

**COASTAL RESOURCE INVENTORY  
FIRST ORDER SURVEY**

**WEST COAST 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 It is based on existing information compiled by conservancy staff from regional and national databases, published and unpublished reports, limited field surveys and personal or anecdotal information from various experts.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**



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





## MAP INDEX - WEST COAST

Site No.	Map Grp.	Site No.	Map Grp.
0001	12.4	0044	10.1
0002	12.4	0045	10.1
0003	12.4	0046	10.1
0004	12.3	0047	10.1
0005	12.3	0048	10.1
0006	12.3	0049	10.1
0007	12.3	0050	10.1
0008	12.3	0051	10.1
0009	12.3	0052	10.1
0010	12.3	0053	10.1
0011	12.3	0054	10.1
0012	12.3	0055	9.5
0013	12.3	0056	9.5
0014	12.2	0057	9.5
0015	12.2	0058	9.5
0016	12.2	0059	9.5
0017	12.2	0060	9.5
0018	12.2	0061	9.5
0019	12.2	0062	9.5
0020	12.2	0063	9.1
0021	12.2		
0022	12.1		
0023	12.1		
0024	12.1		
0025	12.1		
0026	12.1		
0027	12.1		
0028	12.1		
0029	12.1		
0030	12.1		
0031	10.2		
0032	10.2		
0033	10.2		
0034	10.2		
0035	10.2		
0036	10.2		
0037	10.2		
0038	10.2		
0039	10.2		
0040	10.2		
0041	10.2		
0042	10.2		
0043	10.1		

## 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.
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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

WEST COAST CONSERVANCY

ARCHAEOLOGICAL SITES IN THE COASTAL ZONE

- 1 This report summarises the available information on archaeological sites on the coastal fringe between Kahurangi Point in the north to Martins Bay in the south; a coastline of over 600 kilometres lying between 40°45S and 44°20S.

The West Coast being far from universities or large museums had seen only limited and sporadic site recording up until the 1980s. The most notable contribution was carried out in the Buller by Owen Wilkes in 1960-65. Beginning in 1981 a number of coastal surveys were undertaken by the NZ Forest Service.

- 2 Information source is primarily the NZ Archaeological Association Site Recording Files and local information. Wilkes 1965? (NZAA Newsletter) Hooker 1983, Pope and Hutchison 1986, Hooker 1986 (NZ Forest Service) have produced site information on the coastal zone.

- 3 The coastal zone of the West Coast is generally narrow with steep hillsides or bluffs terminating at or just above h.w.m. Where coastal flats occur they are usually composed of consolidated Holocene dune formation of generally low elevation (< 10m a.s.l.). The majority of the coastline is still bounded by forest to the storm spring h.w.m. The soft shore coastline and adjacent river mouths are subject to erosion, up to 300m has been documented in the historic period. Within living memory this has been responsible for the destruction of many sites.

Outside of cleared farmland chance still plays a big part in the discovery of archaeological sites. The dense coastal forest of the littoral zone undoubtedly conceals many more sites. Site density varies with resource, higher concentrations occur at coastal lagoons and/or major rivers in the north and south. Other favoured zones include alternating rocky shore-soft shore coast. The occurrence of nephrite along the coast between the Arawata River mouth and Big Bay was an added attraction to the Maori.

- 4a No earthwork fortifications have been recorded. Defences were supposedly associated with several conflicts according to tradition. Most pre European sites are associated with midden and oven remains.

- 4b Early European sites along the coast are generally associated with gold-mining or Pioneer settlements.

- 4c Kahurangi Point to Little Wanganui  
Between Kahurangi and Kohaihai the coastline is predominantly rocky shore backed by steep hills. Sandy beaches occur between headlands. Recorded sites are infrequent, though no systematic surveys have been conducted north of the Heaphy River. Extensive occupation evidence occurs at the Heaphy and Kohaihai mouths.

South of Kohaihai, coastal dunes (in grass) backed by swamps extend up to 3 km inland. Sites occur up to 2 km from the coastline. Severe erosion following the Murchison earthquake destroyed numerous sites between the Oparara and Little Wanganui.

European remains comprise burials from the Karamea Special Settlement in the sand hills and relic harbour remains. The Heaphy Track follows old benched trails of the 1860 gold-rushes.

High bluffs occur between Mokihinui and Little Wanganui. There are no reports of any sites at the four creek mouths although no surveys have been undertaken.

#### 4d Mokihinui to Waitakere

The coastline is generally sandy beach with rocky promontories at Cape Foulwind and Ngakawau. The sandy shore is backed by dunes up to 3 km in width. Coastal retreat and advance of up to 1km have been documented north of the Buller River.

No systematic survey has been undertaken in the north. There are reports of sites at the Ngakawau and Waimangaroa River mouths. Numerous sites occur between the Buller and Okari Rivers. Recent erosion at the Okari following cyclone Bola has destroyed a number of sites. South of Okari the foredunes have been modified by gold-mining. European sites comprise harbour remains, tramways and shipwrecks. Beside the present light house are remains of the earlier structure and living areas.

#### 4e Nile to Grey Rivers

This shoreline is predominantly rocky with sandy beaches in coves and bays. The largest beach is at Barrytown. Midden sites are frequent on the younger of the Holocene dunes. Caves and rock overhangs are numerous and most sites are in these situations. The gold-rush towns of Charleston, Brighton and St Kilda were adjacent to the shoreline. Old gold workings are common along the coastline on raised marine beaches.

#### 4f Greymouth to Bold Head

This coastline is a sandy beach intersected by 5 major rivers. Old dunes up to 2 km wide are backed by fluvio-glacial terraces and swamps.

Physical evidence of pre European sites is scarce (as are European sites). Traditionally there was occupation around the Grey, Taramakau, Arahura and Hokitika estuaries.

Cyclical coastline instability is likely to be a factor (100 m variation in a generation or two) in the scarcity of sites.

#### 4g Waitaha to Omoeroa Bluff

This is an alternating rocky shore/Morainic headland and coastal lagoon environment. Only at the lagoons can the coastal environment be said to extend any distance above h.w.m.

Maori sites are recorded at the Okarito and Saltwater lagoons.

Remains of gold-mining and pack tracks occur intermittently along the whole coastline and also at Gillespies Beach further south.

#### 4h Jacobs River to Knights Point

In the north are a series of sandy bays divided by morainic headlands. In the south bays at river mouths break a steep rocky coastline.

There is evidence of pre European occupation at Jacobs River, Bruce Bay, Ohinemaka and Paringa. The only significant European site is the lithographic quarry at Abbey Rocks.

## 4i Knights Point to Smoothwater Bay

The steep headland of Knights Point gives way to dune and swale topography. Sites have been recorded on dunes up to 2 km from the coastline. Three major rivers and the Okuru Lagoon intersect the sandy beach which terminates just south of Neils Beach. Southward, Jackson Bay, Hominy Cove, Smoothwater and Stafford Bay intersect the steep rocky shore.

A concentration of sites occur at Okuru, Neils Beach and around Jackson Head.

Other sites are recorded at most river mouths.

Early European sites are associated with the Jackson Bay Special Settlement (1875-1880), gold-mining or shipwrecks.

There is a recent report of a sealers hut remains on Taumaka Island.

## 4j Cascade Point to Martins Bay

This is mostly a steep to moderately steep rocky shore with boulder beaches. Cascade Lagoon, Barn, Big and Martins Bay are the exceptions where flat land of any extent occurs and it is here that sites are concentrated. On the balance of the coastline sites are recorded at most of the creek and river mouths. This was an important nephrite collecting and working area. Post European sites are generally associated with the Martins Bay Special Settlement or ship wrecks.

## 5 SUMMARY

Shellfish gathering, fishing and sealing appear to be important activities along the coastal zone. With the exception of the Heaphy mouth no settlement sites have been documented archaeologically. There is a contradiction between the archaeological and ethnographic evidence. Ethnographically the only area of major occupation was the Hokitika-Greymouth vicinity. Archaeological evidence indicates the northern and southern quadrants were most intensively occupied. Nephrite availability in the littoral zone of the south was an additional resource and focus of settlement.

## 6 SIGNIFICANCE

At this point in time taking all matters into consideration and bearing in mind all the imponderables, such as the remark Kevin Jones made on a trip down here some years ago 'you could have 1/2 a dozen Wairau Bars here, who knows?'

I would have to give the Okari-Buller and Karamea-Heaphy a national significance. Also the Jackson Bay-Big Bay for its nephrite working (dating back some 800 years) must be a starter for national significance.

To date the other areas are of importance for what they say about the West Coast settlement and subsistence patterns and are therefore regionally significant.

## 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 activities 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.

## SUMMARY

This First Order Survey of the coastal and marine zone of the West Coast is an exercise to map and describe important features and to summarise the conservation status of the conservancy's coast. The survey primarily uses existing known information, obtained through the conservancy's staff and other knowledgeable individuals, as well as written records, reports, publications and maps held by the Department. Contributors of information specifically for this First Order Survey have included:

Jenny Brown, DoC Christchurch  
Dave Eastwood, DoC Hokitika  
Terry Farrell, DoC Hokitika  
John Green, DoC Westport  
Kathryn Groome, DoC Hokitika  
Ray Hooker, DoC Hokitika  
Glen McDonald, DoC Haast  
Craig Murdoch, DoC Punakaiki  
Gavin Smith, DoC Hokitika  
Norman Stopforth, DoC Karamea  
Chris Woolmore, DoC Franz Josef

This has been supplemented by limited field survey work and casual communications (Neale, 1990).

Due largely to the conservancy's relative isolation from research foci, an indepth knowledge of many of the topics and sites in the coastal environment is lacking. From a regional perspective, our knowledge of history and terrestrial ecology are perhaps the best developed, while information bases on such topics as recreation, tourism, archaeology and wetland and marine ecology are growing. This exercise has highlighted the fact that our knowledge of conservation values offshore is sadly lacking, as is a clear definition of the cultural values of the coastal zone.

### 1 The Conservation Values of the Coastal Zone

The West Coast seas and shores have a popular reputation of natural, rugged wilderness. Although the prevailing westerly winds and waves and the tectonically active topography may justify this description, a closer view will show that the West Coast has much more complex, interesting and attractive character than is often realised. A wide spectrum of significant conservation values can be found and experienced along the 600-odd kilometres of the West Coast's coast.

The coastline cuts across no fewer than ten major geological boundaries running off the spine of the Southern Alps and adjoining ranges, and this is reflected in a broad pattern of long beach shorelines of sands and gravels interrupted by lengths of steep rocky coasts. Many of the rocky shores and a good proportion of the coastal plains of South Westland, retain their indigenous vegetative cover, although land clearance for farmland has occurred particularly on the coastal plains north of Wanganui River.

At least nine tidal estuaries and a large number of tidal lagoon and river mouth areas occur along the coast, sheltered from the sea by barrier beaches, dunes and bars.

All parts of the coastline contain some value to conservation, whether it be for natural, cultural or historical purposes. Some values are purely intrinsic or personal, and may not be widely shared by society, yet even these deserve recognition. Other values, such as historic or recreational sites and rare species or habitats are more easily defined. Clearly, some parts of the coast hold a higher conservation value than others.

Interacting with these values are the human modification and uses of coastal resources for a variety of purposes, from intrinsic pleasure and recreation to resource extraction and occupation. Some of these uses threaten the conservation value of coasts, along with natural threats and environmental hazards.

This CRI exercise maps and describes the values, uses, threats and protected land of the West Coast coastal zone. There are eight base maps covering the West Coast conservancy. With each base map there are five overlay maps depicting: natural values, cultural and historical values, human modification and use, existing protection, and conservation values. The overlay of conservation values divides the full length of the coastal zone into 63 'sites' on the basis of similarities and differences between the natural, cultural and historic values of adjacent locations. These sites are individually described in the site record forms that accompany each set of base map overlays. Some of the most important values, uses and threats on the West Coast coasts are described in Section 2 of this summary.

The table below gives a summary of the overall conservation value of the West Coast coastal zone, according to the estimated importance given for each site.

IMPORTANCE	# SITES	APPROX LENGTH (KM)	% OF COASTLINE
International	17	186	31
National	25	257	43
Regional	20	154	25.5
Local	<u>1</u>	<u>3</u>	<u>0.5</u>
	63	600	100

## 2 New Zealand Coastal Management Issues

A number of specific coastal management issues on the West Coast should be addressed by the New Zealand Coastal Policy. Some of the more important of these are briefly discussed here, not in any particular order.

### Mining

Well over half of the West Coast's coastline is covered by current mining licences on the beaches and/or dunes. Although this activity varies greatly in methods and impacts, mining is potentially damaging to all types of conservation values, including ecological, landscape, spiritual and recreational values. Water quality and access issues add to the direct impacts of the mining activity itself. Wetlands and dune systems are two ecotypes most threatened by coastal mining. The Ministry of Commerce (Greymouth) holds all mining records, and DOC holds records for almost all existing licences and applications (contact: Michael Orchard, Hokitika).

### Waste Disposal

Disposal of solid and liquid waste onto coastal land and waters is a major problem in the conservancy. Raw sewage and effluent is discharged at a number of coastal settlements (notably, all sewage from Greymouth and Westport and some from Hokitika). A number of rubbish dumps encroach into tidal estuaries (e.g. Haast, Westport) and spoil and domestic rubbish litters several beaches (e.g. Hokitika, Greymouth). Some mining activities discharge silt-laden water into rivers. Marine debris is thought to come mostly from domestic rubbish, fishing boats and whitebaiters. Fishing net fragments are of particular concern for the damage they are known to do to marine mammals, and plastic debris is also a problem.

### Coastal Structures

Because of the wild nature of the open coast, most structures below MHWM are in estuaries and rivers. They include boatramps, jetties and pipes, as well as groynes, harbour works, flood protection and bridges. The structures themselves, as well as their functional uses, can have significant impacts on conservation values, including landscape, physical stability, ecological, aesthetic and recreational qualities. DOC holds information on most coastal structures (contact: Alan Buckland, Hokitika).

### Coastal Erosion and Flooding

High rainfall, an abundant sediment supply, dynamic rivers and high energy seas all contribute to the problems of erosion and flooding on beaches and rivers. Recent problem areas include Bruce Bay, Okarito, Hokitika, Greymouth, Punakaiki, Westport, Granity and Karamea. Issues such as protection measures, planning, monitoring and responsibility should be addressed in the NZCP. The administration and tenure issues relating to the mobility of MHWM could also be clarified.

### Recreation and Tourism

The current rise in tourism on the West Coast is anticipated to continue and is being actively promoted. This, and the general attraction of coasts and waters to tourists, will place a greater demand for tourism management in the coastal zone. This will include provision of facilities, information and interpretation, planning and day-to-day management of recreation areas, facilities and activities. DOC has an inventory of its recreational facilities, and holds other information on recreation and tourism on the West Coast (contact: Kathryn Groome, Hokitika).

### Whitebait Management

Whitebaiting is a major commercial and recreational springtime activity on West Coast river mouths and estuaries. Proper management requires a co-ordinated control of both the fishers (e.g. by stand licencing, regulations and enforcement) and of the fish (e.g. by habitat and species protection). This was achieved and successfully applied in the 1989 season following the transfer of the fishery management from MAF to DOC.

The Resource Management Law Reform threatens a return to separated management with the possible transfer of stand licencing functions to Regional Government. Such a transfer is considered by conservancy staff to be inappropriate for the particular case of whitebait management on the West Coast.

Information about whitebait stands, spawning sites, etc. is held by DOC (contact: Alan Buckland, Hokitika).

### Rangatiratanga, Maori and Treaty Issues

A wide range of issues relating to the Government's obligations to the tangata whenua must be addressed in the NZCP. Protection of Rangatiratanga should be fundamental to the policy, and a partnership should be fostered between the tangata whenua and the national and regional government agencies.

On the West Coast, concerns of the tangata whenua include the protection of the mana associated with land and sea (land development, mining and water quality are particular issues), and the protection of taonga (treasures) such as pounamu, pingao and kaimoana. Maori perspectives and contacts can be sought through DoC's Iwi Liaison Officer in Hokitika, Hemi Te Rakau.

### Archaeological and Historic Sites

Most archaeological sites on the West Coast are located within a few kilometres of the sea, concentrated near river mouths and estuaries. Many areas have not been systematically surveyed, and many sites undoubtedly remain to be discovered. Although protected by law, many sites - known or unknown - are threatened by a range of coastal activities. Numerous coastal historic sites also occur in the conservancy. An inventory of historic and archaeological sites is managed by DOC (contact: Ray Hooker, Hokitika).

### Habitat Protection

Protection of natural and significant habitats is an important issue on the largely unmodified coastal areas of the West Coast. Habitats deserving particular mention are wetlands and river mouths, dunelands, islands and islets, and designated Sites of Special Wildlife Interest (SSWI's). The initial contact for habitat protection issues in DoC is John Lyall, Hokitika.

Wetlands include tidal and non-tidal lagoons, estuaries and river mouths. Although many are enclosed by land administered by DOC, few have legally protected beds or waters. Threats are wide-ranging and include drainage, reclamation, mining or dredging, pollution, fishing, waterfowl shooting and weed (e.g. Spartina) infestation. Aquaculture (Gracilaria) is currently being considered on some Buller wetlands. Wetlands are a diminishing habitat, and often hold high ecological values. The Wetlands Inventory (WERI) is managed by DOC, and gives a summary of ecologically important wetlands.

Dunelands are another diminishing natural habitat with high values. They are being threatened by mining, farming, land clearance, grazing, trampling, vehicles, settlements and weeds. The protection of their botanical values and their contribution to the physical stability of coasts is especially important. Johnson (1989) has compiled an inventory of beach and dune vegetation for most of South Island's beaches.

Islands and offshore stacks and islets provide important refuges for plants and animals previously present or more common on the mainland. They are mostly threatened by introductions of predatory and competitive animals. An Islands Database is currently being established by DOC, to summarise the status of New Zealand's islands.

SSWI's include breeding, feeding, moulting and roosting areas that are important to the survival of species. Although most native species are protected by law, their habitat and surrounding buffer zones (which often extend offshore) are often left unprotected. Coker and Imboden (1980) and Morse (1981) list and describe SSWI's in the West Coast Conservancy.

### Marine Protected Areas

Although they are a form of habitat protection, marine reserves need special mention. Unlike on land, there are no marine areas on the West Coast that have been set aside for the preservation of their natural character. Marine Reserves (DOC) and Taiapure (MAF) are currently being considered as marine conservation measures on the West Coast. A number of taiapure sites have been proposed, but as yet no sites have been proposed for marine reserves - this will be responsive to public input. The ultimate extent or locations of marine reserves is unlikely to be determinable within the near future. The contact for marine reserve issues on the West Coast is Don Neale, Hokitika DoC.

### Species Protection and Management

In New Zealand, native species management focuses mostly on birds, plants and marine mammals. Although many are protected by law, certain coastal activities might impact on some species and their habitats. The initial contact for species protection in DoC is John Lyall, Hokitika.

A number of threatened species are of particular interest on the West Coast. The Westland black petrel (Procellaria westlandica) is endemic to the West Coast, and is only known to breed in an area of coastal forest at Barrytown: it is threatened by mining activities, predators and other disturbances around the breeding site (Best & Owen, 1976). The Fiordland crested penguin (Eudyptes pachyrhynchus) has several stronghold breeding sites in South Westland, and is threatened mainly by introduced predators (Coker and Imboden, 1980). Hector's dolphin (Cephalorhynchus hectori) is endemic to New Zealand, and occurs in good numbers on the West Coast; it is threatened mainly by coastal set-netting (Slooten & Dawson, 1989). Several rare and endangered coastal plants occur in the region (including a native broom Carmichaelia kirkii, shore spurge Euphorbia glauca, Cook's scurvy grass Lepidium olearacium, sand tussock Austrofestuca littoralis), and may be threatened by such activities as land clearance for agriculture and mining, weed infestation, and grazing (Given & Wilson, 1989).

The New Zealand fur seal (Arctocephalus forsteri) and other marine animals are additionally threatened by marine debris and fishing activities. Seal entanglements in the hoki fishing grounds outside the West Coast territorial seas have created recent controversy. Land-based seal colonies are particularly sensitive to disturbance by humans.

3

### Direction for Second Order Survey

The Second Order West Coast CRI should focus on those sites found here to be of unknown importance to conservation and on those sites where the availability of information is poor. These have been indicated in the site record forms on later pages. Our knowledge of some issues would benefit most from surveys in certain geographical areas:

Archaeology:	Heaphy-Kahurangi
Tourism opportunities and interpretation:	South Westland, Paparoa
Dune vegetation:	Cascade-Knights Point, Waitaha-Greymouth
Wetlands:	Many WERI records are over 10 years old.
Inshore Marine ecology:	There is almost no documented information
Fur Seal ecology:	Focus on population dynamics
Marine reserves:	Natural and social values of potential sites need to be investigated.
Maori values:	DOC should either hold full information on Maori values (documented or otherwise) or have ready access to authoritative advice on the values of the tangata whenua, for all parts of the country.

The following list groups the 63 sites in order of their estimated importance for conservation, and summarises their important conservation values.

Ratings are given as international (I), national (N), regional (R) or local (L) and are derived from existing sources and personal observations.

A SITES OF INTERNATIONAL IMPORTANCE

- 11/001 Big Bay – Hope River  
Part of proposed World Heritage area. Archaeology and nephrite working (Hooker, 1990) (N). Hinterland habitat (SSWI) (I). Fiordland crested penguin (Eudyptes pachyrhynchus) breeding sites (SSWI)(N).
- 11/002 Barn Bay – Cascade Point  
Part of proposed World Heritage area. Hinterland habitat (SSWI)(I). Dune vegetation at Barn Bay and Cascade River (Johnson, 1989) (I). Archaeology and nephrite working (Hooker, 1990)(N). whitebait sanctuary (R). Fiordland crested penguin (Eudyptes pachyrhynchus) breeding sites (SSWI)(N).
- 11/003 Cascade Plateau  
Part of proposed World Heritage area. NZ fur seal (Arctocephalus forsteri) rookery (N). Fossil site (Geopreservation Inventory)(R) Hinterland habitat (SSWI)(I).
- 11/004 Teer Creek – Jackson Head  
Part of proposed World Heritage area. Archaeology and nephrite working (Hooker, 1990)(N). Fiordland crested penguin (Eudyptes pachyrhynchus) breeding sites (SSWI)(I). Hinterland habitat (SSWI)(I).
- 11/009 Open Bay Islands  
NZ fur seal (Arctocephalus forsteri) rookery and research site (I). Breeding site for penguins and seabirds (SSWI)(I). Islands ecology research area (N).
- 11/013 Knights Point Moeraki  
Part of proposed World Heritage area. Recreation at Knights Point (I) and Munro Track (N). NZ fur seal (Arctocephalus forsteri) haulout (R). Fiordland crested penguin (Eudyptes pachyrhynchus) breeding sites (SSWI)(I). Dune vegetation (Johnson, 1989)(R). Hinterland habitat (SSWI)(N). Recreational diving (R).
- 11/019 Gillespies Beach  
Part of proposed/existing World Heritage area. Recreation (Groome, 1990) (I). Dune vegetation (Johnson, 1989)(N). Hinterland habitat (SSWI)(N).
- 11/020 Gillespie Point  
Part of an existing World Heritage area. Recreation (Groome, 1990)(I). Fur seal (Arctocephalus forsteri) haulout and hinterland habitat (SSWI)(N).
- 11/022 5-Mile – Okarito  
Part of an existing World Heritage area. Recreation (Groome, 1990)(I). Pingao (Desmoschoenus spiralis) dunes at 5-Mile (N). Tidal estuary habitats (WERI, SSWI)(N). Hinterland habitat (SSWI)(I).
- 11/023 Okarito Lagoon and Settlement  
Part of proposed World Heritage area. Recreation (Groome, 1990)(I). Dune vegetation and pingao (Desmoschoenus spiralis) research site (Johnson, 1989)(N). Estuarine landform (Geopreservation Inventory)(R). Estuarine and hinterland habitat (WERI, SSWI)(I).
- 11/024 Lake Windemere – Whataroa  
White heron colony (Egretta alba)(N). Tourism (I). Dune vegetation (Johnson, 1989)(R). Wetland habitats (WERI, SSWI)(I-N).
- 11/026 Saltwater Lagoon  
Dune vegetation (Johnson, 1989)(I). Estuarine and hinterland habitat (WERI, SSWI)(I).



- 11/043 Barrytown  
Westland black petrel (*Procellaria westlandica*) breeding site (SSWI)(I). Coastal vegetation (Johnson, 1989)(R). Wetland habitats (SSWI, WERI)(R-N).
- 11/044 Punakaiki  
Recreation and tourism (Groome, 1990) (I to R). Karst (I), landform features (N) and fossil site (I) (Geopreservation Inventory). Hinterland habitat (SSWI)(N).
- 11/045 Perpendicular Point - Fox River  
Recreation and scenery (Groome, 1990)(I). Pingao (*Desmoschoenus spiralis*) and coastal vegetation (pers. obs. 1990)(N). Fossil site (Geopreservation Inventory) (R). Bird breeding sites (SSWI)(N). Hinterland habitat (SSWI)(N).
- 11/050 Cape Foulwind  
Archaeology (Hooker, 1990)(N). Recreation (Groome, 1990)(I). Fur seal rookery (SSWI)(N). Marine bench landforms (Geopreservation Inventory)(R). Recreation diving (R).
- 11/062 Heaphy Track  
Archaeology (Hooker, 1990)(N). Recreation (Groome, 1990)(I). Dune vegetation (Johnson, 1989)(R). Fossil site (Geopreservation Inventory)(R). Hinterland habitat (SSWI)(N).

B SITES OF NATIONAL IMPORTANCE

- 11/005 Jackson Bay  
Part of proposed World Heritage area. Archaeology and nephrite working (Hooker, 1990)(N). Recreation (Groome, 1990)(N). Hinterland habitat (SSWI)(I).
- 11/006 Neils Beach - Waikatoto  
Part of proposed World Heritage area. Hinterland habitat (SSWI)(N). Arawata wetland (WERI)(N).
- 11/007 Carters Mill - Okuru  
Part of proposed World Heritage area. Recreation at Mussel Point (Groome, 1990)(L). Dune vegetation and research site (Sykes and Wilson, 1988)(R). Hinterland habitat (SSWI)(N).
- 11/008 Okuru Estuary  
Part of proposed World Heritage area. Whitebait sanctuary (R). Wetland habitat (WERI, SSWI)(N).
- 11/010 Okuru - Haast  
Part of proposed World heritage area. Hinterland habitat (SSWI)(N). River mouth wetland (WERI)(N).
- 11/011 Haast-Mataketake  
Part of proposed World Heritage area. Recreation at Mataketake Lagoon (Groome, 1990)(R). Dune vegetation (Johnson, 1989)(R). Hinterland habitat (SSWI)(N). River mouth wetland (WERI)(L).
- 11/012 Ship Creek - Cole Creek  
Part of proposed World Heritage area. Recreation (Groome, 1990)(R). Dune vegetation (Johnson, 1989)(N). Hinterland habitat (SSWI)(N).

- 11/014 Paringa  
Part of proposed World heritage area. Dune vegetation (Johnson, 1989)(N).  
Hinterland habitat (SSWI)(N). Fiordland crested penguin (Eudyptes pachyrhynchus)  
breeding sites (SSWI)(I). NZ Fur seal (Arctocephalus forsteri) haulouts (SSWI)(R).
- 11/015 Ohinemaka  
Park of proposed World Heritage area. Dune vegetation (Johnson, 1989)(N).  
Hinterland habitat (SSWI)(N).
- 11/016 Heretaniwha Point and Bruce Bay  
Part of proposed World Heritage area. Recreation (Groome, 1990)(N). Dune  
vegetation and pingao (Desmoschoenus spiralis) (Johnson, 1989)(N). Hinterland  
habitat (SSWI)(N). river mouth wetland (WERI)(L)
- 11/017 Jacobs Bluff and Hunt Beach  
Part of proposed World Heritage area. Hinterland habitat (SSWI)(R/N).
- 11/018 Karangarua River – Cook River  
Part of proposed/existing World Heritage area. Hinterland habitat (SSWI)(N).  
River mouth wetlands (WERI)(R-N).
- 11/021 Moonlight Beach – Waiho River  
Part of proposed/existing World Heritage area. Dune vegetation (Johnson  
1989)(R). Hinterland habitat (SSWI)(N). River mouth wetland (WERI)(L).
- 11/025 Abut Head  
Fur seal haulout (R). Hinterland habitat (SSWI)(N).
- 11/031 Ross – Totara Lagoon  
Dune vegetation and pingao (Desmoschoenus spiralis) (R). Wetland habitat (WERI,  
SSWI)(N).
- 11/040 Point Elizabeth  
NZ fur seal (Arctocephalus forsteri) haulout (R). Recreation (Groome, 1990)(R).  
Fossil site (Geopreservation Inventory)(N). Hinterland habitat (SSWI)(R-N).
- 11/047 Tiropahi  
NZ fur seal (Arctocephalus forsteri) rookery (N).
- 11/049 Okari  
Archaeology (Hooker, 1990)(N). Wetland habitat (WERI, SSWI)(N).
- 11/051 Carters Beach  
Archaeology (Hooker, 1990)(N). Recreation (L).
- 11/052 Buller River mouth and wetlands  
Archaeology (Hooker, 1990)(N). Wetland habitat (WERI, SSWI)(R/N).
- 11/054 Orowaiti Estuary  
Wetland habitat (WERI, SSWI)(N).
- 11/059 Kongahu  
Whitebait sanctuary (R). Swamp habitat (SSWI, WERI)(N).
- 11/060 Karamea – Oparara  
Archaeology (Hooker, 1990)(N). dune vegetation (Johnson, 1989)(R). Estuarine  
habitats (N).
- 11/061 Oparara – Kohaihai  
Archaeology (Hooker, 1990)(N). Recreation (Groome, 1990)(R). Dune vegetation  
(Johnson, 1989)(N).

11/063 Heaphy River - Kahurangi Point  
Dune vegetation (Johnson, 1989; Courtney, pers comm)(N). NZ fur seal  
(Arctocephalus forsteri) rookery (N). Hinterland habitat (SSWI)(N).

C SITES OF REGIONAL IMPORTANCE

11/027 Poerua - Wanganui River  
Recreation (R). River mouth habitat (WERI, SSWI)(R). Hinterland wetland habitat  
(SSWI)(N).

11/028 Wanganui Bluffs  
Fur seal (Arctocephalus forsteri) haulout (R). Recreation (Groome, 1990)(R).  
Hinterland habitat (SSWI)(I??)

11/029 Waitaha  
Wetland habitats (WERI, SSWI)(R). Hinterland habitat (SSWI)(R-N).

11/030 Mikonui  
River mouth habitat (WERI, SSWI)(R) and Swamp habitat (N).

11/032 Mahinapua  
Recreation (Groome, 1990)(L). Coastal vegetation (Johnson, 1989)(R). Whitebait  
sanctuary (R). Hinterland habitat of Mahinapua Scenic Reserve (R-N). Wetland  
habitats (WERI, SSWI)(R).

11/033 Hokitika  
Recreation (R).

11/034 Arahura  
River mouth habitat (WERI, SSWI)(R).

11/035 Taramakau  
Recreation (Groome, 1990)(L) River mouth and bush habitats (WERI, SSWI)(R).

11/036 South Greymouth  
Lagoonal landform (Geopreservation Inventory)(R). Wetland habitat (WERI, SSWI)(R).

11/038 Grey River mouth and wetlands  
Wetland habitats (WERI, SSWI)(R).

11/039 Cobden  
Wetland habitat (WERI, SSWI)(R)

11/041 Rapahoe  
Recreation (Groome, 1990)(R).

11/042 Coast Road  
Motukiekie Rocks habitat and bird breeding site (SSWI)(R). Recreational diving  
(R). Hinterland habitat (SSWI)(N).

11/046 Woodpecker Bay  
Recreation (Groome, 1990)(R). Hinterland habitat (SSWI)(B).

11/048 Charleston  
Recreation (Groome, 1990)(L).

- 11/053 North Beach  
Dune vegetation (Johnson, 1989)(R). Sand beach mollusca (R). Recreation (L).
- 11/055 Waimangaroa  
Wetland habitats (WERI) (R-N).
- 11/056 Granity-Hector  
Coastal vegetation (Johnson, 1989)(R). Wetland habitat (WERI, SSWI)(R-N).
- 11/057 Hector-Mokihinui  
Coastal vegetation (Johnson, 1989)(R). River mouth habitat (WERI, SSWI)(L).  
Hinterland habitat (SSWI)(N).
- 11/058 Mokihinui - Little Wanganui  
Fossil site (Geopreservation Inventory) (R). Hinterland habitat (SSWI)(N).

D SITES OF LOCAL IMPORTANCE

- 11/037 Greymouth  
Recreation (pers. obs.)(L).

**BASE MAPS AND SITE RECORD FORMS**

Base Map 12.4 and Overlays

Site Records 11/001 to 11/003

Base Maps 12.3 and Overlays

Site Records 11/004 to 11/013

Base Map 12.2 and Overlays

Site Records 11/014 to 11/021

Base Map 12.1 and Overlays

Site Records 11/022 to 11/030

Base Map 10.2 and overlays

Site Records 11/031 to 1/042

Base Map 10.1 and Overlays

Site Records 11/043 to 11/054

Base Map 9.5 and Overlays

Site Records 11/055 to 11/062

Base Map 9.1 and overlays

Site Records 11/063

