation values. It is acknowledged that there are many places where these activities do not pose a threat.

5. Human Modification and Use:

Information on the following was collated and mapped:

a - Land development
b - Reclamations and causeways
c - Commercial port areas
d - Small boat harbours and moorings
e - Outfalls, major pipelines and cables
f - Artificial cuts
g - Beach replenishment
h - Shoreland-based recreation
i - Water-based recreation
j - Traditional Maori use
k - Other

6. Existing Protection:

Areas of varying protection status in the coastal zone were mapped, including:

a - National protected areas
b - Regional protected areas
c - Local protected areas
d - Protective zonings
e - Marine parks
f - Private protected areas
g - Voluntary protection of areas
h - Rahui
i - Other

Evaluating Site Importance

Evaluation of site importance was largely species based using the following criteria: The criteria for fauna (Bell, 1986) and flora (Given et al, 1987 and Wilson and Given 1989) are based on the IUCN Red Data list.

1. If a species of plant or animal is listed as endangered and it is an endemic species, then the place(s) where this plant or animal still remain are of INTERNATIONAL importance.

2. If a species of plant is vulnerable or rare, then the site where it naturally occurs is of NATIONAL importance. Similarly if a species of animal is classified as threatened or rare then the site is of NATIONAL importance.

3. For a species of animal that is classified as threatened regionally only, the site has regional importance.

4. Where sufficient information allowed the Ramsar convention was used to determine site importance in Wellington, East Coast and Bay of Plenty. The Ramsar convention states; *"a site is of international importance if 1% of the total*

*population of a species or subspecies is found there or if the area supports 1% of breeding pairs*".

5. Other information on site importance from the historic or cultural categories which is documented in the literature was also used.

6. The highest level of importance for any category located within a site is given to the whole site.

**Explanatory Notes**

(iii) The site importance is not a ranking system for the sites. It merely indicates whether there is a feature present at the site which is of known importance. The Conservation Sites identified in the First Order Survey vary considerably in size and importance.

(iv) Wildlife which have an established international conservation status in New Zealand include the terrestrial mammals, birds, reptiles and amphibians and terrestrial arthropods and molluscs. There is no established status list for fish, marine invertebrates and marine mammals. This means that the assessment of comparative site importance in this survey has an unavoidable bias towards the importance of terrestrial wildlife.

(v) Archaeological site information was presented here without comment on its comparative importance. This was necessary because:

(a) authority to assess archaeological site importance under the Historic Places Act 1980 rests with the New Zealand Historic Places Trust, for the purpose of regulating site damage.

(b) No methodology is recognised for assessing comparative importance in a similar manner applied to the other resources described here.

# GLOSSARY

| | |
|---|---|
| archaeological site | Any place in New Zealand associated with human activity which occurred more than 100 years before that time. |
| historic place | A place which is associated with the past. This includes archaeological sites, traditional sites, buildings, natural objects and historic areas. |
| holostratotype | A geological term describing the type section that has become the time definition for a New Zealand stage. |
| tombolo | A bar connecting an island with the mainland or with another island. |
| type locality | The place where a geological formation is named, and is typically displayed. |
| ventifact | Rock cut by wind-blown sand. |

## BIOLOGICAL TERMS:

| | |
|---|---|
| endangered | Species in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are those whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are considered to be in immediate danger of extinction. |
| threatened/ vulnerable | Species believed to likely to move into the endangered category in the near future if the causal factors continue operating. |
| regionally threatened | Where species are considered to be threatened regionally. |
| rare | Species with small world populations that are not at present endangered or vulnerable, but are at risk. These are usually localised within restricted geographic areas or habitats or are thinly scattered over a more extensive range. |
| indeterminate | This category is used for plants thought to be extinct, endangered, vulnerable or rare, but for which there is insufficient information to allow allocation to a category. |

In New Zealand a category additional to those used by IUCN (International Union for the Conservation of Nature and Natural Resources) has been found useful:

| | |
|---|---|
| local | This category includes plants not under threat but potentially threatened, and hence deserving some level of monitoring and possibly protection. Included are regional endemics, plants of potentially vulnerable habitats, and species occurring as frequent but small populations. |

| | |
|---|---|
| endemic | A species which is confined to New Zealand and is not found elsewhere. |
| endemic subspecies | A subspecies or geographic race which is confined to New Zealand. |
| introduced | A species which has been transported to New Zealand, and helped establish by humans. |

| MAORI | ENGLISH |
|---|---|
| hāngi | earth oven |
| hapū | section of large tribe, clan, subtribe |
| iwi | nation, people; tribe that traces its history back to a common ancestor |
| kai moana | food from the sea |
| kāinga | dwelling place, village |
| kaitiaki | guardian, keeper |
| Kaumātua | adult, old man or woman |
| kōhatu/ toka | stone, rock |
| mātaitai | food resources from the sea |
| mahinga mātaitai | the areas from which these resources are gathered |
| mahinga kai | sites for harvesting kai moana according to tribal customary values |
| mana | authority, control; influence, prestige, power; psychic force |
| mana whenua | customary authority exercised by a tribe in an identified area |
| marae | enclosed space in front of a meeting house, courtyard |
| mauri | life principle which is latent in all things |
| midden | Māori shell deposits |
| moana | sea |
| Moriori | tangata whenua of Rēkohu (Chatham Islands) |
| pā | fortified place |
| rāhui | control/ restriction (e.g. fishing control) |
| rūnanga | assembly/ council |
| taiāpure | area of coastal water set aside under the Maori Fisheries Act 1989 as a local fishery because of its special significance to an iwi or hapū, either as a source of food or for spiritual or cultural reasons |
| Tangaroa | god of the sea |
| Tangata whenua | indigenous people |
| tapu | sacred, forbidden (tapu consists of different levels of prohibitions) |
| tauranga waka | original canoe landing site |
| tupuna/ tipuna | ancestor/ grandparent |
| urupā | burial place |
| wāhi tapu | sacred site |
| waka | canoe; supra-tribal grouping |
| whānau | family |

# 1. INTRODUCTION

The Coastal Resource Inventory (CRI) is a national database compiled by staff of the Department of Conservation (DOC). The inventory identifies the natural, cultural, and historic values of the coastal zone. These values are overlain with information on the threats, human modification and use of the coastal zone and with any information on existing protection. The information will assist with the management, protection and sensitive use of Canterbury Conservancy's coast.

The CRI database is recorded at three levels; the first order survey will provide a national overview of the conservation status of the coast and will highlight general areas and sites of concern. This is mapped at a scale of 1:250 000. Second and third order surveys will provide more information on specific sites and will involve more intensive investigations.

The coastal zone covered by CRI is not fixed, it extends inland for this inventory as far as the landward limit of the marine influence but for future surveys, to recognise the land/sea interaction, the inland boundary will need to be considered carefully as it should be the landward limit of the influence of the land on the sea.

The First Order Coastal Resources Inventory follows the guidelines prepared by the CRI Task Force.

There are eight base maps covering the Canterbury Conservancy. With each base map there are eight overlay maps depicting natural, cultural, and historical values, existing threats, human modification and use, existing protection, conservation values and archaeological values (the latter was provided by DOC Head Office). Site record forms for each site are included after each map series. Fifty three sites of conservation value are identified on the Canterbury Conservancy's coastline. These sites were derived at an early stage of the inventory and were chosen as being areas of concentrated human use and areas of high conservation value or research value.

The survey has been compiled using existing information, local knowledge and experience of Department staff. Literature cited is fully referenced in the text and where possible additional relevant references are included.

The coast has special significance to Maori as a traditional site for food gathering and it has an important role in their cultural and spiritual identity. The significance of the entire coastal zone to Maori should be recognised in planning and management.

## 2. Summary of Canterbury's Coastal Zone

The Canterbury Conservancy's coastline can be divided into five coastal areas: Canterbury Bight, Banks Peninsula, Pegasus Bay, North Canterbury and the Chatham Islands.

### Canterbury Bight

The Canterbury Bight extends for 200 km from the Waitaki River to Lake Ellesmere (Te Waihora). The beach is predominantly sand and shingle with sections of basalt rock outcrops around Timaru and is dissected by numerous braided rivers, the largest of these being the Waitaki and Rakaia Rivers. The braided rivers have significant value for birds as feeding, roosting and breeding areas, and for fish as feeding and breeding grounds and as migration passageways. Canterbury Bight rivers are well known for their salmon and whitebait fishing and the rivers are internationally regarded for jetboating.

Canterbury Bight has high recreational use mainly associated with the river mouths. At Timaru, Caroline Bay is a key feature of the region and a source of local identity for South Canterbury. It has very high recreation use especially in summer and the harbour is the centre of the commercial activity for the hinterland.

Canterbury Bight has strong spiritual significance for the local Maori and the lagoons, such as Washdyke Lagoon are important sources of kaimoana.

### Banks Peninsula

Banks Peninsula is the most significant feature of the Canterbury coastline and is formed as a result of volcanic activity. The coastline is a series of small bays and rocky headlands. There are two major harbours on the Peninsula; Akaroa and Lyttelton Harbours. Akaroa has very high recreational use and high landscape value, and Lyttelton is dominated by residential development and the commercial port. Outer bays are sparsely populated and often not served by road access.

The area is totally surrounded by the Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect one of the world's rarest and smallest marine mammals, Hector's dolphin (Cephalorhynchus hectori).

The coastal cliffs, bays and headlands are habitat for a number of seabirds including spotted shag (Stictocarbo punctatus) and the rare yellow eyed penguin (Megadyptes antipodes).

Lake Ellesmere (Te Waihora) is being promoted as a wetland of international importance with bird numbers recorded in the tens of thousands. The lake has high recreational use and is a landscape feature of Canterbury. Its fishery, for both native and exotic fish is very important. The lake is the life force of Ngai Tahu. Kaitorete Spit a major landscape feature of the area, lies between Lake Ellesmere and the sea. It has important native plant conservation values and many important archaeological and invertebrate sites.

Pegasus Bay

Pegasus Bay is predominantly a sand beach backed by coastal dunes. There are three major coastal lagoons and estuaries in the Bay, the Avon/Heathcote, Brooklands, and Ashley/Saltwater Creek areas which are significant for waterfowl and migratory waders. The lagoons offer a diversity of habitats for fish and shellfish species, and are important for recreation.

The sand beaches in Pegasus Bay have very high recreational use particularly Brighton, Waikuku, Woodend and Leithfield and there is coastal residential development in all these areas. The Avon/Heathcote Estuary is a focal point of Christchurch and there are a variety of recreation opportunities including fishing, sailing and birdwatching.

North Canterbury

The North Canterbury area extends from the Waipara River to the Conway River and is a complex coastline of sand and shingle beaches with sections of rock outcrops and shore platforms. There are three major rivers, the Hurunui, Waiau, and Conway, and their deltas are significant for wildlife and fish species. Motunau Island is Canterbury's only significant nearshore island and it has very high conservation value for seabirds.

Gore Bay is the recreational focus of the area and is one of the few local beaches safe for swimming. Fishing, boating and diving are other recreational uses of the coastal zone in North Canterbury.

Chatham Islands

The Chatham Islands lie 800km east of Christchurch. The largest islands are Chatham, Pitt, South-East (Rangatira) and Mangere Islands and there are numerous other smaller islands and stacks.

A variety of shoretypes exist: high coastal cliffs, sandy bays, boulder beaches and rock platforms.

The islands are of international importance for wildlife and South East and Mangere Islands are used for endangered species recovery work.

The islands are associated with Moriori and Maori and contribute greatly to New Zealand culture and history.

Canterbury's open coastline is approximately 800 km long. Including major coastal lagoons and Te Whanga Lagoon it covers 1095 km.

The following table gives the length of coastline for each coastal area, the length of coastline covered by the conservation regions identified in this survey and the number of sites identified. However, it is recognised that not all significant sites are included in the inventory and this is a summary only.

| Coastal Area | Total km | Conservation km (%) | No. Sites of Conservation Value |
|---|---|---|---|
| North Canterbury | 234 | 32 (13%) | 8 |
| Pegasus Bay | 69 | 60 (87%) | 7 |
| Banks Peninsula (includes Kaitorete/ Ellesmere/Forsyth) | 272 | 245 (90%) | 13 |
| Canterbury Bight | 160 | 69 (43%) | 12 |
| Chatham Islands | 360 | 232 (64%) | 13 |
| Totals | 1095 km | 638 km | 53 |

## 3. Summary of Site Importance Classification

### Sites of International Importance

**Orari River - Opihi River CRI 120008**

A long term study of coastal processes by Canterbury Regional Council and the unique nature of the sand/shingle barrier beaches interacting with riverine deltas gives the area international status (D. J. Todd, Canterbury Regional Council pers. comm.)

**Lake Ellesmere and Kaitorete Spit CRI 120013**

Under the RAMSAR Convention Lake Ellesmere satisfies all criteria necessary for status as a wetland of international importance (Palmer, 1982). It is of outstanding importance as a habitat for waterfowl including rare migratory waders. Kaitorete Spit contains New Zealands largest remaining area of pingao (Desmoshoenus spiralis) (T. Partridge, DSIR pers. comm.). The lake is of special significance to maori and is the life force of Ngai Tahu.

**Marine Mammal Sanctuary CRI 120015**

Hector's Dolphin (Cephalorhynchus hectori), the world's rarest marine dolphin is endemic to New Zealand and breeds around Banks Peninsula. The Banks Peninsula Marine Mammal Sanctuary is the first created in New Zealand and is believed to be the first in the world that controls use of set nets to prevent accidental entanglement of marine mammals. Conservation of Hector's Dolphin is of international importance (Department of Conservation 1988).

**Ripapa Island/Wreck and Pile Bays CRI 120023**

This site is considered to be of international historical significance as it was the site of imprisonment of the German sea raider Von Luckner captain of the Seeadler originally captured in Fiji during WW 1 (Department of Conservation, internal file 3/6/1/1).

**Quail Island /King Billy Island CRI 120024**

This site has high historic values. Quail Island was used as a base for Scott and Shackleton's expeditions to Antarctica and is considered of international significance (I. Hill, Department of Conservation pers. comm.).

**Motunau and Motunau Island CRI 120035**

A diverse collection of late Pliocene age fossil crabs, penguins, molluscs and a boney toothed seabird at a cliff exposure north of the Motunau River Mouth is considered of international significance (Barringer and Howard, 1989).

**Chatham Islands Sites CRI 120041-120053**

Collectively all 13 Chatham Islands sites are considered of international significance. This is attributed to the presence at these sites of rare or endangered plant and and animal species that are endemic to the Chatham Islands. As well as this several sites are also of international significance as archaeological and historic sites, notably for their importance as Moriori occupation or burial sites. The 13 Chatham Islands sites are listed below.

South East Island CRI 120041
Mangere Island CRI 120042
Murumuru CRI 120043
Glory Bay CRI 120044
Flower Pot CRI 120045
Te Whanga Lagoon CRI 120046
Owenga CRI 120047
Point Durham (Waitangi - Point Gap) CRI 120048
Napper Point (Island Reef - Whangatete Inlet) CRI 120049
Point Munning (Kaiangaroa - Okawa Point) CRI 120050
Cape Young (Mairangi - Tuapeka) CRI 120051
Maunganui Beach CRI 120052
Cape Pattison (Waitangi West - Maunganui) CRI 120053

Sites of National Importance

**Waitaki Delta CRI 120001**

This site is nationally important as a recreational salmon (Oncorhynchus tshawytscha) fishery (Department of Lands and Survey, 1986). The wetland area on the southern bank is considered of national importance as wetland habitat for freshwater fish (Davis,1987).

**Wainono Lagoon/Waihao River Mouth CRI 120002**

This site is of national significance as breeding, roosting and feeding habitat for a variety of wetland bird species including black swan (Cygnus atratus), mallard (Anas platyrhynchos platyrhynchos), grey duck (Anas superciliosa superciliosa) and other less common species such as marsh crake (Porzana pusilla affinis) and Australasian bittern (Botaurus stellaris poiciloptilus). The habitat is also valuable for a range of native freshwater fish species and considered to be of national significance for this reason (Davis, 1987).

**Rangitata River Mouth CRI 120009**

This site is regarded as nationally important for its recreational salmon fishery (Department of Lands and Survey, 1986). Six Maori archaeological sites are recorded on the northern bank and the area remains important for kaimoana harvesting.

**Rakaia River Mouth CRI 120011**

This site is nationally important primarily for the recreational salmon fishery focussed on the mouth area (Teirney et al; 1987).The area supports atleast 28 species of bird including wrybill (Anarhynchus frontalis) and black fronted terns (Sterna striata). Moa hunter midden and occupation sites occur around the mouth.

**Coopers Lagoon CRI 120012**

Davis (1987) listed this lagoon as being a wetland of national importance to fisheries particularly as an area for the spawning of inanga (Galaxias maculatus). The lagoon is of significance as a breeding, feeding and roosting habitat for wetland birds, notable species include mute swan (Cygnus olor) and migratory arctic waders such as eastern bar-tailed godwit (Limosa lapponica baueri) (Adams and Moore, 1980).

**Okains Bay - Akaroa Head Salmon Congregating Area CRI 120014**

The salmon which feed and congregate in this area offshore form a nationally important resource for the recreational salmon fishery they sustain in several Canterbury rivers (Teirney et al; 1987). The salmon also return to commercial salmon ranches located on or near these rivers.

**Lake Forsyth CRI 120016**

The Okana River delta (tributary to Lake Forsyth) is the best national example of a cuspate delta (Geopreservation Inventory). The lake is of national importance as a habitat for freshwater fish (Davis,1987) and supports a diverse avifauna including wetland species and waders. Endangered southern crested grebe (Podiceps cristatus australis) overwinter on the lake. The lake is important to Maori for kaimoana harvesting especially for eels (Anguilla spp.).

**Scenery Nook - Birdlings Flat CRI 120017**

The rare endemic yellow-eyed penguin (Megadyptes antipodes) utilises the habitat along this stretch of coast (Palmer, 1984). Two rare endemic moths (Kupea electilis and Kiwaia jenae occur on Birdlings Flat (Johns, 1982). The area is rich in history associated with Maori occupation and with the use of the coast for whaling.

**Akaroa Harbour CRI 120018**

This site provides nationally important habitat for Hector;s dolphin (Department of Conservation, 1988). The rare (Bell,1986) yellow-eyed penguin also utilise the harbour habitat for feeding (P. Dilks, Department of Conservation pers. comm.). The area is rich in history associated with Maori and French occupation. The harbour has very high recreational use in summer. A salmon farm is located near the heads.

**Hickory Bay - Damons Bay CRI 120019**

This site (particularly Stony Bay) is nationally significant as a nesting area for yellow-eyed penguins (P. Dilks, Department of Conservation pers. comm.). A white flippered penguin (Eudyptula minor albosignata) rookery occurs at Flea Bay and about 20 spotted shag (Stictocarbo punctatus) breeding colonies are present throughout the area of the site.

**Pigeon Bay - Hickory Bay CRI 120020**

This site is nationally significant as a nesting area for yellow-eyed penguins and provides important habitat for spotted shags (P. Dilks, Department of Conservation pers. comm.). Fur seal (Arctocephalus forsteri) colonies occur around the western head of Okains Bay and Pa Island. The rugged coast has high land and seascape value.

**Godley Head - Sumner Head CRI 120026**

This site is considered to be of national significance for the recreation opportunities it provides for the Christchurch population centre (Department of Lands and Survey, 1984). It also provides important habitat for spotted shag , white- flippered penguins and Hector;s dolphin (C. O'Donnell, Department of Conservation, pers. comm.)

**Avon-Heathcote Estuary CRI 120027**

This site provides nationally important habitat for waterfowl and waders, notably for around 4000 South Island pied oystercatcher (Haematopus ostralegus finschi) and 2500 godwits. The estuary is considered to be of national significance as a habitat for rearing and spawning of marine and freshwater fish species and provides a feeding area for migratory adults (Davis,1987). The estuary has been intensively studied by Canterbury University and it is a prime educational asset. The estuary receives intensive use from a wide range of recreation groups. Industrial and treated urban waste is discharged in the Estuary.

### Brooklands Lagoon - Waimakariri River Mouth CRI 120029

Brooklands Lagoon is of national importance as habitat for birds (Department of Lands and Survey, 1980). It provides prime feeding habitat for waders including godwits, banded dotterel (Charadrius bicinctus bicinctus) and pied stilt (Himantopus himantopus leucocephalus) (Department of Lands and Survey 1980). The salmon fishery centred on the Waimakariri Mouth is considered of national importance (Teirney et al, 1987) and Brooklands Lagoon provides habitat for the rearing and spawning of marine and freshwater fish species and feeding for migratory adults.

### Ashley River - Saltwater Creek Estuary CRI 120031

This estuary is the least modified of the large estuaries in Canterbury, it provides nationally important feeding, roosting and nesting habitat for birds and has the highest diversity of wetland birds of all Canterbury rivermouths (Department of Lands and Survey, 1982b). The area provides excellent habitat for a range of fish species and inanga are known to spawn here. Davis (1987) considered the area was a wetland of national importance to fisheries.

### Teviotdale (Amberley Cliffs) CRI 120033

A volcanic ash deposit exposed in the area is derived from a Taupo eruption and is the only known deposit of its kind in the South Island. This deposit is important for defining the strata and age of more recent deposits and is considered to be of national significance (Department of Lands and Survey, 1976b).

### Glenafric CRI 120034

This site is nationally significant for the large number of Miocene age fossil crabs (Tumidocarcinus giganteus) derived from the eroding cliffs (Barringer and Howard, 1989 b).

### Blythe River - Napenape CRI 120036

A nationally significant stretch of coast due to its range of landforms, offshore reefs, botanical values, fur seal colony and recreational opportunities (refer Department of Lands and Survey, 1976a).

### Conway Flats CRI 120040

The remains of a petrified podocarp forest that are exposed between Wadi Nimrin and Ploughman Creek are considered to be of national significance (Department of Lands and Survey, 1976a). The Conway River Mouth and lagoon provide habitat for a variety of birds including the banded dotterel which are known to nest there (C. O'Donnell, Department of Conservation, pers. comm.).

Sites of Regional Importance

**Patiti Point - Normanby CRI 120005**

This site is considered to be of regional importance for its recreational, Maori spiritual and educational values. The system of offshore reefs and their associated plant and animal communities are an important feature of this coast (Adrian Cogle, Department of Conservation pers. obs.).

**Washdyke - Caroline Bay CRI 120006**

Washdyke Lagoon Wildlife Refuge provides an important and regionally significant habitat for wetland birds with high species diversity. It is important for migratory arctic waders including sharp tailed sandpiper (Calidris melanotus) and pectoral sandpiper (Calidris acuminata). Caroline Bay is a prime recreational and cultural centre (Davis, 1986). Washdyke Lagoon is a traditional food gathering area for Maori (Adrian Cogle Department of Conservation pers. comm.). The area is of scientific importance for coastal process studies.

**Seadown/Seaforth Beach CRI 120007**

This site is of regional importance as a study site for investigating coastal erosion. The associated wetlands provide habitat for a variety of birds including grey teal (Anas gibberifrons gracilis) and Australian coot (Fulica atra australis). Native fish are known to occur in the wetlands including banded kokopu (Galaxias fasciatus), a species now uncommon in Canterbury (Adrian Cogle, Department of Conservation pers. comm.).

**Ashburton River Mouth CRI 120010**

This site provides regionally important habitat for several bird species including black fronted dotterel (Charadrius melanops), large numbers of spotted shag and white fronted tern (Sterna striata). Native fish notably Stokell's smelt (Stokellia anisodon) ) occur in the mouth area and recreational fishing for salmon and brown trout (Salmo trutta) is popular (Davis,1986).

**Lyttelton Harbour Mudflats CRI 120025**

Geomorphologically this is an excellent example of a mudflat (Geopreservation Inventory) The mudflat provides an important feeding habitat for waders such as South Island pied oystercatcher, banded dotterel and eastern bar-tailed godwits. Several marine fish including sole (Peltorhampus novaezelandiae) and flounder (Rhombosolea spp.) feed over the mudflat area (Department of Lands and Survey, 1982c).

**Christchurch Foreshore (Waimakariri River - Southshore) CRI 120028**

This site is of regional importance for the wide range of recreation opportunities it provides for the urban population of Christchurch. Sand conservation is the specified dominant use of the coastal strip making it unique in New Zealand (Department of Lands and Survey, 1980, 1984). Birds utilising this coast include white-fronted and Caspian terns and South Island pied oystercatchers. There are several Maori archaeological sites in the area including midden and artefact sites.

**Waikuku - Pines Beach CRI 120030**

Woodend Lagoon and Pines Beach wetland which occur along this coast are considered of regional importance for the feeding, roosting and nesting habitat for a variety of bird species . The lagoon supports the largest population of scaup (Aythya novaeselandiae) in lowland Canterbury and marsh crake (Porzana pusilla affinis) are also established (C O'Donnell Department of Conservation, pers. comm.). Around 160 Maori occupation, pa and midden sites occur in the vicinity of Pines Beach.

**Leithfield - Amberley CRI 120032**

The beach settlements of Amberley and Leithfield are regionally important for the recreation opportunities they provide. The lagoon, wetland and river mouth habitats occurring along this coast are important for a variety of bird species (Department of Lands and Survey, 1982b).

**Jed River - Hurunui Mouth CRI 120037**

This site is a regionally important stretch of coast for its landscape features, geology, Maori and European history, wildlife values and recreational opportunities (Department of Lands and Survey, 1976a). The Hurunui Mouth receives intensive use over the summer months particularly during the salmon run. The mouth is also significant as a feeding and roosting area for birds, notably black- fronted and white-fronted terns.

**Shag Rock CRI 120038**

This site is considered of regional importance for its wildlife habitat - notably for a colony of around 1000 fur seals (Arctocephalus forsteri) (M. Lane, Department of Conservation, pers. comm.).

Sites of Local Importance

**Otaio River Mouth CRI 120003**

Ths site is locally important as a Canterbury Regional Council study site for coastal erosion trends. The Otaio Beach Walkway serves this site and provides opportunity for the appreciation of coastal landscape features.

**Pareora River Mouth CRI 120004**

This site provides locally important habitat for wetland bird species (O'Donnell and Moore 1983) and possibly inanga (Galaxias maculatus).

### Port Levy and Pigeon Bay CRI 120021

There are eighteen significant archaeological sites in this area (N.Z.H.P.T., 1986). The area is also locally important for recreation including yachting, walking and picnicking (Suggate et al,1978).

### Camp Bay - Adderley Head CRI 120022

This site has a rich history of Maori and European occupation. It is locally important as habitat for sea birds, notably as a breeding site for spotted shags and red billed gulls (Department of Lands and Survey, 1982c).

### Waiau River Mouth CRI 1200039

This site is locally important as a focus for a range of recreational activities including jet boating, salmon fishing and whitebaiting (Department of Lands and Survey, 1976). The lagoon and its mudflat area provide feeding habitat for a variety of birds including the threatened endemic black fronted tern (M. Lane, Department of Conservation pers. comm ).

An overall summary by importance classification is provided below.

| Site Importance | No. Sites | Approx. Length (km.) | % Coast |
|---|---|---|---|
| International | 19 | 320 | 50.1 |
| National | 19 | 220 | 34.5 |
| Regional | 10 | 63 | 9.9 |
| Local | 5 | 35 | 5.5 |
| Total | 53 | 638 | 100.0 |

## 4. Summary of Coastal Issues

Many issues in Canterbury Conservancy have been highlighted by preparing this inventory but there are many not referred to at all in the process - such as general advocacy of coastal conservation. Some of these issues are priorities for the tangata whenua and require urgent Departmental attention, e.g. aquaculture, water quality and marine protected areas.

### Aquaculture

Very little aquaculture occurs in Canterbury. Current aquaculture investigations in Akaroa Harbour and the Chatham Islands mean aquaculture is likely to become more of an issue in the Canterbury Conservancy. This first order inventory has assisted in identifying values of some sites which must be considered when processing future applications. There is an urgent need for a detailed strategy for processing aquaculture applications.

### Marine Mammals

New Zealand's first marine mammal sanctuary is around Banks Peninsula to protect Hector's dolphin (Cephalorhynchus hectori). One of the biggest threats to the dolphins is set net entanglement and set netting is a major issue in Canterbury because of the risk of incidental entanglement of marine mammals and diving seabirds. Set netting is also an important recreational activity.

The Canterbury coast is also an important habitat for visiting elephant seals (Mirounga leonina), leopard seals (Hydrura leptonyx), and fur seal (Arctocephalus forsteri) colonies are found around Shag Rock, Napenape, Banks Peninsula and the Chatham Islands.

### Archaeological Areas

There are thousands of archaeological sites surveyed and unsurveyed on the Canterbury Conservancy's coastline. Many have been disturbed and altered in some way by human activities such as cultivation and recreation. Three key areas are Banks Peninsula, the Pegasus Bay coastline and the Chatham Islands and there is a need to adequately identify and record these sites and to provide greater protection for key sites.

### Wetlands and Lagoons

Canterbury has extensive coastal wetlands and some of these have international importance, for example Lake Ellesmere and Te Whanga Lagoon. Some protection has been established for Lake Ellesmere but there is a general need to prevent further degradation of these important habitats from adjacent land development and water pollution. Their conservation values should be adequately recognised in planning and management.

### River Mouths

River mouths are the focus of recreation on the coast for Canterbury people, particularily for fishing for whitebait, brown trout and salmon. The more popular river mouth areas are Hurunui, Ashley, Waimakariri, Rakaia, Rangitata, Opihi and Waitaki rivers. The river mouths are an important kaimoana source for Maori.

Coastal Dynamics

Coastal zones are dynamic systems. In planning and management the principles of coastal processes must be fully understood to ensure developments are appropriate and not detrimental. The interaction of coastal systems both alongshore and across the land-sea boundary is complex but unfortunately there are too many examples where the process hasn not been properly addressed.

Water Quality

Water pollution is a major issue in Canterbury, particularly pollution from human waste which is offensive to Maori. Other pollution sources are from coastal rubbish dumps, reclamations, stormwater discharges, industry and agricultural activities in the river catchments. Water pollution is increasingly unacceptable to people as we begin to appreciate the values of the sea and that the quality of our water needs improving.

Marine Protected Areas

A range of marine conservation measures exist and these should be developed in an integrated manner. Mechanisms for protection include marine reserves, marine mammal sanctuaries, fishing regulations and Taiapure areas as well as a variety of planning measures. The most effective conservation measure is advocacy and educating people about the coastal values.

## 5. Direction for Second and Third Order Survey

One of the outcomes of the first order survey of the Canterbury Conservancy has been the highlighting of gaps in the information we have on the conservation value of the coast. Some obvious deficiencies include intertidal and subtidal marine ecology and an appreciation of the cultural, historic and archaeological sites. There are also priority areas to focus on, notably the Chatham Islands and Banks Peninsula. The Chatham Islands are lacking in published material about the coast and need improved coastal management. Banks Peninsula, although well documented, has very high pressure for use and the area requires careful management.

## ACKNOWLEDGEMENTS

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# Site Record Forms

Site Name(s): Waitaki Delta
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference J41 23636:55835

SiteNo:CRI120001
Conservancy: Canterbury
Date: 1.3.90

Brief Description of Site:

The Waitaki delta system is a broad delta with a gravel barrier bar approximately 3 metres high formed by the predominant northerly current and flow regime of the river (J. Brown pers. obs.). The Waitaki River has an annual mean flow of about 344 $m^3$/sec, this ensures that the mouth, although subject to some migration, remains open to the sea (D. Todd pers. comm). Because of the size of the sediments and the volume and speed of the flow condition on the river delta, it is not a stable habitat. However, a ponded area in the north, the Waitaki Lagoon, does provide a suitable wildlife habitat area subject to tidal influence (J.Brown pers. obs.).
The area is highly significant for local Maori people (A. Cogle pers. comm).
It is a renowned salmon (Oncorhynchus tschawytscha) fishery (Teirney et al. 1987).
Small settlements have been established on the north and south banks on the fringe of the delta and the adjacent land use is farming (J. Brown pers. obs.).

The area covers approximately 10km of the South Canterbury Coast.

Conservation Values: Natural BCH Cultural: ABC Historic: B

The delta area is very important for fish and 13 indigenous and three 3 introduced fish species have been recorded in the mouth area (Deverall 1986). The recreational salmon fishery is of national importance (Teirney et al. 1982).
Whitebait are thought to spawn in the wetland on the south bank (Davis 1987).
Some 40 bird species have been recorded at the Waitaki delta, and being part of the Waitaki River system it has national importance for wetland bird species (Robertson et al. 1984). The delta is on the migration route for a number of birds including wrybills (Anarhynchus frontalis). Other rare species found at the delta include Australasian bittern (Botaurus stellaris poiciloptilus) and marsh crake (Porzana tabuensis plumbea) (O'Donnell and Moore 1983).
As a landform feature the area owes much to the past and present discharge capacity of the river's cycle. Indications are that since glaciation, the delta has lost significant volume as a result of reduced sediment supply. Due to its large size, the delta is a prominent feature of the South Canterbury coastline (J. Brown pers. obs.).
Two isolated guts to the north of the river contain remnant native vegetation (Davis 1986).

Within the South Canterbury area this site has special spiritual and mahinga kai significance for the local Maori people (A. Cogle pers. comm.).

Site Importance: National

Comment: The significance of the delta for birds and for the salmon fishery give this site national importance (Robertson et al. 1984, Teirney et al. 1982).

Existing Threats: ACK

Type and comment: River control structures and flooding have caused some erosion to the northern bank. Weeds including willow (Salix spp.), lupin (Lupinus spp.) and gorse (Ulex europaeus) are in the site and degrade the wildlife habitat. Further habitat degradation is from upstream use of the Waitaki River for hydroelectric developments in particular and channelisation from flood protection structures (O'Donnell and Moore 1983).

The existence of camping grounds concentrates use with some degradation of berm lands and wildlife values (J. Brown pers. obs.).

**Human Modification and Use: AFHIJK**
The river system has been subject to major hydro-development, irrigation abstraction and flood control measures. Farming occurs immediately adjacent to the delta which has an influence on wildlife habitat quality. Both traditional and recreational fisheries are established around the delta; recreational fish caught include salmon and trout. Other uses of the site include boating, walking, and off road vehicles and motor bikes. There is an established settlement of huts at the delta and the area is popular for camping.

**Existing Protection: D**
There is a ban on netting/trawling within one nautical mile of the mouth from January - April to protect salmon fisheries. A coastal hazard zone area is administered by the Regional Council.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

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Cogle,A. Conservation Officer. Department of Conservation, Timaru.

Todd,D.J. Canterbury Regional Council, Timaru.

Reihana,J. Temuka (Iwi contact).

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI — moderate habitat, typical lagoon with good numbers of common coastal birds (O'Donnell and Moore 1983).
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other

**Other Considerations:**
The delta should be managed in a way that recognises all the values of the area including the wildlife and fisheries values.

**Accompanying maps and photographs:**
see photograph page.

Site Name(s):Wainono Lagoon/Waihao River Mouth SiteNo:CRI120002
Recorders Name: Brown/Cogle/Russell Conservancy: Canterbury
Map/Grid Reference: J40 23640 56100 Date: 1.3.90

**Brief Description of Site:**

Wainono Lagoon is a shallow wetland of approximately 650ha. The gravel beach on the eastern margin is subject to marine erosion resulting in the need for occasional artificial reprofiling. The lagoon is linked to the Waihao River by a box culvert construction (J. Brown pers. obs.).

The site has a long association with Maori people of the area, being a prime source of mahinga kai (A. Cogle pers. comm.).
The area is backed by farmland throughout the approximately 15km length of coast covered.

**Conservation Values: Natural:ABCH Cultural: AC Historic**

The area serves a vital link in the diminishing chain of South Canterbury coastal wetlands. Wainono is of particular importance for its wetland values and it is the most substantial wetland between Lake Ellesmere and Karitane Estuary (Davis 1986). The area has very high wildlife values with wetland bird numbers varying seasonally between 4000 and 9000. The bulk of these birds are waterfowl such as mallard (Anas platyrhynchos platyrhynchos), grey duck (Anas superciliosa superciliosa) and black swan (Cygnus atratus). Black stilt (Himantopus novaesealandiae), Australasian bittern (Botaurus stellaris poiciloptilus) and marsh crake (Porzana pusilla affinis) are also present (Pierce 1980).

Some 15 species of fish (10 native) are found within the area with whitebait being of particular interest. Canterbury mudfish (Neochanna burrowsius) are found in Buchanans Creek, a creek which enters the Waihao River (Davis 1987). On the back shingle beach slopes, large numbers of the skink Leiolopisma nigriplantare maccanni have been recorded (A. Cogle pers. comm.).

Fur seals (Arctocephalus forsteri) haul out on the beach (A. Cogle pers. com.).

There are two Maori fishing areas at the northern and southern ends of Wainono Lagoon and these are part of a much wider mahinga kai system (J. Reihana pers. comm.).

The lagoon and river mouth are a prominent feature of the South Canterbury coastline (J. Brown pers. obs.).

**Site Importance: National**

Comment: The presence of a large area of wetland habitat for waders and the existence of mudfish within the area give the site national importance (A. Cogle pers. comm.).

**Existing Threats: ABCM**

Type and comment:The area is subject to rapid coastal erosion which has caused some loss of wetland habitat. Further loss of habitat from flood protection structures, siltation and nutrient runoff from adjoining farmland is likely to have occured (J. Brown pers. obs.). Weeds are present (Salix spp.) and pose a threat to wildlife habitat.

**Human Modification and Use:** AFG

The Waihao River has a box culvert construction at the mouth to improve the flow of water which has an impact on the natural wildlife habitat values. This is periodically opened up mechanically and also opens naturally. The surrounding land is used for farming and land reclamation for the farming has reduced wetland area.

The Waihao and Wainono systems are used for recreational fishing and the site is popular for shooting game birds. Limited waterbased recreation also occurs in the Waihao River such as boating.

The beach profile is subject to artificial reinstatement by Canterbury Regional Council.

**Existing Protection:** AHD

The Waihao River mouth is a wildlife management reserve.

A rahui on all commercial fishing is in existence.

The Fish and Game Council recently purchased a large area of land and are developing the area by habitat enchancement plantings (A. Cogle pers. comm.).

This section of the coast is subject to coastal hazard regulation administered by the Canterbury Regional Council.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,C.M. (1986). South Canterbury Coastal Resource Investigation. Department of Lands and Survey. Christchurch 107p.

Davis,S.F. (1987). Wetlands of national importance to fisheries. MAFFish New Zealand Freshwater Fisheries Report No 90, 48p

Pierce,R.J. (1980). Seasonal and Long Term Changes in Bird Numbers at Lake Wainono. Notornis 27 pp 21-44.

Cogle,A. Conservation Officer. Department of Conservation, Timaru.

Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411pp

Todd,D.J. Canterbury Regional Council, Timaru.

Reihana,J. Temuka (Iwi contact).

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI — Lake Wainono is an outstanding value habitat for wildlife. The Waihao River mouth is of moderate value to birds (1982).
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other

**Other Considerations:**

The area should be managed in a way that recognises all the values of the site especially the high wildlife values. Some wildlife protection would be appropriate especially considering the size and value of Wainono Lagoon.

**Accompanying maps and photographs**

see photograph page.

Site Name(s): Otaio River Mouth
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: J39/K39 23656 56367

Site No: CRI 120003
Conservancy: Canterbury
Date: 1.3.90

**Brief Description of Site:**

The site is a small coastal river mouth of approximately 10ha in area, with an associated small wetland of about 1ha. The mouth is generally closed off all year by a gravel beach (J. Brown pers. obs.). To the south coastal cliffs of loess and alluvium are retreating slowly and the area is part of a Canterbury Regional Council coastal study (D. Todd pers. comm.).

**Conservation Values: Natural: CG Cultural: AC Historic: A**

Comment:

The area has value as a bird roosting site, and limited value as a nesting site (J. Brown pers. obs).

The Canterbury Regional Council has a number of recording sites along the cliff top to monitor long term erosional trends (D. Todd pers. comm.).

The area is served by the Otaio Beach walkway, and from the beach visitors get an appreciation of the profile of the South Canterbury coastal vista (A. Cogle pers. comm.).

Behind the coastal cliffs, hidden by trees, is the old Otaio cemetery which will, with time and erosion be disturbed by coastal retreat (Davis 1988).

The site is along the old coastal trails used by iwi (A. Cogle pers. comm.).

**Site Importance: Local**

Comment:

The site has local importance for wildlife, recreation and for cultural significance (J. Brown pers. obs.).

**Existing Threats: ABCK**

Type and comment:

The South Canterbury coastline is in a dynamic state and as a consequence the mouth of the river is constantly changing (A. Cogle pers. comm.).

Recreational use by off road vehicles has caused some damage to the site (pers. obs.). The wetland area is being encroached by siltation and invasion of blackberry (Rubus spp.), gorse (Ulex europaeus) and broom (Cytisus spp.) (J. Brown pers. obs.).

**Human Modification and Use: H**

The main use of the site is via the walkway which is popular with local residents. There is some use of the area by off road vehicles and motor bikes. There is virtually no fishing around the mouth and there is no formed vehicle access to the beach.

**Existing Protection: BD**

Type and Comment:

The area is part of the Coastal Hazard Zone administered by the Canterbury Regional Council. The walkway is some protection and there are a series of three reserves: River Conservation area, Cemetery Reserve and Rifle Range Reserve. Combined these reserves cover about 20ha.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7. | 5 Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,C.M. (1986). South Canterbury Coastal Resource Investigation. Department of Lands and Survey, Christchurch. 107 pp
Cogle,A. Conservation Officer. Department of Conservation, Timaru
Dodd,D.J. Canterbury Regional Council, Timaru
Todd D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411pp
Reihana,J. Temuka (iwi contact).

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other

**Other Considerations:**

**Accompanying maps and photographs**

Site Name(s): Pareora River Mouth
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: J39/K39 23678 56322

Site No: CRI 120004
Conservancy: Canterbury
Date: 1.3.90

**Brief Description of Site:**

The Pareora River mouth has a small coastal wetland impounded by a shingle barrier beach. The mouth generally remains closed off from the sea and the aesthetic qualities of the area are diminished by the proximity of the Pareora freezing works. The total area of this site is approximately 30ha and it covers about 100 metres of coast (J. Brown pers. obs.).

**Conservation Values:** **Natural: C Cultural: A** **Historic: B**

Comment:

The Pareora River Mouth is of moderate habitat value for wildlife with sixteen wetland bird species recorded including the Australasian bittern (Botaurus stellaris poiciloptilus) and marsh crake (Porzana pusilla affinis) (O'Donnell and Moore 1983).

Little information is known about the state of the fishery at present but whitebait (Galaxias spp.) have been recorded in the past (Cogle pers. comm.).

The wetland vegetation association is a mixture of Scirpus, Eleocharis, Carex, Juncus spp with some raupo (Typha orientalis) and willows (Salix fragilis) present (Cogle pers. comm.). A buried forest is being exposed by erosion (Davis 1986).

Two known Maori occupation sites are recorded about the river mouth area (Davis 1986).

**Site Importance:** **Local**

Comment

The site is of local importance for cultural reasons and because it is of moderate habitat value for wildlife (J. Brown pers. obs.).

**Existing Threats:** **AEK**

Type and comment:

The South Canterbury coastline is a very dynamic system and rates of coastal erosion have been assessed at 0.3-1.1 m/yr (D. Todd pers. comm.).

Although improvement in water quality has been recorded since the installation of a new milliscreen and outfall, Pareora freezing works still represents a threat to water quality and beach pollution. The outfall is a distinct feature on the landscape and detracts from the seascape. There is a dumpsite for the works still in use (A. Cogle pers. comm.).

The activities of recreational vehicles have been reported as damaging the area and negatively affecting the wildlife habitat (A. Cogle pers. comm.).

Further loss of habitat is from upstream water abstractions, weed encroachment, and channelisation from stop bank construction, bulldozing and gravel extraction (O'Donnell and Moore 1983).

**Human Modification and Use:** AE

The Pareora freezing works is the most obvious form of site modification, particularly with the outfall pipe crossing the beach fronting the works. There is a small refuse dump seperated from the sea by a rock embankment adjoining the freezing works.

The site is useed to a limited extent for recreational fishing, for brown trout (Salmo trutta) and salmon (Oncorhynchus tshawytscha) when the mouth of the river is open. There is also some fishing in the lagoon.

**Existing Protection:** H

Type and Comment:

A rahui on commercial fishing exists from the main road to the river mouth.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Grindell,D.S. & Scarf,F. (1980). South Canterbury Catchment Board & Regional Water Board - Publication No 23.

O'Donnell,C.F.J.& Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems in Canterbury, New Zealand. Fauna Survey Unit Report No 33, New Zealand Wildlife Service.

Davis,C.M. (1986). South Canterbury Coastal Resource Investigation, Department of Lands and Survey, Christchurch, 107p.

Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.

Cogle,A. Conservation Officer. Department of Conservation, Timaru.

Todd,D.J. Canterbury Regional Council, Timaru.

Reihana,J. Temuka (Iwi contact).

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI — Pareora River mouth is a moderate value habitat (O'Donnell and Moore 1983)
3. PNA
4. Geopreservation
5. HPT County Inventories 1986c - sites 29 and 30
6. Other

**Other Considerations:**

**Accompanying maps and photographs**

Site Name(s): Patiti Point - Normanby SiteNo:CRI120005
Recorders Name: Brown/Cogle/Russell Conservancy: Canterbury
Map/Grid Reference: J39/K39 23718:56425 Date: 1.3.90

Brief Description of Site:

Patiti Point is south of Timaru and covers some 6km of shoreline. The site consists of about 7 sq km of extensive reef systems with sections of short, steep shingle/sand, beach between the loess-alluvium cliffs and the reef system. The reefs are Timaru basalt and are the only break in the uniform gravel sand beaches typically exposed on this coast from Banks Peninsula to Oamaru (J. Brown pers. obs.).

Water has been classified as S.A. by the South Canterbury Catchment Board (now Canterbury Regional Council). At Normanby there is a small wetland at the mouth of Pig Hunting Creek.

Conservation Values: Natural ACE Cultural: ABCDE Historic: ABD

Comment:

The reef systems are an unusual coastal feature on South Canterbury's coastline which is predominatly a sand and shingle beach and the site has very high landscape value (J. Brown pers. obs.).

The unmodified reefs have a range of habitats from shallow water to water several metres deep about 1km from the shore. Bladder kelp (Macrocystis pyrifera) and Southern Bull Kelp (Durvillea antarctica) are the main plant species. Paua,(Haliotis iris), crayfish,(Jasus edwardsii) and many other fish species also occur (J. Brown pers. obs.).

At Normanby there is a small, 8ha wetland. It is a roosting point and refuge along the coast for wildlife between the more extensive wetlands to the south and north. The wetland has a small number of common waders and waterfowl (A. Cogle pers. comm.).

Tuawaiki Point is of strong spiritual importance for the Maori people of the area and the site is associated with traditional fishing for local Maori people. Local High Schools periodically use the reef system for study (A. Cogle pers. comm.).

At least 8 archaeological sites are within the area and Patiti Point was once a base for whaling. Normanby is the site of at least one shipwreck (I. Hill pers. comm.). There is an old lighthouse at Tuawaika Point but little information is known about it (A. Cogle pers. comm.)

Site Importance: Regional

Comment

The site is of regional importance for recreational, spiritual and educational values ( Cogle pers comm.).

Existing Threats: AEIJ

Type and comment: The steep coastal cliffs are evidence of the erosion that has taken place (J. Brown pers. obs.). Pollution is occuring in Saltwater Creek from the Timaru dump and this is of concern to the local people (J. Brown pers. obs.). Illegal rubbish dumping takes place along the Normanby - Patiti roads ends. The area is popular for fishing and gathering shellfish from the reefs and this may be having an impact on the fish stocks (A. Cogle pers. comm.).

**Human Modification and Use:** AHIJK

The reefs provide a range of opportunities for recreational use including fishing, diving, surfing and boating. Being close to Timaru means the area is popular.
Land development for agricultural purposes has taken place up to the cliff faces and in some instances rubbish dumps both legal and illegal flank the beach.
This area is also used for kai moana gathering. At Saltwater Creek the original lagoon wetland has been drained and filled. The site of the old lagoon is now utilised as the Timaru City dump.

**Existing Protection:** DH

Along with the CRI 120005 this area is a rahui area. Water quality in the area is classified as S.A. by the Canterbury Regional Council and also is subject to coastal hazard zone planning.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,C.M. (1986). South Canterbury Coastal Resource Investigation. Department of Lands and Survey, Christchurch. 107p.
Grindell,D.S. & Scarf,F. (1980). Recreational & Industrial Use of Timaru Coastal Water. South Canterbury Catchment Bd & Regional Water Bd Report No 23.
Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.
Ted Boraman, SCUBA diver Timaru.
Cogle,A. Conservation Officer. Department of Conservation, Timaru.
Hill,I. Conservation Officer. Department of Conservation, Christchurch.
Todd,D. Canterbury Regional Council, Timaru.
Reihana,J. Temuka - iwi contact.

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI — Normanby wetland is a habbitat of potential value to waders and waterfowl (1982).
3. PNA
4. Geopreservation
5. HPT County Inventories1986b — No 2, 10, 11, 12, 3-6
6. Other

**Other Considerations:**

The lighthouse at Tuawaiki Point requires further research.
The Arowhenua marae wish to see Waahi-tapu observed at Tuawaiki Point as required by spiritual protocol and for rahui to be extended to the whole of the South Canterbury coast as was suggested some years ago (A. Cogle pers. comm.).
The site is worthy of some marine protection which recognises all the conseravtion values of the area (J. Brown pers. obs.)

**Accompanying maps and photographs**

Site Name(s): Washdyke - Caroline Bay
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: J39/K39 23705 56456

SiteNo:CRI120006
Conservancy: Canterbury
Date: 1.3.90

Brief Description of Site:

Washdyke Lagoon to Caroline Bay covers about 5km of coast and the lagoon backing the barrier beach at Washdyke is about 48ha. This represents a substantial reduction from the 235ha recorded in the 1880s and future erosion will reduce this area even further (Todd 1989). At Smithfield there is outcropping of Timaru basalt and a series of reef systems begin.

Caroline Bay is a recent aggradational feature derived from the effect of Timaru Harbour constructions. Rates of beach expansion are recorded at some 6 metres per year. South Beach to the south of Timaru harbour's south mole is also an accretionary beach having advanced seaward some 100 metres since 1870 ( Todd 1989).

Caroline Bay is probably the most recognised feature of Timaru and it is very popular for local people and in sumer, for holiday makers from throughout New Zealand (J. Brown pers. obs.)

Conservation Values: Natural: CDEGH Cultural: ABCE Historic ABD

Washdyke Lagoon is an important and sensitive wetland for wildlife with particularily high species diversity. Over 3000 birds at a time have been recorded in the wetland and it is important for migratory arctic waders including sharp-tailed sandpiper (Calidris melanotos). Other species include wrybill (Anarynchus frontalis), black-fronted dotterel (Charadrius melanops) and black stilt (Himantopus novaezealandiae). There has been a decline in numbers of birds present since the 1940s (Sagar 1976).
The lagoon system is subject to changes from the landward migration of the beach system where the coastal erosion rates have averaged 2.9-3.3 m/year since 1865 (Todd 1989).
Caroline Bay to the south consists of a beach front of about 2km and provides a nursery area for flounder (Rhombosolea species). It has also been the site of whale strandings and haulout for fur seal (Arctocephalus forsteri), leopard seal (Hydrurga leptonyx) and white flippered penguins (Eudyptula minor albosignata) (A. Cogle pers. comm.).
Pingao (Demoschoenus spiralis) has been recorded at Caroline Bay (A. Cogle pers. comm.)
Caroline Bay is one of the most well used sections of the South Canterbury coastline for recreation. It is a safe and sheltered swimming beach with developed facilities. The broad bay is a landscape feature of the South Canterbury coast. Washdyke Lagoon is visible from the main road into Timaru and is an integral feature of the area (J. Brown pers. obs.). Locally the Lagoon is also used for recreational whitebait fishing.
Timaru was once an important whaling area and old relics are sited about the bay. Also associated with early history and attesting to the nature of the coast is the recording of 25 ships founding along this section (I. Hill pers. comm.).
There is a traditional Maori presence in the area and Washdyke Lagoon is an important food gathering area (A. Cogle pers. comm.).
The basalt at Smithfield provides a break in the monotone gravel/shingle/sand beaches. The lava displays moderate columnar jointing typical of basalt derived lavas and its rocky shores are littered with the shells of molluscs (A. Cogle pers. comm.).
The site is of national scientific importance for coastal process studies (J. Brown pers. obs.).

**Site Importance:** **Regional**

Comment: The site is of regional importance. Caroline Bay is distinguished by being the only sand beach for some 200km and Washdyke lagoon has a Maori traditional association (mahinga kai). The area is a focal point within Timaru during the Christmas period (J. Brown pers. obs.).

**Existing Threats:** **ADEIJ**

The current erosion of the Washdyke beach is a threat for wildlife in the Lagoon by loss of habitat (J. Brown pers. obs.). The erosion is a threat to coastal farmland and to development adjacent to the area ( industry at Washdyke). The Timaru sewar outfall at Washdyke was replaced in 1987 after only 20 years of service because of instability from the erosion (Todd 1989). Other threats to the wildlife of the lagoon are cattle occasionally in the Washdyke reserve trampling the area (A. Cogle pers. comm.).
Pollution has been greater in the past but still can be regarded as an existing threat since outfalls still exist and are serviceable. The adjacent industrial development is a threat to the lagoon from pollution (A. Cogle pers. comm.). The sewar outfall is still in existance and is incompatible with the seascape (J. Brown pers. obs.).
Trawling occurs occasionally within Caroline bay which could have an effect on local recreational fishing (A. Cogle pers. comm.).

**Human Modification and Use:** **ABCDEGHIJG**

There is considerable industrial development behind the Washdyke Lagoon and some drainage of wetlands has occurred. The sewer outfall ran through Washdyke Lagoon and a causeway still exists, effectively cutting the lagoon in half although there is a culvert allowing some exchange. Beach renourishment has been attempted with the latest use being the dumping of dredgings on Washdyke Beach. Results are not yet observable but would be expected to show in the next few years. The Port of Timaru adjoins the area abutting Caroline Bay which is a prime recreational and cultural area. Above Smithfield reef the Smithfield Freezing Works had established an outfall over the reef - this has now been discontinued. From Washdyke to Smithfield are mahinga kai gathering areas although pollution has reduced the use of the area.

**Existing Protection:** **ADH**

Washdyke Lagoon is a rahui area and a Wildlife Sanctuary. The area around Washdyke beach is subject to coastal hazard planning administered by the Canterbury Regional Council. Caroline Bay is part of the Timaru Harbour and is endowment land (A. Cogle pers. comm.).

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 **2** 3 | 1. Well documented |
| Cultural | 1 2 **3** | 2. Little information (general) |
| Historic | 1 **2** 3 | 3. Little information (if any) |
| Threats | **1** 2 3 | |
| Human Mod/Use | **1** 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 **2** 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | **1** 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | **1** 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | **1** 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Sagar,P.M. (1976). Birds of the Washdyke Lagoon Area, South Canterbury. Notornis 23, pp 205-212.
Todd,D.J. (1989). Washdyke - Seadown Coastal Erosion South Canterbury Catchment and Regional Water Board Publication 62A.
Todd,D.J. (1989). Washdyke - Ophih Coastal Erosion Study South Canterbury Catchment and Regional Water Board Publication 62.
Grindell,D.S. and Scarf,F. (1980). Recreational and Industrial Use of The Timaru Coastal Waters South Canterbury Catchment and Regional Water Board Publication 23.
Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.
Cogle,A Conservation Officer. Department of Conservation, Timaru.
Hill,I.A. Conseravtion Officer. Department of Conseravtion, Christchurch.
Todd,D.J. Canterbury Regional Council, Timaru
Reihana J. Temuka - iwi contact.

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI — Washdyke Lagoon has high value as a wildlife habitat (1982).
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other

**Other Considerations:**

Washdyke Lagoon is an important lagoon for wildlife and requires management for these values and the requirements of the local people for some fishing within the lagoon. The lagoon also has high cultural significance which should be recognised in management.

**Accompanying maps and photographs**

see photograph page

Site Name(s): Seadown/Seaforth Beach
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: K38 23725 56500

SiteNo:CRI120007
Conservancy: Canterbury
Date: 1.3.90

Brief Description of Site:

This site covers some 8km of mixed sand and gravel beaches. The area has been subject to substantial erosion, there has been a reduction of the beach crest height and some 400 metres of land has been lost since the 1860s. Rates of erosion are higher in the southern segment (Todd 1989). As a result, substantial study and engineering works have been undertaken, largely to offset the threat to the industrial areas of Washdyke (J. Brown pers. obs.). Considerable swamp area has been lost to drainage and stopbanking in the area (A. Cogle pers. comm.).

Conservation Values: Natural: CDG Cultural: E Historic

Comment:

The wetlands have a mixed vegetation of grasses, sedges, flax and saltmarsh, and are a valuable habitat. The wetlands are habitat for a number of native fish, banded kokopu (Galaxias fasciatus) and short-finned eels (Anguilla spp.) have been recorded at Horseshoe Lagoon. The drainage ditches provide ideal habitat for whitebait spawning when linked with the sea (J. Brown pers. obs.).

Erosion of the coastal margin has uncovered a fossil forest at Seadown and material recovered has indicated the presence of totara. No known date is recorded (Davis 1986).

The site is used regularily by education groups because of the proximity to the urban area and the dynamic changes that have taken place on the coast (Grindell and Scarf 1980)

The site is being extensively studied by the Canterbury Regional Council for erosion monitoring (D. Todd pers. comm.).

Site Importance: Regional

Comment

The site has regional significance for erosion study (D. Todd pers. comm.)

Existing Threats: AG

Type and comment: This section of the South Canterbury coast has very high erosion rates of between 2.8 to 0.4 m/year being recorded in the last 30 years. The adjacent farmland is low lying and prone to inundation by sea water during storms. Coastal stopbanks have been constructed in an attempt to combat the loss of land but despite these measures, since 1940 350 ha. of farmland has been inundated by sea water at some time. These coastal stopbanks have had to be relocated in the last 50 years (Todd 1989).

The erosion and the erection of structures has caused some loss of wildlife habitat (A. Cogle pers. comm.).

**Human Modification and Use:** ABE

The coastal land has been developed for farming with a corresponding need for coastal protection works.

The Timaru City sewer pipe and milliscreen are located on this section of coast with a 400 metre diffuser pipe line at Seadown Beach.

There is limited use of the area for whitebaiting.

**Existing Protection:**

Type and Comment:

The Coastal Hazard Plan prepared by the previous Catchment Authority, but now administered by the Canterbury Regional Council, covers this area.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Grindell,D.S. and Scarf,F. (1980). Recreational and industrial use of the Timaru coastal waters. South Canterbury Catchment Board Publication no. 23, 45 p.

Davis,C.M. (1986). South Canterbury Coastal Resource Investigation, Department of Lands and Survey Christchurch, 107pp.

Cogle,A. Conservation Officer. Department of Conservation, Timaru

Todd,D.J. (1989). Washdyke - Seadown Coastal Erosion South Canterbury Catchment and Regional Water Board Publication 62A.

Todd,D.J. (1989). Washdyke - Opihi Coastal Erosion Study South Canterbury Catchment and Regional Water Board Publication 62.

Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.

Todd,D.J. Canterbury Regional Council, Timaru.

Barringer,J. (1989). Sites of Geomorphological and Geological Significance in Strathallan County, South Canterbury. DSIR Technical Report 3 8p.

| Recorded on Existing Databases | Comment: |
|---|---|
| 1. WERI | |
| 2. SSWI | Beach Road Lagoon has moderate/high wildlife value for waterfowl (1982). |
| 3. PNA | |
| 4. Geopreservation | Site no. 101 Geology, J Barringer (1989). |
| 5. HPT County Inventories | |
| 6. Other | |

Other Considerations:
Accompanying maps and photographs

Site Name(s): Orari River - Opihi River
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: K38 23810 56597

SiteNo:CRI120008
Conservancy: Canterbury
Date: 1.3.90

**Brief Description of Site:**

This site covers 16 kilometres of coast. The Orari in the north has a modified river lagoon area of about 4.5ha with fringing areas of wetlands. The Opihi is separated from the Orari by a stretch of typical shingle/sand beach and it is considerably larger than the Orari. Farming is the predominant land use of the adjoining country ( pers. obs.).

**Conservation Values: Natural: ABCDGH** **Cultural: AC** **Historic: B**

Comment: The wetland complexes provide a variety of habitats for wildlife and 24 species of wetland birds have been recorded in the area. Of significance is the over wintering of the black-fronted dotterel (Charadrius melanops) and the white-winged black tern (Chlidonias leucopterus) (Peirce 1974). The Orari River mouth is important for feeding and loafing of gulls, terns and other waders and waterfowl. White-winged black tern have attempted to breed at the Opihi River mouth (O'Donnell and Moore 1983).

Both the Orari and Opihi Lagoons support a variety of fish species and are considered as being wetland habitats of national importance to fisheries (Davis 1987).

The area is important for the coastal monitoring of the Canterbury Regional Council particularily for their study on erosion rates in South Canterbury. The site is of particular importance because it includes the effects of the interaction of a river delta with the sand/shingle beach (D. Todd pers. comm.).

There are a number of Maori reserves in the area, evidence of the importance of the area as a mahinga kai source (A. Cogle pers. comm.).

The river mouths' are important features of the South Canterbury coastline (A. Cogle pers. comm.).

**Site Importance: National**

Comment: The site is of national importance because of the long term erosion study being undertaken on the site and the unique nature of the sand/shingle barrier beaches interacting with river deltas ( Todd pers comm.).

**Existing Threats: ACEG**

Type and comment: The site is subject to coastal erosion and engineering structures to protect the adjacent land have been built (A. Cogle pers. comm.). Lowered flows in summer from upstream extraction coupled with pollution have induced periodic fish kills in parts of the Opihi system. Channelisation from stopbanks, gravel extraction and weeds also degrades habitat for wildlife. Significant exotic vegetation has encroached into the area ie gorse (Ulex europeaus), broom (Cytisus spp) and willow (Salix spp). These reduce habitat quality and quantity (J. Brown pers. obs.).

**Human Modification and Use: ABFHIJ**

Much of the surrounding farmland is used for intensive agriculture which effects the wildlife habitat by runoff and loss of riparian vegetation. Attempts to reduce the impact of flooding/erosion have included the artificial cutting of the Orari River bed and extensive stop banking of the river.
The river mouths are popular for people from Temuka and Geraldine for recreation and at the Opihi River there is a small settlement of huts. Uses of the river include fishing, swimming and picnicking and there is some off road vehicle damage. The Opihi River is used for brown trout ( Salmo trutta) and salmon (Oncorhynchus tshawytscha) fishing but this potential has declined with low summer river flows which have frequently led to river mouth closure (Davis 1986).

**Existing Protection: CDI**

The coastal margin is included in the coastal hazard zones administered by the Canterbury Regional Council. There are county reserves at the mouths of the rivers. A ban on trawling nets within one nautical mile of the Opihi Mouth is in force during Jan-April.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,C.M. (1986) South Canterbury Coastal Resource Investigation. Department of Lands and Survey. Christchurch. 107p.
Edmonds,J. and Ytsma,G. (1979). A management stategy for the Opihi River Mouth and its environs. Department of Lands and Survey, 52p.
O'Donnell,C.F.J. and Moore,S.G. (1983). Wildlife and conservation of Braided River systems in Canterbury. New Zealand Wildlife Service Fauna Survey Report No.33.
Davis,S.F. (1987). Wetlands of national importance to fisheries. MAFFish New Zealand Freshwater Fisheries Report No 90. 48 p.
Todd,D.J. (1989). Washdyke-Opihi Coastal Erosion Study South Canterbury Catchment and Regional Water Board Publication no. 62.
Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.
Pierce,R.J. (1974). Presumed attempted Breeding of the White-Winged Black Tern in New Zealand. Notornis 21, pp129-134.
Cogle,A. Conservation Officer. Department of Conservation, Timaru.
Todd,D.J. Canterbury Regional Council, Timaru.
Reihana J. Temuka - iwi contact.

| Recorded on Existing Databases | Comment: |
|---|---|
| 1. WERI | |
| 2. SSWI | Opihi River has a high rating and the Orari River mouth a moderate/high rating for waterfowl and waders (1982). |
| 3. PNA | |
| 4. Geopreservation | No.Lan 254 of the geopreservation inventory Department of Conservation. |
| 5. HPT County Inventories | 1986 sites numbers 11 and 12 |
| 6. Other | |

Other Considerations:
The river mouths and wetlands are sites that require sensitive management to allow for the high wildlife values of the area. Some form of protection of the habitats is required with restoration and rehabilitation work (A. Cogle pers. comm.).

Accompanying maps and photographs

see photograph page.

Site Name(s): Rangitata River Mouth
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: K38 23914 56684

SiteNo:CRI120009
Conservancy: Canterbury
Date: 1.3.90

**Brief Description of Site:**

The Rangitata River mouth is approximately 15ha. There is a deep lagoon to the north and a river delta of swift flowing channels. The mouth is always open through the barrier beach and large inter channel islands, usually with a covering of weed species. There are small settlements for the recreational users established about the mouth.

**Conservation Values: Natural: CH Cultural: AC Historic: B**

Comment:

The site is a potential bird habitat but rarely provides suitable conditions other than those for common species including gulls and terns (O'Donnell and Moore 1983).
The area has a high profile as a prime site for water based recreational fishing for quinnat salmon (Oncorhynchus tschawytscha) (Davis 1984).

On the north side of the river six Maori archaeological sites are recorded and the area is significant for mahinga kai for the local runanga (A. Cogle pers. comm.).

There is a spectacular view of the Canterbury coastline from the river mouth and it is easy to appreciate the broad expanse of the sweeping bay (A. Cogle pers. comm.).

**Site Importance: National**

Comment: The Rangitata River is of national importance for salmon fishing (Davis 1984).

**Existing Threats: AL**

Type and comment:

The coastal area is subject to erosion that threatens the adjacent development (farming and a hut settlement). Upstream water abstraction, channelisation from erosion protection structures and invasion by weeds threaten the wildlife values of the area ( O'Donnell and Moore 1983).

**Human Modification and Use:** FHIJ

Artificial channel modification has been used to reduce the impact on the hut settlement of flood waters. These settlements have developed in response to recreational opportunities available, such as fishing, boating, picnicking, scenic driving, and walking. The area is very popular for fishing, for salmon in particular and the mouth is the venue for fishing competitions.
The local Maori regard this area as a traditional mahinga kai area and have long associated with its resources.

**Existing Protection:** ADI

Type and Comment:

On either side of the mouth and adjoining areas are small river conservation reserves. The mouth area has a netting and trawling ban within one nautical mile during the months of January-April. The site is in the Coastal Hazard Zone administered by the Canterbury Regional Council.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

O'Donnell,C.J., Moore,S.M. (1983). Wildlife and conservation of braided river systems in Canterbury. Fauna Survey Unit Report No. 33. New Zealand Wildlife Service
Davis,C.M. (1986). South Canterbury Coastal Resource Investigation. Department of Lands and Survey, Christchurch. 107p.
Davis,S.F. (1984). Recreational Use of the Rangitata River 1980/81. Ministry of Agriculture and Fisheries, Fisheries Environmental Report no. 43, 57pp.
Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.
Cogle,A. Conservation Officer. Department of Conservation, Timaru.
Reihana J. Temuka - iwi contact.

**Recorded on Existing Databases** **Comment:**

| | |
|---|---|
| 1. WERI | |
| 2. SSWI | The site has potential/limited habitat value (1983) |
| 3. PNA | |
| 4. Geopreservation | |
| 5. HPT County Inventories 1986c | Sites numbers 3,4,5,8,10 |
| 6. Other | |

**Other Considerations:**
The site has very high recreational use and requires management to ensure these uses are compatible with the conservation values.
**Accompanying maps and photographs**
see photograph page

Site Name(s): Ashburton River Mouth
Recorders Name: Brown/Cogle/Russell
Map/Grid Reference: L37:24145 56833

Site No: CRI 120010
Conservancy: Canterbury
Date: 1.3.90

Brief Description of Site:

The site covers approximately 3km of the coastline and includes the mouth of the Ashburton River. High coastal cliffs to the north and south comprised of alluvium and loess have been cut by transverse streams (J. Brown pers. obs.).

The Ashburton mouth is a shallow river lagoon with exposed mudflats and an extensively braided river delta with shallow riffles (J. Brown pers. obs.).

Conservation Values: Natural: CE Cultural: A Historic: B

Comment:

The river mouth is suitable habitat for birds such as waders with 50 species of birds being recorded, 26 of these were wetland species including black fronted dotterels (Charadrius melanops) and royal spoonbill (Platalea leucorodia regia). There are over 1000 spotted shags (Stictocarbo punctatus) recorded at the river mouth, as well as 3000+ white-fronted terns (Sterna striata) and over 2000 black-billed gulls (Larus bulleri) (O'Donnell and Moore 1983).

The Ashburton has been regarded highly as a salmon (Onchorhynchus tschawytscha) and brown trout (Salmo trutta) fishing river. However low flows in the summer coupled to water abstraction have reduced the peak fishing period to the spring time (A. Cogle pers. comm.).

The stream cut 'Dongas' (steep sided dry valleys) to the north and south along the coast are evidence of a prior period of more water flow (Kelk 1974).

On the north bank at Hakatere there is a recorded archaeological site (Hill pers. comm.).

Site Importance: Regional

Comment: The site has regional importance for wildlife (O'Donnell and Moore 1983) and for recreational fishing (Davis 1986).

Existing Threats: ACFK

Type and comment: Coastal erosion is threatening the hut settlement(A. Cogle pers. comm.). Channelisation from erosion control structures, weed encroachment, and gravel extraction threaten wildlife values. Upstream extraction of water is a further threat to the habitat potential particularly for fish. Recreational use of the area can threaten breeding of birds by disturbance (O'Donnell and Moore 1983).

**Human Modification and Use: AHI**
The adjacent land is developed for farming. The river mouth is very popular with people from Ashburton for fishing, surfcasting, and whitebaiting. The area was once excellent for salmon and trout fishing but reduced flows have decreased its popularity. There is a small settlement of baches on the northside of the river mouth and there is vehicle access down to the sea.

**Existing Protection: AD**

There are three small reserves in the area (Cogle pers. comm.) and the area is part of the coastal hazard zone of the Canterbury Regional Council. There is an exclusion zone for netting and trawling within one nautical mile of the Ashburton River mouth that applies between 1 Jan-30 April.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

O'Donnell,C.F.J., Moore,S.G. (1983). Wildlife and conservation of braided river Systems in Canterbury. New Zealand Wildlife Service Fauna Suvey Unit Report No. 33.
Kelk,J.D. (1974). Unpublished MA thesis "Morphological Processes. Mid Canterbury Coast", University of Canterbury.
Davis,C.M. (1986). South Canterbury Coastal Resource Investigation. Department of Lands and Survey, Christchurch 107p.
Todd,D.J. (1988). Annotated Coastal Bibliography of South Canterbury. South Canterbury Catchment Board Publication No. 57, 411p.
Todd,D.J. Canterbury Regional Council, Timaru.
Cogle,A. Conservation Officer. Department of Conservation, Timaru.
Hill,I.A. Conservation Officer. Department of Conservation, Christchurch.

**Recorded on Existing Databases** **Comment:**

1. WERI
2. SSWI — The site is moderate value habitat for waterfowls and waders ( 1983).
3. PNA
4. Geopreservation
5. HPT County Inventories 1986c — There is one site, number 14 Hakatere
6. Other

**Other Considerations:**
The site requires sensitive management for recreation while recognising all the conservation values of the area. Improved minimum flows would benefit fish, wildlife, and recreation.
**Accompanying maps and photographs**
see photograph page.

Site Name(s):Rakaia River Mouth
Recorders Name : Brown/Turner/Russell
Map/Grid Reference: L 37 24465 57005

SiteNo:CRI120011
Conservancy: Canterbury
Date: 14.03.90

Brief Description of site:

The Rakaia is the largest of the Canterbury Bight rivers draining a catchment of 2910 square kilometres. The river mouth never closes and the lagoon is permanent with up to three openings possible. The Rakaia River and mouth have alot of recreational use particularily for salmon fishing (J. Brown pers. obs.).

Conservation Values: Natural: CD Cultural:ABC Historic: B

Comment:

The river supports the biggest quinnat salmon (Oncorhynchus tshawytscha) fishery in New Zealand and attracts fishers from beyond the region - up to 300 anglers may be present at the river mouth. The salmon fishery is of national significance (Teirney et al. 1987).

The river mouth and lagoon provide a whitebait (Galaxias spp.) nursery area of regional importance. Native fish recorded include smelt (Retropinna retropinna), lampreys (Geotria australis), eels (Anguilla spp.), bullies (Gobiomorphus spp.), flounder (Rhombosolea spp.), yellow eyed mullet (Aldrichetta forsteri) and kahawai (Arripis trutta) (Davis 1986).

90% of the lagoon is covered in water and the exposed mudflats are feeding grounds for waders. 28 wetland species have been recorded in the Lagoon including wrybill (Anarhyncus frontalis), black fronted terns (Sterna striata), and a large number of waterfowl. The river mouth is important for roosting of coastal birds - gulls and terns (O'Donnell and Moore 1983).

The Rakaia Lagoon has a diversity of habitats which support a range of species. The vegetation is a Juncus/Leptocarpus association and pingao (Desmoschoenus spiralis) has been recorded south of the Rakaia Huts (Davis 1986).

The benthic invertebrate community has a great diversity and abundance of species especially at the north east end of the lagoon (Davis 1986).

There are four archaeological sites identified in the area of the mouth - including occupation, midden and moa hunter sites and the area is important for kaimoana (Davis 1986).

Site Importance: National
Comment:
The site is of national significance for salmon fishing ( Teirney et al.1987).

Existing Threats: AI
Type and Comment :

Commercial bycatch of salmon threatens the recreational salmon resource (K. Hughey pers. comm.). Erosion is a constant threat (4-6 m in 5000 years) but this fluctuates considerably. Archaeological sites have been modified by ploughing.

Human Modification and Use: AHI

The primary recreation activity in the area is salmon angling, and other activities include surfcasting, whitebaiting, shooting and picnicking. There are hut settlements and a camping ground at the river mouth. Bank protection works have been constructed around the hut settlements. The extensive braidings and width of the river accommodate recreational users over a large area and this minimises conflicts between users. A launching ramp provides access for motorboats and jetboats. Annual fishing competitions are held at the river.

Existing Protection: AD

The Banks Peninsula marine mammal sanctuary extends to the Rakaia mouth south bank, but does not include the lagoon area. Small reserve areas occur near the Rakaia Huts area. There is a ban on netting/trawling within one nautical mile of the mouth from 1 January - 30 April to protect the salmon.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Palmer,J.D. (1982). Ellesmere - a critical area,Coastal Resource Investigation, Department of Lands & Survey , Christchurch 120p.

Todd,D.J. (1988). Annotated coastal bibliography of South Canterbury. SCCB publication no. 57, 411 p.

Teirney,L.D., Richardson,J. Unwin.M,J. (1987). The relative value of North Canterbury Rivers to New Zealand anglers. N Z Ministry of Agriculture and Fisheries Freshwater Fisheries Report No.89. 113p.

Davis,C.M. (1986). South Canterbury Coastal Resource Investigation. Department of Lands and Survey, Christchurch, 107 p.

O'Donnell,C.F.J. and Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems In Canterbury. New Zealand Wildlife Service Fauna Survey Unit Report No.33 .

Hughey,K. Protection Manager. Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

Recorded on Existing Databases: Comment:

1. WERI
2. SSWI — The Rakaia River mouth is of moderate importance as a habitat for waterfowl and waders (1980).
3.. PNA
4. Geopreservation
5. HPT County Inventories
6 Other
7. None

Other Considerations:

The area needs careful management to ensure the high recreational use is compatible with other conservation values of the area.

Maps and Photographs:

Site Name(s):Coopers Lagoon
Recorders Name : Brown/Turner/Russell
Map/Grid Reference: M37 24541 57043

Site No: CRI 120012
Conservancy: Canterbury
Date: 14.03.90

**Brief Description of site:**

Coopers Lagoon is a Wildlife Management Reserve of 97 hectares. It is a semi saline lagoon, which is mainly springfed, and is the most significant of the coastal wetlands along this coast, apart from Lake Ellesmere (Palmer 1982).

**Conservation Values:** **Natural:ACD** **Cultural: A Historic:**

Comment:

Coopers Lagoon is a highly productive, unmodified area with high value for a number of bird species. It is a breeding area for mute swan (Cygnus olor), pied stilts (Himantopus himantopus leucocephalus), and banded dotterels (Charadrius bicinctus). Marsh crake (Porzana pusilla affinis) and bittern (Botaurus stellaris poiciloptilus) are also present in the wetland. The wetland is noted as being used by a number of New Zealand and artic migratory waders (C. O'Donnell pers. comm.).

There is extensive brackish water/swamp vegetation around the margins of botanical interest. The vegetation is predominatly raupo/Leptocarpus and Juncus/Carex associations (Palmer 1982).

The area is a spawning area for inanga (Galaxias maculatus) and it supports populations of eels (Anguilla spp.), lampreys (Geotria australis), and brown trout (Salmo trutta). It is considered to be a wetland of national importance to fisheries (Davis 1987).

Coopers Lagoon is a traditional kaimoana gathering area for the local Maori (Palmer 1982).

**Site Importance :** **National**
Comment:
The site is of national importance for wildlife (Adams and Moore 1980).

**Existing Threats: ADK**
Type and Comment :

Overtopping and flooding around Coopers Lagoon occur after strong southerlies, and some illegal shooting takes place. Grazing to the perimeter of the lagoon may have an adverse effect on wildlife habitats (J. Brown pers. obs.).

**Human Modification and Use: AHI**

Recreational use of the area is moderate. Fishing is popular off the coast and there is good road access to the area. Whitebaiting also occurs in the area. All the adjacent land is developed and grazing occurs down to the lagoon edge.

**Existing Protection: A**

Type and Comment:

Coopers Lagoon is a Wildlife Management Reserve

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1.2.3 | 1. Well documented |
| Cultural | 1.2.3 | 2. Little information (general) |
| Historic | 1.2.3 | 3. Little information (if any) |
| Threats | 1.2.3 | |
| Human Mod/Use | 1.2.3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Davis,S.F. (1987). Wetlands of national importance to fisheries, MAFfish New Zealand Freshwater Fisheries Report No 90. 48p..
Adams,J.S., Moore,S.G. (1980). Wildlife Habitats of Importance in the Canterbury Planning Region. Report to Canterbury United Council. Wildlife Service. Christchurch.
Palmer,J.D (1982). Ellesmere a critical area. Coastal Resource Investigation, Department of Lands and Survey, Christchurch 120p..
O'Donnell,C.F.J Scientist. Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**

1. WERI
2. SSWI — Coopers Lagoon is a high value habitat for waterfowl and waders and over 50 species have been recorded (1980).
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other
7. None

**Other Considerations:**
**Maps and Photographs:**

Site Name(s): Lake Ellesmere and Kaitorete Spit
Recorders Name : Brown/Turner/Russell
Map/Grid Reference: M36 24680 57130

Site No: CRI 120013
Conservancy: Canterbury
Date: 14.03.90

Brief Description of site:

Lake Ellesmere (Te Waihora) is New Zealand's fifth largest lake by area. Its pre-European extent was 80,000 hectares but now it is reduced to 21,000 hectares. It is widely regarded as a wetland of international importance, primarily because of its wildlife values (C. O'Donnell, pers. comm.). Kaitorete Spit is a 25 km long barrier enclosing the lake, and is geologically important as it is one of the few areas in Canterbury prograding. Lake settlements occur at Taumutu, Birdlings Flat, Greenpark Sands, and the Selwyn River.

Conservation Values: Natural:ABCDEFGH Cultural: ABCDE Historic: ABCD

Geomorphic processes that created the lake are of high scientific interest, as the processes and present day features are rare on a world scale. With the changes associated with this process and adjacent land development the lake is highly eutrophic (Palmer 1982).

The lake is an important habitat for 26 species of fish and is considered of national importance for fish species (Davis,1987).

The lake is of international importance for wildlife, especially migrant waders and it fulfills all criteria for a wetland of international importance. 93 000 wetland birds have been recorded on the lake at one time. Over 10% of the total New Zealand population of 19 bird species use the lake. Individual species recorded include up to 12 black stilt (Himantopus novaezealandiae), up to 500 wrybill (Anarhynchus frontalis), up to 3000 banded dotterel (Charadrius bicinctus), up to 10,000 pied stilt (Himantopus himantopus leucocephalus), up to 75,000 New Zealand shoveler (Anas ryhnchotis variegata), up to 16,000 grey teal (Anas gibberifrons gracilis), 40 royal spoonbills (Platalea leucorodia regia), 15 white heron (Egretta alba modesta) and huge numbers of other waterfowl. In the dunes of Kaitorete spit 500 pairs of breeding banded dotterels have been recorded (O'Donnell 1985).

Kaitorete Spit has an extensive dune system, and contains the largest remaining populations of pingao (Desmoschoenus spiralis) left in New Zealand (S. Courtney pers. comm.). The forest remnants of ngaio ( Myoporum laetum) at Taumutu are of scientific interest ( Palmer 1982). The wetland is internationally important for saltmarsh communities (Clarke and Partridge 1984).. There is 35000 hectares of Salicornia australis, Mimulus repens, Lilaeopsis novaeselandiae, Cotula coronpifolia and Triglochin striatum.

Sea cliffs and sea stacks denote the historical sea level (5000 years bp) and the lake is a dominant landscape feature for the Canterbury area because of the expanse of the body of water (J. Brown pers. obs.).

A large number of archaeological sites are located in the area, including Oruaka, Te Puia and Waikakahi Pa sites (Palmer, 1982) The area remains of great importance to the Maori and is the life force for Ngai Tahu. The lake is mana for the local runanga and at least six runanga are associated with the lake (Palmer pers. comm.).

The lake was used in early European times for transport of timber. Some milling, railway and barge landing construction remains (Palmer 1982).
At least five shipwrecks have been recorded along this section of coast between 1866 and 1944. The largest of these vessels was a brig named the Pakeha (173 tons) which beached in a storm near Lake Ellesmere after springing a leak, seven crew drowned. (I. Hill pers. comm.).
The lake has high educational value and is used by local schools and universities for study (J. Brown pers. obs.)

**Site Importance :** International

The lake is of international importance for wildlife and for cultural reasons (O'Donnell 1985, P. Palmer pers. comm.).

**Existing Threats: ABCDEFK**

There has been an 81% reduction in the size of the Ellesmere wetland since European settlement, and the lake is highly eutrophic. The ecological values of the Kaitorete dunes have been degraded through the invasion of marram (Ammophila arenaria) and other weeds, a current sandmining operation, and by recreational offroad vehicles on the dunes. The adjacent farmland has an impact on water quality by chemical runoff and siltation. Stock trampling is a threat to bird breeding areas and recreational use of the lake for waterskiing, land-yachting and other activities may disturb birds in their nesting and feeding. Duck shooting of non target species has a direct effect on wildlife. After the Wahine storm in 1968 there was a sudden reduction in lake weed and today there is abundant algae. This has also corresponded with an increase in foreshore erosion. There is artificial control of the lake level to maintain it within a range defined for farming needs. Now there is a national water conservation order in place with management aiming to benefit wildlife. (J. Brown pers. obs.).

**Human Modification and Use: AFHIJK**

The lake has high recreational use being so close to Christchurch and there are a range of opportunities; conoeing, windsurfing, picnicking, boating, fishing and shooting. The Ellesmere/Selwyn trout fishery is the most important in the North Canterbury Fish and Game Council district. There are launching ramps at Lower Selwyn Huts and Lakeside. The lake has very high use from bird watchers and some of the recreational uses are incompatible with this.

There is a commercial flounder and eel fishery on the lake. Currently there are seven commercial eelers operating on the lake and flounder fishing. Both species are subject to the quota system.

The adjacent land is developed farmland and predominantly grazed.

The lake is opened by periodic cuts at Taumutu.

**Existing Protection: AI**
Type and Comment:

The Banks Peninsula marine mammal sanctuary extends off Kaitorete Spit for 4 nautical miles.
Several wildlife reserves occur around the lake margin, and one of the 2 scientific reserves on Kaitorete Spit, contains important populations of pingao and native broom (Carmichaelia apressa).
There is a National Water Conservation Order on the Lake.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Palmer,J.D. (1982). Ellesmere - a Critical Area-Coastal Resource Investigation, Department of Lands & Survey, Christchurch 120p.
Davis,S.F. (1987). Wetlands of national importance to fisheries. MAFfish New Zealand Freshwater Fisheries Report No. 90.
O'Donnell,C.F.J. (1985). Lake Ellesmere, Wildlife Habitat of International Importance New Zealand Wildlife Service Fauna Survey Unit Report No. 40.
Clarke,D.J. and Partridge,T.R. (1984). The Shoreline Vegetation of Lake Ellesmere, Canterbury, New Zealand. North Canterbury Catchment Board.
Palmer,P. Conservation Officer, Department of Conservation, Christchurch.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Courtney,S. Conservation Officer, Department of Conservation, Nelson.
O'Donnell,C.F.J Scientist, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

| **Recorded on Existing Databases:** | **Comment:** |
|---|---|
| 1. WERI | |
| 2. SSWI | Lake Ellesmere is an outstanding wetland with 154 species recorded. |
| 3.. PNA | |
| 4. Geopreservation | |
| 5. HPT County Inventories 1986 | There are approximately 100 sites in Ellesmere county. |
| 6. Other | |
| 7. None | |

**Other Considerations:**

Value of this resource is inherently outstanding and deserves wide and total protection and it should be made a Wetland of International Importance. Kaitorete Spit and the lake should be managed in a way that recognises all the values of the area.

**Maps and Photographs:**
see photograph page.

Site Name(s): Okains Bay - Akaroa Hd. Salmon Area
Recorders Name : Brown/Turner/Russell
Map/Grid Reference: N 36 25160 57240

Site No:CRI120014
Conservancy: Canterbury
Date: 14.03.90

**Brief Description of site:**

This site is the sea area off Akaroa Head where salmon congregate. The high incidence of salmon caught as by-catch by commercial fishermen has detrimentally affected the returns of salmon to rivers and commercial salmon hatcheries. MAFFish introduced regulations which excludes trawlers with power ratings in excess of 200kw from the area between Okains Bay and Akaroa Head to a distance out to sea of seven nautical miles. This restriction is effective from December until the 14th of February (Unwin et al. 1988).

**Conservation Values:** **Natural: C** **Cultural:** **Historic:**

Comment:

Salmon ( Oncorhynchus tshawytscha.) congregate in the area off Akaroa Heads before departing for spawning rivers. The majority of salmon are present between mid-December and mid-February ( Unwin et al. 1988).

**Site Importance :** **National**
Comment:
The salmon resource off the Canterbury coast supports the nationally important recreational salmon fisheries in Canterbury rivers (Teirney et al.1987 ).

**Existing Threats: I**

Type and Comment :

Larger - sized commercial trawlers with high power ratings giving greater trawler speeds are the foremost threat to the salmon congregating in the area.

**Human Modification and Use: K**

Salmon are primarily a recreational target species and are the basis of an important sports fishery. Ocean ranching is an important part of the developing salmon aquaculture industry.

**Existing Protection: A,I**

Type and Comment:

The area out to four nautical miles is already included within the Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect Hector's dolphins.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1.2.3 | 1. Well documented |
| Cultural | 1.2.3 | 2. Little information (general) |
| Historic | 1.2.3 | 3. Little information (if any) |
| Threats | 1.2.3 | |
| Human Mod/Use | 1.2.3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info, as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Unwin,M.J. et al. (1988). Investigations into the catching of salmon by commercial fishing vessels. Ministry of Agriculture and Fisheries, Christchurch, 43p.

Teirney,L.D., Richardson,J., Unwin,M.J., (1987). The relative value of North Canterbury Rivers to New Zealand Anglers. MAFfish New Zealand Freshwater Fisheries Report No.89.

**Recorded on Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other
7. None

Comment:

**Other Considerations:**

**Maps and Photographs:**

Site Name(s):Marine Mammal Sanctuary(Hector's Dolphin) SiteNo:CRI1120015
Recorders Name : Brown/Turner/Russell Conservancy: Canterbury
Map/Grid Reference: N 36 25040 57100 Date: 15.03.90

Description of site:

This site is the Banks Peninsula Marine Mammal Sanctuary established to protect Hector's dolphins, (Cephalorynchus hectori). The sanctuary is a total area of 1140 $km^2$ and extends from Sumner Head to the Rakaia River and out to sea for a distance of four nautical miles. The sanctuary was established in November 1988 and restricts the use of setnets during summer months (Department of Conservation 1988).

Conservation Values: Natural: BCGH Cultural: Historic:

Comment:

Hector's dolphin is one of the rarest and smallest of the world's marine dolphins and one of New Zealand's largest concentrations occurs around Banks Peninsula. The estimated total population is between 3000 and 4000 and of these 600-700 are estimated to be in the area of Banks Peninsula (Slooten and Dawson 1988).

The area is also important for the world's rarest penguin species, the yellow-eyed penguin (Megadyptes antipodes) (P. Dilks pers. comm.).

This is the only sanctuary in the world which excludes the use of setnets, a feature of considerable interest to the international science community. It is also New Zealand's first Marine Mammal Sanctuary (Department of Conservation 1988).

Site Importance: International
Comment:

The conservation of New Zealand's endemic Hector's dolphin is of international significance (Department of Conservation, 1988).

Existing Threats: I
Type and Comments:
One of the most significant threats to the dolphin is the incidental catch in amateur and commercial setnets. It is estimated that 223 were killed in this way between 1984 and 1988 (Slooten and Dawson 1988).

**Human Modification and Use : K**

Amateur and commercial fishing (netting, trawling, angling, long-lining ), and boating are the predominant uses within the area. Crayfishing occurs around the outer bays of Banks Peninsula. The area is popular as it is located near to Christchurch and is the only significant area of rocky coastline in mid Canterbury

**Existing Protection: A**

Type and Comment:

The Marine Mammal Sanctuary was established in November 1988.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Dawson,S.M. and Slooten,E.S. (1988). Hector's Dolphin (Cephalorynchus hectori): Distribution and Abundance. Rep.Int.Whal.Comm. (Special Issue 9) pp 315-324.
Department of Conservation (1988). Protection of Hector's Dolphin Around Banks Peninsula. A Paper for Public Comment. Christchurch.
Dilks,P.J. Scientific Officer, Department of Conservation, Christchurch.

**Recorded on Existing Databases:** **Comment:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other
7. None

**Other Considerations**

Besides protecting Hector's dolphins, the Marine Mammal Sanctuary protects other marine mammals and diving sea bird species vulnerable to entanglement in set nets. Since the sanctuary was implemented, local divers have noted an increase in the abundance of some reef fish species and there are positive spinoffs for tourism and the local district.

**Accompanying Maps and Photographs:**

Site Name(s) : Lake Forsyth
Recorders Name: Brown/Turner/Russell
Map/Grid Reference : N 36 24895 57117

SiteNo:CRI120016
Conservancy: Canterbury
Date: 21.03.90

**Brief Description of site:**

Lake Forsyth is 682 ha in area and is formed by the build up of the Kaitorete Spit gravel bank. Periodically, the lake waters are released to the sea to prevent flooding of the Little River area (J. Brown pers. obs.).

**Conservation Values: Natural: BCDFH Cultural: ACD Historic: AB**

Comment:

Okana (Little) River delta is a cuspate delta about 2 km south of Little River township, running into Lake Forsyth. This is the best example of a cuspate delta in the South Island (Geopreservation Inventory).

A number of wetland bird species frequent Lake Forsyth, the most significant of these is the endangered southern crested grebe (Podiceps cristatus australis) which overwinters on the lake. Over 10% of New Zealand's population are present in winter. The lake also supports large numbers of black swan (Cygnus atratus), pied stilts (Haemantopus haemantopus leucocephalus), godwits (Limosa lapponica baueri), if the lake level is low enough, and a large number of waterfowl. It is also a wintering site for white heron (Egretta alba modesta), and black shag (Phalacrocorax carbo novaehollandiae) and little shag (Phalacrocorax melanoleucos brevirostris) (C. O'Donnell pers. comm.).

The lake carries stocks of eels ( Anguilla spp.), lamprey (Geotria australis), perch (Perça fluviatilis) and brown trout (Salmo trutta). Its fisheries values rank it as a wetland of national importance (Davis 1987).

There are three archaeological sites found around the lake, including a canoe hull on the delta and a pa site on the hill behind. Lake Forsyth is a traditional Maori fishing reserve and is particularly important for eels (Palmer 1984).

**Site Importance : National**
Comment:
The Okana River delta is nationally important as a geomorphological feature (Geomorphological Inventory) and the lake is very important for wildlife especially for southern crested grebe (C. O'Donnell pers. comm. ).
The fisheries values of the lake make it a wetland of national importance (Davis, 1987 ).

**Existing Threats: AEK**

Type and comment:
Further eutrophication from agricultural run-off could seriously degrade fish and wildlife habitats. The lake is subject to toxic algae blooms. Further degradation of wildlife habitat is threatened by recreational users - jet skis for example (A. Turner pers. comm.).
The lake will flood if the outlet is not periodically opened to the sea (J. Brown pers. obs.).

**Human modification and use:** BFIJ

The lake is used for a number of recreational activities; fishing, gamebird shooting and powerboating. A large section of the spit was removed illegally to allow jet boats access closer to the shore. Jetskis have use of the lake on a trial basis and powerboat racing events occur here annually.

**Existing Protection:** I

Type and Comment:

The lake is a Maori fishing reserve.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived from existing lit. |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human mod/use | 1 2 3 4 5 6 7 | 5. Recent DOC survey w/out sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,S.F. (1987). Wetlands of national importance to fisheries.
MAFfish New Zealand Freshwater Fisheries Report No. 90.
O'Donnell,C.F.J. (1988). Southern Crested Grebes on a Lowland Coastal Lake in Winter.
Notornis 35 pp 75-76.
Geopreservation Inventory, Department of Conservation, Wellington
Turner,A.L. Conservation Officer. Department of Conservation, Christchurch
Palmer,J.D. (1984). Coastal Resource Investigation, Akaroa and Wairewa Counties.
Department of Lands and Survey, Christchurch 92p.
O'Donnell,C.F.J. Scientist, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

| Recorded on Existing Databases: | Comment: |
|---|---|
| 1. WERI | |
| 2. SSWI | The site is of high importance as a habitat for waterfowl and waders ( 1980) |
| 3. PNA | |
| 4. Geopreservation | ID No.249 (importance= B, vulnerability= 2) |
| 5. HPT County Inventories 1986b | sites no. 81, 82, 83, 84 |
| 6. Other | |
| 7. None | |

**Other Considerations:**

The lake requires greater catchment control to alleviate water quality problems. The entire area requires careful management to ensure uses are compatible with the conservation values of the lake.

**Accompanying Maps and Photographs:**

Site Name(s): Scenery Nook - Birdlings Flat
Recorders Name: Brown/Turner/Russell
Map/Grid Reference: N 37 24930 57040

SiteNo:CRI120017
Conservancy: Canterbury
Date: 14.03.90

Brief Description of site:

The site is approximately 30 km of coast on the southern side of Banks Peninsula. This coastline is exposed to harsh southerly winds and the bays are generally inhospitable. Three bays offer some potential for passive recreation; Peraki, Te Oka and Tumbledown Bay. Settlement on this side of the peninsula is sparse.

Conservation Values: Natural: ABCDEG Cultural: ABC Historic: ABCD

Comment:

These southern bays have a variety of wildlife and the coastal area of Te Oka Bay is a wildlife sanctuary. There is a fur seal population (Arctocephalus forsteri) at Island Bay and Horseshoe Bay. Overall there are fifty colonies of spotted shag (Stictocarbo punctatus) with an extensive concentration between Tumbledown and Peraki Bays. Yellow-eyed penguins (Megadyptes antipodes) may be found in some bays (C. O'Donnell pers. comm.).

Pingao (Desmoschoenus spiralis) is dominant on the unstable dunes of Tumbledown Bay but there is some marram (Ammophila arenaria) present (S. Courtney pers. comm.)

The landscape of the area is spectacular with wild seas and high rocky cliffs. Rock stacks and offshore islands are a feature. The dune system at Tumbledown Bay is unusual for this section of coastline where most of the bays and the coastline are characterised by rock formations (J. Brown pers. obs.).

There are eleven archaeological sites at this location (Historic Places Inventory 1986).

Whaling stations were established at Peraki, Te Oka, Hikuraki and Oashore and the cliff above Birdlings Flat was used as a lookout point. Peraki is the site of the first shore whaling on the Peninsula. Six of the region's 9 wrecked whaling boats are found at Peraki (I. Hill pers. comm.).

Two rare endemic moths (Kupea electilis, and Kiwaia jenae) occur on Birdlings Flat (Johns 1982).

Site Importance: National
Comment: The site is nationally important for wildlife, geomorphological, archaeological and historical features (Palmer 1984).

Existing Threats: ACDIK
Type and comment:
At Tumbledown Bay erosion of sand dunes is causing blowouts and is threatening archaeological sites (I. Hill pers. comm.). Marram is displacing pingao which is also under threat from browsing and other pasture species (S. Courtney pers. comm.). The rate of dune blowouts is also being accelerated by recreational use (A. Turner pers. comm.). Setnetting in coastal waters is a threat to Hector's dolphins and diving seabird species (J. Brown pers. obs.).

**Human Modification and Use: HIK**

Human use of the bays is low, largely due to poor access. Magnet Bay provides good surfing and Te Oka Bay and Tumbledown Bay are used for swimming, picnicking and fishing. These latter two bays are the only bays with vehicle access; legal access to other bays is by foot only (Palmer 1984).
The bays are popular for recreational diving when conditions allow.

**Existing Protection : A**

Type and Comment :

The Banks Peninsula marine mammal sactuary extends to the Rakaia River. The sanctuary was established in 1988 to protect Hector's dolphins.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info. as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:
Suggate,G.C., Boyd,A.J., and Vaile,B.H. (1978). Banks Peninsula. A coastal recreation planning study (volumes 1 & II) Ministry of Works and Development, Christchurch
Palmer,J.D. (1984). Coastal Resource investigation - Akaroa and Wairewa counties. Department of Lands and Survey, Christchurch, 92 p.
Johns,P.M. (19820. Arthropods of Banks Peninsula Reserves. Report to Department of Lands & Survey, Christchurch.
O'Donnell,C.F.J Scientist, Department of Conservation, Christchurch.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Turner,A.L. Conservation Officer, Department of Conservation, Christchurch.
Courtney,S. Conservation Officer, Department of Conservation, Nelson.

**Recorded on Existing Databases:** **Comment:**
1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories - Akaroa County Inventory 1986.
6. Other
7. None

**Other Considerations :**

This site has very high natural conservation values and has been suggested as worthy of some marine protected area status. Improved access to the bays for recreation should be considered.
**Accompanying Maps and Photographs:**

Site Name(s): Akaroa Harbour
Recorders Name: Brown/Turner/Russell
Map/Grid Reference: N 37 25040 57100

SiteNo:CRI120018
Conservancy: Canterbury
Date: 29.03.90

Brief Description of site :
Akaroa Harbour is one of the most heavily used areas of Banks Peninsula, and it provides a wide variety of active and passive recreational opportunities. Akaroa Harbour is approximately one hour from Christchurch and a popular destination for daytrippers and weekend holiday makers (J. Brown pers. obs.).
The township of Akaroa has a French character. There are safe sandy beaches for swimming in the harbour, although these are limited, and boating is popular.

Conservation Values: Natural: BCEH Cultural: ABCD Historic: ABCDE
Despite being an area of high recreational use, Akaroa Harbour is an important area for wildlife. The harbour has a number of Hector's dolphins (Cephalorynchus hectori) in summer which are an attraction in themselves (J. Brown pers. obs.). Yellow-eyed penguins (Megadyptes antipodes ) have been seen in three of the outer bays; Grasshill Bay, Dan Rogers Creek and Lucas Bay (Dilks and Grindell 1990). Other species seen in the harbour include spotted shag (Stictocarbo punctatus), white-fronted terns (Sterna striata) and red-billed gulls (Larus novaehollandiae scopulinus). Reef herons (Egretta sacra) have been recorded in some of the inner bays (C. O'Donnell pers. comm.). The four mudflats (Barry's Bay, Duvauchelle, Robinsons Bay and Takamatua) are important local feeding areas for wildlife including the South Island pied oystercatcher (Haematopus ostralegus finschi) and they are significant features to preserve (J.Brown pers. obs.).

Onawe Peninsula is thought to be one centre of the volcanic plug of Akaroa. Other volcanic outcrops of importance (trachyte dykes) are recorded at Onawe (Palmer 1984).

The outer harbour has great seascape values, and is spectacular in wild weather. The inner bays have a more tranquil charm on fine days and the entire landscape value of the area is very high (J. Brown pers. obs.).

The harbour has considerable historical importance - the Kaik and Tikao Bay for Maori, and Akaroa for French settlement. An historic lighthouse survives at Akaroa and five ships have been wrecked in the outer harbour (I. Hill pers. comm.). Onawe Peninsula was occupied by the last fortified pa on Banks Peninsula and this was ransacked by Te Rauparaha in 1832 (Palmer 1984).

Where water quality permits, the tradition of kaimoana gathering is pursued in the harbour. Numerous urupa exist on the harbour margins and the entire harbour is of significance for local Maori people (H. Robinson pers. comm.)
Site Importance : National
Akaroa is of national significance, the harbour has very high recreational use and the town is a major tourist attraction. The harbour is also important for Hector's dolphins and yellow eyed penguins (J. Brown pers. obs.)
Existing Threats: EGHIJKLM

There are two rubbish dumps that are creating problems with the environment in the harbour, Wainui and Duvauchelle. Sewage outfalls at Wainui and Green Point are degrading water quality and the value of the kaimoana resource. There is demand on the area for development; a foreshore helipad and boating marina have been proposed for the area and a salmon farm at Lucas Bay exists with plans to extend operations into other bays nearby. A number of coastal subdivision are also planned, at Wainui for example. The use of set nets has lead to their restricted use over summer to protect the Hector's dolphin. Diving seabirds can also be entangled in setnets and recreational pressure of any sort can effect wildlife (J. Brown pers. obs.)

**Human Modification and Use: ABCDEHIK**
Akaroa is the major population centre in the area and the predominant land use is farming. The Harbour has very high recreational use, boating and fishing are popular activities in the harbour and swimming is possible in most sandy bays. Camping grounds are located at Akaroa and Duvauchelle, and there is a YMCA camp at Wainui. Picnicking is popular along the shore where vehicle access allows. A walking track links Onuku, Flea Bay and Akaroa. There is vehicle access to many of the bays and to the head of the harbour on the eastern side and there is some legal foot access to the outer bays of the harbour (Palmer 1984). Reclamations, illegal structures, and boat sheds in designated areas inhibit public use of the foreshore. Sewer outfalls discharging into the middle harbour and boat moorings can detract from the recreational experiences. The outer harbour is used for commercial fishing and by tourist boats, and the port is used by small fishing vessels, commercial cruise operators and pleasure craft.
**Existing Protection: A**

The harbour falls within the Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect Hector's dolphins. Other smaller coastal reserves exist (Onawe, Dan Rogers/Palm Gully).

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information ( general ) |
| Historic | 1 2 3 | 3. Little information ( if any ) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info. as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment

Palmer,J.D. (1984). Akaroa and Wairewa Counties Coastal Resource Investigation. Department of Lands & Survey, Christchurch.
Dilks,P.J. and Grindell,J. (1990). Yellowed Eyed Penguins on Banks Peninsula; a preliminary report Department of Conservation Science and Research Internal Report No. 67.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
O'Donnell,C.F.J. Scientist, Department of Conservation, Christchurch.
Robinson,H. Onuku, Akaroa
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**
1. WERI
2. SSWI — Barry's Bay area has a habitat value of moderate/high for bird species.
4 Geopreservation
5. HPT County Inventories1986b 14 sites are recognised in the harbour.
6. Other
7. None

**Other Considerations:**
The area is of such high use and importance to Canterbury that it requires careful planning and management. The landcsape values of the area are particularly high and adequate assessment of these is needed to protect the harbour.
**Accompanying Maps and photographs :**

Site Name(s): Hickory Bay - Damons Bay
Recorders Name: Brown/Turner/Russell
Map/Grid Reference : N 37 25144 57057

SiteNo:CRI120019
Conservancy: Canterbury
Date : 14.03.90

Brief Description of Site :

The site occupies approximately 34 kms of coastline from Hickory Bay through to Damons Bay.

The southeastern coast from Hickory Bay to Damons Bay has a number of small, attractive bays but all are remote and access is difficult. The bay most visited is Otanerito, though Hickory and Goughs Bays attract a number of visitors. The more southerly bays are bleaker and more barren. The area is sparsely settled (J. Brown pers. obs.).

Conservation values: Natural: ABCD Cultural: ABC Historic: ABCD

Comment:

The isolation of the area contributes to it still being in a very natural state. The rugged cliffs and sheltered bays give the area high land and sea scape value (J. Brown pers. obs.).

Yellow-eyed penguins (Megadyptes antipodes) breed in a number of the bays, the most significant of them being Stony Bay. A large rookery of white flippered penguins (Eudyptula minor albosignata ) appears to be increasing in size at Flea Bay (P. Dilks pers. comm.). Remnant sooty shearwater (Puffinus griseus) populations survive in three localities. There are over twenty spotted shag (Stictocarbo punctatus) breeding colonies along this section of coast and fairy prion (Pachyptila turtur) nest on Crown Island ( O'Donnell pers. comm.) NZ fur seals (Arctocephalus forsteri ) are found at Goat Point, Flea Bay, Pompeys Pillar, Pyke Head and on Crown Island (C. O'Donnell pers. comm.).

Sixteen archaeological sites are recorded in this site, around Goughs Bay, Shell/Red Bay, Otanerito Bay, Stony Bay, and Flea Bay. The sites are mostly pa . Ship wrecks are recorded at Goughs Bay, Flea Bay, Stony Bay, along with five around Akaroa Heads (I. Hill 1990).

This is a traditional food gathering area for local Maori (Palmer 1984).

Site Importance: National:
Comment:

This is an important breeding area for the rare yellow-eyed penguin and for white flippered penguins (Dilks and Grindell 1990).

Existing Threats: KI

Type and comment:

Recreational use of the bays that have yellowed eyed penguin nest sites may have an effect on the birds by disturbance (P. Dilks pers. comm.). Incidental entanglements in nets is a hazard for penguins, diving sea birds, and Hector's dolphin and other marine mammals .Other threats include predation of nesting penguins by ferrets

**Human Modification and Use: HK**

There is only moderate recreational use and land development in these bays, largely due to the restricted access. There is some commercial fishing around the bays and recreational diving takes place when conditions allow. A walking track between Onuku and Akaroa has an overnight hut at Flea Bay. Flea Bay attracts daytrippers and picnickers as it is the only bay in this area with formed legal vehicle access. Most of the other bays have legal foot access (Palmer 1984).

**Existing Protection: A**

This site occurs within the Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect Hector's dolphins. The sanctuary extends out to sea for four nautical miles.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1.Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Suggate,G.C., Boyd,A.J. and Vaile,B.H. (1978). Banks Peninsula. A coastal recreation planning study (Vol.1 & 2), Ministry of Works and Development, Christchurch.

Palmer,J.D. (1984). Coastal Resource investigation, Akaroa and Wairewa Counties, Department of Lands and Survey, Christchurch,92p.

Hill,I.A. (1990). Shipwrecks, the Canterbury coastline and the Chatham Islands. Department of Conservation, File Ref. 3/6/0 19 March 1990 )

Dilks,P. and Grindell,J. (1990). Yellow-Eyed Penguins on Banks Peninsula, A preliminary report Department of Conservation Science and Research Internal Report No. 67

Dilks,P. Scientific Officer, Department of Conservation, Christchurch.

O'Donnell,C.F.J. Scientist, Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories - Akaroa County Inventory 1986
6. Other
7. None

**Other Considerations :**

This section of Banks Peninsula is only moderately used and developed, largely because of its restricted access. Development pressure e.g. for marine farming is likely to increase in the future.

**Accompanying Maps and photographs :**

Sites Name(s): Pigeon Bay - Hickory Bay
Recorder's Name: Brown/Turner/Russell
Map/Grid Ref: N 36 25160 57240

Site No: CRI 120020
Conservancy: Canterbury
Date: 21.03.90

Brief Description of the Site:

This sector of the peninsula (the eastern bays) covers approximately 50 km of coastline. It is well served with both access and attractive sandy beaches. These beaches offer a high number of quality opportunities for water-based recreation. The principal bay is Okains Bay, where there are good facilities, and Le Bons Bay and Little Akaloa are essentially holiday settlements (J. Brown pers. obs.).

Conservation Values: Natural: BCDE Cultural: ABC Historic: ABCD

Comment:

The site is important for wildlife, spotted shags (Stictocarbo punctatus) are present in moderate density at Le Bons Bay Heads and the site has over 26 colonies. Sooty shearwaters (Puffinus griseus) nest at Pa Island and Yellow-eyed penguins (Megadyptes antipodes) attempt to nest in the area (C. O'Donnell pers. comm.).

NZ fur seals ( Arctocephalus fosteri) colonies have established around West Head (Okains Bay) and Pa Island and a large concentration of seals exists between Le Bons and Hickory Bays (C. O'Donnell pers. comm.).

The entire coastline has high sea and landscape value, the Decanter Bay headland is particularly notable (Palmer 1984).

Le Bons Bay has 8 shipwrecks; Okains Bay has 3; and 5 more are known from along the coast (I. Hill 1990 ).

There are 16 archaeological sites in the area, the primary sites are located at Menzies Bay ( 4 ), north of Little Akaloa ( 3: pa and occupation sites ), Okains Bay ( 4 ). An historic church survives at Little Akaloa (Palmer 1984).

Pa Island was the site of a recent pa and is now a lighthouse reserve administered by DOC.

Kaimoana was gathered traditionally in the bays by local Maori (Palmer 1980).

Site Importance: National

Comment: The site is of national importance for wildlife particularly yellow-eyed penguins (O'Donnell pers. comm.).

Existing Threats: BI

Type and Comment:

Sand transported along the Banks Peninsula coast is accreting in Okains Bay.

**Human Modification and Use:** DHIJK

These bays of Banks Peninsula are popular for recreation. Moorings are established for boating in Little Akaloa, Okains and Le Bons Bay and the bays are used for camping, fishing, swimming, picnicking and exploring. There is good vehicle access to the main bays and legal foot access to most of the others. Pastoral farming is the main land use.

Commercial crayfishing occurs in the area.

**Existing Protection:** A

Six small reserves have been gazetted in the area and the site is within the Banks Peninsula Marine Mammal Sanctuary which extends four nautical miles from the coast was established to protect Hector's dolphins.

**Availability of information:**

| | | |
|---|---|---|
| Natural | 1.2.3 | 1. Well documented |
| Cultural | 1.2.3 | 2. Little information (general) |
| Historic | 1.2.3 | 3. Little information (if any) |
| Threats | 1.2.3 | |
| Human Mod/Use | 1.2.3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1.2.3.4.5.6.7 | 1. Derived from existing literature |
| Cultural | 1.2.3.4.5.6.7 | 2. Derived as above & field check |
| Historic | 1.2.3.4.5.6.7 | 3. Derived from existing maps |
| Threats | 1.2.3.4.5.6.7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1.2.3.4.5.6.7 | 5. Recent DOC survey w/out sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Suggate,C.C., Boyd,A,J, and Vaile,B.H. (1978). Banks Peninsula. A Coastal Recreation Planning Study ( Vol.1 & 2 ). Ministry of Works and Development, Christchurch.

Palmer,J.D. (1984). Coastal Resource Investigation. Akaroa and Wairewa Counties. Department of Lands & Survey, Christchurch 92pp.

Dilks,P. and Grindell,J. (1990). Yelow Eyed Penguins on Banks Peninsula, A preliminary report. Department of Conservation Science and Research Internal report no. 67.

O'Donnell,C.F.J. Scientist. Department of Conservation, Christchurch

Ngai Tahu Trust Board - iwi contact.

Hill,I.A. (1990). Shipwrecks Canterbury Coastline and Chatham Islands Department of Conservation. File ref. 3/6/0 19 March 1990.

**Recorded on Existing Databases:** Comment:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories (1986)
6. Other
7. None

**Other Considerations:**

This section of the Peninsula offers a great deal in terms of quality and variety of recreational opportunities and coastal features, and consequently both the coast and hinterland require careful protection and management. It is likely there will be an increase in demand for the area for developments such as marine farming.

**Accompanying Maps and Photographs:**

Site Name(s): Port Levy and Pigeon Bay
Recorder's Name: Brown/Turner/Russell
Map/Grid Reference: N 36 25005 57325

Site No: CRI 120021
Conservancy: Canterbury
Date: 21.03.90

Brief Description of Site:

Being small harbours, these two bays (Pigeon Bay and Port Levy) - on a coastline of approximately 30 km - differ from other bays of the peninsula. They are deep and relatively narrow, with stony beaches of limited appeal for swimming. This sector of Banks Peninsula is sparsely settled. Its potential lies in boating and related recreational activities (J. Brown pers. obs.).

Conservation Values: Natural: ACD Cultural: ABC Historic: ABD

Comment:

Port Levy contains two offshore islands of significance (Horomaka and Pukerauaruhe). There are large mudflats in upper Port Levy and lesser flats in Holmes Bay. The beaches are stony, with areas of sand below high water. Port Levy beach is sandy and suitable for swimming and sunbathing (J. Brown pers. obs.).

The area has limited wildlife value although there is a spotted shag colony (Stictocarbo punctatus) on the western side of Blind Bay (A. Turner pers. comm.).

Five ship wrecks have occurred over 150 years: 3 in Pigeon Bay, and 2 in Port Levy, (Hill 1990).

Along this stretch of coast, there are 18 archaeological sites. In Port Levy, one site of terraces and pits is of particular interest. Other sites are mainly middens and occupation areas with a moa-hunter site at Holmes Bay (Palmer 1984).

Port Levy is a traditional kaimoana gathering site. Horomaka Island is a traditional Maori food gathering site (Palmer 1984).

The site has high land and seascape values, particularly with the offshore islands (J. Brown pers. obs.).
Site importance: Local

Comment:

The site is of local importance for recreation and for wildlife (J. Brown pers. obs.).

Existing Threats: CI

Type and Comment:

Spartina anglica and other grasses are encroaching on the Port Levy mudflats, threatening their ecology. The use of setnets in all coastal waters of this section threatens Hector's dolphins (Cephalorynchus hectori) and diving seabirds.

**Human Modification and Use:** DHIJK

The area has moderate recreational use, mainly swimming, picnicking, boating, diving and the mudflats are fished for flounder (Rhombosolea spp.). The rocky shore is fished for crayfish (Jasus edwardsii).

There is a camping ground at Pigeon Bay.

Mussels (Perna canaliculus), paua (Haliotis iris) and pipi (Paphies australis) are taken traditionally from the bays.
Commercial fishing occurs in the sector and the main land use is pastoral farming.
A 14 km long walkway starts at Pigeon Bay and returns from Wakaroa Point.

**Existing Protection:** AI

Type and Comment:

Commercial fishing is banned in Port Levy and Pigeon Bay. The sector is included in the Banks Peninsula Marine Mammal Sanctuary. The two islands in Port Levy are recreation reserves.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived from existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey w/out sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Hill,I.A. (1990). Shipwrecks, Canterbury Coastline and Chatham Islands. Department of Conservation, File Ref. No. 3/6/0 - 19 March 1990
Suggate,C.C., Boyd,A.J. and Vaile,B.H. (1978). Banks Peninsula. A Coastal Recreational Planning Study ( Vols. 1 & 2 ). Ministry of Works and Development, Christchurch.
Palmer,J.D. (1984). Coastal Resource Investigation - Akaroa and Wairewa Counties. Department of Lands & Survey, Christchurch 92pp.
Turner,A.L. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories (1986)
6. Other

**Other Considerations:**
The area requires management to allow for the recreational uses , and it is likely developments such as marine farming will increase.
**Accompanying Maps and Photographs:**

Site Name(s) : Camp Bay - Adderley Head
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:N36 24940 57330

SiteNo:CRI120022
Conservancy:Canterbury
Date: 19.03.90

Brief Description of site:

There is 9.3 km of coastline from Camp Bay to the eastern head of Lyttelton Harbour, Adderley Head. The area includes two major bays, Camp Bay and Little Port Cooper. Both bays have moderate recreation use with boating a predominant use of the waters (J. Brown pers. obs.).

Conservation values: Natural: ACE Cultural ABC Historic ABC

Comment:

The site is one of the richest areas in Lyttelton for wildlife and on the 150 metre sea cliffs there are breeding colonies of spotted shags (Stictocarbo punctatus punctatus), red-billed gulls (Larus novaehollandiae scopulinus), and black backed gulls (Larus dominicanus) (C. O'Donnell pers. comm.).

There are a number of sea caves along the coast that are only accessible by boat and the entire area has an impressive seascape (A. Turner pers. comm.).

Camp Bay has an old quarantine station site which operated from 1863 to 1873 and there is a cemetery located on the headland. There is an historic school house at little Port Cooper. Little Port Cooper has a record of European settlement before the First Four Ships. A whaling station was established there and later became a pilot station. The school house is the last remaining building. A telegraph connection was made between the station and Lyttelton in 1876. The Pilot Station was eventually removed to Lyttelton, but Little Port Cooper remained as a signal station (Department of Lands and Survey 1982).

The area is a traditional kaimoana gathering site.

Access to Little Port Cooper is mainly by boat and there is formed access to Camp Bay (J. Brown pers. obs.).

Site importance: Local
Comment:
The site is of local importance for wildlife and recreation (J. Brown pers. obs.).

Existing Threats: ABI

Type and comment:
Erosion is the biggest threat in the area and the adjacent land is developed for farming. Incidental catch of Hector's dolphins in set nets was a threat in the area (A. Turner pers. comm.).

Site Name(s): Ripapa Island/Wreck & Pile Bays
Recorders Name Brown/Turner/Russell
Map/Grid Reference : N 36 24903 57319

SiteNo:CRI120023
Conservancy: Canterbury
Date: 14.03.90

Brief Description of site:

Ripapa Island is an historic reserve administered by DOC. This site covers about 5 km of coastline including Wreck & Pile Bays. Ripapa Island (1.6ha) has one of the richest histories of any part of Lyttelton Harbour Basin. Access to Ripapa island is by boat.

Conservation Values: Natural: ADEG Cultural:ABCDE Historic: ABCDE

Comment:

Ripapa Island has numerous shore platforms, exposed at low tide, around the island and natural sand beaches in the bays unique to harbour basins. Dr Bill Ballantine (pers comm.) reports rare brachiopod species on Pile and Wreck Bay beaches (no further information available).

The general landscape of the area is impressive with the dominant feature being the grassed coastal slopes with rock platforms and bluffs (J. Brown pers. obs.).

Ripapa Island is of national historical significance. Both Maori and European fortressses were established there in the defence of Lyttelton Harbour. The island was a fortified pa until 1872, later it was a quarantine station, and then a fortress (Fort Jervois). The original 1886 guns are still there. The fortress was also used as a prison for 150 Maori from Parihaka in 1880, for 97 defaulters of Compulsory Military Training in 1913, and for Count Felix Von Luckner and Lieutenant Kircheiss, the German Sea Raiders in 1918. The fort was built with the assistance of prison labour from Lyttelton gaol (Palmer 1982).

There were 4 shipwrecks in Wreck Bay between 1883 and 1912, hence the name of the Bay. Pile Bay is named after structures of four piles connected to a central unit used to provide a swing mooring for ships ( Palmer 1982).

Nine Maori archeaological sites are recorded and the area is a traditional kaimoana gathering area (Palmer 1982).

Site Importance : International

Comment

The island is of internatioanl importance for historic reasons (I. Hill pers. comm.)

Existing Threats : AEG

Type and comment:

There is a threat of coastal erosion around the island even though the whole island is surrounded by a fortified seawall. There are inadequate toilet facilities on the island. Pollution of the harbour by sewage effluent has degraded the value of the kaimoana resource. The old age of the historic resource itself is a threat as they slowly deteriorate over time (A. Turner pers. comm.).

Site Name(s) : Camp Bay - Adderley Head
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:N36 24940 57330

SiteNo:CRI120022
Conservancy:Canterbury
Date: 19.03.90

**Brief Description of site:**

There is 9.3 km of coastline from Camp Bay to the eastern head of Lyttelton Harbour, Adderley Head. The area includes two major bays, Camp Bay and Little Port Cooper. Both bays have moderate recreation use with boating a predominant use of the waters (J. Brown pers. obs.).

**Conservation values:** Natural: ACE Cultural ABC Historic ABC

Comment:

The site is one of the richest areas in Lyttelton for wildlife and on the 150 metre sea cliffs there are breeding colonies of spotted shags (Stictocarbo punctatus punctatus), red-billed gulls (Larus novaehollandiae scopulinus), and black backed gulls (Larus dominicanus) (C. O'Donnell pers. comm.).

There are a number of sea caves along the coast that are only accessible by boat and the entire area has an impressive seascape (A. Turner pers. comm.).

Camp Bay has an old quarantine station site which operated from 1863 to 1873 and there is a cemetery located on the headland. There is an historic school house at little Port Cooper. Little Port Cooper has a record of European settlement before the First Four Ships. A whaling station was established there and later became a pilot station. The school house is the last remaining building. A telegraph connection was made between the station and Lyttelton in 1876. The Pilot Station was eventually removed to Lyttelton, but Little Port Cooper remained as a signal station (Department of Lands and Survey 1982).

The area is a traditional kaimoana gathering site.

Access to Little Port Cooper is mainly by boat and there is formed access to Camp Bay (J. Brown pers. obs.).

**Site importance:** Local
Comment:
The site is of local importance for wildlife and recreation (J. Brown pers. obs.).

**Existing Threats:** ABI

Type and comment:
Erosion is the biggest threat in the area and the adjacent land is developed for farming. Incidental catch of Hector's dolphins in set nets was a threat in the area (A. Turner pers. comm.).

**Human Modification and Use: HIK**

Camp Bay is a popular weekend destination with a safe swimming beach. The Quarantine Station and cemetery are prominent and easily accessible historical features of the harbour. Little Port Cooper is popular for boaters and day trippers, with good anchorage and some native tree plantings have been undertaken to improve the area. Camp Bay has white sandy beaches and is popular for swimming. Access to the area is not easy. There is a road to Camp Bay and there is only foot access to Little Port Cooper and to Adderley Head.

Paua ( Haliotis iris ) and crayfish ( Jasus edwardsii ) are taken from the area.

Pastoral farming is the main landuse.

**Existing Protection: A**

The area is within the Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect Hector's dolphins.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1.Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2.Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3.Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4.Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5.Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Department of Lands and Survey (1982). Coastal Reserves Investigations. Mount Herbert County (Parts 1&2),Christchurch.
O'Donnell,C.F.J. Scientist. Department of Conservation, Christchurch.
Turner,A.L. Conservation Officer. Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact

| Recorded on Existing Databases: | Comment |
|---|---|
| 1. WERI | |
| 2. SSWI | |
| 3. PNA | |
| 4. Geopreservation | |
| 5. HPT County Inventories1986b | 5.43, 53, 54 sites at Camp Bay |
| 6. Other | |
| 7. None | |

**Other Considerations :**

The options for access to Adderley Head and Little Port Cooper and the impact of these on wildlife and on the recreational opportunities should be explored.

**Accompanying Maps and photographs :**

Site Name(s): Ripapa Island/Wreck & Pile Bays SiteNo:CRI120023
Recorders Name Brown/Turner/Russell Conservancy: Canterbury
Map/Grid Reference : N 36 24903 57319 Date: 14.03.90

Brief Description of site:

Ripapa Island is an historic reserve administered by DOC. This site covers about 5 km of coastline including Wreck & Pile Bays. Ripapa Island (1.6ha) has one of the richest histories of any part of Lyttelton Harbour Basin. Access to Ripapa island is by boat.

Conservation Values: Natural: ADEG Cultural:ABCDE Historic: ABCDE

Comment:

Ripapa Island has numerous shore platforms, exposed at low tide, around the island and natural sand beaches in the bays unique to harbour basins. Dr Bill Ballantine (pers comm.) reports rare brachiopod species on Pile and Wreck Bay beaches (no further information available).

The general landscape of the area is impressive with the dominant feature being the grassed coastal slopes with rock platforms and bluffs (J. Brown pers. obs.).

Ripapa Island is of national historical significance. Both Maori and European fortressses were established there in the defence of Lyttelton Harbour. The island was a fortified pa until 1872, later it was a quarantine station, and then a fortress (Fort Jervois). The original 1886 guns are still there. The fortress was also used as a prison for 150 Maori from Parihaka in 1880, for 97 defaulters of Compulsory Military Training in 1913, and for Count Felix Von Luckner and Lieutenant Kircheiss, the German Sea Raiders in 1918. The fort was built with the assistance of prison labour from Lyttelton gaol (Palmer 1982).

There were 4 shipwrecks in Wreck Bay between 1883 and 1912, hence the name of the Bay. Pile Bay is named after structures of four piles connected to a central unit used to provide a swing mooring for ships ( Palmer 1982).

Nine Maori archeaological sites are recorded and the area is a traditional kaimoana gathering area (Palmer 1982).

Site Importance : International

Comment

The island is of internatioanl importance for historic reasons (I. Hill pers. comm.)

Existing Threats : AEG

Type and comment:

There is a threat of coastal erosion around the island even though the whole island is surrounded by a fortified seawall. There are inadequate toilet facilities on the island. Pollution of the harbour by sewage effluent has degraded the value of the kaimoana resource. The old age of the historic resource itself is a threat as they slowly deteriorate over time (A. Turner pers. comm.).

**Human Modification and Use: ABDEHI**

The main use of Ripapa Island is for recreation and tourism. There is a commercial operator who runs tours out to the island.

Wreck and Pile Bays are used by boat owners with water skiing taking place. Wreck Bay is a popular swimming beach because of the sandy beach. There are baches on the foreshore at Pile Bay and a campground at Purau.

**Existing Protection : A**
Type and comment:

Ripapa Island is an Historic Reserve. The area lies within the Banks Peninsula Marine Mammal Sanctuary.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:
Department of Lands and Survey (1982c). Coastal Reserves Investigations. Mount Herbert County (Parts 1&2), Christchurch.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Turner,A.L. Conservation Officer. Department of Conservation, Christchurch.
Ballantine,B. University of Auckland.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories 1986b Site no.s 3, 37-39, 40, 41, 42, 46.
6. Other
7. None

**Other Considerations :**

Sea wall protection work is needed on Ripapa Island (I. Hill pers. comm.)

**Accompanying Maps and photographs :**

Site Name(s): Quail Island/King Billy Island
Recorders Name : Brown/Turner/Russell
Map/Grid Reference: M36 24899 57382

SiteNo:CRI120024
Conservancy:Canterbury
Date: 14.03.90

**Brief Description of site :**

Quail Island is a recreation reserve administered by DOC. The island is situated in Lyttelton Harbour, and is 1.8 square kilometres in area, and 86 metres above sea level at its highest point.

Access to the island is by boat or ferry and it is very popular especially in summer (J. Brown pers. obs.)

**Conservation Values:** Natural: CDEG Cultural:ABC Historic: ABCDE

Comment

The islands are a prominant feature in Lyttelton Harbour. The open tussock covered slopes contribute greatly to give the harbour its rural character. Dark volcanic cliffs on the north side give a forbidding aspect, while the south side beaches are sandy. Access to Quail island is by ferry, or private boat, and the island is a popular recreation venue for Christchurch people. Facilities have been developed on the island such as a visitor shelter, visitor centre and toilets (A. Turner pers. comm.).

The vegetation on Quail Island is mostly exotic pasture grasses and the area was grazed. King Billy Island is planted in macrocarpa (Cupressus spp.) and Eucalyptus species (J. Brown pers. obs.).

King Billy Island is used alot by educational groups to study the island's historic, geological and geomorphological features. Quail Island shell beaches are highly significant as they are uncommon at this latitude - volcanic cliffs mark the edge of volcanic groups and sand beaches are rare elsewhere in Lyttelton Harbour (Palmer 1982).

Much history is associated with the islands, Quail Island has been an immigrant quarantine station, a leper station (two graves are still evident) and 13 vessels beached in the area between 1887 and 1953 with some hulls still remaining. Captain Shackleton and Scott landed here and used the island as a station before setting off to the Antarctic (Palmer 1982).

Two Maori archaeological sites have been found - a midden and an adze site, and the area is a traditional kaimoana gathering site (Palmer 1982).

**Site Importance:** International

Comment:
This site has very high historical importance, the use of Quail Island as a base for Scott's and Shackleton's expedition is considered of international significance (I. Hill pers comm.)

**Existing Threats : ACDEJ**

Type and comment

The high recreational use of the area has an impact on the islands, pollution of beaches by plastic debris is an eyesore on the northern cliffed beaches. Rabbit control has been necessary on the island and DOC has successfuly exterminated rabbits from the island. There is an invasion of exotic weeds such as thistle ( Circium spp.). Pollution of Lyttelton Harbour by sewage effluent has degraded the value of the Kaimoana resource (A. Turner pers. comm.).

**Human modification and use:ADHI**

Land development for farming has changed the islands character by the invasion of exotic grasses and other exotic plants.

Quail island is very popular for recreation particularily for boats. There are some jetties and moorings and a water ski lane is located on the southeast side of Quail Island. The island is a popular multi-use recreation area, accessible by ferry from Lyttelton. A walkway rings the island, and other uses are swimming and picnicking. It is used by many school groups for day and camping use. The historical, and interpretive material on the island is a key attraction for visitors.

King Billy Island is accesible by foot at low tide and by boat at high tide.

There is some conflict between recreational users, waterskiers and swimmers for example.

**Existing protection: A**

Type and comment:
Quail Island is a Recreation Reserve (gazetted in 1976)
King Billy Island is a Scenic Reserve (gazetted in 1974)
The site is within the Banks Peninsula Marine Mammal Sanctuary.

**Availabity of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1.Well documented |
| Cultural | 1 2 3 | 2.Little information(general) |
| Historic | 1 2 3 | 3.Little information(if any) |
| Threats | 1 2 3 | |
| Human mod/use | 1 2 3 | |

**Sources of information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1.Derived info.existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2.Derived info. as above & field check. |
| Historic | 1 2 3 4 5 6 7 | 3.Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4 Derived DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5.Recent DOC survey without sampling |
| | | 6.Experience |
| | | 7.Expert opinion |

Comment:
Department of Lands and Survey (1982). Quail Island Recreation Reserve Management Plan. M.P. series no RR4, Christchurch 58p.
Palmer,J.D. (1982). Coastal Reserves Investigations - Mount Herbert County (Parts 1&2) Department of Lands and Survey Christchurch.
Turner,A.L. Conservation Oficer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**
1.WERI
2.SSWI
3.PNA
4.Geopreservation identification LAN 282 Shell beaches.
5 HPT County Inventories 1986b, no's 30 &41.
6.Other
7. None

**Other Considerations:**
**Accompanying maps and photos:**

Site Name(s):Lyttelton Harbour Mudflats
Recorders Name: Brown/Turner/Russell
Map/Grid Reference: M36 24835 57285

SiteNo:CRI120025
Conservancy: Canterbury
Date: 14.03.90

**Brief Description of site :**

This site includes Governors Bay, Charteris Bay and the head of the bay tidal mudflats - total area is 640 ha (Crown owned land). This and the Akaroa Harbour mudflats are the only two examples of mudflat tidal areas of the Peninsula. The adjacent land use is farming and most of the land is developed. There are numerous small holiday settlements and as at Governors Bay, some permanent housing (J. Brown pers. obs.).

**Conservation Values:** Natural: CDE Cultural: AC Historic: AB

Comment:

The feature of this site is the extensive mudflats which are identified as a geopreservation site of significance (Department of Conservation, 1990). The semi-natural mudflat area is a important landscape feature in the Harbour. The whole site has high scenic value; it incorporates the grassed peninsulas of Moepuku and Kaitangata which are dominant features of the landscape and in contrast to the sea. Other features are the pockets of native vegetation at Governors Bay, and the mixed plantings of exotic trees at Charteris Bay that provide a setting for the popular Orton Bradley Farm Park (J. Brown pers. obs.).

The mudflats are identified as an important nursery/roosting area for wildlife, such as South Island pied oystercatcher (Haematopus ostralegus finschi), banded dotterel (Charadrius bincinctus bincintus) and bar tailed godwits (Limosa lapponica baueri) (C. O'Donnell pers. comm.).

The mudflts are also important for a number of sea fish, such as sole (Peltorhampus novaezelandiae), red cod (Pseudophycis bacchus), spotted stargazer (Genyagnas novaezelandiae), and flounder (Rhomboselia spp.) (Palmer 1982).

The saltmarsh vegetation present in the head of the bay is a unique compostion (Palmer 1982). There are pockets of native coastal bush and forest at Governors Bay (J. Brown pers. obs.).

There is traditional kaimoana use of mudflats for flounder. Six sites of archaeological value have been recorded - mainly middens, occupation and earthworks sites (Palmer 1982).

An historic seawall remains between Governors Bay and Allandale, along an old coastal road (J. Brown pers. obs.).

**Site importance: Regional**
Comment:

The site is of regional importance for geological interest, and as it is part of the Lytelton Harbour environment, an area of importance for Christchurch (J. Brown pers. obs.)

**Existing threats: EJM**
Type and comment:
Sewage outfalls (Governors Bay) have degraded water quality and contaminated shellfish. Dredging for oysters and sedimentation have removed bottom vegetation, and there have been illegal reclamations in the harbour (J. Brown pers. obs.).

**Human Modification and Use: ABDEJ**

There is limited recreational use of Governors Bay with some boating, swimming and fishing off the jetty at Governors Bay. Flounder fishing in the shallow waters and windsurfing are popular in summer. Charteris Bay is very popular in summer as there is a boat ramp and sheltered bay for swimming. Flounder fishing, windsurfing, powerboating, walking and canoeing are popular especially in the summer months. Orton Bradley Park attracts many visitors in summer which has an impact on the coastal areas. The mudflats are also use for bird watching. There is a reclamation for a rubbish dump at Allandale which unfortunately is one of the most accessible points for the public to view the coast. Other reclamations are for parking. A number of foreshore structures in the Harbour restrict access along the coastal margin.

**Existing Protection: A**

Type and Comment :

The site is within the Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect Hector's dolphins.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment

Department of Conservation (1990). Geopreservation Inventory Wellington.
Palmer,J.D. (1982). Coastal Reserves Investigations - Mount Herbert County ( parts 1&2) Christchurch.
O'Donnell,C.F.J. Scientist, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**

1. WERI
2. SSWI — the habitat has moderate importance as a feeding area for waders (1982).
3. PNA
4. Geopreservation — Identification number - LAN 174.Excellent example of a mudflat.
5. HPT Country Inventories — 1986b.
6. Other
7. None

**Other Considerations:**
A coordinated approach to planning for recreational use is needed in the harbour.
**Accompanying Maps and photographs :**

Site Name(s): Godley Head-Sumner Head
Recorders Name: Brown/Turner/Russell
Map/Grid Reference : N3624930 57370

Siteno:CRI120026
Conservancy: Canterbury
Date: 13.03.90

Brief Description of Site:

Taylors Mistake is a small sandy bayhead beach l5km southeast of Christchurch. It is situated between rocky promontories of two headlands, Godley and Sumner heads. The area is physically and historically one of the most important and significant areas close to urban Christchurch (J. Brown pers. obs.)

Conservation Values: Natural: BCEGH Cultural: ABCE Historic: ABCD

Taylors Mistake is a small sandy beach. There are numerous shore platforms and rock pools in a very small area and beyond these out to the headlands the rocky cliffs are spectacular. Taylors Mistake is a very popular beach for swimming, surfing, and fishing. A number of baches are at Taylors Mistake, some illegally sited, and the issue of their presence has been ongoing for a number of years (J. Brown pers. obs.)

The Taylors Mistake area has been used for many years by the Canterbury University Zoology Department for scientific studies, and by a number of other education groups for their work (J. Brown pers. obs.)

There is a wildlife refuge at Whitewash Head, established to protect the endemic spotted shag (Stictocarbo p. punctatus) nesting colony - the largest New Zealand population. Also in the area are nesting white-fronted terns ( Sterna striata) and red-billed gulls (Larus novaehollandiae scopulinus). High numbers of white-flippered penguins (Eudyptula minor albosignata) occur at Godley Head. (C. O'Donnell pers. comm.)
The Banks Peninsula Marine Mammal Sanctuary northern boundary is Sumner Head. The sanctuary, established in 1988, is to protect Hectors Dolphin (Cephalorhynchus hectori) (Department of Conservation, 1988)

The coastal cliffs of Whitewash Head and Godley Head are spectacular and the coastal views from them are a major attraction to the area. Taylors Mistake has an attractive seascape being a small enclosed bay (J. Brown pers. obs.).

Much history is associated with the area, the caves in Taylors Mistake were once occupied and the military installations at Godley Head remain after World War II (I. Hill pers. comm.). Three vessels have been shipwrecked in the area (I Hill pers. comm.).

Taylors Mistake is an important location for traditional kaimoana gathering for local Maori (Department of Lands and Survey 1984).
Site importance: National
Comment:
The site is of national importance, it has the largest national colony of spotted shag (Stictocarbo punctatus) (C. O'Donnell pers. comm.). Taylors Mistake and Godley Head provide a wide range of recreational opportunities close to Christchurch.

Existing Threats: BEILJ
Type and comment :
Siltation often clouds the waters which is attributed to the dredge dumpings from Lyttelton Harbour. Some of the baches are illegal and incompatible with the landscape. Overfishing and gillnetting is possibly depleting fish available for kaimoana purposes. The area receives very high recreational use and there are problems with pollution, and the effect of this on water quality in the area. The dunes behind Taylors Mistake beach have been damaged in the past but paths now minimise the damage (J. Brown pers. obs.).

**Human Modification and Use: AHIJ**

Intense recreational use is made of the area particularily in summer. Swimming, canoeing, surfing, fishing, and on the walkways, walking, running and mountain biking are the main activities. The Godley Head Walkway has picnic areas, toilet facilities,and carparking. This walkway around the Head includes panaromic views of the coast and the historic sites at the Head. The Godley Head Farm Park is managed by the Department of Conservation and leased for grazing. A number of illegal baches are still in use.

**Existing Protection: AI**

The Whitewash Head Wildlife refuge, gazetted in 1959, protects spotted shag. Godley Head is a Recreation Reserve (Farm Park). The Banks Peninsula Marine Mammal Sanctuary established in 1988 to protect Hector's dolphins extends seaward from this site.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. well documented |
| Cultural | 1 2 3 | 2. little information (general) |
| Historic | 1 2 3 | 3. little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC Survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Department of Conservation (1988). Protection of Hectors Dolphin around Banks Peninsula - a paper for public comment. Christchurch pp22.
Department of Lands and Survey (1984). Christchurch City Coastal Reserves Investigation, Christchurch, 101 p.
O'Donnell,C.F.J. Scientist. Department of Conservation, Christchurch
Ngai Tahu Trust Board - iwi contact.
Hill,I.A. Conservation Officer, Department of Conseravtion, Christchurch.

**Recorded on Existing Databases:** **Comment:**

1. WERI
2. SSWI
3. PNA
4 Geopreservation
5. HPT County Inventories1986
6. Other
7. None

**Other Considerations:**

The area has very high recreational use. At Taylors Mistake there is little adjacent land for development, which causes problems with congestion. The area requires integrated management. The Taylors Mistake area may be suitable for some form of marine protected area status.

**Accompanying maps and photographs.**
see photograph page.

Site name(s): Avon-Heathcote Estuary
Recorders Name: Brown/Turner/Russell
Map/Grid Reference : M 36 24880 57400

Site No:CRI 120027
Conservancy:Canterbury
Date 14.03.90

**Brief Description of site :**

The Avon-Heathcote estuary is the remnant of the arm of sea that once separated Banks Peninsula from the mainland. The estuary is approximately 8 sq km of open space but it is bounded almost entirely by human developments. The estuarine character changes with the tides - low tide exposes almost all of the area while at high tide it is a large body of water. Recreation use of the estuary is high (J. Brown pers. obs.).

**Conservation Values:** Natural: BCDEGH Cultural: ABCE Historic: ABD

The estuary forms a transition zone between sea and freshwater and provides a significant habitat for a range of fish and bird species, there have been 28 fish species (Department of Lands and Survey 1984) and 29 birds species recorded ( C. O'Donnell pers. comm.).

The area is an important habitat for waterfowl and migratory artic waders. 2500 eastern bar-tailed godwits (Limosa lapponica baueri), and 4000 South Island pied oystercatcher (Haematopus ostralegus finschi) have been recorded. Royal spoonbill (Platalea leucorodia regia) attempt to breed in the estuary and 45 have been recorded. In winter large numbers of New Zealand shoveller (Anas ryhnchotis variegata) use the Bromley oxidation pond (C. O'Donnell pers. comm.)

Davis (1987) considered the estuary a wetland of national importance to fisheries. It provides an extensive habitat for rearing and spawning of marine and freshwater fish species, and is a feeding area for migratory adults.

Landforms of note include Shag Rock - an offshore sea stack at the head of the estuary, and the basaltic lava layers in the sea cliffs at Clifton. The estuary is a focus of Christchurch and it is an integral part of the city's landscape (J. Brown pers. obs.).
The estuary is heavily used for scientific study and by education groups (J. Brown pers. obs.)

There is traditional use of the estuary for Kaimoana, however pollution has degraded that resource, and shellfish may be unsuitable for human consumption. About 35 Maori sites of importance are recorded (Department of Lands and Survey 1984)
Thirty-one boats were wrecked crossing Sumner Bar between 1851-1937 (I. Hill pers. comm.).

**Site Importance: National**

The estuary is nationally important as a habitat for migratory waders (C. O'Donnell pers comm.) and as a fish habitat (Davis 1987).
**Existing Threats: ABCEGIJKL**
Type and comment :
The estuary is subject to flooding from rivers and siltation from stormwater. There is a spread of noxious plants, for example, Spartina angelica at McCormacks Bay. Pollution from industrial and sewer and stormwater discharges threatens water quality and fish and bird life. Accidental oil spills on the Avon and Heathcote Rivers can reach the estuary. There is also some illegal refuse dumping in the estuary (J. Brown pers. obs.).
Developments adjacent to the estuary are sometimes illegally close to the high tide mark. A number of illegal reclamations and ramps restrict public access along the foreshore. Recreational use of the area is high and can affect the wildlife by disturbance to breeding and feeding sites (J. Brown pers. obs.).

**Human Modification and Use: ABDEHIJ**
There is a wide range of uses of the estuary, some are more compatible than others and the whole system requires careful management. Being in the city there is an impact from adjacent industry. Christchurch City's treated sewarage is discharged from the Bromley treatment works into the estuary. The close proximity of residential development and grazed land is also part of the estuary environment. Recreational uses of the estuary include yachting, windsurfing, fishing, canoeing and some jetski and speedboat use (restricted). There is some conflict between users in the estuary, particularly between the more intrusive activities, such as jetskis and passive activities.
Reclamations and a causeway occur around the estuary margin.
Recreational facilites have been developed for the high level of use, including public boat ramps and foreshore walking paths.
**Existing Protection:**

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. well documented |
| Cultural | 1 2 3 | 2. little information (general) |
| Historic | 1 2 3 | 3. little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC Survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Davis,S.F. (1987). Wetlands of national importance to fisheries.
MAFfish New Zealand Freshwater Fisheries Report. No 90.,48p.
Department of Lands and Survey (1984). Christchurch City Coastal Reserves Investigation, Christchurch,101p.
Knox,G. and Kilner,A. (1973). Ecology of the Avon Heathcote Estuary. Estuarine Research Unit University of Canterbury, Unpublished Report to the Christchurch Drainage Board.
Stephenson,R.L. (1980) Avon-Heathcote: Estuary Under Stress.
Soil and Water vol 16, 22-25.
O'Donnell,C.F.J. Scientist, Department of Conservation, Christchurch.
Hill,I.A. Conservation Officer. Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment:**
1. WERI
2. SSWI The Avon Heathcote has a high habitat rating for waders and waterfowl 1980.
3. PNA
4. Geopreservation identification LAN no. 41 Shag Rock/Clifton Cliff
5. HPT County Inventories 1986
6. Other
7. None

**Other Considerations:**
The estuary has been greatly modified since European times. Adequate protection with planning and integrated management of this estuary area is essential. The estuary is of great value to Christchurch city.
**Accompanying Maps and photographs :**
see photograph page

Site Name(s): CHCH foreshore (Waimakariri-Southshore) Site No:CRI120028
Recorders Name: Brown/Turner/Russell Conservancy: Canterbury
Map/Grid Reference: M 35 24874 57483 Date: 09.03.90

Brief Description of site:

The beach/dune system is approxmately 20 km long and extends from the Waimakariri River to Southshore. Its most significant feature is the linearity of the foreshore, generally being 10-20m wide although this fluctuates with the tide. This coast is one of Christchurch's most popular and well known recreation areas (J. Brown pers. obs.).

Conservation Values: Natural: DE Cultural: ACE Historic:B

Comment:

The foredune is up to 5-6 m high and is a very important buffer zone between sea and the adjacent urban areas. The beach is sandy and has very high recreational use; it is safe for swimming and is very popular for walking. The large expanse of sand is an unusual feature for Canterbury and the extent of the beach is one of the seascape features that attract people to the beach (J. Brown pers. obs.).

The dunes are susceptible to erosion initiated by human disturbance and marram (Ammophila arenaria) has been planted for its binding qualities and fast growth (J. Brown pers. obs.). There are small clumps of pingao (Desmoschoenus spiralis) in the dunes (S. Courtney pers. comm.)

The area is often used by educational groups to study the sandy shore and for birdwatching (J. Brown pers. obs.).

The area is used by some waders; red-billed and black backed gulls (Larus novaehollandiae scopulinus and L. dominicanus), white-fronted and Caspian terns (Sterna striata and Hydroprogne caspia), South Island pied oystercatcher (Haematopus ostralegus finschi) and spotted shag (Stictocarbo punctatus) (C. O'Donnell pers. comm.).

There are beds of tuatua (Amphidesma subtriangulatum), trough shells (Mactra spp.) and high densities of paddle crabs (Ovalipes cathurus). Several fish species occur off this coast including kahawai (Arripis trutta), red cod (Pseudophycis bachus), rig (Mustelus lenticulus), elephant fish (Callorhyncus milii) and yellow eyed mullet (Aldrichetta forsteri) (Department of Lands and Survey 1980).

There are Maori archaeological sites in the area, four middens and an artefact site (Historic Places Inventory 1986). The area remains a traditional Maori shellfish gathering area, particularly for pipi (Paphies australis) (Department of Lands and Survey 1980.).

Site importance: Regional

Comment:

The area is of regional importance for recreation in Canterbury (J. Brown pers. obs.).
The district scheme sand conservation zoning is unique to New Zealand (A. Turner pers. comm.).

Existing Threats: ACGKL

Erosion of dunes caused by recreation users is the biggest human threat to the site. Disturbance of the dunes allows wind to cause blowouts. The Council have attempted to control this by fencing, providing paths and by signs to educate the public. Another threat to the dunes is the local opposition to the build up of the dunes which are spilling onto the road behind. The council is developing a landscape plan for the area which will address this problem.

Human disturbance of birds has a negative effect on the habitat potential of the site (J. Brown pers. obs.).

Marram is reducing the viability of the area to support extensive pingao and only a few areas of pingao remain on the dunes. Marram is being used to stabilise the dune system.

Stabilisation works have been built to protect the surf club buildings (J. Brown pers. obs.).

Human Modification and Use: AH

The area is intensively used during summer for swimming, surfing, picnicking, canoeing, walking, jogging, horse-riding and land yachts. In winter the beach is still very popular for walking and surfing. The beach is used for national and regional surf lifesaving championships.
The Waimairi Landfill site - a major refuse disposal area for Christchurch, is located at the rear of the dunes between Waimairi Beach and Spencer Park. Bottle Lake Forest - a multi use exotic forest (including extensive foot and bridle tracks) is behind the foredunes, and stretches from Spencer Park to the urban development at Burwood.

Existing Protection D

Type and Comment:

The site is mostly zoned C4, sand dune conservation. The Waimakariri River to Waimairi dune system is stewardship land.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. little information(general) |
| Historic | 1 2 3 | 3. Little information(if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1.Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2.Derived info. as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3.Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4.Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5.Recent DOC survey without sampling |
| | | 6.Experience |
| | | 7.Expert opinion |

Department of Lands and Survey (1980). Coastal Reserves Investigation. Report on Waimairi County, Christchurch,80p.
Department of Lands & Survey (1984). Christchurch City Coastal Reserves Investigation, Christchurch 101p.
Courtney,S. Conservation Officer, Department of Conservation, Nelson.
O'Donnell,C.F.J. Scientist, Department of Conservation, Christchurch.
Turner,A.L. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

| Recorded on Existing Databases | | Comment: |
|---|---|---|
| 1.WERI | | |
| 2.SSWI | | |
| 3 PNA | | |
| 4.Geopreservation | | |
| 5.HPT County Inventories | 1986a | |
| 6.Other | | |

**Other Considerations :**

The area has very high recreational use that requires adequate planning and management particularly for the sand dunes and for pingao conservation.

**Accompanying maps and photographs:**

Site Name(s):Brooklands Lagoon/Waimakariri River mouth. SiteNo:CRI120029
Recorders Name : Brown/Turner/Russell Conservancy:Canterbury
Map/Grid Reference:M35 24860 57570 Date: 19.03.90

**Brief Description of site:**

Brooklands Lagoon is part of the estuary of the Waimakariri River, the mouth of which has shifted periodically over the last 100 years. The lagoon is approximately 250 ha. and is aligned north and south. The spit separating the lagoon and sea is recent - the dunes are low, continuous and unstable (J. Brown pers. obs.).

**Conservation values: Natural:ABCDG Cultural ABC Historic D**

Comment:

The southern end of the lagoon is well sheltered by high sand dunes and provides an ideal wetland habitat for wading birds and it is still in a largely natural state. Species include eastern bar-tailed godwit (Limosa lapponica baueri), banded dotterel (Charadrius bicinctus ), South Island pied oystercatcher (Haematopus ostralegus finschi) and pied stilt ( Himantopus himantopus leucocephalus). The lagoon is frequently used by marsh crake ( Porzana pusilla affinis), bittern ( Botaurus stellaris poiciloptilus), white heron ( Egretta sacra) and royal spoonbill ( Platalea leucorodia regia). A colony of pied shag ( Phalacrocorax varius) is also in the area (C. O'Donnell pers. comm.).

Knox and Bolton (1978) found the lagoon to have a denser benthic fauna than other lagoons or estuaries in the vicinity and because of its productivity , it is an important nursery and feeding area for whitebait species, mainly (Galaxias maculatus), and flounder (Rhombosolea spp.)

The area is an important kaimoana harvesting area (Department of Lands and Survey 1980).

Brooklands Lagoon and the Waimakariri mouth receive a very high level of use by recreational fishers. The recreational salmon (Oncorhynchus tshawytscha) fishery centred on the Waimakariri mouth is considerd of national importance (Teirney et al 1987). Whitebaiting and kahawai fishing also occur.

Six boats were wrecked between 1866-1894 (Iris, Thetis, Folly, Sturt,Jessie, Owake Bell) in the area (I. Hill 1990.).

The lagoon and river mouth are important landscape features of the Canterbury coastline ( pers. obs.).

**Site importance: National.**

Comment:
The site is of national importance for salmon fishing (Teirney et al. 1987).

**Existing Threats: ABCEK**

The area has a number of threats including flooding and siltation. Areas of pingao are threatened by invasion of weeds, mainly marram (Ammophila arenaria)and lupin (Lupinus spp.), and browsing. There is some pollution from nearby freezing work discharges. Recreational use of the area such as shooting of non target species and off road vehicle use threatens the wildlife (J. Brown pers. obs.).

**Human Modification and Use: AHI**

The close proximity to Christchurch leads to a very high recreational use of the area. The area is used for shooting of gamebirds, fishing, whitebaiting, birdwatching, boating, waterskiing and off road vehicles.

**Existing Protection: D**

Type and Comment:

There is a ban on netting/trawling within one nautical mile of the mouth from 1 January - 30 April to protect salmon fisheries. The south end of the Brooklands Lagoon is managed as a wildlife management reserve although it is not legally gazetted as such. Several recreation reserves adjoin the lagoon on its western side.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Hill,I.A. (1990). Shipwrecks, Canterbury coastline and Chatham Islands. DOC File Ref 3/6/0.

Knox,G.A. and Bolton,L.A. (1978). The ecology of benthic flora and fauna of Brooklands Lagoon, Waimakariri River Estuary. Estuarine Research Unit Report no. 16-Christchurch.

Teirney et al. (1987). The relative value of North Canterbury Rivers to anglers, MAFfish New Zealand Freshwater Fisheries Report No 89, 113 p.

Department of Lands and Survey (1980). Coastal Reserves Investigation. Report on Waimairi County, Christchurch, 80p.

O'Donnell,C.F.J and Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems in Canterbury. New Zealand Wildlife Service Fauna Survey Unit Report No. 33.

O'Donnell,C.F.J Scientist, Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** Comment

1. WERI
2. SSWI — Brooklands Lagoon has high value as a habitat for wetland birds (1982).
3 PNA
4.Geopreservation
5.HPT County Inventories (1986, Rangiora County)
6.Other.
7.None

**Other Considerations :**

The area requires adequate management to protect all the values of the Lagoon.

**Accompanying Maps and photographs :**

see photograph page.

Site Name(s) :Waikuku - Pines Beach
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:M35 24870 57632

SiteNo:CRI120030
Conservancy: Canterbury
Date: 19.03.90

Brief Description of site:

This site is a continuous stretch of about 11 kms of broad sand beach. Individual settlements are at Kairaki, Pines, Woodend, and Waikuku beaches. Beaches are backed by extensive dune systems which are scrub covered, with extensive areas of lupins. There are two substantial wetlands, Woodend Lagoon and Pines Beach wetland. The beaches are very popular especially in summer (J. Brown pers. obs.).

Conservation values: Natural:BCD Cultural A Historic B

Comment:

Woodend Lagoon is approximately 50 ha in area and has a substantial area of open water. Its major value for wildlife is for bird feeding and roosting but also for terrestrial bird species with the surrounding swamp vegetation. The lagoon has the largest population of scaup (Aythya novaeselandiae) in lowland Canterbury and Australian coot (Fulica atra australis) is also established now. Mute swan (Cygnus olor) nest in the area and sometimes there is a colony of little shag (Phalacrocorax melanoleucos) (C. O'Donnell pers. comm.).

Woodend Lagoon provides an important refuge for ducks in the shooting season, as hunting is not permitted (A. Turner pers. comm.).

Pines Beach wetland (60 ha) is located immediately north of the settlement. This area is of interest due to the presence of marsh crake (Porzana pusilla affinus). Shooting for waterfowl is common in the area (A. Turner pers. comm.).

An estimated 60 Maori occupation, midden and pa sites are in the vicinity of Pines Beach, and another 30-40 sites occur southwest of Waikuku (Department of Lands and Survey 1982).

There is traditional kaimoana gathering along this stretch of coast ( Department of Lands and Survey 1982).

A variety of marine fish occur off this coast and other sandy Canterbury beaches, including kahawai (Arripis trutta), gurnard (Chelidonichthys kumu), rig (Mustelus lenticulus), red cod (Pseudophycis bacchus) and elephant fish (Callorhyncus milii). Paddle crabs (Ovalipes cathurus ) are also present in signficant numbers. There are also beds of pipis (Paphies australis), tuatuas (Amphidesma sutriangulatum) and trough shells (Mactra spp.) (Department of Lands and Survey 1982).

Site importance: Regional.

Comment:

The wildlife values of Woodend Lagoon and Pines Beach wetland are of regional importance ( Department of Lands and Survey 1982).

Existing Threats: ACK

The major threat is erosion of the dune system and dune blowouts. There is also invasion of exotic plants on the dune system with marram (Ammophila arenaria). Recreational use of the area is a threat to wildlife values especially off road vehicles (A. Turner pers. comm.)

Human Modification and Use: AHIK

The area has high recreational use and activities include whitebaiting, fishing, walking, swimming, surfing, picnicking, shellfish gathering and, at Pines Beach, gamebird shooting.

The adjacent land development is for farming and forestry. Commercial fishing occurs offshore with setnetting and trawling for flounder and gurnard. There is potential for using set nets beyond the breakers for paddle crabs.

Existing Protection: A

Woodend Lagoon is a Wildlife Management Reserve.
Part of Pines Beach wetland is within the Pines Beach Recreation Reserve.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:
Department of Lands and Survey (1982). Rangiora District Coastal Reserves Investigation, Christchurch, 84p.
O'Donnell,C.F.J Scientist, Department of Conservation, Christchurch.
Turner,A. Conservation Officer. Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

Recorded on Existing Databases: Comment

1. WERI
2. SSWI — Woodend Lagoon is high value habitat and Pines Beach Lagoon is moderate value.
3 PNA
4. Geopreservation
5. HPT County Inventories (1986, Rangiora County)
6. Other.
7. None

Other Considerations :

The area requires special attention for management with adequate recognition of the wildlife values and the recreational use. The water regime of the lagoon affects its habitat potential for birds and this should be assessed.

Accompanying Maps and photographs :

Site Name(s) :Ashley River/Saltwater Creek Estuary SiteNo:CRI120031
Recorders Name : Brown/Turner/Russell Conservancy:Canterbury
Map/Grid Reference:M35 24875 57700 Date: 19.03.90

**Brief Description of site:**

The Ashley River-Saltwater Creek Estuary is about 170 ha. in area. Saltwater Creek is a springfed tributary of the Ashley Estuaty. Braided rivers backing onto coastal estuaries are rare, and this feature, along with relatively unmodified wetland habitat, makes this area nationally important (J. Brown pers. obs.)

**Conservation values: Natural:ABCDEGH Cultural ABCE Historic ABD**

Comment:

The wildlife values of the area are high, the estuary has extensive mudflats, and with the braided Ashley River this a rich combination of habitat. A variety of birds frequent the estuary, both native and migratory and the area has the highest diversity of wetland birds of all Canterbury rivermouths. There is extensive habitat for bittern (Botaurus stellaris poiciloptilus) and marsh crake (Porzana pusilla affinis). There are resident pied shags (Phalacrocorax varius) in the area which is unusual for Canterbury. The estuary is a wintering site for black stilt (Himantopus novaezealaniae). Other species of note seen are godwits (Limosa lapponica baueri), wrybills (Anarhynchus frontalis), and other 1000 South Island pied oyster catchers (Haematopus ostralegus finschi) are recorded (O'Donnell and Moore 1983).

Saltmarsh vegetation is established around most of the perimeter of the estuary (Department of Lands and Survey 1982).

The expansiveness of the estuary creates a substantial visual impact and highlights the virtual absence of human modification. The area is often used for educational study (J. Brown pers. obs.).

Up until 1868 Saltwater Creek was used as the main port for North Canterbury, but flooding closed the area. There are three shipwrecks known in the area (I. Hill pers. comm.).

The estuary is regionally important as a whitebait spawning area and fishery and also supports recreational fishery for eels (Anguilla spp.), flounder (Rhombosolea spp.), brown trout (Salmo trutta), kahawai (Arripis trutta), yellow eyed mullet (Aldrichetta forsteri), and a small run of quinnat salmon (Oncorhynchus tshawytscha) (Davis 1987).

Traditional kaimoana gathering takes place in the estuary, especially where beds of cockles (Chione stutchburyi) are present (Department of Lands and Survey 1982).

**Site importance: National.**

The site is of national importance for wildlife (J. Brown pers. obs.) and for fisheries values (Davis 1987).

**Existing Threats: ABCDGK**

The wildlife potential of the site is threatened by upstream water abstraction, gravel extractions, weed encroachment, and channelisation (O'Donnell and Moore 1983). Some shore stabilisation works have taken place near Waikuku. Adjacent farm development causes some pollution of water quality from runoff and siltation and there is a problem of stock trampling fish spawning areas. Problems are occasionally caused by effluent outfalls into Saltwater Creek (J. Brown pers. obs.).
Other threats are from recreational users - offroad vehicles, and jetskis in the estuary that impact on wildlife values and the dynamics of the dune system (J. Brown pers. obs.).

Human Modification and Use: ABHIJ

River protection works such as stopbanks occur around the estuary and rivermouth. All the adjacent land is used for agriculture.

The estuary is very popular for recreation, activities include whitebaiting, trout and salmon fishing, waterfowl shooting, windsurfing, birdwatching, walking and traditional uses. Other less compatible uses are off road vehicles and jetskis.

Existing Protection: B

Much of the estuary and the Ashley River to the main road bridge is river conservation reserve, controlled and managed by the Canterbury Regional Council.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Department of Lands and Survey (1982). Southern Hurunui County Coastal Reserves Investigation, Christchurch, 101p.

Department of Lands and Survey (1982). Rangiora District Coastal Reserves Investigation , Christchurch, 84 p.

Davis, S.F. (1987). Wetlands of national importance to fisheries. MAFFish New Zealand Freshwater Fisheries Report no. 90. 48 p.

O'Donnell,C.F.J and Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems in Canterbury. New Zealand Wildlife Service Fauna Survey Unit Report No. 33.

Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

Recorded on Existing Databases: Comment

1. WERI
2. SSWI — The Ashley River and Saltwater Creek systems provide outstanding wetland habitat for wildlife
3. PNA
4. Geopreservation
5. HPT County Inventories1975
6. Other
7. None

Other Considerations :

Management should be directed at conserving the natural character and quality of the resources and ensuring use of the area is compatible with the conservation values.

Accompanying Maps and photographs :

see photograph page.

Site Name(s) :Leithfield/Amberley
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:S68 &69 05130 05980

SiteNo:CRI120032
Conservancy:Canterbury
Date: 19.03.90

**Brief Description of site:**

This stretch of about 7 kilometres of coastline is characterised by a series of mixed sand and gravel beaches which are backed by a dune system. There are a number of ponds and lagoons in the lagoon system, including Leithfield Beach Lagoon and Amberley Beach Lagoon. Two settlements - Leithfield Beach and Amberly Beach, with a combined population of 250 occur on this section of coastline. Coastal access is good, and the area is popular for a variety of recreational uses (J. Brown pers. obs.).

**Conservation values: Natural: CDGB Cultural Historic B**

Comment:

The area has interesting geology, inland at Leithfield interglacial cliffed shorelines and prograding coastal dune systems are evident showing the changes in coastline position due to climate and sea level changes, pre 5000 bp ( Barringer et al. 1989b).

Isolated patches of pingao (Desmoschoenus spiralis) are scattered through the dunes at Amberley Beach (S. Courtney pers. comm.). Mazus pumilo, a small herb, is a vulnerable species is found at Leithfield beach (A. Baird pers. comm.).

There are a number of wetlands in the area, the main ones are Leithfield Beach Lagoon, Amberley and South Amberley Beach lagoons and the Kowai River Mouth, all are important wetland habitats for a variety of bird species including scaup (Aythya novaeseelandiae), mute swan (Cygnus olor), marsh crake (Porzana pusilla affinis), spotless crake (P. tabuensis plumbea), and banded dotterel (Charadrius bicinctus) (C. O'Donnell pers. comm.). The Kowhai River mouth is invariably closed to the sea and the lagoon reduces in size over summer.

Knowledge of pre-European history is limited, however the population reached a maximum about 500 years ago. There are some 200 archaeological sites between the Waipara and the Waimakariri River in inland dunes (Department of Lands and Survey 1982).

**Site importance: Regional.**

Comment:

The site is of regional importance for its wildlife values and geological interest (Department of Lands and Survey 1982).

**Existing Threats: ACDEK**

Type and comment:

There is continuous erosion of the open coast in this section and Maori occupation sites are vulnerable due to the mobility of the dunes. Coastal values have been degraded by farm animals, noxious pests (rabbits), and lupin (Lupinus spp.) and marram (Ammophila arenaria)invasion of native vegetation. Agricultural runoff is degrading water quality in the lagoons and offroad vehicle use of the dune system threatens wildlife values (J. Brown pers. obs.).

**Human Modification and Use: AHI**

There is high recreational use around Leithfield beach and moderate use at Amberley. The areas are popular for walking, picnicing, and horse riding, and at the river mouths, fishing. Offroad vehicle use of the dune system is potentially a problem and this conflicts with other users of the area. There is some forestry development north of Amberley and south of Leithfield. At Amberley and Leithfield there is residential development.

**Existing Protection: A**

There are six small reserves in the area.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Barringer,J.; and Howard,G. (1989b). Sites of geomorphological and geological significance in Hurunui County, North Canterbury. DSIR Technical Record 5, 16p.
Department of Lands and Survey (1982a). Southern Hurunui County, Coastal Reserves Investigation, Christchurch 101p.
O'Donnell,C.F.J Scientist, Department of Conservation, Christchurch.
Courtney,S. Conservation Officer, Department of Conservation, Nelson.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** Comment

1. WERI
2. SSWI — Leithfield lagoon has potential value for waterfowl and Amberley Beach lagoon provides high value habitat for birds including waterfowl.
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other
7. None

**Other Considerations :**

The area receives moderate recreational use and has important wildlife habitats and these values should be recognised in planning and management of the area.

**Accompanying Maps and photographs :**

Site Name(s) :Teviotdale (Amberley Cliffs)
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:S68 &69 06188 06042

SiteNo:CRI120033
Conservancy:Canterbury
Date: 19.03.90

Brief Description of site:

This area covers 2.8 km of coast between Teviotdale Stream and the Waipara River Mouth, and marks the northern extent of the sand beaches of Pegasus Bay (J. Brown pers. obs.).

The main feature of this section of the coastline is the series of cliffs where the coastal plains end; these are up to 60m high and dissected by landslips and small streams. The coastal cliffs are actively eroding by undercutting. Little is known about this area except that it has important archaeological features and is known to be a good diving site. Access is very limited (J. Brown pers. obs.).

Conservation values: Natural: AE Cultural A Historic B

Comment:

Due to inaccessibility the area is relatively natural. There is adjacent coastal forestry development (J. Brown pers. obs.).

The area is important for geological reasons and there is a good cross section of landforms represented. The old river course of Teviotdale is an area with silts and peaty loams behind recently deposited sand dunes. Along the main terrace (at 47 m) is a thin layer of volcanic ash (NZMS 1 153033) which originated from an eruption of Taupo, this is the only known deposit of its kind in the South Island and is important for defining the strata and age of more recent deposits (Department of Lands and Survey 1976).

There are 3 rock shelters in the area below Omihi State Forest and these have considerable archaeological value. Access depends on the fire risk in the forest. On the north bank of the Waipara River are pa sites, and numerous middens in 3 main sites (Department of Lands and Survey 1976).

The Waipara River Mouth is regarded as an important habitat for birdlife, and supports a range of species including 2 threatened species which visit the site, the black fronted tern (Sterna albostriata); and wrybill (Anarhynchus frontalis). 25 wetland species including migratory waders have been recorded in the area with numbers depending on water flow (O'Donnell and Moore 1983).

The area is a kaimoana harvesting area for local Maori (Department of Lands and Survey 1976).

Site importance: National.

Comment:

The archaeological sites and geological ash features are of national importance (Department of Lands and Survey 1976).

Existing Threats: ACK

Erosion is the biggest threat caused by undercutting of the coastal caves and shelters (Department of Lands and Survey 1976)

Human Modification and Use: AHI

Omihi exotic forest which extends to the coastline is a notable feature of the area. There is minimal use of the beach because there is no formed access. There is some surfcasting and off-road vehicles using the beach.

Existing Protection: I

Type and Comment:

Stewardship land adjoins Waipara Mouth area.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Department of Lands and Survey (1976b). Coastal Reserves Investigation - Waipara County 48p.

O'Donnell,C.F.J and Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems in Canterbury, New Zealand Wildlife Service Fauna Survey Unit Report Number 33.

Lane,M. Conservation Officer, Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

| Recorded on Existing Databases: | Comment |
|---|---|
| 1. WERI | |
| 2. SSWI | The Waipara River mouth is moderate/high value habitat for waterfowl and waders (1979). |
| 3. PNA | |
| 4. Geopreservation | |
| 5. HPT County Inventories | Hurunui 1975 -3, 4, 5, shelters, 1,2,6, pa and midden |
| 6. Other | |
| 7. None | |

Other Considerations :

Accompanying Maps and photographs :

Site Name(s) :Glenafric
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:S68 &69 06236 06084

SiteNo:CRI120034
Conservancy:Canterbury
Date: 19.03.90

Brief Description of site:

MacIntoshes Beach at the mouth of Dovedale Stream, is a small beach with minimal usage and access is unformed. The beach area is reduced as the sea enters the stream mouth at high tide. This area is best known for fossils cemented in concretions that drop out of eroding cliffs. There are thought to be more fossil crabs obtained from this area than any other place in New Zealand (M. Lane pers. comm.).

Conservation values: Natural: EGH Cultural Historic BC

Comment:

The site is known for fossils, common large crabs (Tumidocarcinus giganteus) in weathered concretions are found in the area and these are of national scientific and educational interest (Glaessner 1986).

The area is not easily accessible and is typical of this piece of coast, with narrow sand and shingle beaches covered at high tide (Lane pers. comm.). The Motunau plains end abruptly at this site and the coastal cliffs are up to 60 m high in places. The cliffs near Glenafric have suffered considerable slumping to produce a series of crudely formed steps that are gradually being eroded away (Department of Lands and Survey 1976).

A midden site is located in the Dovedale Stream area (Department of Lands and Survey 1976).

Site importance: National.

Comment:

The site is of national importance for fossils (Department of Lands and Survey 1976).

Existing Threats: AK

Type and comment:

Cliff erosion is the greatest threat in the area. Fossils are threatened from some recreational activity and fossil collecting (M. Lane pers. comm.).

**Human Modification and Use: AH**

The site has farming and grazing rights to the waters edge. There is limited recreation use of the area except for fossil hunting.

**Existing Protection:**

Type and Comment:

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Glaessner,M.F. (1986). The fossil Decapod Crustacea of New Zealand and the evolution of the order Decapoda. New Zealand Geological Society. Pal. Bull. 31, p.27.
Department of Lands and Survey (1976b). Coastal Reserves Investigation - Waipara County 48p.
Lane,M. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact

| **Recorded on Existing Databases:** | Comment |
|---|---|
| 1. WERI | |
| 2. SSWI | high local significance |
| 3. PNA | |
| 4. Geopreservation | reference Fos 77 |
| 5. HPT County Inventories | 1985 Hurunui (9) |
| 6. Other | |
| 7. None | |

**Other Considerations :**

Some form of protection should be considered for this section of beach to protect the fossils.

**Accompanying Maps and photographs :**

Site Name(s):Motunau and Motunau Island
Recorders Name: Brown/Turner/Russell
Map/Grid Reference:S68 &69 06405 06137

SiteNo:CRI120035
Conservancy:Canterbury
Date: 19.03.90

Brief Description of site:

Motunau is a small fishing village 90 km north of Christchurch. Offshore from this is Motunau Island one of the largest of Canterbury's offshore islands. Crayfishing is the dominant fishery, and 15 operators work from here (M. Lane pers. comm.).

Conservation values: Natural: BCDEGH Cultural ACDE Historic ABD

Comment:

Motunau Island is significant in that it is the only nearshore island of note off the mainland Canterbury Coast. It has steep sides, a plateau top, and rocky beaches with numerous offshore reefs.

There are excellent debris flow deposits on the north side of the Motunau River mouth and the deep water marine mudstone sequence is of educational and landscape value. There is an internationally significant assemblage of fossil crabs and penguins at a cliff exposure north of the river mouth (Barringer and Howard 1989).

Motunau Island is significant for wildlife, it has a breeding population of 1000 white faced storm petrels (Pelagodroma marina maoriana), 300 burrows of sooty shearwater (Puffinus griseus), and 1100 burrows of white flippered penguins (Eudyptula minor albosignata), 27500 fairy prions (Pachyptila turtur), 150 pairs of black backed gulls (Larus dominicanus) and the presence of reef heron (Egretta sacra sacra) is noted. It is one of the few pied shag (Phalacrocorax varius) nesting areas on the east coast of the South Island and 300 birds at a time have been recorded (DSIR 1967). There is a little shag colony (Phalacorax melanoleucos) on the north bank of the Motunau River (Department of Lands and Survey 1979).

The island is also important for reptiles, there are two recorded species of skinks present, (Leiolopisma zelandica and L. inzo-occelatum), and a gecko, (Hoplodactylus pacificus) (DSIR 1967).

There is some pingao (Desmoschoenus spiralis) in the scientific reserve (S. Courtney pers. comm.).

Motunau was known to early Maori who visited it to obtain paua and other kaimoana. Occupation occurred during three different occasions, and there are five known archaeological sites (Department of Lands and Survey 1979)

There are three shipwrecks around the island ( Hill 1990 ).

The area is often used by educational groups and the islands wildlife is of scientific interest (J. Brown pers. obs.).

The high numbers of birds and the species diversity on Motunau Island make it susceptible to predation or noxious weeds (J. Brown pers. obs.).

Site importance: International

The site is of international significance, Motunau Island has very high wildlife values (J. Brown pers. obs.) and there is geological interest in the area with fossils of international significance (Barringer and Howard, 1989b).

Existing threats:ACGL

Type and comment:
Cliff erosion at Motunau has already resulted in loss of coastal land and houses in the coastal subdivision are under threat (M. Lane pers. comm.). The mouth of the Motunau River is the only access for fishing boats and it is periodically dredged. The dredge dumpings were being put in the pingao reserve. There is some illegal dumping of concrete and old tyres to keep the mouth open and more recently, legal protection works have been carried out. (M. Lane pers. comm.).

Rats have been eradicated from Motunau Island but there is a problem with weeds especially boxthorn. Marram is also a threat in the pingao reserve (J. Brown pers. obs.).

Human Modification and Use: ABDFHI

The commercial fishing village has 120 homes. Extractions of sand and material from the cliff base has contributed to substantial cliff erosion and relocation of houses.

The river mouth is trained for fishing boats, and a number of illegal coastal structures exist. The river mouth is cut periodically for shipping.

The area is a popular weekend recreation destination, the beach is accessible by formed road and safe for swimming. Other recreational persuits are recreational diving, picnicking, windsurfing, fossil gathering and rock collecting.

Existing Protection: A

Type and Comment:

Motunau Island is a nature reserve with access restricted to permit holders for scientific and management purposes. A scientific reserve exists on the northeast bank of the Motunau River for pingao.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Courtney,S., Conservation Officer, Department of Conservation, Christchurch.
Department of Lands and Survey (1976b). Coastal Reserves Investigation - Waipara County 48p.
Owen,J (1980). Motunau Island Nature Reserve Management Plan. Department of Lands and Survey Management Plan series, no 2, 36p.
Barringer,J. and Howard,G.(1989b). Sites of Geomorphological and Geological Significance in Hurunui County, North Canterbury. DSIR Technical Record.
Hill,I.A. (1990). Shipwrecks, Canterbury Coastline and Chatham Islands. Department of Conservation File Ref 3/6/0 - 19 March 1990.
DSIR (1967). Motunau Island Canterbury, New Zealand, An Ecological Survey, DSIR Bulletin 178.
Lewis,D.W. (1976). Subaqueous debris flows of early Pleistocene Age at Motunau, North Canterbury, New Zealand Journal of Geology and Geophysics 19: pp 535-567
Beu,A.G. (1977). Ages of some Chlamys delicatula localities in North Canterbury New Zealand Journal of Geology and Geophysics 20, pp 199-203.
Lane,M. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

| Recorded on Existing Databases: | Comment |
|---|---|
| 1. WERI | |
| 2. SSWI | Motunau Island is a habitat of high value for breeding sea birds (1979). |
| 3. PNA | |
| 4. Geopreservation | reference FOS158 |
| 5. HPT County Inventories | Hurunui (7, 8, 12, 13, 14) |
| 6.Other | |
| 7. None | |

Other Considerations :

This site reguires careful management that recognises all the values and uses of the area. Motunau Island has some protected status and intergrating protection of the sea with this should be considered.

Accompanying Maps and photographs :
see photograph page.

Site Name(s) :Blythe River - Napenape
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:S62 06573 06280

SiteNo:CRI120036
Conservancy:Canterbury
Date: 19.03.90

Brief Description of site:

This section of coastline is 3.6 km long. Napenape is located 20 km south of the township of Cheviot. The site has a range of landforms, which along with important geological, botanical and scenic values, are protected in a scenic reserve of approximately 52 hectares. Recreational use is increasing with better access and promotion.

**Conservation values: Natural: BCHE Cultural AC Historic AB**

Comment:

The area has a range of landforms including heavily eroded sedimentary rocks, mixed sand and shingle beaches, and small sand dunes in the lee of Napenape Bluff. The bluff is limestone and bentonite. The limestone outcrops as a prominant offshore reef which is ringed with limestone bluffs. These bluffs are a prominant landscape feature of the area (J. Brown pers. obs.).

There is considerable native virgin forest in the area, predominantly a ngaio (Myoporum laetum) association. There is very little manuka (Leptospermum scoparium) in the area which is unusual for North Canterbury (M. Lane pers. comm.).

There is a fur seal (Arctocephalus fosteri) colony south of Napenape Bluff that is expanding (M. Lane pers. comm.).

Evidence of Maori fishing camp sites exist on the beach and artefacts have been found in rock shelters in the Napenape Scenic Reserve. Karaka (Corynocarpus laevigatus) groves occur along the top of the bluff to the seal colony, presumably planted by Maori. The site is a kaimoana gathering area (Department of Lands and Survey 1976).

**Site importance: National.**

Comment:

The site is of national importance for recreation and for ecological and cultural values (Department of Lands and Survey 1976).

**Existing Threats: ADM**

Type and comment:

The area has very high recreational use and this could be seen as a threat if it is not managed. The erosion and landslip potential is considerable because of the underlying geology. There is a problem in the area with pests - ferral cats (Felis catus ) and possums (Trichosaurus vulpecula) (M. Lane pers. comm.).

**Human Modification and Use: AHIJK**

There has been coastal development in the area that is inconsistent with the coastal character. A private home built at Napenape adjoins the Scenic Reserve.

The area is very popular for recreation; fishing off the reefs, diving for crayfish (Jasus edwardsii) when water clarity permits, camping at the campground, and short bush walks through the scenic reserve. The area is not suitable for swimming.

The area is fished commercially for crayfish.

**Existing Protection: A**

Type and Comment:

Napenape Scenic Reserve protects a significant area of land.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Department of Lands and Survey (1976a). Coastal Reserves Investigations. Cheviot County, 55p
Lane,M. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories 1985 Hurunui (14,16, 17,18.)
6. Other
7. None

**Other Considerations :**

This area requires further investigation for protection on the land and in the sea.

**Accompanying Maps and photographs :**
see photograph page.

Site Name(s):Jed River-Hurunui River Mouth
Recorders Name : Peter Russell
Map/Grid Reference:S62 06626 06340

SiteNo:CRI120037
Conservancy:Canterbury
Date: 19.03.90

**Brief Description of site:**

This site is 9 km of coastline. The site has numerous features of importance; Gore Bay is an open swimming beach, there is an historic port at Port Robinson, and Hurunui River is a major river mouth and headland. The area has interesting geology, and is notable for its good access. It has importance in Maori history, as well as in the European settlement of the Cheviot area (J. Brown pers. obs.).

**Conservation values: Natural: EG Cultural ABC Historic ABD**

Comment:

This site has interesting geological associations; a cut in the Gore Bay road by the Jed River contains excellent exposures of phosphatic unconformity in Amuri Limestone and the shore platforms and coastal cliffs of the site have few eras unrepresented (Barringer and Howard 1989).

One of the most prominent features in the area is The Cathedrals. These steeply dissected rock pillars are formed by erosion of the red conglomerate and sandstone (Department of Lands and Survey 1976).

There are considerable dune formations at Gore Bay and three significant landform sites around Hurunui Mouth. They all record sedimentation history and are rare, well presented features (Barringer and Howard 1989).

The walkway at Gore Bay offers wide land and seascape views for walkers.

The site has had Maori occupancy. At Gore Bay there is a Maori archaeological site and burial site, and at the Jed River there is a grove of Karaka (Corynocarpus laevigatus) and ngaio ( Myoporum laetum) thought to be associated with Maori occupancy. Also around the Jed River is a Maori burial and village site and numerous middens. Today the area is important for kaimoana. ( Department of Lands and Survey 1976).

An historic cemetery is located in the area, and there are two archaelogical sites recorded along the Hurunui River mouth. Port Robinson was a port from 1879 to 1907 and was the main supply and export port for Cheviot District. Three ships were wrecked around Port Robinson and Port Gibson (Hill 1990).

A variety of bird species utilise the Hurunui Mouth area for feeding, roosting and breeding; black fronted tern (Sterna albostriata) and white fronted tern (Sterna striata) are known to use the area and 13 wetland bird species have been recorded there (O'Donnell and Moore 1983).

The recreational salmon (Oncorhynchus tshawytscha) fishery at the Hurunui River mouth is considered of regional significance (Teirney et al. 1987).

**Site importance: Regional.**
Comment:
The site is of regional importance for wildlife and fish habitat, and for recreation (O'Donnell and Moore 1983, Teirney et al. 1987, and Department of Lands and Survey 1976).

**Existing Threats: AEFGL**
Type and comment:
The Jed River has been polluted from partially treated sewage and farm outlets. Erosion at Gore Bay has been about 50 m in the last 100 years, although it has stabilised following the storms of 1978. A coastal subdivision recently opened up 20 new sites, in an erosion prone area and formed road has been lost in various areas around Port Gibson. Some illegal mining of gravel has occured at Manuka Bay (M. Lane pers. comm.).

**Human Modification and Use: AHIJ**

Gore Bay is a popular holiday settlement and with about fifty cottages presently there and more sections are subdivided from Buxton Stream to The Bluffs.

Stopbanks and seawalls have been constructed with limited success in controlling erosion. An inadequate stopbank exists north of the settlement.

Gore Bay is very popular for recreation. The beach is popular for surfing and swimming because it is sandy, a rare shoretype on this section of coast. Diving is also popular. At Gore Bay there are two well used walking paths, the Port Robinson walkway and a walk in the Gore Bay scenic reserve. Manuka Bay is also popular as it is sheltered. There is a lighthouse on Port Gibson.

The settlement at the Hurunui Mouth is well controlled, and the Hurunui mouth is important for salmon, brown trout (Salmo trutta), whitebait (Galaxias spp.) fishing, and surfcasting. The area is used by Maori for food gathering. Camping is available at Gore Bay and the Hurunui Mouth.

**Existing Protection: AD**
Type and Comment:

The Cathedrals are protected in the Gore Bay Scenic Reserve (61 ha). There is a scenic reserve at Manuka Bay also and there are other proposed reserve areas around river mouth areas. A trawl/net ban exists within one nautical mile of the Hurunui Mouth to protect the salmon fishery.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

O'Donnell,C.F.J and Moore,S.M (1983). Wildlife and Conservation of Braided River Systems in Canterbury New Zealand Wildlife Service Fauna Survey Unit Report No. 33.

Teirney,L.D. Richardson,J. and Unwin,M.J. (1987). The relative value of North Canterbury Rivers to New Zealand Anglers. MAFfish New Zealand Freshwater Fisheries Report. No. 89. 113p.

Barringer,J. and Howard,G. (1989b). Sites of Geomorphological and Geological Significance in Hurunui County, North Canterbury. DSIR Technical Record 5,16p.

Department of Lands and Survey (1976a). Coastal Reserves Investigations. Cheviot County ,55p.

Hill,I.A. (1990). Shipwrecks Canterbury Coastline and Chatham Islands, Department of Conservation File Ref. 3/6/0 19 March, 1990.

Lane,M. Conservation Officer, Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment**

1. WERI
2. SSWI — Hurunui River mouth has potential habitat value and the Jed River estuary has moderate value habitats for waterfowl and waders (1983).
3. PNA
4. Geopreservation
5. HPT County Inventories 1985 Cheviot (5-10,12,15);Hurunui (11,13)
6. Other
7. None

**Other Considerations :**

Gore Bay should be managed carefully and options for some sort of protected status explored.

**Accompanying Maps and photographs :**

see photograph page.

Site Name(s) : Shag Rock
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:S62 06650 06418

SiteNo:CRI120038
Conservancy:Canterbury
Date: 19.03.90

Brief Description of site:

This site of about 10 hectares is predominantly a steep rocky coastline with shingle beaches in small bays. There are some offshore rock outcrops. Active erosion of this section of coast supplies the Waiau River Mouth with material. Access to the area is via a private farm track which runs to the coast at Shag Rock (M. Lane pers. comm.).

Conservation values: Natural: ACE Cultural AC Historic D

Comment:
Shag Rock is a nesting site for a number of sea birds, including spotted shag (Stictocarbo punctatus) and redbilled gulls (Larus novaehollandiae scopulinus). Shag Rock is the largest offshore stack in this area (38m high) and it is connected to the mainland by a rock bar which is dry at low tide.

A significant bush reserve is located in the vicinity, covering 50 ha, but it is not yet gazetted (M. Lane pers. comm.).

A large fur seal colony (Arctocephalus fosteri) of about 1000 animals has established at Shag Rock, and the colony is expanding. The colony extends down to Waiau River from Shag Rock (M. Lane pers. comm.).

The site has high land and sea scape values. The offshore stacks and coastal cliffs are a feature of the predominantly sand and shingle beach (J. Brown pers. obs.).

The steamer Tainui was wrecked near Shag Rock in 1919 (Hill 1990)

The site is a traditional kaimoana gathering area (M. Lane pers. comm.).

Site importance: Regional

Comment:

The site is of regional importance for wildlife. Shag rock is a prominent feature of the North Canterbury coastline (Department of Lands and Survey, 1976)

Existing Threats: AD

Type and comment:

The site is being modiifed by coastal erosion. There is some stock trampling of the reserve and it requires fencing (M. Lane pers. comm.).

**Human Modification and Use:** IJ

There is traditional and recreational use of the area for fishing; crays (Jasus edwardsii) and kahawai (Arripis trutta) are caught and there is some diving when conditions allow.

**Existing Protection:** I
Type and Comment:

The forest area is a proposed reserve.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Department of Lands and Survey (1976). Coastal Research Investigations. Cheviot County ,55p.
Hill,I.A. (1990). Shipwrecks Canterbury Coastline and Chatham Islands, Department of Conservation File Ref. 3/6/0 19 March, 1990.
Lane,M. Conservation Officer. Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

| **Recorded on Existing Databases:** | **Comment** |
|---|---|
| 1. WERI | |
| 2. SSWI | Shag rock and the adjacent coastline has high habitat value for seabirds and fur seals (1983). |
| 3. PNA | |
| 4. Geopreservation | |
| 5. HPT County Inventories | |
| 6. Other | |
| 7. None | |

**Other Considerations :**

**Accompanying Maps and photographs :**

Site Name(s) : Waiau River Mouth
Recorders Name : Brown/Turner/Russell
Map/Grid Reference:S62 06685 06465

SiteNo:CRI120039
Conservancy:Canterbury
Date: 19.03.90

**Brief Description of site:**

The site is an area of about 160 hectares. The river forms a lagoon at the mouth and the area is used for recreation (J. Brown pers. obs.). The greywacke mass of the Hawkeswood Range extends down to the sea where the cliffs are 130 m high. The 10 metre gravel terrace located behind the lagoon is adjacent to the largest shingle spit in North Canterbury. There is no road access to this section of coast (Department of Lands and Survey 1976).

**Conservation values: Natural: AC Cultural AC Historic AB**

Comment:
The site has a high degree of naturalness but access is difficult and there is little human use. The steep cliffs and the river mouth are a landscape feature of the North Canterbury coastline (J. Brown pers. obs.).

There is a reserve adjoining the rivermouth, one of the few remaining pockets of downland forest and it has high botanical values (Department Lands and Survey 1976).

There is a New Zealand fur seal (Arctocephalus fosteri) colony in the area which extends from South Waiau mouth to Shag Rock (M. Lane pers. comm.).

The shallow coastal lagoon and the mudflats are habitat for a variety of coastal birds and flocks of up to 50 black-fronted terns (Sterna albostriata) have been recorded. Other species seen are pied shag ( Phalacrocorax varius varius), and variable oystercatcher (Haematopus unicolor) (O'Donnell and Moore 1983). The lagoon also has moderate numbers of waterfowl including Canada geese (Branta canadensis) and mallard ducks (Anas platyrhynchos platyrhynchos) (M. Lane pers. comm.).

There are two archaeological sites recorded on the northern side of the river with artifacts about 600 years old. There are karaka (Corynocarpus laevigatus) planted by early Maori in the area. The historical Maori presence indicates the use of the area for food gathering (Department of Lands and Survey 1976).

**Site importance: Local**

Comment:

The site is of local significance for historic sites and for wildlife values (Department of Lands and Survey (1976a), C. O'Donnell pers. comm.)

**Existing Threats: ACM**

Type and comment:

The area is threatened by noxious weeds especially broom ( Cytisus scoparius). Other threats on the wildlife values of the area are upstream water abstractions, siltation from land development, and channelisation (O'Donnell and Moore 1983). With ongoing coastal processes the rivermouth displaces for long periods and the lagoon changes in size (Kirk pers. comm.). Land development could be threatening the archaeological site (M. Lane pers. comm.).

**Human Modification and Use: AIJ**

Human use of the area is limited because access is difficult, access to the rivermouth is by jetboat only. Recreational uses include whitebaiting (Galaxias spp.), diving, fishing, duckshooting and jetboating. The area was used for traditional food gathering by Maori.

The lagoon is used for commercial eel (Anguilla spp.) fishing.

**Existing Protection: AID**
Type and Comment:

There are small scenic reserves in the area adjacent to the river mouth. A ban exists on netting/trawling within one nautical mile of the river mouth, 1 January - 30 April to protect the salmon fishery.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info. as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Department of Lands and Survey (1976). Coastal Reserves Investigation Cheviot County, 55p.
O'Donnell,C.F.J and Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems in Canterbury. New Zealand Wildlife Service Fauna Survey Unit report No. 33.
Kirk,R.M. Lecturer. University of Canterbury.
Lane,M. Conservation Officer, Department of Conservation, Christchurch.
Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases:** **Comment**

1. WERI
2. SSWI — The Waiau rivermouth bush is moderate value for bird-roosting areas (1983). The Waiau River lagoon is moderate value habitat for wetland bird species (1983).
3. PNA
4. Geopreservation
5. HPT County Inventories 1975,Cheviot County, sites 3&4.
6. Other
7. None

**Other Considerations :**

**Accompanying Maps and photographs :**

Site Name(s): Conway Flats
Recorders Name: Peter Russell
Map/Grid Reference: S 55 & 56 06767 06656

SiteNo:CRI120040
Conservancy: Canterbury
Date: 09.03.90

Brief Description of site:

This site is about 5km of coast, extending south from the Conway River to Ploughmans Creek and consists of raised gravel terrain and marine beaches approximatly 10m above sea level. The Conway settlement was laid out in 1884. Extending north from the settlement is the shingle spit of the Conway River Mouth. There appears to be little erosion of the coast. Cultivation is undertaken on the lower terraces and grazing on the upper terraces (M. Lane pers. comm.).

Conservation Values: Natural: CDEFGH Cultural: C Historic:AB

Comment:

Remains of a petrified podocarp forest underlie the river gravel and are exposed between Wadi Nimrin and Ploughman Creek. Some stumps have been dated at 8000 years (Department of Lands and Survey 1978).

Both north and south of the Conway River mouth the coastal plain is bowshaped and has been developed by post glacial marine transgression. Since then the beach ridges have built up advancing the shore to its present position. The site is a classic example of this type of landform and an important feature for establishing sea level change. Small coastal dunes develop to about 4 km south of the lagoon (Department Lands and Survey 1978).

There is a lagoon at the mouth of the Conway River and elephant seals (Mirounga leonina) sometimes come ashore. The whale watching commercial venture in Kaikoura operates offshore and the site has a number of whale strandings, the latest of these was in 1988 when a minke whale (Balaenoptera acutorostrata) stranded. Other cetaceans stranded have been sperm whale (Physeter macrocephalus) and bottlenosed dolphins (Tursiops truncatus) (M. Lane pers. comm.).

The Conway River and lagoon is important for wildlife; 16 wetland species have been recorded and large numbers of waterfowl use the lagoon. Species recorded include nesting banded dotterel (Charadrius bicinctus), and in winter there is a large flock of black fronted terns (Sterna albostriata) on the lagoon. In summer overseas migratory waders may visit the delta (O'Donnell and Moore 1983).

There are pockets of remnant coastal ngaio (Myoporum laetum) forest in the area which require some protection. (Lane pers. comm.).

There is a Pa site on the north side of the Conway River and the influence of this extends to Conway Flats. There are two oven/artefact sites located on the Conway flat area and artifacts are occasionally discovered. There is a traditional kaimoana harvesting area around the Conway River mouth (M. Lane pers. comm.).

Site importance: National
Comment:
The site is of national importance for the petrified forest and the wildlife values (Department of Lands and Survey 1976, C. O'Donnell pers. comm.).

Existing Threats: CD
Type and comment:

The site has limited threats from human activities apart from some predation by noxious animals and weed encroachment (J. Brown pers. obs.).

**Human Modification and Use: AI**

Human modification has occured in the area; there has been vegetation clearing for cultivation and grazing. The area has a moderate recreational use, surfcasting on the open beach is popular, and the area is used for fossil hunting and rock collecting.

**Existing Protection I**

Type and Comment:

There is some protection of private forest blocks but the network needs to be extended.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

| Sources of Information: | | Comment: |
|---|---|---|
| Cultural | 1 2 3 4 5 6 7 | 1.Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2.Derived info. as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3.Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4.Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5.Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7.Expert opinion |

McPherson,R.I. (1988). Experimental geomorphic map for hazard assessment, Cheviot, Northern Canterbury-Bulletin and maps. Water and Soil Miscellaneous Publication no 118.

Barringer,J. (1989a). Sites of Geomorphological and Geological Significance in Cheviot County, North Canterbury. DSIR Technical Record 4, 10 p.

Ota, Y., Yoshikawa,T., Iso,N, Okada, A., and Yonekura, N. (1984). Marine terraces of the Conway Coast, South Island, New Zealand. New Zealand Journal of Geology and Geophysics 27, 313-325.

Department of Lands and Survey (1976a). Coastal Reserves Investigation - Cheviot County,55p.

O'Donnell,C.F.J and Moore,S.M. (1983). Wildlife and Conservation of Braided River Systems in Canterbury. New Zealand Wildlife Service Fauna Service Unit Report No. 33.

O'Donnell,C.F.J. Scientist. Department of Conservation, Christchurch.

Lane M.,Conservation Officer, Department of Conservation, Christchurch.

Ngai Tahu Trust Board - iwi contact.

**Recorded on Existing Databases**

Comment:

1. WERI
2. SSWI 1983 The Conway River Mouth is a habitat of moderate value
3. PNA
4.Geopreservation
5 HPT County Inventories 1975 no. 30 and 25 Cheviot County.
6. Other
7. None

**Other Considerations:**

**Accompanying maps and photographs:**
see photograph page.

Site Name(s):South East Island (Rangatira) Site No:CRI 120041
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 2 03760 06110 Date:01.04.90
Brief Description of Site:

South East Island (Rangatira) is a nature reserve of 218 ha (gazetted in 1953). The island's landform is predominantly low lying, rising to steep western cliffs, 224 metres above sea level (J. Brown pers. obs.).

The island has a range of coastal forest habitats and is the focus of a number of New Zealand's most significant endangered bird species programs (J. Brown pers. obs.).

The island was grazed until the mid-1960's by goats and sheep.

Conservation Values: Natural:ABCDEGH Cultural:ABCD Historic:ABC

Comment:

Twenty-three birds species are found on the island, nine of them found exclusively on the Chathams (C. O'Donnell pers. comm.).

The island has one of the largest seabird breeding populations in the New Zealand ornithological region, and, accordingly, is one of the most densely burrowed. Petrel numbers are measured in millions. It is the only breeding site of the endangered Chatham Island petrel (Pterodroma axillaris), and is a major New Zealand site for broad-billed prion (Pachyptila v. vittata) and grey-backed storm petrel (Garrodia nereis) ( C.O'Donnell pers. comm.).

Four other petrel species breed there: sooty shearwaters (Puffinus griseus), white-faced storm petrels (Pelagodroma marina), southern diving petrels (Pelecanoides u. urinatrix), and black winged petrels (Pterodroma nigripennis). The island is presently visited seasonally by a single Juan Fernandez petrel (Pterodroma e. externa) (C.O'Donnell pers. comm.).

Breeding colonies of Chatham Island shag (Leucocarbo carunculatus onslowi), southern skua (Stercorarius skua) and white-fronted tern (Sterna striata) exist on the island. This is also a major breeding site for the endangered Chatham Island oystercatcher (Haematopus chathamensis) (C. O'Donnell pers. comm.).

Endangered terrestrial bird species survive here: black robin (Petroica traversi), Chatham Island snipe (Coenocorypha pusilla), Chatham Island tui (Prosthemadera novaeseelandiae chathamensis), Chatham Island warbler (Gerygone albofrontata), Chatham Island red crowned parakeet (Cyanoramphus novaezeaandiae chathamensis) and Chatham Island tomtit (Petroica macrocephala chathamensis) (E. Kennedy pers. comm.).

There are a number of threatened plants present on the island: Chatham Island forget-me-not (Mysotidium hortensis), Cook's scurvy grass (Lepidium oleraceum), Dieffenbach's speargrass (Aciphylla dieffenbachii), sow thistle (Embergeria grandifolia) and a few remaining linen plants or rauhuia (Linum monogynum var. chathamica) (A. Baird pers. comm.).

There is a breeding colony of several thousand fur seals (Arctocephalus forsteri) on the south east coast of the island (E. Kennedy pers. comm.).

There are wide volcanic shore platforms around the north east and south east sides of the island, and on the west, sheer basalt cliffs (100-220m).

Traditionally, sea birds were collected from the island.

There is one archaeological site on the north side of the island. Sealing occurred in the sheltered bays on the east coast and there is evidence that there was some whaling in the same area (in 1880). There are a number of notable sites where stone was gathered by the Moriori . There are remains of a woolshed on the island (Department of Lands and Survey 1984).

The island is rodent free and is of outstanding international importance as a refuge for rare, highly endemic flora and fauna species of the New Zealand region (J. Brown pers. obs.).

**Site Importance:** International

Comment

The site is of international importance for wildlife management (J. Brown pers. obs.).

**Existing Threats: C**

South East Island was farmed until the mid 1960's .

**Human Modification and Use: A**

There has been some clearing of forest for pasture. Regeneration of the forest has been grossly inhibited by muehlenbeckia, which has invaded most of the open pasture spaces. Other introduced plants such as bidibid have occupied open pasture, limiting rates of recolonisation by small petrel species. The open spaces created by grazing favour skuas, which are more numerous on Rangatira than would naturally be the case.

**Existing Protection:A**

Type and Comment:

South East Island is a nature reserve (gazetted in 1953). Access is by permit only, and is restricted to research and management purposes only.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Davis, A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Kennedy, E.S. Conservation Officer, Department of Conservation, Christchurch.
Baird, A.M. Conservation Officer, Department of Conservation, Christchurch.
Hill, I.A. Conservation Officer, Department of Conservation Christchurch.
Muller, V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given D.R. and Williams, P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly G.C. (1983) Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text. Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Recorded On Existing Databases:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other — Department of Lands and Survey 1984 site 7-South East Island has outstanding value as a habitat.
7. None

Other Considerations:

Site Name(s):Mangere Islands Site No:CRI 120042
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 2 03660 06200 Date:01.04.90

Brief Description of Site:

Big and Little Mangere Islands lie 5 km northwest of Pitt Island. Big Mangere Island (286 m) is a 113 ha. nature reserve. Little Mangere Island (214 m) is in general Maori ownership (J. Brown pers. obs.).

Sheep grazing on Big Mangere ceased in 1968. The island was being revegetated by the N Z Wildlife Service, but this work proceeds under DOC on an incidental basis only. The island is used for endangered bird species recovery programs (J. Brown pers. obs.)

Conservation Values: Natural:ABCDEGH Cultural:BCD Historic:ABC

Comment:

The islands are of outstanding importance because they support major remnants of Chathams Islands sea bird fauna, : sooty shearwater (Puffinus griseus), Pitt Island shag (Stictocarbo punctatus featherstoni), white-fronted terns (Sterna striata), southern skuas (Stercorarius skua), fairy prion (Pachyptila turtur), broad-billed prion (Pachyptila v. vittata), diving petrel (Pelecanoides u. urinatrix). There is a possibility that black-winged petrels (Pterodroma nigripennis), the endangered Chatham Island petrels (Pterodroma axillaris) and white-faced storm petrels (Pelagodroma marina) may recolonise Big Mangere Island. Little Mangere Island's sooty shearwater population is the densest remaining in the Chatham Islands (C. O'Donnell pers. comm.).

Two pairs of the endangered Chatham Island oystercatcher (Haematopus chathamensis) breed on the wave platform of Big Mangere Island (A. Davis pers. comm.).

The islands support the only known population of the endangered Forbes parakeet (Cyanoramphus auriceps forbesi)- the status of these forest parakeets is uncertain on Little Mangere. A population of the endangered Chatham Island snipe (Coenocorypha aucklandica pusilla) survives after reintroduction on Big Mangere. The very rare Chatham Island tui (Prosthemadera novaeseelandiae chathamensis) is present in the Big Mangere Island bush remnant. The same remnant supports the lesser population of the endangered black robin (Petroica traversi) (E. Kennedy pers. comm.).

The islands support a number of threatened plants: Chatham Island forget-me-not (Mysotidium hortensis), sow thistle (Embergeria grandifolia), and Dieffenbach's speargrass (Aciphylla dieffenbachii) (A. Baird pers. comm.).

The islands are rodent free. Access is by permit only and is restricted to research and management purposes only (E. Kennedy pers. comm.).

The landforms of the islands are amongst the most spectacular of the Chatham group. Little Mangere and the eastern mass of Big Mangere rise abruptly from the sea as sheer cliffs. The low-lying isthmus of Big Mangere Island is a volcanic plug, and the islands themselves are remnant parts of the outer vent (E. Kennedy pers. comm.).

**Site Importance:** International

Comment:

The site is critically important for management of threatened and endangered species of the Chatham Island ornithological and flora regions (C. O'Donnell pers. comm.).

**Existing Threats:** M

Unauthorised access by muttonbirders and other individuals to Big Mangere Island threatens the island's flora and fauna with accidental rodent invasion and fire. Access to Little Mangere Island presents the same risks.

**Human Modification and Use:** AJ

The forest of Big Mangere Island was extensively cleared for pastoral purposes. The island was grazed by sheep until 1968. Cats and rabbits were liberated but died out naturally. The old pastures are covered in rank exotic grasses which inhibit regeneration of the forest. The island is birded illegally for sooty shearwaters.

Little Mangere Island is visited occasionally by birders but access is very difficult. The bush has been extensively wind-damaged after a small area was cleared as a helicopter pad during the crayfish boom.

**Existing Protection:** A

Type and Comment:

Big Mangere Island is a nature reserve (gazetted in 1966).

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Human Mod/Use | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Threats | 1 2 3 4 5 6 7 | 5. Survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Kennedy,E.S. Conservation Officer, Department of Conservation, Christchurch.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.

Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Muller,V.H.H (1989). Beitrag zur Avifauna der Chathanm Islands.
Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island -
Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983) Distribution and Ranking of the Remaining Areas of Vegetation
in the Chatham Islands with site notes and introductory text. Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

**Recorded On Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other Department of Lands and Survey (1984) site 6-Mangere has outstanding value as a habitat for wildlife.
7. None

**Other Considerations:**

Site Name(s):Murumuru Site No:CRI 120043
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 2 03705 06105 Date:01.04.90

**Brief Description of Site:**

The site is located at the southern end of Pitt Island and is 12 km long. It includes the Murumuru Islands which are important for sea bird nesting (A. Davis pers. comm.).

**Conservation Values: Natural:ABCDEGH Cultural:BC Historic:AB**

Comment:

This site is largely unmodified and the landforms vary from boulder beaches, breccia platforms and sandy bays to high tuff cliffs and wide rock platforms (A. Davis pers. comm.).

The site is a very important area for a number of sea birds: sooty shearwater (Puffinus griseus), Pitt Island shag (Stictocarbo punctatus featherstoni), white-fronted terns (Sterna striata), southern skuas (Stercorarius skua), broad-billed prion (Pachyptila v. vittata) and southern diving petrels (Pelecanoides u. urinatrix) (Davis, 1988).

The coastline is habitat for endangered plants including Chatham Island forget-me-not (Myosotidium hortensis) and Dieffenbach's speargrass (Aciphylla dieffenbachii) (A. Baird pers. comm.).

There are four known pre-European archaeological sites (quarry site, flakes and adze finding area) (Sutton, 1983: numbers 649-652 ). Two areas in the site were notable as sources of stone for Moriori. (Department of Lands and Survey, 1984)

The Saxony merino sheep reserve is at the southern end of Pitt Island (J. Brown pers. obs.).

**Site Importance: International**

Comment:

The site is internationally important for wildlife and the historic sites (J. Brown pers. obs.).

**Existing Threats:D**

Type and Comment:

Predator species (wekas, cats) have an impact on wildlife and feral sheep occasionally graze coastal vegetation (J. Brown pers. obs.).

**Human Modification and Use: A**

The area was once grazed and today there is still some impact from the feral sheep.

**Existing Protection:I**

Type and Comment:

The land is all stewardship land but proposed as a scenic reserve.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Sutton,D.G. (1983). An archaeological survey of Pitt Island. Report to the Historic Places Trust.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Kennedy,E.S. Conservation Officer, Department of Conservation, Christchurch.
Muller, V.H.H (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association
Te Runanga O WhareKauri - Rekohu

**Recorded On Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other Department of Lands and Survey 1984 site 23 - Murumuru Islands high value habitat

**Other Considerations:**

The designation of nature reserve is proposed for the stewardship land.

Site Name(s):Glory Bay Site No:CRI 120044
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 2 03735 06145 Date:01.04.90

Brief Description of Site:

The site is a 4km narrow coastal strip of rock platforms with sandy beaches. It is an important area for the endangered Chatham Island oystercatcher (Haematopus chathamensis) (A. Davis pers. comm.).

Conservation Values: Natural:ABCDEGH Cultural:ABCD Historic:ABD

Comment:

This section of coastline is exposed to the east and consists of basalt and tuff platforms and sandy beaches. To the south of area, the beaches are bouldered (A. Davis pers. comm.).

The site is a very important area for the endangered Chatham Island oystercatcher, Pitt Island shag (Stictocarbo punctatus featherstoni), Chatham Island shag (Leucocarbo carunculatus onslowi) and white-fronted terns (Sterna striata) (Davis, 1988).

There were six boats wrecked at Glory Bay between 1827 and 1970 (I. Hill pers. comm.). Also in the area are three sites where stone was used by Moriori and nine archaeological sites ( Sutton, 1983: numbers 565-570 (paua middens, human bones, stone flakes). North of Glory Bay (North Head) there was Moriori occupation (Department of Lands and Survey, 1988).

"Glory " cottage is believed to have been built from the remains of the ship the "Big Glory" in 1827. One of the Glory anchors is remaining behind the cottage (I. Hill pers. comm.).

Site Importance: International

Comment:

The site is internationally important for its wildlife and historic sites (J. Brown pers. obs.).

Existing Threats:D

Type and Comment:

Predator species (weka, cats) impact on wildlife. There is little use of this harbour and only one fisher is using it regularly (E. Kennedy pers. comm.).

**Human Modification and Use:ACDHIJ**

Glory Bay is a small port and normally only used by one commercial fisher although it is occasionally used by others. There is some evidence in the port of its commercial use - some rubbish and there is a concreted area but there are no permanent residents.

**Existing Protection:HI**

Type and Comment:

There is a rahui area at Waipuna (north of Glory Bay). The southern end of Pitt Island is mostly stewardship land.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Human Mod/Use | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Threats | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Sutton,D.G. (1983). An archaeological survey of Pitt Island. Report to the Historic Places Trust.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Wellington.
Kennedy,E.S. Conservation Officer, Department of Conservation, Christchurch.
Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

**Recorded On Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other Department of Lands and Survey (1984) site 39-Moderate value habitat for wildlife.

Site Name(s):Flower Pot Site No:CRI 120045
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 2 03705 06235 Date:09.04.90

**Brief Description of Site:**

The small port of Flower Pot is the centre of settlement for Pitt Island. The section of coast covers 9 km, and includes some important historical sites (for example, the rum store and jail), and an off-shore island (Rabbit Island) and spectacular limestone cliffs (A. Davis pers. comm.).

**Conservation Values: Natural:ABCDE Cultural:ABCD Historic:ABCD**

Comment:

The geology and landscape of this site are spectacular, there are sandstone and limestone cliffs sheer to the sea, high offshore limestone stacks, tuff cliffs, sandstone platforms, and mudstone formations. The site has tremendous aesthetic, land and seascape values (A. Davis pers. comm.).

Rabbit Island is the site of an important Chatham Island shag (Leucocarbo carunculatus onslowi) breeding colony. It is supports a remnant of Pitt Island's population of sooty shearwaters (Puffinus griseus) and prions (Pachyptila spp.). (Davis,1988)

Motutapu Point is important for a number of bird species: southern skua (Stercorarius skua lonnbergi), Pitt Island shag (Stictocarbo punctatus featherstoni), white-fronted terns (Sterna striata) and the endangered Chatham Island oystercatcher (Haematopus chathamensis) (Davis,1988).

Threatened plants around Tarawhenua Point are Chatham Island forget-me-not (Mysotidium hortensis), Chatham Island sow thistle (Embergeria grandifolia) and Dieffenbach's speargrass (Aciphylla dieffenbachii) (A. Baird pers. comm.).

Seven archaeological sites are found in the area (Sutton,1983: numbers 626-632 - middens, seal bone, paua, fires zone, human bone). There is an historic rum store and remains of a jail in the rock face at Boat Harbour and Flower Pot respectively. There were five shipwrecks at Flower Pot between 1859 and 1970 (I. Hill pers. comm.).

**Site Importance: International**

Comment:

The wildlife, endangered plant communities and ihistoric sites make this a site of international significance (J. Brown pers. obs.).

**Existing Threats:DJ**

Type and Comment:

The port and related activities at Flower Pot have an impact on the conservation values of the area. This is the main settlement of Pitt Island and the major servicing port. There is some rubbish dumping in the area. Grazing of coastal vegetation and predation are the main threats to the ecological values (E. Kennedy pers. comm.).

**Human Modification and Use:ACDHI**

This is the major settlement on Pitt Island, there is a jetty, storage sheds and a small breakwater and the coastal area is used for limited recreation.

**Existing Protection:AH**

There is a rahui area west of Flower Pot, and there is a foreshore reserve area inland.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Sutton,D.G. (1983). An archaeological survey of Pitt Island. Report to the Historic Places Trust.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Wellington.
Kennedy,E.S. Conservation Officer, Department of Conservation, Christchurch.
Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association
Te Runanga O WhareKauri - Rekohu

**Recorded on Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. Other — Department of Lands and Survey (1984) site 18- Rabbit Island high value habitat for wildlife
6. None

**Other Considerations:**
This area requires careful planning and management to ensure there is no development in the coastal hazard zone and that all uses are compatible.

Site Name(s):Te Whanga Lagoon Site No:CRI 120046
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 1 03530 06650 Date:01.04.90

Brief Description of Site:

Chatham Island has a large percentage of area as lakes or lagoons and the largest of these is Te Whanga Lagoon. The lagoon is a major wetland habitat in the Chatham Islands and there are some important archaeological sites along the lagoon perimeter (J. Brown pers. obs.).

Conservation Values: Natural:ABCDEGH Cultural:ABCDE Historic:ABC

Comment:

The lagoon has a diversity of habitats for wildlife and generally is shallow with sand beaches and limestone outcrops. The lagoon is a major habitat for international migratory waders, especially bar-tailed godwits (Limosa lapponica baueri), sharp-tailed sandpiper (Calidris acuminata), golden plover (Pluvialis fulva), knots (Calidris canutus), turnstone (Arenaria interpres); and for indigenous waders, banded dotterels (Charadrius bicinctus), pied stilt (Himantopus himantopus) and white-faced heron (Ardea novaehollandiae). These make particular use of the eastern shoreline but feeding sites depend on the water levels (Department of Lands and Survey 1984).

The lagoon supports a large black swan (Cygnus atratus) population (3500 birds). The islands within the lagoon are important for nesting swans and Chatham Island shags (Leucocarbo carunculatus onslowi) (A. Davis pers. comm.).

The area has important wetland vegetation associated with wildlife habitats, with some patches of kowhai (Sophora microphylla) and the endangered plant Lineum monogynum var. chathamica. The area is important for Euphobia glauca and Hebe chathamica and there are extensive areas of salt medows on the perimeter and Leptocarpus rushlands. (A. Baird pers. comm.).

The lagoon is a very large body of water given the size of the island and has very high scenic and landscape values. Being in the centre of the main island, it is a focus for the island as a whole (J. Brown pers. obs.).

There are alot of archaelogical sites on the Lagoon perimeter mainly along the western shore. Of special interest are the Moriori rock drawings and there are five sites of these , Waikato Bay, Motuhou Point, Kaiparakau, and Motuhinahina. There is a burial site at the Ohuru mouth and Moreroe was a site of Moriori settlement (Department of Lands and Survey 1984).

Site Importance: International

The site is of international importance, it has a rating of outstanding wildlife habitat and there are a number of very important historic/archaeological sites ( Department of Lands and Survey 1984).

Existing Threats:DFK

The adjacent land is mainly used for grazing and this and predators are a threat to bird breeding. There is some stock damage to the accessible historic sites particularly dendroglyphs (Department of Lands and Survey 1984). There is some sand mining in the lagoon at Waikato Bay and sharks' teeth are collected from the shores of the lagoon (J. Brown pers. obs.).

Human Modification and Use:AEHIJ

The lagoon is virtually surrounded by developed farmland and it is used extensively for recreation. It is a focal point for the whole island. There is some modification of the lagoon environment itself, such as the telephone cable across the lagoon and shell fish are gathered in the lagoon at the outlet.

Existing Protection:H

There is a rahui over the entire lagoon area.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Davis, A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Wellington.
Muller,V.H.H (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association
Te Runanga O WhareKauri - Rekohu

Recorded on Existing Databases:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other — Department of Lands and Survey (1984) site 2 Te Whanga Lagoon (outstanding value)
7. None

Other Considerations:
Te Whanga lagoon requires careful management to protect the conservation values and recognise the spiritual values of the area.

Site Name(s):Owenga Site No:CRI 120047
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 1 03615 06470 Date:01.04.90

Brief Description of Site:

Owenga is a sheltered harbour on the eastern coast of Chatham Island. There is a small settlement at Owenga and a fish processing factory. The site covers 6 km. The grave of the last full blooded Moriori is here (J. Brown pers. obs.).

Conservation Values: Natural:ABCDE Cultural:ACDE Historic:ABCDE

Comment:

The area has a diversity of landforms, from the sandy beach of Hanson Bay to shell beaches at Manakau Point and boulder bays further round toward Cape Fournier. There are numerous basalt platforms and offshore stacks. The eastern end of the site is defined by high cliffs at Cape Fournier which are slowly eroding (A. Davis pers. comm.).

This site provides habitat for one pair of the endangered Chatham Island oystercatcher (Haematopus chathamensis), and other species recorded are red-billed gulls, (Larus novaehollandiae scopulinus), black-backed gulls (Larus dominicanus), white-fronted terns (Sterna striata) and white-faced herons (Ardea novaehollandiae) (Davis 1988).

The Moriori settlement (Owenga - Manukau Point) was the home of the last full blooded Moriori (Solomon) and their presence is remembered with a statue of Tommy Solomon. The Solomon house still remains but it is decaying (J. Brown pers. obs.).

In European history there was a shore-based whaling station at Owenga harbour (Department of Lands and Survey 1984). Five shipwrecks have been recorded here between 1845 and 1970 (Chelsea 1845, Mamor 1856, Omaha 1887, Judy Anne 1968, and the Star trek 1970) (I. Hill pers. comm.).

Site Importance: International

Comment:

The site is of international importance, it is significant for Moriori habitation, and for wildlife (J. Brown pers. obs.).

Existing Threats:FJ

Type and Comment:

The main human activity in the area is at Owenga and consequently there is some water pollution from outfalls and rubbish dumping. At West Owenga there is some mining for shell aggregate (J. Brown pers. obs.).

**Human Modification and Use:ACDEHJ**

Owenga is a small settlement which is centred around the port. There are related developments such as outfalls from the fish processing factory and the wharf. The area is popular for fishing and recreation (diving etc.).

**Existing Protection:H**

Type and Comment:

There are two rahui areas, at Owenga and Manukau Reef.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above and field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Wellington.
Muller,V.H.H (1989) Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

**Recorded on Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other — Department of Lands and Survey (1984), site 16 Cape Fournier is a habitat of high value for wildlife.
7. None

**Other Considerations:**

The commercial and residential developments in the area need to be carefully planned and compatible with the values of the area.

Site Name(s):Point Durham ( Waitangi-Point Gap ) Site No:CRI 120048
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 1 03355 06490 Date:01.04.90

Brief Description of Site:

Waitangi is the largest settlement on the Chatham Islands. This site extends for 27 km from Waitangi, through Point Durham to Point Gap. Conservation issues relating to coastal management are of concern around Waitangi (J. Brown pers. obs.).

Conservation Values: Natural:ABCDEH Cultural:ABCD Historic:BD

Comment:

The site is a mixture of wide sandy beaches with high sand dunes and basalt shore platforms up to 100 m wide. At Heaphy Shoal, there are large off-shore reefs and with a scattered boulder beach behind (A. Davis pers. comm.). The views from the coastal cliffs are spectacular and the seascape over the basalt platform is unique to the Chatham Islands (J. Brown pers. obs.).

The site is important for breeding of endangered Chatham Island oystercatchers (Haematopus chathamensis) and several other seabird species including Pitt Island shag (Stictocarbo punctatus featherstoni), Chatham Island shag (Leucocarbo carunculatus onslowi), white-faced heron (Ardea novaehollandiae), spur-winged plover (Vanellus miles novaehollandiae) and white-fronted terns (Sterna striata) (Davis 1988).

There are areas of traditional kaimoana gathering around Waitangi and further south along the coast (J. Brown pers. obs.).

There were fifteen shipwrecks in the Waitangi area between 1840 and 1970 (I. Hill pers. comm.) and at Point Durham there is a major concentration of archaeological sites including Moriori occupation sites (Department of Lands and Survey 1984).

The site has a number of rare and endangered plants including Dieffenbach's speargrass (Aciphylla diffenbachii) and Leptinella oleraceum on the cliffs west of Waitangi. Chatham Island sow thistle ( Embergeria grandifolia ) is found at Point Durham. At Moriori Creek, Chatham Island forget-me-not (Mysotidium hortensis) and Aciphylla dieffenbachii is found (A. Baird pers. comm.).

Site Importance: International

Comment:

The site is of international importance for wildlife and endangered plants (J. Brown pers. obs.).

Existing Threats:DEGJL

Type and Comment:

The centre of activity in the Chatham Islands is Waitangi and the area is modified because of this. At Waitangi there is a harbour and port development. There are erosion protection works near the wharf and the rubbish dump is adjacent to the coastal zone. In Waitangi parts of the development are very close to the shore. The site is used for recreational fishing and diving although sewage seepage is affecting shellfish gathering. Predators and grazing to the foreshore have an impact on the wildlife and botanical values of the area (J. Brown pers. obs. ).

**Human Modification and Use:ACDEHIJ**
The area has high recreational use, the beach near Waitangi is used for walking, horse riding, swimming and diving is popular around Heaphy Shoal and Point Weeding. The port and related settlement developments are the predominant uses of Waitangi and there are outfalls into the sea. There is some fishing and shell fish gathering in this site especially around the reefs .

**Existing Protection:BH**
There are two rahuis, one at Waitangi (Point Webb) and the other off Turanga Rock, north of Point Durham.
There is a recreation reserve south of Heaphy Shoal.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Wellington.
Muller,V.H.H (1989) Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984) Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983) Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

**Recorded On Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other — Department of Lands and Survey (1984), site 14 - Point Weeding is a site of high value wildlife habitat.
7. None

**Other Considerations:**
The site around Waitangi has intensive human use and should be planned and managed carefully.

Site Name(s):Napper Point (Island Reef to Whangatete Inlet) Site No:CRI120049
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chathams Island Sheet 1 03350 06705 Date:01.04.90

Brief Description of Site:

Port Hutt is the fifth largest settlement on Chatham Island and is the centre of activity at this site. It covers 11 km of coastline from Island Reef to Whangatete Inlet (J. Brown pers. obs.).

Conservation Values: Natural:ABCDE Cultural:AC Historic:ABCD

Comment:

The topography of this site is broken and is a series of schist outcrops and small sandy beaches occur at the head of the bays. Island Reef is a schist outcrop and at Whangatete there are spectacular columnar piles (A. Davis pers. comm.).

On the east side of Port Hutt, there are gull roosts (Larus spp.) and banded dotterels (Charadrius bicinctus) breeding. Chatham Island shag (Leucocarbo carunculatus onslowi) and Pitt Island shag (Stictocarbo punctatus featherstoni) roost and feed at Whangamoe and Whangatete Inlets (Davis 1988).

Elephant seals (Marounga leonina) come ashore to moult at the site (A. Davis pers. comm.).

There was a whaling station at Port Hutt and eight shipwrecks are recorded for the Port Hutt area (Ann and Mary 1839, Lowestoffe 1847, Empire 1862, Alabama 1865, Express 1868, Fannie 1920, Manuka 1952, Cobar 1958) (I. Hill pers. comm.).

East of Whangatete there are Moriori sites and middens (Department of Lands and Survey 1984 ).

Site Importance: International

Comment:

The site is of international importance for its wildlife habitat and the geomorphic sites (J. Brown pers. obs.).

Existing Threats:DFH

Type and Comment:

Port Hutt is a fishing settlement and there is a fish processing factory. There is paua farming in Whangamoe Inlet and quarrying east of Whangatete. The salt meadows are grazed and predators are a threat to wildlife (J. Brown pers. obs.).

**Human Modification and Use: ACDIJ**

The port development and related port activities are the major uses of the site. There is commercial and residential development close to the foreshore and problems with rubbish pollution. The coastal area is used for recreation, diving and fishing.

**Existing Protection:H**

Type and Comment:

There is a rahui at Whangamoe Inlet.

**Availability of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

**Sources of Information:**

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
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Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

**Recorded on Existing Databases:**

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other
7. None

**Other Considerations :**
The area around Port Hutt requires careful management to ensure all uses are compatible.

Site Name(s):Point Munning(Kaiangaroa-Okawa Point) Site No:CRI 120050
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 1 03745 06790 Date:01 04 90

Brief Description of site:

This section of coast covers 21 km from Kaingaroa township to Okawa Point; Point Munning is the most eastern point. There are a wide variety of coastal shore types in this site from sandy beaches to rocky shores. Coastal erosion is a continuing problem for residential housing at Kaiangaroa (J. Brown pers. obs.).

Conservation values: Natural:ABCDH Cultural:ABCD Historic:ABCD

The area is largely undisturbed and in a natural state although there is a small settlement in the area. Kaiangaroa is a fishing port and there are a number of houses in a coastal subdivision. The proximity of the settlement to the threatened plant species makes the area even more sensitive (J. Brown pers. obs.).

The area is rich and diverse in wildlife, there are seal colonies (Arctocephalus forsteri) at Kaiangaroa Peninsula, Point Munning and Te Wakaru Island (Department of Lands and Survey 1984).

Of particular interest is the birdlife; Pitt Island shag (Stictocarbo punctatus featherstoni) occur at Point Munning, and Chatham Island shag (Leucocarbo onslowi), gulls (Larus spp.) and white-fronted terns (Sterna striata) are present at Okawa Point (Davis 1988).
Point Munning bush has small areas of karaka dominated coastal forest supporting Chatham Island fantail (Rhipidura fuliginosa penitus) (Department of Lands and Survey 1984).

The area is important for a number of endangered plants: Chatham Island sow thistle (Embergeria grandifolia), spurge (Euphorbia glauca), Chatham Island forget-me-not (Mysotidium hortensis), pingao (Desmoschoenus spiralis), Theleophyton billardierei and Leptinella featherstonii are located in the area. L. featherstonii at Kaiangaroa has only a few plants remaining (A. Baird pers. comm.).

The entire coastal area is spectacular for its diversity of landforms ranging from high sand dunes at Kaiangaroa to shore platforms at Okawa Point (J. Brown pers. obs.).

Waikeri was a centre of human activity in the past. A whaling station and a mission station were established there, and sealing took place around the Bay. There was early Moriori habitation at Okawa Point and in Kaiangaroa harbour. (Department of Lands and Survey 1984). There are five shipwrecks at Kaiangaroa and nine around Okawa Point (I. Hill pers. comm. ).

Site Importance: International

Comment:

The site has international importance as an outstanding wildlife habitat, and because of the rare and threatened coastal plants (J. Brown pers. obs.).

Existing Threats:AFK

Type and comment:

The erosion at Kaiangaroa is threatening housing and the associated developments in the area. The fish factory and some houses are built on sand dunes and in the foreshore zone. There is some mining for aggregate occuring southwest of Okawa Point. Human activity has threatened some plant and wildlife habitat, for example rubbish dumping at Kaiangaroa and grazing of stock on the foreshore (J. Brown pers. obs.).

Human Modification and Use:ACDEHIJ

There is a small harbour/port area and settlement at Kaiangaroa Harbour which includes a fish factory, outfalls and wharves.

The area is used for some recreation; walking, fishing and diving around the Point Munning area.

Existing Protection:FH

There is a rahui at Kaiangaroa Harbour and a conservation covenant for the seal colony ( not gazetted ).

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Theats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

Recorded on Existing Databases:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other Department of Lands and Survey (1984) wildlife sites: 13-Okawa Point (high value), 35-Point Munning Bush and Te Wakaru Island (moderate value)
7. None

Other Considerations:

This site has some key areas of vulnerable vegetation that require some form of protection.

Site Name(s):Cape Young ( Mairangi-Tuapeka ) Site No:CRI 120051
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chathams Islands Sheet 1 03420 06825 Date:01.04.90

Brief Description of Site:

The site covers 15 km of coastline from Mairangi to Tuapeka Point. There are a wide range of shore types from sand to basalt platforms and the area is important for bird breeding (A. Davis pers. comm.).

Conservation Values: Natural:ABCDEH Cultural:AC Historic:ABD

Comment

The site is largely unmodified although the adjacent land is grazed. The coast is mostly sand between headlands and outcrops of basalt platforms and tuff cliffs. The tuff is eroding rapidly at Cape Young and the sand beach is very narrow in places. Further east, there are schist outcrops at Tuapeka Point (A. Davis pers. comm.).

The site is an important bird breeding area and sensitive to human impact. Chatham Island shags (Leucocarbo carunculatus onslowi) are found around Cape Young and there is good wader habitat at Tuapeka Point. The endangered Chatham Island oystercatcher (Haematopus chathamensis) breed at Wharekauri beach and on Te Awanui island and are recorded around Tuapeka Point (Davis 1988). Other birds recorded in the area are breeding colonies of white fronted terns (Sterna striata) at Te Awanui Island and Tuapeka Point, and red billed gull (Larus novaehollandiae) breeding at Te Awanui Island and Tuapeka Point (A. Davis pers. comm.).

The area has some remnant akeake forest (Olearia traversii) and patches of Chatham Island sow thistle (Embergeria grandifolia) at Mairangi (A. Baird pers. comm.).

There is alot of history associated with the area, there are pa sites above Lake Waikauia and Moriori settlements near Te Awanui Island and Tuapeka. Near the Wharekauri homestead there are two burial sites ( Department of Lands and Survey 1984). One wreck is known off Tuapeka Point of the Adelaide Packet which was wrecked in 1857 (I. Hill pers. comm.).

Site Importance: International

Comment:

This site is of international importance for wildlife and botanical reasons, and for its historic value (J. Brown pers. obs.).

Existing Threats:ACD

Type and Comment:

The site is threatened by erosion of the foreshore, and there are a number of dune blowouts. There is heavy grazing of coastal vegetation and predation by wekas and cats threatens bird breeding sites (J. Brown pers. obs.).

Human Modification and Use:AHIJ

The adjacent land is grazed down to the dunes. There is recreational use of the coast, particularly the beach for activities such as walking and horse riding. There is some diving around Tuapeka and Te Awanui Island.

Existing Protection: H

Type and Comment:

There are two rahuis (Mairangi and at Wharekauri) in this site.

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Wellington.
Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

Recorded on Existing Databases: Comment:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other — Department of Lands and Survey (1984) high value habitat site 9-Te Awanui Island
7. None

Other Considerations:
The historic sites and important wildlife and botanical areas require some form of protection from modification and disturbance.

Site Name(s):Maunganui Beach Site No:CRI 120052
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chathams Islands Sheet 1 03335 06775 Date:01.04.90

Brief Description of Site:

The site covers 15 km of coastline and is important for the endangered Chatham Island oystercatcher ( Haematopus chathamensis).

Conservation Values: Natural:BCH Cultural:BCD Historic:ABCD

Comment:

The site is one of the most important breeding areas for endangered and endemic Chatham Island oystercatcher ( Haematopus chathamensis): six pairs were recorded in 1988 (Davis 1988 ). Chatham Island shag ( Leucocarbo carunculatus onslowi) is also found on the beach.

There are some coastal forest remnants and areas of pingao (Desmoschoenus spiralis) (A. Baird pers. comm.).

The beach is sandy and broadly sloping with some small offshore stacks and isolated stretches of boulders. Near Tutuiri Creek there are breccia platforms and tuff cliffs. There are extensive algal mats on shore platforms (A. Davis pers. comm.).

There are tool making areas associated with extensive midden sites, including human remains (Department of Lands and Survey, 1984). Also in the area are burial sites and a Moriori settlement area. There was one wreck, The Randolf, 1853 (I. Hill pers comm ).

Site Importance: International

Comment:

The site is of international significance for wildlife (J. Brown pers. obs.)

Existing Threats:ACDK

Type and Comment:

Eroding dunes and blowouts occur along this section of the coast. Marram (Arenaria ammophila) is spreading through the dunes. There is some stock trampling of bird nesting sites. There is limited use of the area for horseriding and motorcycles.

Human Modification and Use:AHJ

The site has little human use, there is pasture development down to dunes and some recreational use of the beach.

Existing Protection:

Type and Comment:

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultuarl | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Histioric | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Threats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
Davis,A. Conservation Officer, Department of Conservation, Christchurch.
Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

Recorded on Existing Databases:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other Department of Lands and Survey (1984) Site 11- Ngatikitiki rock stacks are of outstanding habitat value for Chatham Island shag, red-billed gulls and white fronted terns.

Other Considerations:
There is a proposed scenic reserve on the eastern end of the beach. The area needs careful management to ensure the uses, - marine farming, rahui areas etc. are not conflicting.

Site Name(s):Cape Pattison ( Waitangi West-Maunganui ) Site No:CRI 120053
Recorder's Name:Brown/Kennedy/Russell Conservancy:Canterbury
Map/Grid Reference:NZMS260 Chatham Islands Sheet 1 03256 06782 Date:01.04.90

Brief Description of Site:

The area covers 9 km of coast from Waitangi West to Maunganui. Cape Pattison is a known whale stranding area on the Chatham Islands. Maunganui Beach is sandy and the Cape is gravel with schist outcrops (J. Brown pers. obs.).

Conservation Values: Natural:BCDE Cultural:AC Historic:ABCD

Comment:

The sand dunes on the north side of this site are steep and currently subject to erosion. Cape Pattison has schist outcrops and platforms with small sections of gravel beach.

The area is important for roosting/nesting Pitt Island shags (Stictocarbo punctatus featherstoni) and Chatham Island shag (Leucocarbo onslowi), white-fronted terns (Sterna striata) and turnstones (Arenaria interpres) (Davis 1988).

The site sopports populations of Poa species, and pingao (Desmochoenus spiralis) (A. Davis pers. comm.).

There is a mission station, of German origin at Maunganui, built in 1866. Northwest of Cape Pattison and at Mauganui there are midden and Pa sites. The chimney remains mark the Te Atu Awa settlement of 1835 which was destroyed by tidal waves in 1868 at Cape Pattison (Department of Lands and Survey 1984).

Site Importance: International

Comment:

The site is of international importance as a wildlife habitat, marine mammal stranding site, and for the presence of historic sites (J. Brown pers. obs.).

Existing Threats:AC

Type and Comment:

There are high rates of erosion at Maunganui beach with many sanddune blowouts. Scattered marram may be taking over pingao clumps. Grazing occurs down to the foreshore around Cape Pattison and predators threaten wildlife (J. Brown pers. obs.).

Human Modification and Use:IJ

The main use of the site is for recreational fishing, diving and commercial fishing.

Existing Protection:H

Type and Comment:

There is a rahui area at Cape Pattison and on the adjacent land is the (proposed ) Canon Pierce Memorial Scenic Reserve

Availability of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 | 1. Well documented |
| Cultural | 1 2 3 | 2. Little information (general) |
| Historic | 1 2 3 | 3. Little information (if any) |
| Threats | 1 2 3 | |
| Human Mod/Use | 1 2 3 | |

Sources of Information:

| | | |
|---|---|---|
| Natural | 1 2 3 4 5 6 7 | 1. Derived info. existing literature |
| Cultural | 1 2 3 4 5 6 7 | 2. Derived info as above & field check |
| Historic | 1 2 3 4 5 6 7 | 3. Derived from existing maps |
| Theats | 1 2 3 4 5 6 7 | 4. Recent DOC survey plus sampling |
| Human Mod/Use | 1 2 3 4 5 6 7 | 5. Recent DOC survey without sampling |
| | | 6. Experience |
| | | 7. Expert opinion |

Comment:

Davis,A. (1988). Unpublished field survey maps of Chatham Islands coastline. Department of Conservation, Christchurch.
Department of Lands and Survey (1984). New Zealand Land Inventory, Chatham Islands. Report accompanying NZMS260 maps.
Hill,I.A. Conservation Officer, Department of Conservation, Christchurch.
Baird,A.M. Conservation Officer, Department of Conservation, Christchurch.
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Muller,V.H.H. (1989). Beitrag zur Avifauna der Chathanm Islands. Seevogel, Zeitschrift Verein Jordsand, Hamburg.
Given,D.R. and Williams,P.A. (1984). Conservation of Chatham Island - Flora and Vegetation. Botany Division DSIR.
Kelly,G.C. (1983). Distribution and Ranking of the Remaining Areas of Vegetation in the Chatham Islands with site notes and introductory text, Botany Division DSIR.
Tchakat Henu Association.
Te Runanga O WhareKauri - Rekohu.

Recorded on existing Databases:

1. WERI
2. SSWI
3. PNA
4. Geopreservation
5. HPT County Inventories
6. Other Department of Lands and Survey (1984) site 27-Cape Pattison (high value for wildlife habitat).
7. None

Other Considerations: