

COASTAL RESOURCE INVENTORY

FIRST ORDER SURVEY

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 It is based on existing information compiled by conservancy staff from regional and national databases, published and unpublished reports, limited field surveys and personal or anecdotal information from various experts.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

MAP INDEX- WAIKATO

Site No.	Map Grp
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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.

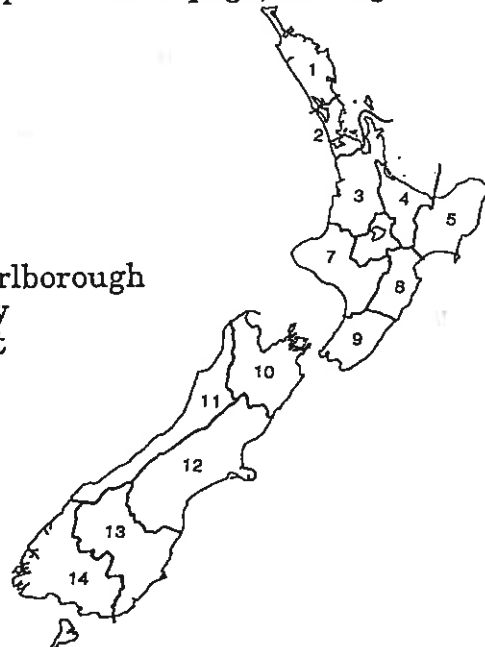
MAPS

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 | 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 | |



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.

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:

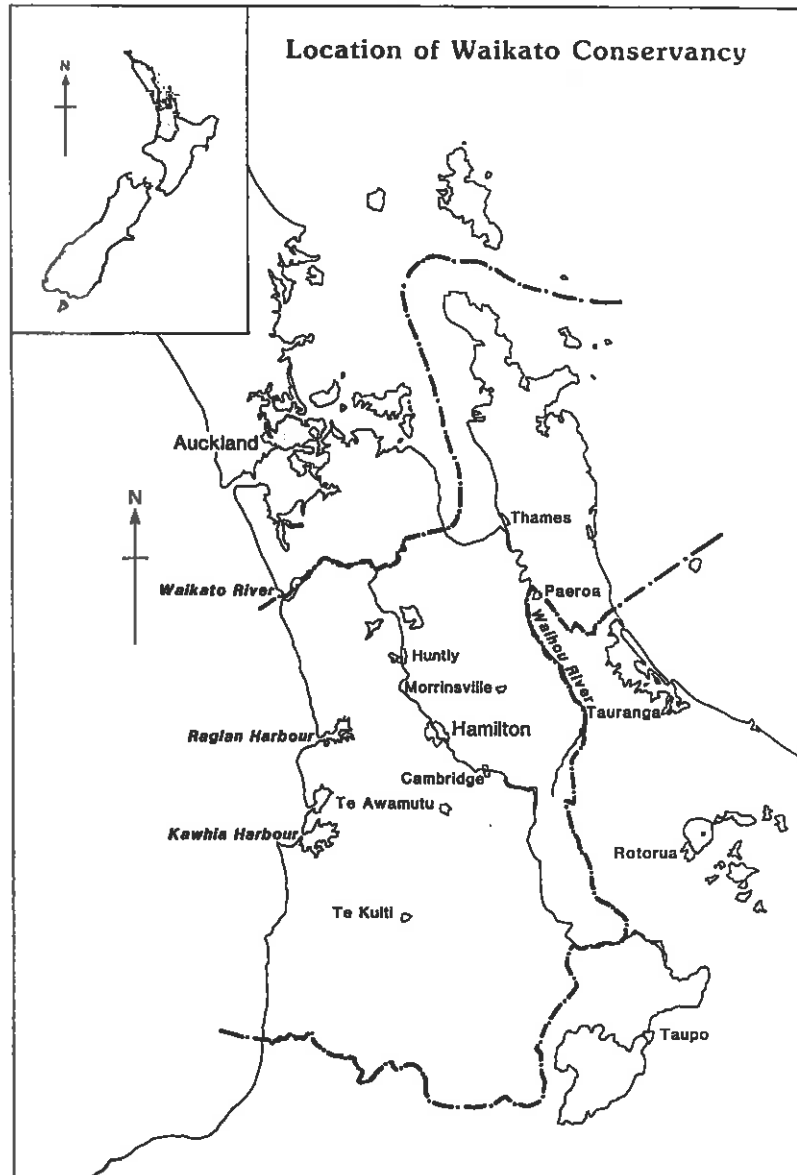
local	This category includes plants not under threat but potentially threatened, and hence deserving some level of monitoring and possibly protection. Included are regional endemics, plants of potentially vulnerable habitats, and species occurring as frequent but small populations.
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endemic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



2.0 DATA RESOURCE

In the Waikato Conservancy, the Coastal Resources Inventory First Order Survey was compiled largely from existing literature and also personal information from various specialists. No additional field checks were completed within the tight deadline set down for completion of the first order survey. An aerial coastal video covering the entire conservancy coastline which was completed in 1988 provided fairly up to date information.

Information Sources and Availability

Information categories were organised and assigned to specialist persons within the Department of Conservation or outside agencies. For example John Charteris of the Education Advisory Service, Hamilton provided information on coastal sites with educational values (see Table 1). Specialist persons were asked to comment and identify coastal sites and areas with significant values for their particular field of interest.

Databases accessed included the "Sites of Special Wildlife Interest" compiled by the Fauna Survey Unit of the NZ Wildlife Service; and the Geopreservation Inventory compiled by the NZ Geological Society and the Joint Earth Science Societies Working Group. Protected Natural Areas Programme survey reports completed or near completion for areas in this conservancy were very useful information sources.

VALUES CATEGORY	DATABASE	SPECIALIST
Flora	PNAP Survey Reports	L Humphreys (DOC) P de Lange (DOC)
Fauna	SSWI	R Thorpe (DOC) P Thomson (DOC) T Roxburgh (DOC)
Landforms	Geopreservation Inventory	T R Healy (University of Waikato)
Archaeology/Historic	NZ Register of Archaeological Sites	N Ritchie (DOC)
	Historic Places Trust Inventories	L Furey
Landscape		B Brown Associates
Education		J Charteris (Education Advisory Service)
Recreation		R Hutchings (DOC)

Table 1: Information Sources for the Natural, Cultural and Historic Value Overlays.

It must be noted that an extensive literature search was not completed for this first order survey. It was the decision of Waikato Conservancy staff that specialist comment would be sought for quality information and information coverage rather than a plethora of publications and documents where collation is time consuming and reports can range anywhere from very generalised resource data to specialised studies.

For the Waikato Conservancy there are no areas of coastline which do not have at least some existing information. The coastal video provides base data for all of the Waikato Conservancy coastline, including most of the islands. Offshore areas however are an unknown factor. Very little information for these areas was accessed and it is an information gap that needs to be highlighted.

The degree of information coverage can vary from site to site for several reasons:

- a) Development pressures in some areas have prompted studies and surveys.
- b) Some areas have been field checked for only one area of interest eg NZ dotterel survey whereas other sites have several disciplines reported.
- c) Many areas appear to have very significant values, eg clusters of archaeological sites or many rare plant records. It needs to be acknowledged that such features are often a function of survey concentration rather than uniqueness.

Protected Natural Area (PNA) Surveys provide flora information as well as specialists.

Natural:

Fauna information was principally taken from the Sites of Special Wildlife Interest (SSWI) database, which was completed in 1981 and has been updated for small areas. The Geopreservation Inventory and University staff provided data for sites of geomorphological interest. Information on marine ecology was generally lacking and is an area highlighted for further research.

Cultural:

Very little information has been mapped for the cultural values categories other than landscape value. Where known a contact person has been listed and it is considered that when an issue arises in an area then it is important to establish contact with the appropriate person to discuss the spiritual and traditional values of that area.

Landscape value was assessed by the Conservancy contract Landscape Architect, Bernard Brown. The aerial coastal video provided the base data for this landscape assessment. Coastal sites of moderate-high vulnerability and importance and higher were incorporated on to cultural maps.

Historic:

The high density of archaeological sites around the Waikato Conservancy coastline necessitates an additional map. This map was not used in determining the areas of conservation value overlay (Map 7) as this would have meant that the entire coastline would be contained in one large site. Sites were obtained from the NZ Register of Archaeological Sites held within Department of Conservation, Wellington. No indication of significance can be given for many of the sites as the register records only the location and type of site. A separate archaeological summary is provided within this chapter, and identifies key sites and gives a general perspective of archaeological values for this conservancy coastline.

Other Categories:

Resource information for the Existing Threats and Human Modification and Use categories was largely derived from the aerial coastal video which covers the entire conservancy's coastline and which was completed two years ago. Oblique aerial photographs also taken in conjunction with the video were used. Further data was obtained from the NZ Land Resource Inventory compiled by the National Water and Soil Conservation Organisation 1979; and from other Department of Conservation staff dealing with wild animal control, mining and fire issues. The protection status of the Waikato Conservancy coastline was compiled by draughting staff, Department of Conservation, Hamilton. Small locally protected areas have not been included as the scale of the base maps did not allow accurate portrayal of small areas.

3.0 SUMMARY OF CONSERVATION VALUE OF THE WAIKATO CONSERVANCY COASTLINE

The Waikato Conservancy encompasses approximately 1100 km of coastline. The natural and physical diversity of this coast is impressive, ranging from headland bounded sandy bays of the east Coromandel Peninsula, with low wave energy mixed sand and gravel beaches of the Firth, and offshore Coromandel islands in varying states of naturalness to long rugged beaches intercepted by rocky seacliffs and extensive estuarine harbour systems on the West Coast.

The coast today is the first choice of many New Zealanders for leisure and recreation particularly the Coromandel Peninsula coast is highly valued as a recreational resource in this conservancy. Its close proximity to the large population centres of Auckland and Hamilton mean that one-third of New Zealand's population are within 150 kilometres of the Peninsula. The appealing natural values of safe clean beaches, unspoiled natural landscape and general wilderness quality of Coromandel (Heylen 1985) command 5% of the total New Zealand domestic tourist markets.

Conflicting uses such as marine farming, reclamations, structures, roading, drainage, rubbish dumps, as well as additional developments and activities (marina developments, jetties, boat ramps, and overfishing) from increased tourism and recreation are placing great pressures on the coastal resource of the Waikato Conservancy.

The CRI First Order Survey has identified 38 sites of conservation value for the Waikato Conservancy covering 9% of the coastline (see Table 2). These sites are large and are an amalgamation of many values. The importance of a site is taken to be the highest parameter given for any value within a site. For example if the threatened NZ dotterel has been reported on a beach within a site, this site assumes national importance.

IMPORTANCE	NO OF SITES	APPROX LENGTH LENGTH (KM)	% OF COAST
International	7	312	28
National	27	666	60
Regional	2	20	2
Local	1	7	0.6
Unknown	1	5	0.5
TOTAL	38	1010 km	91%

3.1 The Coromandel Peninsula:

An extensive lowlying mangrove wetland forms the southern margin of the Firth of Thames. The western border of the Coromandel Peninsula is dominated by rugged mountains of the Peninsula rising steeply to 900 m forming steep incised valleys and a narrow fringe of rocky coast and mixed sand and gravel beaches as far north as Manaia. Long narrow bays and offshore islands are an integral part of the coastline landscape north to Cape Colville. The eastern side is characterised by sandy beaches and bays with estuarine systems fed by major river valleys and associated flats bounded by rocky headlands.

a) Natural Values:

Flora

Botanical values of the Coromandel Peninsula have been recently evaluated by the Protected Natural Areas (PNA) Programme (Humphreys and Tyler 1990).

From Thames to Manaia Harbour the coastal zone is narrow providing a scenic drive through isolated remnant stands of pohutukawa (*Metrosideros excelsa*) with some regenerating scrub on slopes. The alluvial fans at the base of the steep narrow valleys have been the focus for small coastal settlements resulting in very little of the original coastal alluvial forest remaining. Very few of these coastal forest remnants are protected in reserves and are subject to animal grazing. Larger areas require protection to ensure sufficient regeneration of coastal forest on the Thames Coast.

The Coromandel islands and harbours of Manaia, Te Kouma and Coromandel support very little of the original coastal forest due to the intensive human activity in its past history. A few areas of pohutukawa forest still cling to some cliff faces and some remnant areas of taraire-pohutukawa-karaka (*Beilschmiedia tarairi-Metrosideros excelsa-Corynocarpus laevigatus*) forest occur, in the hinterlands of the harbours. The harbours still support coastal wetlands ie mangroves (*Avicennia resinifera*) and rushlands but these do suffer from grazing of farm animals. The scarcity of flatland in the area has resulted in extensive freshwater wetland drainage. Manaia harbour, wetland and adjacent coastal forest and scrub is a recommended area for protection (Humphreys and Tyler 1990).

The peninsula nature of the Cape Colville area from Coromandel through to Kennedy Bay in the east results in the coastal influence on vegetation extending a considerable way inland and to a comparatively higher altitude than the rest of the Coromandel Peninsula. Forest on the coastal flats and lower hill sides has been largely cleared and burnt leaving only small isolated forest remnants and large areas of regenerating kanuka (*Kunzea ericoides* var.) and manuka (*Leptospermum scoparium*) scrub. Coastal cliffs are often covered in coastal flax (*Phormium* sp.) with occasional pohutukawa and coastal shrubs and trees. There is a general scarcity of coastal cliff forest. Coastal forest in this sector comprises pohutukawa, karaka, puriri (*Vitex lucens*) and taraire as the main species. The latter species is only common in this northern part of the peninsula. Dunes at Waikawau and Kennedy Bay support considerable natural vegetation communities including good areas of the rare coastal sedge pingao (*Desmoschoenus spiralis*) which is under threat elsewhere on the Peninsula. The Coromandel PNA survey has estimated that only 8% of the former extent of coastal forest still exists in the Colville area today. Of this 8% only 0.05% is protected in reserves. The old pohutukawa rock treelands, the taraire remnants, the coastal cliff flaxlands and the dunes give this remote part of Coromandel a distinct landscape character. However many of these stands are no longer viable largely because animal grazing is halting regeneration (L Humphreys pers comm). Areas at Fantail Bay, Potiki Bay, Waikawau and Kennedy Bay are recommended areas for protection (Humphreys and Tyler 1990).

The large river valleys and estuarine harbours of the eastern Coromandel once would have supported large areas of mangroves and coastal rushlands grading into extensive freshwater swamps. Generally the freshwater swamps have been converted to pasture. It is also suggested that the past extensive kauri (*Agathis australis*) logging activities in these eastern catchments would have had considerable effect on estuarine vegetation, however this is virtually undetectable today. Most of these estuaries still have a largely natural character with human encroachment occurring at the margins.

Extensive eelgrass (*Zostera* spp.) beds are supported in some harbours, notable extents being in Whangapoua, Whitianga, Tairua and Whangamata harbours. All but the smallest estuaries support mangrove forests with Whitianga and Whangapoua having the most notable extents. Most estuaries still support salt influenced rushlands, despite this plant community currently being the most threatened from reclamation. None of the large estuaries have any large proportion of their associated freshwater wetlands remaining. Dissected remnants survive at Opoutere. Only in two wetlands surveyed on the Coromandel did the gradation from salt to freshwater wetland remain intact, at Duck Creek on Tairua Harbour, and at Otama Beach, elsewhere the sequence is usually broken by farmland. Few of the river channels beyond the tidal influence support riparian vegetation such as cabbage tree-flax (*Cordyline australis-Phormium* sp) swamp and kahikatea (*Dacrycarpus dacrydioides*) alluvial forest remnants. Where remnants do occur they are strongly recommended for protection (Humphreys and Tyler 1990).

Sand dunes on the Coromandel Peninsula are highly fragile, rare, natural features in need of careful management. In almost every example the dune systems have been severely modified by humans. Levelling and destruction of dune forms and vegetation has taken place at Whangapoua, Whitianga, Cooks Beach, Tairua, Pauanui, Whangamata to name a few. The Opoutere sand spit is planted for the most part in introduced pine trees but with some areas remaining in natural dune vegetation. Only small fragments of the original dunes remain along the whole of the east coast. Otama and Hot Water Beach are the exceptions, the dunes here are largely unaltered but require careful management to maintain them. Dune erosion largely a result of disturbed vegetation by uncontrolled pedestrian access across the dunes is threatening nearly all dune systems on the Coromandel Peninsula.

Intercepting the large harbours of east Coromandel are steep hillslopes often with near vertical rocky cliffs. Farming practices have modified hillsides to remnant treelands. Small areas support components of the original pohutukawa cliff communities and the hillslope pohutukawa-broadleaved forest with puriri, karaka, karo (*Pittosporum crassifolium*) and Coromandel endemic species such as *Olearia townsonii* and *Pomaderris rugosa*. Taraire is found as far south as Whitianga in coastal forest, and uncommonly further south. Notable and extensive areas of coastal forest and scrub mosaics are all recommended for protection (Humphreys and Tyler, 1990). Many of these scenic areas are under threat from severe feral animal browsing and require protection and management to ensure regeneration. Orokawa and Homunga Bays are the only sizeable areas of coastal forest reserved on the east coast.

Fauna

Several statements can be made about the coastal wildlife values of the Coromandel Peninsula. The Firth of Thames is a Wetland of International Importance (Ramsar Convention) with approximately 110 species using the area including many rare, threatened and endangered national and international migrant bird species and it provides a very important nursery area for fish species. New Zealand has an international obligation to protect areas used by northern hemisphere migrant species.

The virtually unmodified intertidal areas of the Coromandel harbours are important for waders, while wetland vegetation is important for notable species like the threatened Australasian bittern (*Botaurus stellaris poiciloptilus*), spotless crane (*Porzana tabuensis plumbea*) and threatened banded rail (*Rallus philippensis assimilis*). The rocky shores are significant habitat for shags (*Phalacrocorax sulcirostris*) and threatened reef herons (*Egretta sacra sacra*) while sandy beaches and spits provide roosting and breeding sites for coastal bird species like the threatened NZ dotterel (*Charadrius obscurus*).

The offshore islands are vitally important in the long term management of New Zealand fauna and flora. They provide a barrier which successfully excludes most of the human induced changes which can affect the viability of many of the endemic flora and fauna species on the mainland (P Thomson pers comm.).

Several species of freshwater fish have restricted distribution on the Coromandel. For example the short-jawed kokopu (*Galaxias postvectis*) has never been considered locally abundant. Four areas extending from the sea to the upper catchment are targeted for their known fishery values largely due to being fairly unmodified with a significant percentage of the catchment still being forest. These are the Otahu, Kennedy Bay, Manaia and Te Puru catchments. These areas provide habitat which allows the completion of the natural life cycle of diadromous fish which depend on whether they can move freely between riverine and estuarine and marine habitats.

Geomorphology

A number of landforms and geological sites worthy of preservation occur around the Coromandel coastline. Hotsprings occur at several places the most notable are the Otua springs at Hotwater beach. The mudflats, barrier spit and shore platform of Tairua-Pauanui are superb geomorphological examples. Wave action and groundwater seepage have produced distinctive landforms in ignimbrite of regional significance at Hahei and Maramaratotara Bay, near Whitianga.

b) Cultural Values:

The people of New Zealand have a strong cultural affinity to the coast. The major population centres are focused here and all New Zealanders live within at least a two hour drive of the coast. New Zealanders go to the coast to relax or to recharge, to swim in the waves, experience the thrill of fishing, or to simply enjoy the scenic unspoilt beauty of the natural coast. It is also the focus of major commercial activities and provides an important transport route.

Maori have strong ancestral and spiritual ties with the coast. For many Maori, the coast is their turangawaewae - the place of their being from which they are inseparable. The coast in Maori culture, and for many pakeha, provides nourishment for both body and soul, sustaining the mana that is required for the caring and the protection of this taonga.

Landscape

Coastal landscape has been rated on a relative basis, to indicate cultural influence on two primary criteria:

Importance - extent seen
Vulnerability - sensitivity to change

Broad potentials for management were described under Preservation, Conservation and Restoration status.

The Coromandel Peninsula coast has four natural coastal areas which were keyed for preservation management. The majority of coastal units were keyed to conservation management where integration of development interests require articulate planning. Some highly focal units require restoration management if "wise use" is to be achieved. Particular attention should be directed at catchment protection in these areas.

The Coromandel coast has moderate high interest and aesthetic attributes owed to the highly indented coastline. However, intensive recreational uses and pastoral uses have severely impacted on natural values in places (B Brown pers comm.).

Education

The coastal environment offers many opportunities for teaching and experiencing activities. The geological sites worthy of preservation are key sites for educational studies for university and schools, as well as various rocky shores, Coromandel and Te Kouma Harbours, the offshore islands for oceanography trips, and Tairua Harbour to name a few.

c) Historical Values:

The Polynesian voyagers who were the ancestors of the Maori reached these shores more than a thousand years ago and their many generations of descendants had these islands more or less to themselves until the early

nineteenth century. Spectacular earthworks of substantial pa and many other archaeological sites are overwhelmingly concentrated within easy reach of the sea, especially in sheltered locations around harbours, estuaries, bays and beaches, and up the major river valleys. The distribution reflects the importance of kaimoana, the fertility of coastal soils, the relative ease of movement between settlements on coastal waters, and the many excellent defensive positions which coastal promontories afforded. Early European habitation on the Coromandel Peninsula can be traced through historic sites associated with kauri, gold mining and whaling activities.

Compared with other areas of New Zealand, the Coromandel Peninsula has been the scene of intensive archaeological activity in terms of the number of surveys and excavations conducted. The field work has centred largely on coastal areas where site densities are highest. As a result of fieldwork, approximately 3,300 pre-European and 700 historic sites have been recorded, perhaps 40% of the total (refer attached archaeological summary).

d) Recreation Values:

The coastal environment of the Coromandel Peninsula is a nationally significant recreation and tourism resource. The significance of this area relates to a number of factors which include:

- the quality and character of the natural environment
- the accessibility to the coast for recreation use
- the range of recreation opportunities that can be experienced in a relatively small geographic area
- its proximity to the large population centres of Auckland and Hamilton (in fact one third of New Zealand's population live within a 150 km radius of Thames)
- the scale of residential and holiday development

A nationally representative market research project undertaken in 1988 illustrates clearly the significance of the natural environment, and in particular the coast for recreation use on the Coromandel.

Listed by percentage significance:

- | | |
|-----------------------------|-----|
| • scenic unspoilt beauty | 40% |
| • safe clean beaches | 37% |
| • tranquil/away from it all | 34% |
| • Native bush/birds | 18% |
| • not crowded | 12% |
| • natural environment | 9% |
| • variety of activities | 9% |
| • coastlines | 7% |

The paucity of more site specific and detailed quantitative and qualitative information for the Coromandel is acknowledged. However even without this level of detail and without assigning numbers to the levels of visitor used, the Coromandel coast experiences extremely high recreation use.

e) Issues Arising from Human Modification and Use:

Many of the threats facing the coastal marine environment arise from human modification and use of this area.

In the catchment areas, activities like gold exploration and mining can have dramatic impacts on the coastal environment, if controls are not in place. Goldmining is going through another boom presently with much of the Coromandel covered by prospecting and exploration licences. Main areas of interest are Kuaotunu, Waihi and Thames. Increased sediment yield from catchments into estuaries has arisen from catchment practices involving land clearance, afforestation and associated logging activities, at Tairua and Whangapoua.

Natural values of the Coromandel coastline are also threatened through the adverse effects of introduced mammals. In particular, regeneration of the remnant coastal forest communities is not occurring due to feral animal browsing (largely goats, possums and pigs). The destruction of pohutukawa trees by possums (*Trichosurus vulpecula*) is causing concern at some sites. Invasive weeds, especially introduced grasses such as spartina (*Spartina townsendii*), represent serious threats to localised areas of coastline by smothering the natural communities. Spartina has been deliberately planted to reclaim intertidal areas. Adventive species are also common throughout the dune communities with very few natural communities remaining.

On the peninsula, coastal development like reclamations, subdivisions, jetties, pipelines, telephone cables, and mooring areas have degraded estuarine areas and sandy shorelines causing the loss of vegetation communities (particularly saltwater rushlands), breeding areas for coastal bird species, and feeding and nursery ground for fish species. Along the Thames coast and margins of the harbours, in particular roading works involving dumping of fill and coastal cliff cuts is having a pronounced affect on the natural shoreline of this area.

Aquaculture is a thriving industry in the waters of Coromandel Harbour and around the Motukawao Islands. Little is known about effect of concentrated marine farming in an area.

The fragile dune systems have been particularly modified by human interference largely from subdivision development and recreational activities. Visitors to the peninsula during the summer period have been recorded as high as 140,000. This transient population is focused largely on the coast. In response there has been a development boom since the 1970's of resorts on the east Coromandel, providing holiday homes like at Whitianga, Cooks Beach, Hahei, Tairua, Pauanui, Whangamata and Matarangi. In many cases, the dunes have been levelled to make way for residential areas and provide better views. Subsequently coastal erosion is threatening housing, a notable example is Cooks Beach. The most significant impact on these fragile dune systems and that which is a priority for management is the uncontrolled use of the dunes by pedestrians for access to the beach. No beaches where human settlement occurs are excluded from this problem. These walking tracks through the dunes, lead to vegetation destruction, and result in sand blowouts and destabilised dunes. Vehicle access over dunes and across sand flats is also threatening vegetation communities.

f) **Sites of Conservation Value on the Coromandel:**

There are 24 sites of conservation value identified on the Coromandel Peninsula, totalling approximately 90% of the coastline. Of these five sites are internationally important, 18 are nationally important, and one is of local importance.

Sites of International Importance

1. **Firth of Thames CRI 030001**

The Firth of Thames has been listed recently as a wetland of international importance under the Ramsar Convention; it is a wetland of International Significance (Wetlands of Ecological and Representative Importance, 1990) and nationally important for threatened bird species (Sites of Special Wildlife Interest, 1981). This outstanding wildlife habitat provides a breeding and roosting site for as many as 40,000 migratory birds. The Miranda fossil ridges are nationally important (Geopreservation Inventory 1989).

2. **Cape Colville CRI 030009**

Many coastal streams are of international importance for the endangered endemic brown teal (*Anas aucklandica chlorotis*) (SSWI, 1981). Regionally important as a recreation resource (R Hutchings pers comm.) and several recommended areas for protection are of regional importance (L Humphreys pers comm.).

3. **Potiki Bay-Waikawau CRI 030010**

Internationally important habitat for the endangered endemic brown teal, and nationally significant for many site threatened species (SSWI 1981).

4. **Kennedy Bay CRI 030011**

The Kennedy Bay estuary is of international importance for the endangered endemic brown teal, and nationally important for many threatened bird species (SSWI 1981) which breed, feed and roost in the area.

5. **Otama and Opito Bays CRI 030014**

Internationally important for the endangered endemic brown teal (SSWI 1981). Tahanga (adze quarry) is of national significance and early east polynesian beach middens on the foredunes of Opito are regionally significant (L Furey pers comm.). Landforms at Otama are of regional importance (Geopreservation Inventory 1989).

Sites of National Importance

1. **Tararu-Waikawau CRI 030002**

Nationally important for rare and threatened birds (SSWI 1981). Regionally important recommended area for protection (Protected Natural Areas Programme 1990).

2. **Manaia Harbour and Catchment CRI 030004**

Nationally important for rare and threatened birds (SSWI 1981). Notable harbour and catchment for its freshwater fisheries values (T Roxburgh pers comm.).

3. **Te Kouma Harbour CRI 030005**

Nationally important for a number of threatened bird species (SSWI 1981).

4. **Coromandel Harbour**
Nationally important for threatened birds (SSWI 1981). Regionally significant rock carvings occur within this site (L Furey pers comm.).
5. **Motukawao Islands CRI 030007**
Nationally important for threatened wildlife (SSWI 1981). A regionally significant landscape (B Brown pers comm.).
6. **Colville Bay CRI 030008**
Nationally important wildlife habitat for threatened bird species (SSWI 1981). Regionally significant archaeological sites (L Furey pers comm.).
7. **Whangapoua Harbour and Beach CRI 030012**
Nationally important wildlife habitat for threatened and rare bird species and the harbour represents the best and largest estuarine system in the ecological district (PNAP 1990).
8. **Rings Beach-Kuaotunu CRI 030013**
The nationally threatened NZ dotterel is reported as Kuaotunu beach (P Thomson pers comm.).
9. **Mercury Islands CRI 030015**
Nationally important island habitat for many threatened wildlife species including birds, invertebrates and lizards (P Thomson pers comm., L Humphreys pers comm.). Regionally significant landscape (B Brown pers comm.).
10. **Wharekaho Beach CRI 030016**
Nationally important pa (N Ritchie pers comm.), and wildlife habitat for rare and threatened bird species (SSWI 1981).
11. **Whitianga CRI 030017**
Nationally important for threatened wildlife (SSWI 1981), including the only estuarine inhabiting dolphins known in New Zealand. The harbour supports 2% of the total national population of mangroves (PNAP 1990).
12. **Cooks Beach CRI 030018**
Nationally important geomorphological features (Geopreservation Inventory 1989) and wildlife habitat for threatened bird species (SSWI 1981).
13. **Cathedral Cove-Hotwater Beach CRI 030019**
Nationally important for a number of rare and threatened bird species (SSWI 1981). Regionally significant recreation resource (R Hutchings pers comm.), regionally important for geothermal activity (Geopreservation Inventory 1989), botanical (L Humphreys pers comm.) and archaeological (L Furey pers comm.) values.

14. East Coromandel Islands CRI 030020

Nationally important wildlife habitat for threatened bird species (Protected Natural Areas Programme 1990). Archaeological sites are of regional significance (L Furey pers comm.).

15. Tairua Harbour CRI 030021

Nationally important wildlife habitat for threatened bird species (SSWI 1981) and regionally important geomorphological features (Geopreservation Inventory 1989) and archaeological sites (L Furey pers comm.).

16. Opoutere Spit, Wharekawa and Whangamata Harbours CRI 030022

Nationally important for rare and threatened bird species (SSWI 1981). Several regionally recommended areas for protection (PNAP 1990).

17. Otahu Catchment Estuary and Whiritoa CRI 030023

Nationally important for threatened bird species and the rare pingao plant (SSWI 1981). Regionally important landform (Geopreservation Inventory 1989), and recommended areas for protection (PNAP 1990).

18. Mataora Bay-Orokawa Bay CRI 030024

Nationally significant for the threatened NZ dotterel (P Thomson pers comm). Regionally significant landscape (B Brown pers comm.).

Sites of Local Importance

1. Kereta and Kirita Bay CRI 030003

Moderate wildlife habitat which corresponds to a locally important classification (T Roxburgh pers comm.).

3.2 The West Coast

The western coast of the Waikato Conservancy extends from Mokau in the south to Port Waikato in the north. The rugged coastline is broken by by three extensive estuarine harbours, Kawhia, Aotea and Raglan.

a) Natural Values:

Flora

Very little of the original coastal vegetation remains along the open coastline. A long history of pre-European and European settlement has modified the natural vegetation by burning, farming practices and the introduction of feral and domestic animals. Cattle, sheep and goats graze the coastal slopes for most of this coastline, only the most inaccessible cliffs are not reached by goats.

A sparse cliff vegetation clings to the coastal cliffs in some small areas. Coastal scrub dominated by tauhinu (*Cassinia leptophylla*) and taupata (*Coprosma repens*), and forest characterised by the prominence of nikau (*Rhopalostylis sapida*), kohekohe (*Dysoxylum spectabile*) and puriri (*Vitex lucens*) and a few karaka (*Corynocarpus laevigatus*) extends almost to the coast in areas but is truncated by strips of pasture or treeland. The open nature of this coast means existing forest is susceptible to storm wind damage.

Unusual and rare plants are found scattered along the coast such as *Hebe speciosa* and *Lepidium oleraceum* which are nationally vulnerable (Given et al. 1987), and not always protected in reserves. The local limestone ferns are found particularly associated with that rock. Several other plants attain their northern and southern limits along the coast. Conspicuous ones being taraire (*Beilschmiedia tarairi*) near Aotea and hard beech (*Nothofagus truncata*) at Awakino River. Many other small shrubs and herbs have significant distributions along this coast (L Humphreys pers comm.).

There are significant remnant areas of coastal vegetation which are within reserves, however these areas require active management to maintain the fragile west coast vegetation. These areas include Mt Karioi where grazed open treelands extend from the flanks of the forest park to the sea. There are several coastal scenic reserves south of Raglan which protect small but valuable areas of coastal forest and scrub. Te Iringa south of Taharoa includes modified forest and scrub reaching the coast. A very large coastal wetland lies in this area on the Tauhua Stream. Moeatoa Scenic Reserve has patches of coastal forest extending to the cliffs supporting a sparse shrubby vegetation. The forest still has an intact canopy but feral animals and possums are reducing forest condition. Te Marama Scenic Reserve has coastal forest that extends down hillslopes almost to the sea. A belt of feral animal induced grassland along the coast allows wind damage in this area. Huikomako Scenic Reserve has a wide strip of animal induced grassland with narrow strips of coastal forest which is severely affected by wild animals, extending to the coastal cliffs. The Stuart Russell Memorial Reserve and QEII covenant (Mt Duthie) protect the northern limits of the unusual coastal hard beech forest. The Awakino Scenic Reserve also protects hard beech forest and the small Tainui Scenic Reserve supports the endangered plant Tainui (*Pomaderris apetala*) (Given et al 1987).

In general there is so little natural coastal vegetation remaining along the open coast that nearly all that extending to the coast warrants protection and, the better quality areas require active management to maintain representative quality, diversity and rare plants of the west coast (L Humphreys pers comm.).

Streams and rivers along the west coast usually emerge abruptly through steep valleys cut in the cliffs or as narrow alluvial valleys. Many of these have small sand dune communities associated with them. The major harbours have associated sand spits, sand hills and wetlands. Generally the small river mouth areas have been converted to farmland or are covered in gorse and planted with marram grass and only a few remnant areas of natural dune vegetation remain.

Only the larger estuaries preserve large, viable areas of intact natural vegetation. A few have protection status like Port Waikato sandspit and Aotea sandspit. Many of the large dune systems have been stabilised with marram and planted pines as at Kawhia and north of Taharoa and only remnant areas of natural spinifex (*Spinifex hirsutus*) and rare pingao (*Desmoschoenus spiralis*) remain. At Port Waikato a large dune system occurs with spinifex, pingao and tauhinu, however indiscriminate recreational use and invasion by weeds is threatening this fragile system. Sand hills at northern Raglan Harbour remain fairly natural, although marram has been planted. The sand hills at Aotea North Head are a scientific reserve and protect the most intact, unmodified sand system on the west coast. A large area of sand dunes and unique large dune lakes occur at Taharoa. The lakes are a significant freshwater body for the West Coast. Pine plantations, commercially exploited iron sands and marram planting occur in the Taharoa area, some natural foredune remains and there is planting of pingao for cultural purposes. Fairly natural dune vegetation occurs on the sand spits of Awakino, Mokau and Marakopa estuaries.

The much indented inner harbours of the west coast of the Waikato Conservancy provide great extents of sheltered coastline. Large areas of eelgrass (*Zostera* spp) beds occur in the harbours. In the sheltered arms of Raglan harbour there are stands of mangrove (*Avicennia resinifera*). Although a few small trees are found in Kawhia, Raglan is taken to be the southern limit of mangroves. The harbour margins have areas of saltmarsh which are under threat from cattle grazing, infilling, roading etc. In places the sequence from salt to freshwater wetland is still intact, but this is not common due to drainage and roading. Rocky headlands and steep coastal slopes still support forest or scrub which comprises puriri, karaka, nikau, *Olearia albida* etc. In areas special limestone flora is found associated with limestone rocks. Rock stacks and small islands in Kawhia Harbour have been surveyed and found to support a wealth of unusual botanical features and species (P de Lange pers comm.). There is a proposed PNA programme for this area which will help to identify significant botanical areas and provide more comprehensive information.

Fauna

Wildlife values for this west coast are plentiful. The three harbours and river mouth estuaries are important to migratory marine fish, and their quality is vital for completion of life cycles of native freshwater fish. The Waikato River, Mokau, Awakino and almost all of the other larger river systems have significant values for whitebait. Nursery grounds for marine fish species are reported along this coast often outside the harbour mouths. The Taharoa dune lakes are the most diverse natural freshwater fishery in the region and the Waikato River supports New Zealand's largest eel fishery.

The extensive tidal flats of the estuarine systems and small river estuaries provide feeding grounds, breeding and roosting sites for a large number of bird species and have international significance in providing habitat during the northern winter for trans-equatorial migratory waders. The rare variable oystercatcher (*Haematopus unicolor*) and threatened NZ dotterel (*Charadrius obscurus*) are resident waders in the harbours and on some coastal beaches. Other notable species are the South Island pied oystercatcher (*Haematopus ostralegus finschi*), banded dotterel (*Charadrius bicinctus bicinctus*), pied stilt (*Himantopus himantopus leucocephalus*) and wrybill (*Anarhynchus frontalis*) observed at Kawhia. Kawhia Harbour is a major destination for the black stilt (*Himantopus novaezealandiae*), the rarest bird on mainland New Zealand.

The estuaries and the coast are also very important for shags, herons, terns, gulls, waterfowl, eastern bar-tailed, godwits, fernbird (*Bowdleria punctata vealeae*) and welcome swallows (*Hirundo tahitica noexena*). Black shags (*Phalacrocorax carbo novaezealandiae*), little black shags (*Phalacrocorax salcirostris*), little shags (*Phalacrocorax melandeucois brevirostris*) and white faced herons (*Ardea novaezealandiae novaezealandiae*) are all recorded in moderate numbers. Reef herons (*Egretta sacra sacra*) and white herons (*Egretta alba modesta*) are reported and gulls, caspian (*Hydroprogne caspia*) and white fronted terns (*Sterna striata*) occur in moderate numbers. Australasian gannets (*Sula bassana serrator*) are often seen patrolling the coastal waters. Of particular importance is Gannet Island which is a wildlife sanctuary, an important nesting and roosting site of gannets and a haul out for NZ fur seals (*Arctocephalus forsteri*). Several rocky stacks along the coast are important breeding and roosting sites for spotted shags (*Stictocarbo punctatus punctatus*), black shags and white fronted terns. NZ Hector's dolphin (*Cephalorhynchus hectori*) are regularly sighted in waters off Raglan Harbour.

Geomorphology

Sites along the West Coast rich in fossils are geological sites worthy of preservation of national and international significance at Port Waikato, Kawhia and Kiritehere.

b) Cultural Values:

The people of New Zealand have a strong cultural affinity to the coast. The major population centres are focused here and all New Zealanders live within at least a two hour drive of the coast. New Zealanders go to the coast to relax or to recharge, to swim in the waves, experience the thrill of fishing, or to simply enjoy the scenic unspoilt beauty of the natural coast. It is also the focus of major commercial activities and provides an important transport route.

Maori have strong ancestral and spiritual ties with the coast. For many Maori, the coast is their turangawaewae - the place of their being from which they are inseparable. The coast in Maori culture, and for many pakeha, provides nourishment for both body and soul, sustaining the mana that is required for the caring and the protection of this taonga.

Landscape

Coastal landscape has been rated on a relative basis, to indicate cultural influence on two primary criteria:

Importance - extent seen

Vulnerability - sensitivity to change

Broad potentials for management were described under Preservation, Conservation and Restoration status.

The West Coast is a highly modified landscape with bold landforms and extensive beaches. The diversity is moderate to low with extensive landscape units. Few totally natural areas remain, focusing on the Waikato River, and Mt Karioi and are assigned preservation status. In general the harbours areas are classified as sensitive areas requiring changes to management. The open coastline is mostly described as degraded, highly modified and prominent units with insensitive development. The landscape south of Kawhia is modified but has impressive limestone landform that is rarely seen or appreciated. The majority of the coastline is inaccessible for public use.

Education

The coastal environment offers opportunities for teaching and experiencing activities. Port Waikato, Ngatatura Point and Raglan Harbour are the focus for university geology field trips and school camps for fossil, geological and coastal ecology studies.

c) Historical Values:

The Polynesian voyagers who were the ancestors of the Maori reached these shores more than a thousand years ago and their many generations of descendants had these islands more or less to themselves until the early nineteenth century. Spectacular earthworks of substantial pa and many other archaeological sites are overwhelmingly concentrated within easy reach of the sea, especially in sheltered locations along the coast, particularly around the harbours, and up the major river systems. The distribution in part reflects the importance of kaimoana, but the river valleys and harbours also enabled relatively easy movement and transport between settlements, and afforded shelter and some degree of security (refer attached archaeological summary).

d) Recreation Values:

The west coast of the North Island north from Mokau to Port Waikato provides for a range of coastal recreation use. Existing use is focused on the easily accessed areas of Kawhia and Raglan Harbours and the other settlement sites such as Awakino and Mokau.

This section of coast is rugged and dramatic in character and with exception of the harbour areas where a range of traditional type water based recreation use occurs, use is limited to open beach and river fishing, shellfish gathering and whitebaiting.

This 'wild' experience is very significant in that it provides for an important and less common part of a spectrum of coastal recreation opportunity. This more natural and remote experience is complementary to the more developed experience of Coromandel and Auckland.

e) Issues Arising from Human Modification and Use:

The open coastline is fairly inaccessible and little used by the public, with human settlement focused around the larger harbours, river mouths and smaller estuaries.

Farming has severely modified the landscape with only remnant coastal forest and scrub stands remaining along much of this coastline. The natural values of these areas are threatened further by introduced mammals like goats, possums, cattle and deer preventing regeneration of the vegetation. Stock also graze most riparian margins of rivers and down to the dune areas. The disturbance of riparian vegetation by stock is seriously impacting on spawning areas of whitebait. Whitebaiting is a major recreational activity carried out along this coast, with many whitebait stands found along the river banks. Decreasing whitebait catches over recent years has suggested that the whitebait resource is over-exploited.

Coastal subdivisions focus on the sand spit areas and inner harbour mouths in most cases, resulting in some small reclamations, refuse dumping, structures built out into the harbours and destabilised dunes in some cases. Aotea foreshore has undergone severe erosion, with the residents reacting by dumping concrete and erecting wooden barriers which has added to the problem in most cases. Where populations are based, the dunes are threatened from uncontrolled public access across them which has disturbed the vegetation cover and resulted in destabilised dunes. At Port Waikato, uncontrolled trail bikes, dune buggies, and off road vehicles are threatening this fragile dune system and disturbing breeding birds. The rugged nature of the West Coast means that some dune areas as well as pastured areas are undergoing severe wind erosion.

Fishing techniques are banned from the inner harbour areas, and there have been public calls for further restrictions in offshore waters particularly over fish nursery grounds.

f) Sites of Conservation Value on the West Coast

There are 14 sites of conservation value identified along the West Coast, totalling approximately 90% of the coastline. Of these two sites are of international importance, nine are nationally important and two are of regional importance and one is unknown.

Sites of International Importance

1. Kawhia Harbour CRI 030031

Kawhia Harbour is internationally important as a major destination for migrating endangered endemic black stilt (Site of Special Wildlife Interest 1981), and nationally significant for its geological values (Geopreservation Inventory 1989) and because of the presence of many threatened bird species (Bell 1986).

2. Waikato River CRI 030038

The fernleaf, squid shells, belemnites, and ancient bivalve fossils found in the Jurassic mudstone at Port Waikato are of international significance (Cometti and Morton 1985). The area is assigned national importance due to the presence of breeding threatened bird species which also feed and roost in the area (SSWI 1981), and as the river supports New Zealand's largest eel fishery.

Sites of National Importance

3. Mokau-Awakino CRI 030025

This area incorporating both Mokau and Awakino Rivers is nationally important due to the presence of threatened bird species (SSWI 1981) and vulnerable plant species (L Humphreys pers comm.). The area is a regionally significant recreation resource as well as having regionally important fishery values (T Roxburgh pers comm.).

4. Huikomako-Waikawau CRI 030026

Nationally important due to the presence of threatened NZ dotterel breeding in several areas within this site. The importance of much of this site is largely unknown, preliminary findings suggest it is a significant area with many unusual plants and vegetation associations, and lies within the zone where many northern and southern limits of plant species occur (K Broome pers comm.).

5. Marokopa Estuary and Kiritehere Coast CRI 030028

Marokopa Estuary is an area assigned national importance due to the presence of threatened bird species and the rare coastal plant, pingao (SSWI 1981). Important fossil beds at Kiritehere are regionally important (Geopreservation Inventory 1989).

6. South Motunau Rocks CRI 030029

The conservation values of this area are largely unknown however the threatened NZ dotterel is reported as using this section of coast, and the site is therefore assigned national importance.

7. Taharoa CRI 030030

This site is of national importance because of the presence of many threatened bird species (SSWI) and the rare coastal plant, pingao. The lakes associated with this site provide the only significant coastal body of freshwater between Kaipara and South Taranaki Bight, and also provide for a regionally significant freshwater fishery (T Roxburgh pers comm.).

8. Aotea Harbour CRI 030032

The harbour is an important link in the chain of estuarine habitat in the north of the North Island and is assigned national importance because of the presence of threatened bird species (SSWI 1981). The sand dunes of Aotea sand spit are also of national importance (Geopreservation Inventory 1989).

9. Raglan Harbour CRI 030035

Nationally important estuarine harbour for many threatened bird species and international migrant bird species. There are sighting reports of the rare endemic NZ Hector's Dolphin outside the harbour entrance (R Thorpe pers comm.).

10. Otehe CRI 030036

This site is assigned national importance because threatened NZ dotterel are reported at several locations. Waikorea hotspots are of regional importance (Geopreservation Inventory 1989).

11. Kaawa Stream and Ngatutura Point

Nationally important because of the presence of vulnerable plants (L Humphreys pers comm.) and threatened and rare bird species (SSWI 1981).

Areas of Regional Importance

1. Gannet Island CRI 030033

An important rookery for Australasian gannet and haul out area for NZ fur seals of regional importance (R Thorpe pers comm.).

2. Karioi CRI 030034

This section of coast incorporates Mt Karioi and is a prominent regionally significant landscape feature (B Brown pers comm.).

Areas of Unknown Importance

1. Moeatoa CRI 030027

Preliminary surveys suggest this area supports one of the most important remaining pieces of coastal forest in the Tainui Ecological Region.

4.0 NZ COASTAL POLICY ISSUES

The coastline of the Waikato Conservancy is a limited resource of tremendous value. The natural inherent beauty of the Coromandel Peninsula is made up of sandy bays, bush covered headlands, meandering estuaries, rural farmland and rugged bushclad hills forming a natural backdrop. The west coast's appeal is in its rugged nature and dramatic cliffed coastline. These landscapes are of a delicate nature and can only take so much modification before the character will change and much of the quality and value is lost.

Several guiding principles need to be acknowledged within future coastal management and planning:

Public Ownership and Access

New Zealand has enjoyed a tradition of free public access along the coastline and over coastal waters. The continuation of this right of access is fundamental to New Zealand life. While access to and along the coastline can be restricted by natural parameters, intentional restrictions should only occur to protect important conservation values or in the interests of public safety. The sole right of use of an area by way of lease or licence must be considered a privilege.

Maintenance of Natural Character

The natural character of the coast as perceived and valued by New Zealanders is a blend of qualities, which can be ecological, physical, spiritual, cultural or aesthetic in nature. Maintenance of these qualities and hence the natural character of the coastal environment is necessary for the enjoyment and benefits of New Zealanders today and for future generations.

Tangata Whenua

The coastal environment has special cultural and spiritual significance for many Maori. The values placed on the coast by the tangata whenua must be recognised and taken account of.

Specific Issues

More specific issues that were raised during the compilation of first order survey and those that need to be addressed by policy are:

1. Preservation of remaining natural areas. Coastal habitats of forest, estuarine and freshwater wetlands (particularly rushlands) and dune communities are a very threatened resource on the Coromandel Peninsula and the West Coast, with very few intact natural areas left. Farming, infilling for reclamations, coastal roading, adventive plant species and noxious animal browsing are all having a dramatic affect on remaining natural areas.
2. Past development has sometimes evolved in a manner which has not been sympathetic to the landscape and has paid little respect to the public interest generally. Restoration management should take place where the natural character has been disturbed by residential development and other land use activities like farming and forestry. The development of the gold mining industry must be critically examined, where it will conflict with the natural landscape near the coast.
3. Offshore islands of the Coromandel Peninsula are special features which must be safeguarded and protected from coastal development. They are a very prominent feature of the Coromandel landscape and are vitally important in the long term management of New Zealand's fauna and flora.
4. Residential areas have largely developed to satisfy particular demands for coastal land (the demand for holiday homes) and subsequently visitor use has been focused in concentrated zones on the coast like Hahei, Pauanui, Matarangi, Whangamata and Raglan settlements. This focused concentration of population has caused some impacts and has downgraded the conservation resources of the coast. The impacts vary in magnitude depending on the sensitivity of the resource and its ability to assimilate that use. Coastal dunes located at these focused population centres have in every case suffered from uncontrolled pedestrian and vehicle access, and subdivision development. Dissemination of visitor use along the coast, provision of facilities for this use and subsequent appropriate management is a priority planning issue.
5. The aquaculture industry continues to expand in the Waikato Conservancy. Applications for new licences and extensions to licences are forthcoming. Issues that need to be addressed are whether the natural character of further portions of the coast should be modified by aquaculture structures, or should areas with a proliferation of structures already be further impaired, and what is the long term effect of concentrated aquaculture on the marine environment?
6. Roosting and breeding habitats for coastal wader bird species like the threatened NZ dotterel and rare variable oystercatcher, are wildlife habitats most at risk on the Waikato Conservancy coastline. These sand spit and dune areas are often the focus for human activities particularly recreational pursuits and housing development. Encroachment of development into saltmarsh areas has greatly decreased habitat available for notable wetland bird species like spotless crane, banded rail and fernbird.

7. The protection and preservation of freshwater fisheries is of particular importance to the Waikato Conservancy. NZ freshwater fish fauna comprises 27 species. Of these 23 are endemic and 17 are diadromous, ie they consistently move between fresh and saltwater at some stage of their lifecycle. These migrations have important implications for conserving fish and fish habitats. The coastal marine area is intrinsically linked to the terrestrial area and it is illogical to manage them seperately.

Any analysis of the conservation needs of NZ fish must consider not only the species whose populations and/or habitats have seriously declined, but also protection within reserves of natural habitats suitable for the maintenance of viable populations of the whole range of native species. Conservation requirements include:

- a) Catchments as little modified as possible and reserved
 - b) retention of riparian margins
 - c) retaining a naturally fluctuating water regime in streams and wetlands
 - d) providing for fish access to and from the sea. Upstream barriers include dams, effluent pollution, high sediment loadings and elevated temperatures through reduced vegetated stream margins.
8. In the Waikato Conservancy increased sedimentation rates within estuarine harbours largely due to catchment management is noted. Farming and forestry management practices in the upper catchment have had little regard for the subsequent detrimental impacts on the estuarine and riverine systems. Smothered shellfish is one obvious impact.
 9. Rationalisation of jetties and foreshore structures on the coast is needed. The expectation that any person can have the sole use of a private jetty or structure on the foreshore is still held by the general public. Policy discouraging this privatisation of the foreshore and seabed is required.

5.0 CRI SECOND ORDER SURVEY

The Second Order CRI Survey in the Waikato Conservancy will be refined to meet the needs of resource compilation for coastal regional plans. Discussions with the Waikato Regional Council have already delineated knowledge gaps and key issues to be addressed. It is intended that research carried out by both organisations will complement each other and that coastal management will be a co-operative venture.

1. Information for the first order survey was largely collated at a scale of 1:250,000. A more appropriate scale for day to day management is 1:25,000 which is likely to be used by both the Waikato Regional Council and this conservancy.
2. There are several areas of existing information that still need to be accessed, including old files, university reports and scientific papers.
3. Priority areas of second order survey are as yet undetermined but will be refined to target knowledge gaps.
4. Offshore marine information is a major information area where little data has been accessed. Survey work targetting marine habitat identification and description is seen as a priority for this conservancy.

5. Another key area which requires more research and survey is visitor and recreation use of the coast. This is required to provide base information for planning for present and future recreation and tourism on the coast and should identify high use areas, and areas where conflicts may arise between other conservation values and recreation use.
6. Maori spiritual and traditional values of the coast are largely unknown. Maori liaison and contacts need to be established and participation by the tangata whenua in coastal management needs to be encouraged and facilitated.

6.0 CONCLUSIONS

The primary mission for Coastal Resource Inventory was to provide information for the maintenance, enhancement and restoration of the natural character and qualities of coasts and their sensitive use. The completion of first order CRI survey has identified various conservation values, uses, threats and protection status of the coast and has been the first step in meeting the above goal.

The Coastal Resource Inventory programme will be continued in this conservancy and designed to meet requirements for regional planning and targetted toward information areas where knowledge is limited.

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8.0 ARCHAEOLOGICAL OVERVIEW OF COROMANDEL PENINSULA

Introduction:

This report, in part drawing on information provided by Louise Furey (under contract), summarises the nature and available information about coastal archaeological sites on the Coromandel Peninsula. For convenience, the coast is discussed in sections based broadly on topographic units.

Compared with other areas of New Zealand, the Coromandel Peninsula has been the scene of intensive archaeological activity in terms of the number of surveys and excavations conducted. The archaeological work reflects the density and significance of the sites on the Peninsula, and threats to them. Most of the field work has centred on coastal areas where site densities are highest. To date 36 major archaeological surveys have been conducted, as well as c.15 partial surveys. Twenty five major excavations on Maori sites have been conducted. As a result of the fieldwork c.3,300 pre-European and 700 historic sites have been recorded on the Peninsula, perhaps 40% of the total. Despite the relatively large number of surveys there are several coastal strips which have not been examined systematically. These include Wilsons Bay, large parts of Coromandel and Te Kouma Harbours (including the Te Kouma Peninsula), parts of the Gulf coast north of Amodeo Bay, Potiki Bay, Matarangi Bay, parts of the Kuaotunu Peninsula, large coastal tracts south of Mercury Bay, and areas between Tairua and Waihi Beach.

The Peninsula is notable for the number of tribal enclaves which exist today, reflecting conquests and counter-conquests in pre-European times and population movements in the early contact period. The dominant tribal groups are noted in the discussion on each section.

Sources of Information:

1. The national archaeological site recording scheme maintained by the NZ Archaeological Association. This database contains information on some 43,000 sites throughout the country, including c.3,000 around the coastline reviewed here.
2. County Inventories compiled by the NZ Historic Places Trust. These reports contain summaries of the archaeological resource in each county based on the records in the NZAA site recording scheme and other sources such as excavation and survey reports. The Thames-Coromandel Inventory covers the area in question.
3. Archaeological and Historic Records. Over 50 reports documenting various surveys and excavations in the Coromandel have been produced. As noted most of the field work has a strong coastal orientation reflecting the nature and antiquity of settlement. Reports pertinent to each coastal sector are noted in the ensuing discussion. The majority of the early goldmining sites on the Peninsula are documented in two major DOC in-house reports (Broad et al 1984, Ritchie 1990).

Site Distribution:

The known and inferred site distribution pattern is similar to that found on the western Waikato seaboard, and elsewhere in New Zealand. That is, pre-European occupation (and consequently sites) are overwhelmingly concentrated within easy reach of the sea, especially in sheltered locations around harbours, estuaries, bays, and beaches, and up the major river valleys. The distribution reflects the

importance of kaimoana (seafoods), the fertility of coastal soils, the relative ease of movement between settlements on coastal waters, and the many excellent defensive positions which coastal promontories afforded.

Firth of Thames:

This sector comprises the lowlying land at the head of the Firth of Thames, essentially the coastal margin of the Hauraki Plains. In both pre-European and early historic times access into the interior was afforded by the Waihou and Piako rivers. Most of the Maori and early European sites are adjacent to the former channels of these rivers, eg at Raupa, Hikitaia, Puriri, and Paeroa.

The main Maori sites include hill and flatland pa, middens, terraces, pits and a rockshelter (Best 1979). Many sites in low lying areas have been modified or destroyed by catchment and drainage work. Major archaeological investigations in the area have been conducted at Oruarangi, and Raupa/Waiwhau. These sites are adjacent to the Waihou River. The predominant Maori tribal groups in the area include the Ngati Hako (centred around Kerepehi and Waitakaruru), Ngati Pu (Hikutaia), and Ngati Maru (Thames).

European sites include a CMS mission station (1833-37) at Puriri, and the Miranda redoubt established by British military forces on the western side of the Firth in 1862. Other redoubts were established further inland to prevent Coromandel Maori from entering the fray (the Land Wars) in the Waikato.

Thames-Tapu Coast:

Four archaeological surveys have been undertaken within this coastal area, viz. surveys of the Tapu-Thorntons Bay coast (Diamond 1976), the lower Kauaranga-Matatoki (Twohill 1979), the Kauaeranga kauri areas (Hayward 1978), and the Thames mining area (Ritchie 1990).

The surveys reflect the usual pattern with regard to Maori sites - coastal midden, and pa and pit/terrace complexes on the hills behind coastal flats. The sites are of varying significance but all contribute to the overall historic landscape. Some Maori evidence has been obliterated or masked by historic mining activities.

The main Maori groups in the area are the Ngati Maru (Totara-Thorntons Bay; contact Tai Turoa, Thames), and the Ngati Tamatera (Thorntons Bay north; contact S Tukukino, Te Puru).

Sites related to the establishment and development of the Thames goldfield are the main historic sites in the coastal area. They include numerous mine drives and shafts, mining camps, and processing sites in the coastal hills, as well as pumping sites and industrial and commercial buildings in Thames (Ritchie 1990). Some of the mining sites in and around Thames are of regional and national importance (ibid.). They include the Sylvia battery site, the Shotover mine site, the Moanataiari tunnel, the Caledonian mine site, the Queen of Beauty shaft and Thames-Hauraki pump quadrants, the Waiotahi mine site, and collectively the mass of mine drives in the valleys behind Thames. Modern mining and re-development of Thames township are the main threats to these sites. The majority of the kauri industry-related sites are in the headwaters of the Kauaeranga, some distance from the coast (Hayward 1978). A CMS mission station was established at the mouth of the Kauaeranga in 1837.

Wilson's Bay-Manaia:

The two main archaeological surveys in this area (Coster and Johnson 1978, Brier Block, Whangapoua State Forest; Diamond 1981, Thames-Manaia coast survey) have indicated a relatively high site density. The Wilson's Bay area has never been surveyed.

Maori sites are concentrated on coastal ridges and spurs. They include pa, midden, pits, terraces, stone mounds and at least one flaking floor (Manaia). Relatively little is known about the sites. Threats include afforestation, land clearance, and horticultural intensification around Manaia. The main Maori groups in the area are Ngati Tamatera (Wilson's Bay), and Ngati Pukenga (Manaia, contact: Toko Renata, Manaia).

There are no significant early European sites on this section of the coast. Inland there are a number of sites associated with gum digging.

Coromandel:

Not surprisingly the sheltered environment of the Coromandel Harbour and environs was a favoured area of Maori settlement. Five archaeological surveys have been undertaken in the area. They cover the Coromandel-Tatahoa Stream coast (Edson 1976), parts of Tairua and Whangapoua Forests (Nugent & Nugent 1977), Blocks IX and X, Coromandel (Hansen and Barton 1978), the Brier Block, Whangapoua State Forest (Coster and Johnson 1978), and the north foreshore of Te Kouma Harbour (Ritchie 1989). Traditional history associated with some of the sites on the Coromandel (Waiarau) Harbour foreshore has been presented recently by Phillips (1989).

In addition to the numerous coastal pa and midden, the surveys have revealed that there is a high density of sites in the hilly hinterland beyond the flat land at the head of the harbours. Maori sites include pa, middens, storage pits, terraces, stone structures, burials, and rock carvings (T11/152). The main threats to sites in this area are afforestation, modern mining, and subdivision of farms into smaller lifestyle units.

The predominant tribal groups in the area are the Ngati Whanaunga (Contact: Oho Nichols) centred round Manaia-Kikowhakarere Bay, and the Ngati Tamatera to the north of Coromandel.

The hills immediately behind Coromandel township were the site of the first Hauraki goldmines (and goldrush) in 1852. Locations such as Kapanga and Driving Creeks and Tokatea Hill have considerable historical significance. The town itself contains many fine commercial and residential buildings dating from the boom days of the goldfield. In addition to the mining-related sites, there are early sites associated with the timber industry, Webster's Camp (1830s) on Whanganui Island, and early farm settlements on Tiki Flat.

Colville-Port Charles (Cape Colville):

Substantial parts of the coast in this sector have been surveyed, viz. the Port Jackson area (Best 1975), between Coromandel-Tatahoa Stream (Edson 1976), Port Charles (Warmsley & Barton 1976), the coast north of Colville (Boileau and Tippet 1977), Waiaro and environs (Boileau and Tippet 1979), and all the beach areas (Easdale & Jacomb 1982). Besides the usual range of Maori sites (pa, middens, burials, agricultural terraces and storage pits, and stone structures) pre-European fish traps are a feature of this section. Known examples of the latter consist of low stone walled enclosures in the intertidal

zone, eg (S10/79) on the south side of Colville Bay. Although common in the Pacific, this type of fish trap is relatively rare and unusual in New Zealand.

Three Maori groups are established in the Cape Colville area: Ngati Tamatera (from Coromandel to Amodeo Bay), Ngati Tamatera and Ngati Paoa (from Amodeo Bay to Cape Colville), and the recently formed Moehau Nga Tangata Whenua Trust.

Few of the historic sites in the area have been recorded, although a number are known. These include a sawmill and other timber sites (including kauri dams), a flaxmill site at Port Jackson, and the granite quarry and jetty at Paritu.

The main threats to sites along this section of the coastline are coastal erosion (Port Jackson), farming practices (Port Jackson and Waiaro north), and coastal development (Port Charles-Sandy Bay).

Waikawau:

An archaeological survey of Waikawau Bay (Reynolds and Tippet 1976) revealed that there are a large number of pa, midden, terraces, pits, burials, and taro plantings in the area, but in the absence of further fieldwork relatively little is known about the sites in the area. The Bay is within the Ngati Paoa tribal area.

Historic sites include timber sites, a tramline, and European camp sites.

Kennedy Bay:

Two archaeological surveys in the Kennedy Bay area (Mangen, Hansen & Barton 1977, Hansen & Barton 1978) have revealed high densities of the usual Maori sites, viz. pa, middens, terraces and pits.

The area is a Ngati Porou enclave (contacts George Hovell, Andrew Potai, Kennedy Bay). Also the Ngapo family (contact: Manny McLean).

Some notable early historic sites are located on the north side of the bay. They include an 1860s timber mill (T10/524), an 1860s boat building yard (T10/519) and a whaling station site (T10/509) which was established early this century.

Whangapoua:

The beach dunes and headlands and low rolling land behind Whangapoua harbour bear extensive evidence of Maori occupation including numerous pa, middens, terraces, pits, and burials which have been documented in the course of several surveys, viz. Calder 1972 (Opito-Otama), Coster 1980, and Pierce 1981 (Otangaru block), Olsen 1981 (Opera Point Historic Reserve), and Easdale & Jacomb 1982 (Coromandel beaches). While all the sites in the area are important evidences of past Maori occupation, the adze quarry and manufacturing sites on Tahanga Hill behind Opito are some of the most significant. Adzes made from the Tahanga basalt are found in sites throughout the northern North Island. The foredunes at Opito contain a number of early East Polynesian beach middens. Other early sites are found in the Sarah's Gully (Whaorei) area. These sites (like early coastal sites elsewhere) are of regional/national significance.

The main tribal groups in the area are the Ngati Pupu (Whangapoua-Kuaotunu; contact Lou Mangakahia, Whangapoua), and the Ngati Hei (Kuaotunu-Opito, contact Peter Johnson, Wharekaho).

The Whangapoua hinterland contains a large number of historical sites, some of which are recorded. They include timber mills, kauri dams, and gold mining sites.

Sites in the area are threatened by modern mining, afforestation, and coastal development, especially at Matarangi and Opito.

Mercury Bay:

Although this is known to be a significant area of Maori occupation in pre-European times relatively little systematic recording has been undertaken. Surveys of parts of the area have been conducted by Calder (1972, Opito-Otama), and Puch (1975, Mt Maungatawhiri). Recorded Maori sites include pa, midden, terraces, pits, stone structures, and agricultural sites, and basalt and obsidian working areas. One pa, Wharetaewa (T11/80), which was visited by Cook in 1769 is rated 'of national significance', but with further research and evaluation many others would merit a similar designation.

Ngati Hei is the predominant tribal group in the area. Threats to sites include afforestation, coastal subdivision, and horticultural developments. Archaeological surveys are needed of the entire Whitianga and Purangi River catchments.

Large numbers of gold mining and timber industry sites exist in the hinterland behind Mercury Bay, as well as a shipwreck (HMS Buffalo) on Buffalo Beach. Notable historic sites within Whitianga Harbour include Brown's sawmill and stone wharf at Whitianga, and the Upper Mill site (1864) and Waiwawa timber booms at the head of the harbour. Cook's watering place in Cook's Bay is also of historical significance.

Cooks Beach-Hahei:

The beaches along this stretch of coastline were surveyed by Easdale and Jacomb (1982). The usual suite of Maori occupation sites are present: pa, middens, pits, terraces, burials, and flaking floors. The sites are concentrated on the foredunes and on the land of low relief rising from the coast. Early East Polynesian beach sites at Hahei and Hot Water Beach are regionally significant. Insufficient is known about most of the other sites. Further surveys are required. Sites in the area are threatened by coastal subdivision, especially at Otara Bay, Hahei, and Hot Water Beach.

European sites include the Sailors Grave (HMS Tortoise, Te Karo 1841), timber roads, and unlocated (1840-41) timber camps.

Tairua:

The distribution of sites in the Tairua area is similar to that found in many parts of the Coromandel- extensive Maori occupation on the low lying coastal margins (including pa, middens, burials, pits and terraces), and numerous historic sites (kauri dams, logging tramways, logging booms, and mines, settlements and camp sites associated with gold mining) in the hilly hinterland. Parts of the area have been systematically surveyed by Diamond (1979, lower Tairua valley), Coster & Johnson (1980, Hikuai block, NZFS), and the beaches (Easdale & Jacomb 1982).

Significant early Polynesian sites exist on the foredunes at Tairua. The tangata whenua are the Ngati Hei. Sites in the area are threatened by afforestation, farming and horticultural developments, and coastal subdivision (especially at Tairua).

Significant historic sites include a sawmill (established c.1860) and Jackson's Landing trading post (1860s) at the head of Tairua Harbour.

Wharekawa:

Several archaeological surveys have been undertaken in the Wharekawa area, viz Coster & Johnson (1975 Wentworth & Ohui blocks, Tairua Forest), Pierce & Olsen (1980), and Charters (1981), West Block Tairua Forest), Easdale & Jacomb (1982, the beaches), and Furey (1987, Ohui, Opoutere, Wharekawa Harbour). The surveys have documented extensive evidence of Maori occupation (evidenced by pa, middens, pits, terraces, stone structures, and a rockshelter) near the coast and on the low lying land bordering the Wharekawa River. The foredunes of Opoutere Beach contain several significant Maori sites.

The main tribal group in the area are Ngati Tamatera, and local families (Savages, Douglas', and Keenans at Opoutere). The main threat to sites are coastal development (at Ohui, pending) and on the south side of the Wharekawa Harbour entrance.

European sites include logging booms, kauri dams, campsites, tramways, and sites associated with gold mining.

Whangamata:

Early East Polynesian beach settlements are a feature of the coast in this area (and elsewhere on the eastern side of the Peninsula). Early sites exist at Onemana (Whitiporirua) and near the wharf at Whangamata. Besides the usual range of Maori sites, an obsidian source and flaking area have been recorded. Sites in the Tairua Forest have been documented by Coster & Johnston (1975a, 1975b), Furey & Williams (1979) and Furey (1986). Easdale & Jacomb (1982) surveyed the beaches. Significant concentrations of Maori sites exist in the dunes and lowlying areas around Onemana and Whangamata, as well as evidence of extensive settlement in the hills behind the latter, and up the Otautu River.

The tribal affiliations of the area are Ngati Tamatera and Nga Marama (Tauranga).

The European sites are locally significant. They include sites associated with goldmining, and the logging industry (campsites, settlements, tramways). Logging booms are located at the head of the Otautu Estuary.

Orokawa-Waihi:

Surveys (Easdale & Jacomb 1982, and Furey 1988, DOC Orokawa Scenic Reserve Management Plan) have revealed that the coastal margin in this area contains Maori site types similar to those found in other eastern areas of the Peninsula. Sites include pa, midden, terraces, pits and burials. Relatively little is known about the antiquity of sites in the area. A notable rock art site is recorded at Waim: na (north of Whiritoa). A substantial Archaic Maori site at the southern end of Whiritoa Beach has been virtually obliterated by sand mining.

The tribal affiliations of the area are Ngati Tamatera, Nga Marama (Tauranga) and Ngati Porou (Mataora Bay).

No historic sites are recorded in this area, but there is unrecorded evidence of the Waihi Beach Goldmining Company's endeavours in the headland at the northern end of Waihi Beach.

Offshore Islands:

Several archaeological surveys have been undertaken on the offshore islands adjacent to the Coromandel Peninsula, viz. Great Mercury (Ahuahu, Edson 1973, Furey 1984), Red Mercury (Whakau, Moore 1972), the Aldermans (Ruamaahu, Moore 1973), and Slipper (Whakahau, Atwell et al 1975, Rowland (1975), and the Hahei Islands (Moore 1976). The surveys have revealed that the sites on the islands are a microcosm of the situation on the mainland, but differ in that they are often in virtually pristine condition. As such they are considered of major importance for the development of a regional prehistory.

Tribal affiliations are as follows:

Ahuahu (Gt. Mercury)	: Ngati Maru, Ngati Hei, Ngati Tamatera
Ohinau & closer Mercury Group	: Ngati Hei
Ruamaahu (Alderman Group)	: Ngati Hei, Ngati Maru
Whakahau (Slipper Island)	: Ngati Hei

The smaller offshore islands are claimed by adjacent local hapu.

Few historic sites have been recorded on the islands. There is an unrecorded whaling station site on the southern coast of Ahuahu.

Concluding Discussion:

This report outlines the nature and recorded distribution of Maori and European sites around the coastal margin of the Coromandel Peninsula. As noted earlier there is extensive evidence of Maori occupation around the coastline, especially in the vicinity of the most favourable locations- the harbours, bays, and estuaries, and the sheltered East Coast beaches. However Maori occupation is not restricted to the coast itself; there is considerable evidence of occupation some distance from the coast in many areas. While the general settlement pattern is clearly discernible, little is known about its antiquity or changes through time owing to lack of archaeological investigations. Assessing the significance of individual sites requires a great deal more information about most of the sites than is currently available.

Despite the large numbers of historic sites within the Coromandel Peninsula (especially those associated with the early gold mining and timber industries), relatively few are located on the coast. Those which are, are outlined in the sector discussions.

Compiled by Neville Ritchie, Regional Archaeologist from information provided by Louise Furey, and published and unpublished sources for the Coastal Resource Inventory First Order Survey, 4 April 1990.

9.0 ARCHAEOLOGICAL OVERVIEW OF THE WEST COAST

Introduction:

This report summarizes the nature and available information about archaeological sites along the western seaboard of the Waikato Conservancy. For convenience, the coastal region is discussed in sections based broadly on topographic units. Compared with other areas of New Zealand, relatively few surveys have been undertaken and relatively little has been published about the Maori history and pre-European sites of the West Coast region (ie the area between the Mokau River mouth and the Manukau Heads).

Sources of Information:

1. **The national archaeological site recording scheme** maintained by the NZ Archaeological Association. This database contains information on some 43,000 sites throughout the country, including c.500 along the strip of coast in question.
2. **County Inventories** compiled by the NZ Historic Places Trust. These reports contain summaries of the archaeological resource in each county based on the records in the NZAA site recording scheme and other published information such as excavation and survey reports. County inventories covering the area in question include those for Franklin, Raglan, Otorohonga, and Waitomo counties.
3. **Archaeological and Historic Records.** The main published archaeological studies pertaining to the area are those of R Cassells centred on fieldwork around Aotea Harbour in the early 1970's (Cassells 1972a, 1972b, 1972c). Earlier Phillipps (1962), Pos (1964) and Hunt (1967) had reported smaller surveys and excavations (the Incised Rocks, Kotare pa and middens) in the Raglan area.

Archaeological surveys have been made at Te Maika (the south head of Kawhia Harbour), in the Tainui-Kawhia State Forest (Coster and Johnson 1975 & 1978), the Taharoa C Block (Allen 1972, Bulmer 1978), in the lower Punui catchment (Leahy and Walsh 1980) and the Mokau valley (Edson 1986).

Unpublished archaeological investigations have also been conducted by J McKinlay around Taharoa, and by K Gorbey at Raglan. Recently F L Phillips (1989) has produced *Nga Tohu a Tainui* (Landmarks of Tainui) which documents the field remains of several coastal pa associated with the Tainui people.. Turner (in prep.) is presently undertaking an MA thesis on Maori settlement on the Waikato seaboard.

Site Distribution:

Although many areas of the Waikato have not been systematically surveyed, the known and inferred site distribution pattern is similar to that found elsewhere. That is, pre-European occupation (and consequently sites) are overwhelmingly concentrated in sheltered locations along the coast, particularly around the harbours, and up the major river systems. The distribution in part reflects the importance of kaimoana (seafoods), but the river valleys and harbours also enabled relatively easy movement and transport between settlements, and afforded shelter and some degree of security.

Awakino to Albatross Point (South of Kawhia Heads):

For the most part this coastal section consists of steep faces cut by numerous streams which emerge from the hills along the coast. The hinterland is predominantly broken bushed country (the Herangi Range), access to the interior being afforded via several river valleys notably the Mokau, Awakino, Waikawau and Marakopa (Stoke 1988). In pre-European times the narrow coastal margin was regularly traversed by Maori parties. Pa and other evidence of Maori occupation (much unrecorded) are found around virtually every stream mouth along this coast (Edson 1986, Stokes 1988: 49-83). The traditional history of some of the pa are recorded by Phillips (1989). A number of large and important pa are known in the upper Mokau area (Edson 1986). According to traditions, these pa were used as stopping places for inland Waikato Maori travelling along well-known tracks to the coast.

The anchor stone of the Tainui canoe, which brought the ancestors of the Ngati Maniopoto to the area, is sited not far south of Awakino on the left hand side of the New Plymouth Road. The stone was originally landed at Mokau, but is now set in concrete within a graveyard on the ancient pa of Maniaroa (WNKC 1985:47).

The site of the last long term mission station in the Waikato is located on the north bank of the Mokau River c.2km from the river mouth. The Rev. C H Schnackenburg established the Te Mahoe Wesleyan Mission Station there in 1843 (WNKC 1985:47).

To the north of the Motunau Rocks, the landscape changes dramatically in the vicinity of Lake Taharoa. Here there are extensive low lying areas of black ironsands (now being mined) which bear considerable evidence of Maori occupation (Bulmer 1978, McKinlay ms.), the highest recorded densities along this section coast. Evidence of early horticultural practices have been recorded in the Taharoa/Te Maika area.

Kawhia-Aotea Harbour Areas:

There is a high density of recorded sites around both Kawhia and Aotea Harbours especially along the seaward margins. This reflects their favourable micro-environments and the richness of the marine and estuarine resources. Both harbours are associated with first settlement on the western coast. Aotea Harbour was the landing place of the Aotea canoe commanded by Turi (Phillips 1989). On the southern shore near the harbour entrance is the well preserved remains of Puraho pa which was probably built about 1700A.D. Local tradition holds that the unusual korowai (a stone bird) was found nearby at the site of an ancient village a little to the west (WNKC 1985:43).

Te Pui Beach, just inside Kawhia Harbour on the northern side, is celebrated in song and story by the Tainui tribes. Here are located Maketu marae, two stones marking the last resting place of the Tainui canoe, and the meeting house Auau-ki-te-rangi. A monument on the hill behind the marae marks the site of Ahurei, the school of learning founded by Hoturoa, captain of the Tainui. On the foreshore, the ancient pohutakawa Tangi-te-korowhiti overhangs the rock Te Papa-o-Karewa from which the locality takes its name. On the high ground beyond a famous pa, Motu-ngaio, is located. The renowned Maori chief, Te Rauparaha, spent much of his early life in this district at the beginning of the nineteenth century, before he and the remnants of his Ngati Toa people were driven out of the Waikato (WNKC 1985:44).

In the Te Maika area on the south head of the Kawhia Harbour there is a dense cluster of sites. Deep pipi and cockle middens are common features and evidence of settlement is found in locations ranging from the harbour foreshore to terraces on inland ridges (Coster & Johnson 1974, 1975). Large numbers of middens reflecting extensive long term exploitation have also been recorded in the area between the two harbours (Coster & Johnson 1978; most of which is incorporated in the Tainui-Kawhia State Forest) and the north head of Aotea Harbour.

The site of a Wesleyan mission station, Beachamdale, is located at Rauraukauere on the western side of Aotea Harbour. It was established in 1840 by the Rev. H Hansen Turton and his wife and developed from early 1844 by the Rev. Gideon Smales and his wife. The site is marked by a cairn made of bricks from the original mission station chimney (WNKC 1985:43).

Another mission station, Ahuahua, the first in the northern King Country, was located at Te Waitere on the southern shore of Kawhia Harbour. It was established in 1835 by the Rev. John Whiteley. Following a dispute with the Anglican Missionary Society he withdrew to Hokianga, but returned in 1838 with his wife and four daughters. Whiteley made the station his headquarters until 1855 when the Rev. Schnackenburg took over. He maintained the mission from 1858-63. The graves of two children mark the site (WNKC 1985:44).

Kawhia-Karioi Coast:

There has been little systematic recording along this stretch of the coast but large numbers of pa are known to exist. The settlement pattern appears similar to that on the coast further south. The majority of the nineteen known incised boulder sites on the Waikato coast are located within this section (Anderson 1990:6).

Raglan Harbour:

Like the other west coast harbours, Whaingaroa (Raglan Harbour) was a favoured area of pre-European settlement. Although no systematic site recording has been done, over seventy sites have been recorded by various individuals (many of them members of the Waikato Archaeological Society). Some sampling has also been undertaken (Hunt 1967, Waikato Archaeological Society (unpub. ms.)). The west coast rocky shore and the harbour offered a wide variety of fish and shellfish. The so called 'Carved Rocks' at Raglan are one of the best documented of the incised boulder sites on the Waikato Coast (Phillipps 1962, Anderson 1990:6-7). The patterns on the boulders (here and elsewhere along the coast) are becoming increasingly obscure because of their intertidal location.

In 1835, the Rev. James Wallis tramped from Kawhia to supervise the building of a raupo house at Te Horea on the north side of the harbour. This Wesleyan mission station was closed down in 1836 but three years later Mr and Mrs Wallis built Raglan's first wooden house at the Nihinihi Mission station on the southern side of the harbour near the present town. These efforts are marked by a seat on the waterfront and a brick cairn. Raglan township was established in 1854 with the first land sales. Thanks to the influence of Wiremu Nera (Te Awa-i-taia) whose monument stands in the town, the town was not attacked during the Waikato Land Wars. A garrison was, however, stationed in the town and a strongpoint formed around the courthouse. Raglan was an important seaport during the war and a road was rapidly constructed to move supplies into the interior (WNKC 1985:16).

Waimai-Kaawa Coast:

Again, little systematic recording has been done along this part of the coast but large numbers of pa and pit sites are known to exist at the southern end as far inland as Te Akau. The area has a climate and soils suitable for the pre-European cultivation of kumara. Some of the pa were recorded by the Waikato Archaeological Society in 1963 (Pos 1964:109) but the majority have been 'picked up' on aerial photographs.

Waikato River:

Relatively few sites have been recorded around Port Waikato but many are known to exist. For example, there are several in the dunes within the Waiuku State Forest on the north side of the river mouth (Lawler 1983, 1984), and a scatter on the south side. The Waikato River was and still is of

considerable importance to the Maori, both spiritually and physically. With regard to the latter, it and its major tributary, the Waipa, served as major arteries into the Waikato basin and were the main focus of inland settlement.

An Anglican mission station, Maraetai, was established at Waikato Heads by the Rev. R Maunsell in late 1838. It continued to operate until 1854 when it was moved 13km up the river to Te Kohanga. In 1863, at the site of the present wharf (1.5km from the heads), Port Waikato was established as a place for the assembly of prefabricated ships, and for the transport of military supplies and personnel by river steamers to inland locations along the Waikato River (WNKC 1985:12).

Conclusions:

In most of the areas discussed, the pre-European inhabitants relied heavily on marine resources. Even when living some distance from the coast, inland groups would make trips to the coast to fish (usually in summer) and return up river with stocks of dried and smoked fish for winter consumption. The seasonally occupied sites are less visible than the earthworks of pa but they are an important part of the pre-European settlement pattern.

This report has concentrated on the known and/or recorded distribution of sites along the Waikato seaboard. In many cases the site distribution and some of the reasons for it are clear. In other instances, too little is known to be sure whether the recorded pattern is real, or simply reflects the pattern of site recording to date. Assessing the significance of individual sites requires a great deal more information about most of the sites than is currently available.

Compiled by Neville Ritchie, Regional Archaeologist from published and unpublished sources for the Coastal Resource Inventory First Order Survey, 19 March 1990.

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PHOTOGRAPHS

Pages 42 - 48 contain colour photographs of the Waikato coastline. If interested in examining these photographs please contact;

CRI Coordinator
Waikato Regional Conservancy
Level 1
White Stewart House
18 London Street
Hamilton

or CRI Taskforce
Science and Research Centre
58 Tory St
Wellington

ph (071) 383 363

ph (04) 710 726

VIDEO

There is also a video (D.O.C., 1988) on the Waikato coastline containing views taken from a helicopter. The video is silent and runs for over ten hours. It is available from the Waikato Regional Conservancy at cost.

Site Record Forms

the 1990s, the number of people aged 65 and over in the United States is projected to increase from 20 million to 35 million (U.S. Census Bureau 1997).

As the number of people aged 65 and over increases, the number of people aged 65 and over who are poor is also projected to increase. In 1990, 10.5 million people aged 65 and over were poor, or 17.5% of the total population aged 65 and over. By 2000, the number of people aged 65 and over who are poor is projected to increase to 15.5 million, or 21.4% of the total population aged 65 and over (U.S. Census Bureau 1997).

As the number of people aged 65 and over who are poor increases, the number of people aged 65 and over who are poor and disabled is also projected to increase.

In 1990, 3.5 million people aged 65 and over were poor and disabled, or 33.3% of the total population aged 65 and over who are poor.

By 2000, the number of people aged 65 and over who are poor and disabled is projected to increase to 5.5 million, or 35.5% of the total population aged 65 and over who are poor.

As the number of people aged 65 and over who are poor and disabled increases, the number of people aged 65 and over who are poor and disabled and who are also blind is also projected to increase.

In 1990, 1.5 million people aged 65 and over were poor and disabled and blind, or 42.9% of the total population aged 65 and over who are poor and disabled.

By 2000, the number of people aged 65 and over who are poor and disabled and blind is projected to increase to 2.5 million, or 45.5% of the total population aged 65 and over who are poor and disabled.

As the number of people aged 65 and over who are poor and disabled and blind increases, the number of people aged 65 and over who are poor and disabled and blind and who are also deaf is also projected to increase.

In 1990, 0.5 million people aged 65 and over were poor and disabled and blind and deaf, or 33.3% of the total population aged 65 and over who are poor and disabled and blind.

By 2000, the number of people aged 65 and over who are poor and disabled and blind and deaf is projected to increase to 0.8 million, or 32.0% of the total population aged 65 and over who are poor and disabled and blind.

As the number of people aged 65 and over who are poor and disabled and blind and deaf increases, the number of people aged 65 and over who are poor and disabled and blind and deaf and who are also visually impaired is also projected to increase.

In 1990, 0.2 million people aged 65 and over were poor and disabled and blind and deaf and visually impaired, or 40.0% of the total population aged 65 and over who are poor and disabled and blind and deaf.

By 2000, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired is projected to increase to 0.4 million, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf.

As the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired increases, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and who are also hearing impaired is also projected to increase.

In 1990, 0.1 million people aged 65 and over were poor and disabled and blind and deaf and visually impaired and hearing impaired, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf and visually impaired.

By 2000, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired is projected to increase to 0.2 million, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf and visually impaired.

As the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired increases, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and who are also cognitively impaired is also projected to increase.

In 1990, 0.05 million people aged 65 and over were poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired.

By 2000, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired is projected to increase to 0.1 million, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired.

As the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired increases, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired and who are also physically impaired is also projected to increase.

In 1990, 0.02 million people aged 65 and over were poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired and physically impaired, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired.

By 2000, the number of people aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired and physically impaired is projected to increase to 0.04 million, or 50.0% of the total population aged 65 and over who are poor and disabled and blind and deaf and visually impaired and hearing impaired and cognitively impaired.

SITE NAME/S: Firth of Thames

SITE NO: CRI 030001

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: S12

GRID REF: 27260 27400

DATE: 20/03/90

BRIEF DESCRIPTION OF SITE:

The Firth of Thames site is approximately 10000 ha coastal strip extending from Miranda to Thames forming the margin between the fault-defined Firth of Thames and the Hauraki Plains. Three rivers, the Waihou, Piako and Waitakaruru flow into the Firth from the south depositing fine sediments along the shore. At Miranda the coastline consists of sand, silt and shell deposits. The shell deposits form a series of graded fossil beach ridges and are an example of a chenier plain a landform unique in New Zealand and rare globally. The area, from Miranda to Thames consists of soft mudflats, flourishing and expanding mangrove communities and some intermingling salt marsh. This area has recently been listed as a Wetland of International Importance by the Ramsar Convention, supporting as many as 40,000 migratory birds during summer months. Farmlands and flood control works immediately adjoin the margins of the wetland except at Thames township where reclamations for residential and industrial purposes have occurred (L Abrahamson pers ob).

CONSERVATION VALUES:

Natural: a, b, c, d, e, f

Cultural: c

Historic: b

Comment:

Natural

This outstanding wildlife habitat is internationally important for waders and seabirds especially as a feeding and roosting site. It averages 16,000 waders over the year, while the total number present may peak at as many as 40,000 migratory birds (R Thorpe pers comm.). The eastern bar-tailed godwit (*Limosa lapponica baueri*) overwinters in NZ, and approximately 8% of the NZ population of 100,000 have been counted in the Firth area. Other endangered and threatened bird species roosting and breeding in the area include the fairy tern (*Sterna nereis*); white heron (*Egretta alba modesta*); NZ dotterel (*Charadrius obscurus*); black stilt (*Himantopus novaezealandiae*); brown teal (*Anas aucklandica chlorotis*) and NZ wrybill (*Anarhynchus frontalis*) (R Thorpe pers. comm.). This intertidal area also has high fisheries habitat values providing feeding and juvenile nursery areas for all fisheries (Ministry of Agriculture and Fisheries, 1985). The Miranda fossil shell ridges are listed of national importance in the Geopreservation Inventory, and are only one of two examples in New Zealand.

Cultural

The Firth of Thames area is one of four areas on the Coromandel Peninsula ranked in the preservation status category according to the CRI Landscape Assessment (Brown 1990). The area rates a high vulnerability with high naturalness and as a sensitive area where the visual impact of change would be especially high (Brown 1990). Such sites are rare and regionally distinct and are areas where extreme development control is needed.

Historic

There are a range of archaeological sites in the area including pa (hill and flatland), middens, terraces and pits. Maori origin sites are adjacent to the Piako and Waihou Rivers (L Furey, pers comm).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

The estuarine habitat of the Firth of Thames is one of New Zealand's three most important coastal stretches for wading birds and has been assessed as having outstanding wildlife habitat value (Sites of Special Wildlife Interest, 1981). Recently it has become listed as a Wetland of International Importance under the Ramsar Convention supporting international migratory birds and a number of endangered and threatened species. The Firth of Thames is also listed as a Wetland of International Significance (Wetlands of Ecological and Representative Importance, 1990).

EXISTING THREATS:

Type: c, j, m, g, d

Comment:

Farming practices (including grazing animals), drainage work and catchment and river improvement works are impacting on the vegetation of the southern margin and are the biggest threats to the wetland area. The noxious weed, spartina (*Spartina Townsendii*) has been established for reclamation purposes and is scattered throughout the mangroves (*Avicennia resinifera*). Near Thames large scale reclamation and refuse dumping including the Thames rubbish dump has protruded out onto the tidal flats and into the mangroves (L Abrahamson, pers. obs.). Several shore protection works extending normal to the shore exist near Miranda and are influencing sedimentation in these areas.

HUMAN MODIFICATION AND USE: Type: a, b, d, e

The margins of the wetland have been drained and reclaimed for farming purposes. Near Thames reclamation mainly for residential and industrial areas has extended out over the mudflats. Many jetties and boat facilities exist at the mouth of Kauaeranga River and have impacted on the mangrove population. Outfalls and pipelines associated largely with the Thames industrial sites near the foreshore cross the tidal areas (L Abrahamson pers ob).

The tidal mudflats immediately north of the Waihou River provide opportunities for duck shooting in season and the significant wildlife habitat that the Firth of Thames provides offers excellent opportunities for birdwatchers (R Hutchings pers comm).

EXISTING PROTECTION: Type: a, i

Comment:

This site is primarily composed of intertidal flats and mangrove forest which are in Crown (Department of Conservation) ownership and currently has no special protection status. Unformed legal road occurs along the southern margin of the wetland.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	①	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values are well documented except fisheries values, due to the recent Ramsar classification. Historical and archaeological surveys have been completed but need updating (refer attached Archaeological Summary). Liaison is required for spiritual values input.

SOURCES OF INFORMATION:

Natural	1	②	3	4	5	6	7
Cultural	1	2	③	4	5	6	7
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	③	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; Ramsar Nomination for Firth of Thames, Royal Forest and Bird Protection Society; WERI; Geopreservation Inventory; Ministry of Agriculture and Fisheries 1985, Auckland Region Marine Reserves Plan.

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation

Historical: NZ Register of Archaeological Sites

Personal Communication: Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

- ① Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI) *Firth of Thames; international significance; 1990*
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Firth of Thames; outstanding wildlife habitat value; 1981*
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989 *Miranda Fossil Ridges; national significance; 1989*
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

Comment:

A small area of mangroves near Thames is a recommended area for protection under the Protected Natural Areas Programme (PNAP 1990).

OTHER CONSIDERATIONS:

Mining of mudflat sediments could be a threat to this sensitive environment in the future.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Tararu-Waikawau

SITE NO: CRI 030002

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T12

GRID REF: 27350 64585

DATE: 21/03/90

BRIEF DESCRIPTION OF SITE:

This coastal site extends from Tararu, 3 km north of Thames, northwards for 20 km to Waikawau incorporating the Te Puru catchment area. The coastline is dominated by large delta fans which have accumulated at the base of streams dissecting small western draining catchments, like Te Puru and Tararu Streams and Tapu River. Interspersed between the delta fans are mixed sand and gravel beaches which are typical of the beaches along this sheltered Firth coastline, exposed to low wave energy. Rocky outcrops and platforms also occur.

Te Puru catchment is forested moderate to steep hill country draining the broad ridge of the main Coromandel Range. It has significant ecological values including unusual vegetation associations, rare plants and threatened bird species and is an important freshwater fisheries habitat.

Recreational use in this coastal area includes swimming, shellfish gathering, rock fishing, while the offshore waters are intensively used by boats cruising within the Firth of Thames. The provincial state highway (PSH 25) passes through this site providing access points to the coast as well as the main access to the northern peninsula. This route is also a regionally significant scenic corridor (R Hutchings pers. comm.).

CONSERVATION VALUES:

Natural: a, b, c, d, e, f

Cultural: c, e

Historic: b

Comment:**Natural**

The Te Puru catchment is a recommended area for protection under the Protected Natural Areas Programme providing a continuous sequence of natural vegetation from the coastal cliffs to the top of the main range. Remnants of pohutukawa/kohekohe-puriri-silverfern (*Metrosideros excelsa*/*Dysoxylum spectabile*-*Vitex lucens*-*Cyathea dealbata*) forest occur on the coastal hills. Kowhai (*Sophora microphylla*), karaka (*Corynocarpus laevigatus*), hard beech (*Nothofagus truncata*), and kauri (*Agathis australis*) are notable species occasionally occurring in this forest (PNAP 1990). High altitude bog forest with swamp maire (*Syzygium maire*) is an unusual association in this district (PNAP 1990). The threatened NI kaka (*Nestor meridionalis septentrionalis*) and regionally threatened Hochstetter's frog (*Leiopelma hochstetteri*) are present in the forest (Sites of Special Wildlife Interest, 1981). At the northernmost point of this site at the base of Wairotoroto Stream, an important plant *Suaeda novae-zelandiae* survives. It grows on the gravel berm of the beach and is the only report of this plant, which has a local classification, for the Coromandel Peninsula (L Humphreys pers. comm.).

The coastal area supports a number of shag colonies, including spotted shag (*Stictocarbo punctatus*) which is found only on the west coast of the Coromandel Peninsula in the Waikato Conservancy area (R Thorpe pers. comm.). At Waikawau, a 5 ha estuary provides moderate-high ranked habitat (SSWI 1981) for threatened banded rail (*Rallus philippensis*), rare variable oystercatcher (*Haematopus unicolor*) and breeding threatened NZ dotterel (*Charadrius obscurus*).

Te Puru catchment is one of four catchments on the peninsula with significant freshwater fishery values. Recorded freshwater fish occurrences, a relatively unmodified catchment, a significant percentage of the catchment still forested and in DOC estate support the importance of this catchment for freshwater fisheries (T Roxburgh pers. comm.).

Rocky reefs with iron pyrites located within occur along this section of coast (J Charteris pers. comm.).

Cultural:

At the Te Mata, a rock shore platform known as 'Old hat', and adjacent to the beach is used by university geology field trips and school trips as an educational site (J Charteris pers. comm.). This area receives a moderate-high vulnerability and importance rating in the landscape assessment due to having a fairly high naturalness and being a landscape that is regularly seen (Brown 1990).

Historic

Archaeological surveys of this area reflect the usual pattern with regard to Maori sites - coastal midden and pa and pit/terrace complexes on the hills behind coastal flats (refer attached Archaeological Summary).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

This site has been assigned national importance because of the presence of threatened bird species (Bell 1986) within this area. Te Puru catchment is a recommended area for protection of regional importance (L Humphreys pers. comm.) and the moderate-high SSWI ranking corresponds to a regional importance ranking.

EXISTING THREATS:

Type: g, j, l

Comment:

Shore stabilisation works relating to the reclamation of seabed for the provincial state highway have occurred along much of the coast. Road realignment and associated cliff cuts and subsequent landslips has resulted in spoil dumping in some areas. This road realignment involving reclamation of the foreshore is a continuing threat to this coastline. Several coastal subdivisions are located very near the shore with houses threatened by flooding during the occasional storm (L Abrahamson pers. ob.).

HUMAN MODIFICATION AND USE: Type: a, b, h, i

The focus for human use has been on a very narrow strip of coast due to the steep incised nature of the geology making access to inland areas more difficult.

Small residential developments occur along this section of coast, usually associated with the more accessible locations and reclamations and cliffs cuts have occurred to allow for alignment of the provincial state highway.

Major recreational uses of this site are swimming, rock fishing, boat fishing and cruising and shellfish gathering (R Hutchings pers comm.).

EXISTING PROTECTION: Type: a, c, f

Comment:

Small coastal scenic reserves like Puru (41 ha), Thorntons Bay (44 ha) and Te Mata (0.3 ha) protect lower areas of the catchment and river margins, while recreation reserves protect areas of the foreshore like Waikawau.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values are fairly well documented, although little is known about offshore values. Liaison is required for spiritual input.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990.

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZ Register of Archaeological Site (NZRAS)

Site Importance: B Bell 1986: The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Waikawau Estuary; moderate-high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Te Puru recommended area for protection; 1990
Wairotoroto Shingle Beach recommended area for protection, 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls into the tribal boundaries of Ngati Maru, up to Thorntons Bay and Ngati Tamatero, north of Thorntons Bay. The contact persons are Tai Turoa, Thames and S Tukukino, Te Puru respectively.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Kereta and Kirita Bay

SITE NO: CRI 030003

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: S09

GRID REF: 27260 64780

DATE: 27/03/90

BRIEF DESCRIPTION OF SITE:

Rocky platforms, gravel pebbles and boulders and a cliffed shoreline characterise the six kilometres of coast between Kereta in the south and Kirita Bay in the north. This section of coast is not as accessible as the rest of the Thames Coast, because here the provincial state highway climbs over grazed hill country before dropping towards Manaia Harbour.

Kirita Bay is a small bay with a sheltered rocky shore, and low cliffs with sea caves, fronting rolling hills covered in pasture.

CONSERVATION VALUES:

Natural: a, c, e

Cultural: e

Historic: b

Comment:

Natural

A number of shag colonies roost along the coast using the rocky outcrops and old pohutukawa trees which border much of the shoreline. The spotted shag (*Stictocarbo punctatus*) is one of these shag species, occurring only along the west coast of the Coromandel Peninsula in the Waikato Conservancy area (R Thorpe pers. comm.).

Kirita Bay, is a small embayment of an area of 50 ha, with a moderate wildlife habitat ranking for common bird species (Sites of Special Wildlife Interest, 1981).

The surrounding hills of this site are farmed, with only small remaining clumps of pohutukawa (*Metrosideros excelsa*) near the coast, and several remnants of coastal bush with good taraire (*Beilschmiedia tarairi*) components backing Kirita Bay. These areas of coastal bush are a recommended area for protection (Protected Natural Areas Programme, 1990).

Cultural

The rocky shore platforms are used by university field trips for education studies (J Charteris pers. comm.).

Historic

A range of archaeological sites occur with pa, midden, pits, terraces, burials and stone mounds clustering on ridges and spurs rising from the coast (refer attached Archaeological Summary, N Ritchie pers. comm.).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

This site is given a local importance rating which corresponds to the moderate wildlife habitat ranking given by Fauna Survey Unit (SSWI). The remnant forest in this area is a recommended area for protection (PNAP 1990). This coastal forest is so reduced in extent today and under-represented in the reserve system that they warrant protection.

EXISTING THREATS:

Type: g

Comment:

In the south of this site, road realignment has meant that shore protection works have been erected to allow for some reclamations. These areas protrude over the natural foreshore.

HUMAN MODIFICATION AND USE: Type: a, b, h

Within Kirita Bay, reclamations have modified the shoreline and farming practices much of the catchment.

Major uses of this section of coast include swimming, rock and boat fishing, and shellfish gathering (R Hutchings, pers comm.). Kirita Bay is fairly inaccessible to the general public.

EXISTING PROTECTION: Type: a, f, i

Comment:

At Kirita Bay a recreation reserve (420 m²) exists and a Queen Elizabeth II National Trust II covenant protects some of the native forest in the area, but the remaining remnants require some sort of legal protection. Unformed legal roads occur along the coast and pass inland.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

There is very little information on marine ecological values and spiritual values for this area.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI.

Historical: NZ Register of Archaeological Sites

Personal Communication:

Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
 Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
 John Charteris, Education Advisory Service, Hamilton
 Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Kirita Bay and Bush; moderate wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). *Kirita Bush remnants recommended area for protection; 1990*
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Manaia Harbour and Catchment

SITE NO: CRI 030004

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: SO9

GRID REF: 27300 64810

DATE: 27/03/90

BRIEF DESCRIPTION OF SITE:

Manaia Harbour is the southernmost of several harbours which lie along the west coast of Coromandel Peninsula.

It is a long (4 km) narrow (1-1.5 km) fault defined harbour, surrounded by moderate to steep hill country catchment of andesites and greywacke. It is a typical harbour of the western Coromandel Peninsula with no sand barrier system partially blocking the entrance. A very shallow harbour where mangroves are flourishing along its innermost margin and within the small bays created by its fairly indented northern shoreline.

CONSERVATION VALUES:

Natural: a, b, c, d, e, f

Cultural: :

Historic: b

Comment:**Natural**

The Manaia Harbour and catchment is a predominantly natural system providing valuable estuarine and wetland habitat and pohutukawa rock-treeland communities as well as a relatively unmodified catchment area.

The 400 ha harbour includes extensive mangroves (*Avicennia resinifera*), some eelgrass (*Zostera* spp) and small patches of rushland around the margins of the harbour. There is a gradation to a freshwater influenced wetland with manuka (*Leptospermum scoparium*), flax (*Baumea juncea* and *B. rubiginosa*), in the upper north-eastern end. A narrow strip of pohutukawa (*Metrosideros excelsa*) and extensive manuka extend around the north side of the harbour. Around the headland there are small stands of tawapou (*Planchonella costata*). *Pomaderris rugosa*, an endemic species to Coromandel Ecological Region is abundant in the coastal scrub (Protected Natural Areas Programme 1990).

Manaia Harbour has a moderate to high habitat ranking (Sites of Special Wildlife Interest, 1981) with the rare variable oystercatcher (*Haematopus ostralogus finschi*); eastern bar-tailed godwit (*Limosa lapponica baueri*); the threatened caspian tern (*Hydroprogne caspia*), banded rail (*Rallus philippensis*), and Australasian bittern (*Botaurus stellaris poiciloptilus*); and the regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) reported.

The Manaia catchment area is one of four catchments of the Coromandel Peninsula with known fisheries values. It is largely forested with over half of it being in conservation park and is relatively unmodified meaning freshwater habitats and estuarine values are likely to be retained in the long term (T Roxburgh pers. comm.).

Historic

Archaeological sites include pa, terraces, midden, pits, flaking floor and european gumholes (NZ Register of Archaeological Sites).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

This site incorporates one of the few catchments on the Coromandel with freshwater fisheries values, and is an important wildlife harbour habitat of regional importance. The harbour is an area recommended for protection under the PNA programme and is of regional importance (L Humphreys pers. comm.). The area has been assigned national importance because of the presence of a number of threatened bird species (Bell 1986) using the area.

EXISTING THREATS:

Type: h, j

Comment:

Aquaculture is widespread outside the mouth of the harbour. Infilling and dumping of waste is threatening small areas of vegetation around the harbour margin (L Abrahamson pers. ob).

HUMAN MODIFICATION AND USE: Type: a, j

Manaia Harbour is largely inaccessible to the general public with the only practical access being made by the state highway in the upper harbour over private land. The tidal nature of the harbour makes access by sea difficult also. Use is mainly restricted to those in the local community. Manaia is a significant Maori fishing ground (R Hutchings pers. comm.).

EXISTING PROTECTION: Type:
Comment:

Currently, there is no protection in this area.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	2	③
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Spiritual, marine ecological values are areas with little information. There is also insufficient known about the archaeological sites in this area.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	7
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	③	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: PNAP 1990; SSWI

Historical: NZRAS

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication:

Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Manaia Harbour; high wildlife habitat value; 1981*
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). *Manaia Harbour recommended area for protection; 1990*
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

The site falls into the tribal boundaries of the Ngati Pukenga. The contact person is Toko Renata, Manaia.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Te Kouma Harbour

SITE NO: CRI 030005

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: SO9

GRID REF: 27300 64816

DATE: 26/03/90

BRIEF DESCRIPTION OF SITE:

Te Kouma Harbour is 250 ha in size and is a long, narrow fault-defined harbour that remains in a fairly natural state, with much of its catchment modified to farmland.

Its northern margin consists of a series of small bays, which provide safe anchorage. A shallow mangrove area occurs on the mud flats along the innermost margin, and steep banks, rocky platforms and some shelly beaches form the southern shoreline of the harbour.

No settlements occur around Te Kouma Harbour and it is only accessible at one point.

CONSERVATION VALUES:

Natural: a, b, c

Cultural: a, e

Historic:

Comment:

Natural

Te Kouma Harbour, a tidal estuary with 100 ha exposed at low tide, has 40 ha of eelgrass (*Zostera* spp), 15 ha of mangroves (*Avicennia resinifera*) and searush (*Juncus maritimus*) with the remaining 45 ha in mudflat. These habitats have a moderate wildlife habitat ranking and are used by the threatened caspian tern (*Hydroprogne caspia*) and banded rail (*Rallus phillippensis assimilis*); the regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) and common coastal bird species. A breeding colony of pied (*Phalacrocorax varius varius*) and little (*Phalacrocorax melanoleucos brevirostris*) shags, as well as blue penguin (*Eudyptula minor iredalei*) occur here (Sites of Special Wildlife Interest, 1981).

Cultural

Te Kouma Harbour is famous for the spectacle of one bay along its south shoreline, known as Name Bay. On the hills above the bay many ship names have been lettered in white shells, and more recently white paint (Owen 1983).

The small bays in the north are a regular school camp for Coromandel Area School (J Charteris pers comm.).

Historical

An unusual arrangement of stones lying along the foreshore of the northern bays may have a cultural origin (L Furey pers comm.).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

This harbour site has been assigned national importance because of the presence of threatened bird species (Bell 1986).

The moderate wildlife habitat ranking (SSWI) of Te Kouma Harbour corresponds to a local ranking for site importance (R Thorpe pers comm.).

EXISTING THREATS:

Type: h

Comment:

Several oyster farms occur on the tidal flats along its most innermost margin. These farms impact upon the sediments below and any organisms living in the mud.

HUMAN MODIFICATION AND USE: Type: a, d

Te Kouma Harbour is recognised as one of the main safe anchorage sites along this western shoreline of the Firth of Thames (R Hutchings pers comm.). Much of the catchment area has been developed for farmland.

EXISTING PROTECTION: Type:

Comment:

Currently, no protection in this area exists.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values are recorded but need updating. More information is required on spiritual, marine ecological and recreation values.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI

Cultural: W Owen (1983) : The Hauraki Gulf : A fishing and cruising guide.

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication:

Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Te Kouma Harbour; moderate wildlife habitat value, 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Coromandel Harbour

SITE NO: CRI 030006

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T11

GRID REF: 27310 64880

DATE: 26/03/90

BRIEF DESCRIPTION OF SITE:

Coromandel Harbour, the largest harbour on western Coromandel is shallow, partially enclosed and protected by offshore islands including Whanganui Island. It provides 540 ha of notable estuarine habitat and is a significant recreation resource. Coromandel township and Te Kouma settlement have developed around the margins, and a significant aquaculture industry mainly mussel and oyster has established in and around the harbour.

CONSERVATION VALUES:

Natural: a, b, c

Cultural: e

Historic: b,c

Comment:

Natural

In Coromandel Harbour up to 85% of the tidal flats are mud and sandflats with some stony areas and extensive eelgrass beds. Mangroves make up the remaining 15% while sea rush (*Juncus maritimus*), jointed sedge (*Leptocarpus similis*), manuka (*Leptospermum scoparium*) and gorse (*Ulex europeus*) fringe the harbour (Sites of Special Wildlife Interest, 1981).

A high wildlife habitat ranking was given to Coromandel Harbour, by the Fauna Survey Unit (SSWI). The harbour is used by a number of notable bird species, and is an important feeding and breeding site for marsh birds and waders. The threatened NZ dotterel (*Charadrius obscurus*), caspian tern (*Hydroprogne caspia*), and white-tailed tern (*Sterna striata*) are reported as breeding, and it is also a possible breeding site for the rare variable oyster catcher (*Haematopus unicolor*). A breeding colony of red-billed gull (*Larus novaehollandiae scopulinus*) is reported. Coromandel Harbour provides an important feeding site for eastern bar-tailed godwit (*Limosa lapponica baueri*), and whitefaced heron (*Ardea novaehollandiae novaehollandiae*), and high tide roosts for eastern bar-tailed godwit and pied stilt (*Himantopus himantopus leucocephalus*). The threatened Australasian bittern (*Botaurus stellaris poiciloptilus*) and regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) are reported in the vegetated margins of the harbour (SSWI).

Cultural:

Oceanography field trips for all age groups are based out of Coromandel Harbour (J Charteris pers comm.). Coromandel Harbour is described in the landscape assessment as a degraded area, where development is poorly integrated. It is an area that is seen regularly and requires restoration management (Brown 1990).

Historical:

Pas, middens, storage pits, terraces, stone structures, rock art and burials are included in the high density Maori archaeological sites of the area (NZRAS). Rock carvings are of regional significance (L Furey pers comm.). European sites include early farm settlements, mining and timber sites (Coromandel and Tokatea Hill) and Websters camp on Whanganui Island (N Ritchie, pers comm.; refer attached archaeological summary).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

Coromandel Harbour receives a regional importance ranking for its high wildlife habitat ranking (SSWI) and rock carvings of regional importance (L Furey pers comm.), and is assigned national importance because of the presence of a significant number of threatened and rare bird species (Bell 1986).

EXISTING THREATS:

Type: c, h

Comment:

A large aquaculture predominantly mussel and oyster industry is focused on Coromandel. Sediments lying below these marine farms are characterised by an accumulation of shells. *Spartina* (*Spartina townsendii*) has established itself in several areas within Coromandel Harbour and there has been some reclamation around harbour fringes impacting on the vegetation (L Abrahamson, pers ob).

HUMAN MODIFICATION AND USE:

Type: a, b, d, h, i

Coromandel Harbour is a significant recreation resource which provides for a wide range of coastal recreation opportunities both for the resident populations based around the harbour and the holiday population both land and water based. Activities undertaken in the harbour range from yachting, boating, fishing, swimming, diving, shellfish gathering and walking to enjoy the natural environment. Coromandel Harbour is a recognised safe anchorage (R Hutchings pers comm.). Several areas of the shore have been modified involving reclamations by developments for industrial and residential purposes.

Jetties and coastal structures are concentrated near Coromandel township, particularly along stream margins, like Whangarahi Stream (L Abrahamson pers ob).

EXISTING PROTECTION:

Type: a, i

Comment:

A small area (40 ha) of allocated land is located near Coromandel town. Many unformed legal roads occur on Whanganui Island. There is no protection status for Coromandel Harbour.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	①	2	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

There is general information available, significant information gaps include spiritual values and marine ecological values.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	7
Cultural	1	2	③	4	5	6	⑦
Historic	①	2	3	4	5	6	⑦
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	③	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Historical: NZRAS

Personal Communication: John Charteris, Education Advisory Service, Hamilton
Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Neville Ritchie, Archaeologist, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Coromandel Harbour; high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

Coromandel Harbour lies within the main Coromandel area of goldmining interest.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Motukawao Islands

SITE NO: CRI 030007

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: S10

GRID REF: 27250 64990

DATE: 26/03/90

BRIEF DESCRIPTION OF SITE:

This site includes the Motukawao Islands a group of small inshore islands situated off western Coromandel, and a portion of the mainland from Papa Aroha south to Koputauaki Bay. The area has a high naturalness, and is rated as a regionally significant landscape (Brown 1990).

CONSERVATION VALUES:

Natural: a, b, c, d, f

Cultural: c, e

Historic: b

Comment:

Natural

Several islands including Motukaramarama are significant sites for roosting and breeding Australasian gannets (*Sula bassana serrator*), appearing as guano-covered islands (R Thorpe pers comm.).

Koputauaki Bay is a 40 ha site of special wildlife interest with a high wildlife habitat ranking, where at low tide 90% is shingle and shellflats, and less than 10% mangroves (*Avicennia resinifera*), salt marsh and sea rush (*Juncus maritimus*) (SSWD). The threatened caspian tern (*Hydroprogne caspia*), reef heron (*Egretta sacra sacra*), banded dotterel (*Charadrius bicinctus bicinctus*) and the rare variable oyster catcher (*Haematopus unicolor*) use the described area. The threatened NZ dotterel (*Charadrius obscurus*) is reported as breeding in this bay. A shag colony occurs at Okahu Point (Sites of Special Wildlife Interest, 1981).

From Papa Aroha to Koputauaki Bay good coastal pohutukawa-puriri-kowhai (*Metrosideros excelsa-Vitex lucens-Sophora microphylla*) forest covers the hillslopes. Other than for access refusal, this would be an area recommended for protection under the PNA Programme (L Humphreys pers comm.).

A marine sublittoral survey of the Motukawao Island Group reports several normally common species to be absent. Notably rock lobsters (*Jasus edwardsii*) and the sublittoral gastropods (*Cantharidus purpureus* and *Micrelenchus sanguineus*). Paua (*Haliotis iris*) were present only at one place, north west Motuwi Island. The presence of small scallops and flounder in the sandy bays may mean the area around this sheltered group harbours a nursery of animals (Kotua-Dickson 1984).

Cultural:

This site was assessed for landscape qualities, receiving a preservation status and rating high for naturalness and as a sensitive area. It is one of four areas on the Coromandel Peninsula receiving this ranking (Brown 1990).

The islands and waters are an important site for educational trips. Oceanography courses for all school classes are based around the islands, with regular sightings of dolphins and marine mammals (J Charteris, pers comm.).

Historical:

Little is known about the various sites on the islands, except that all archaeological sites on islands should be considered of regional importance as they are a microcosm of the mainland situation (L Furey pers comm.).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

The Motukawao Islands are the only example of offshore islands off western Coromandel and within the Hauraki Gulf. The islands are part of a regionally significant landscape and the area is assigned national importance because of the presence of many threatened bird species (Bell 1986). Islands are very important wildlife habitats as they are predator free or can be managed to achieve this.

EXISTING THREATS:

Type: h

Comment:

Aquaculture is the predominant use of this area, little is known of the effect of this farming technique on marine habitats long term.

HUMAN MODIFICATION AND USE:

Type: d, h, i

Aquaculture, boat mooring and anchorage sites are the main use of the waters around the islands. Recreation activities include diving and fishing. A few of the islands are farmed while most remain in a fairly natural state.

EXISTING PROTECTION:

Type: a

Comment:

Motutapere Island is a scenic reserve.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Considering the fairly natural state of these islands little is known about them.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; P Kotua-Dickson 1984 : Marine sublittoral ecology of the Motukawao Islands, Tane 30 : 1-12.

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Koputauaki Bay; high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Colville Bay		SITE NO: CRI 030008
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: T10	GRID REF: 27310 65060	DATE: 26/03/90

BRIEF DESCRIPTION OF SITE:

Colville Bay, the most northern harbour on the western coast of the Coromandel Peninsula provides high ranking estuarine habitats for many significant bird species. Unusual archaeological sites are located along its south margin.

CONSERVATION VALUES: **Natural:** a, b, c, d **Cultural:** a **Historic:** b
Comment:

Natural

Colville Bay is a site of special wildlife interest of 190 ha with a high habitat ranking by Fauna Survey Unit, (Site of Special Wildlife Interest, 1981). A notable site for the threatened NZ dotterel (*Charadrius obscurus*), with up to 12 breeding birds over 1989-90 summer. Threatened reef heron (*Egretta sacra sacra*), caspian tern (*Hydroprogne caspia*), banded rail (*Rallus philippensis assimilis*), Australasian bittern (*Botaurus stellaris poiciloptilus*); rare variable oyster catcher (*Haematopus unicolor*); regionally threatened North Island fernbird (*Bowdleria punctata vealeae*); eastern bar-tailed godwit (*Limosa lapponica baueri*) and common species are reported using this harbour (SSWI).

Sandflats make up 60%, shingle 15%, shellbanks 10%, mudflats 10% with less than 5% mangroves (*Avicennia resinifera*) and jointed rush. The bulk of the tidal flats are unmodified. A small dune area exists at Otautu Beach, it being only one of two areas along this western coast where this occurs, due to this coast being too sheltered for dune formation (Partridge 1990).

Historical:

There is a range of archaeological sites in the general area including pa, pits, terraces, midden. Fish traps, particularly flounder traps lying along the south side of the bay are unusual, rare and regionally important (L Furey pers comm.).

SITE IMPORTANCE: **International** **National** **Regional** **Local** **Unknown**
Comment:

This site is assigned national importance because of the presence of many threatened and rare bird species (Bell 1986). Regionally significant archaeological sites (L Furey pers comm.) also occur within Colville Bay.

EXISTING THREATS: **Type:** a, j
Comment:

Erosion of the foredunes is occurring from stock grazing and recreation, and the rush zones are being damaged by road embankments, drainage and rubbish dumps (SSWI).

HUMAN MODIFICATION AND USE:

Type: d, h, i

Local use comprises a significant amount of the total recreation use of this area of coast (R Hutchings pers comm.).

EXISTING PROTECTION:

Type: a, c

Comment:

Ahirau Scenic Reserve (6.6 ha) extends out on a promontory into Colville Bay and an esplanade reserve occurs at Otautu Bay.

AVAILABILITY OF INFORMATION:

Natural	1	②	3
Cultural	1	2	③
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	2	③

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

The natural information requires updating, very little other information was accessed.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	①	2	3	4	5	6	⑦
Threats	①	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; T Partridge 1990; The sand dune and beach vegetation inventory of NZ, Botany Division, Report for Department of Conservation, Wellington.

Historical: NZRAS

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
Raewyn Hutchings, Recreational Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Colville Bay; high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls within the tribal areas of Ngati Tamatera, Ngati Paoa, Nga Moehau Tangata Whenua Trust.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Cape Colville		SITE NO: CRI 030009
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: T10	GRID REF: 27230 64180	DATE: 20/03/90

BRIEF DESCRIPTION OF SITE:

The Cape Colville site includes the northern tip of the Coromandel Peninsula, extending northwards approximately from a west-east line lying between Waiaro and Te Anaputa Point. Included within this large area is Cape Colville Farm Park comprising 2532 ha of coastal farmed and forested lands extending approximately 23 km around the top of the Peninsula, and administered by the Department of Conservation.

The shoreline is generally rocky and backed by rugged and very steep to precipitous faces severely restricting access. It has numerous bays and headlands and several stone or shingle beaches (eg Fantail, Fletcher and Stony Bay). Port Jackson is a large beach within this site, forming a magnificent 1.5 km grey-white sandy crescent with extensive sand dunes in the northern half. Several distinctive landforms that occur around the coast are the very steep conical formations of the Sugar Loaf (218 m high) and the Pinnacles. The ruggedness of the coastline adds considerably to the scenic values (Department of Lands and Survey 1986) of this area.

The hinterland of this area rises from the coast towards the northern extremity of the Moehau Range to a height of over 500 m. Mountain streams, and rolling land to steep near vertical country covered by grasslands, coastal scrub vegetation, manuka reversion, heavy manuka/indigenous forest areas and some pine plantation are contained within this site. All access to the farm park is via Coromandel which is served by SH 25. From here metal roads diverge to Colville for access up the west coast terminating at Fletcher Bay while east coast access via Kennedy Bay or Colville terminates at Stony Bay.

CONSERVATION VALUES: **Natural:** a, b, c, d, f **Cultural:** c **Historic:** b

Comment:**Natural**

Coastal streams draining to the western shoreline, like Urarima, Waiaro, Ongohi, Fantail, Port Jackson and Ohinewai Streams provide high to outstanding wildlife habitat for the endangered brown teal (*Anas aucklandica chlorotis*) (Sites of Special Wildlife Interest, 1981). A small estuary at Waiaro, is a reported breeding site for the threatened NZ dotterel (*Charadrius obscurus*), and used by threatened Australasian bittern (*Botaurus stellaris poiciloptilus*), caspian tern (*Hydroprogne caspia*); rare variable oyster catcher (*Haematopus unicolor*); pied stilt and a number of skink species (SSWI). Two further sites of special wildlife interest include Shag Bay Shag colony with a moderate value placed on this habitat as a valuable breeding site for three species of shag; and Jouth Fantail Bay shag colony with nesting pied shags (*Phalacrocorax varius varius*).

There are several areas recommended for protection under the PNA programme. The Fantail Bay area and catchment provides an altitudinal sequence from coastal to lowland forest including a small stand of taraire (*Beilschmiedia tarairi*) forest. A pohutukawa-flax (*Metrosideros excelsa-Phormium cookianum, Phormium tenax*) community occurs on the coastal cliffs, and mosses and lichens are abundant near the clean-flowing stream. At Fletcher Bay, there is a mixture of low manuka (*Leptospermum scoparium*) scrub with grasses, cabbage tree (*Cordyline australis*) and shrubs like hangehange (*Geniostoma rupestre* var.) growing in flax tussock land, and in the gullies, canopies of kanuka (*Kunzea ericoides* var.), cabbage tree, mamaku (*Cyathea medullaris*) and broadleaved species such as puriri (*Vitex lucens*), karaka (*Corynocarpus laevigatus*), taraire, kohekohe (*Dysoxylum spectabile*) and a number of significant plants in the understorey (Protected Natural Areas Programme 1990). Archeys (*Leiopelma archeyi*) frog and hochstetters (*Leiopelma hochstetteri*) frog, both regionally threatened are present in this area. The coastline is of varied geological structure and topography and experiences various degrees of exposure to wave action and thereby offers a wide range of habitats for coastal marine life. The organisms found along this section of coast are typical of rocky shorelines of the northeast of the North Island (Department of Lands and Survey, 1986). An exceptional variety of fish life occurs in the area (Department of Lands and Survey, 1986).

Cultural

A number of landscape features are noted; an extensive and unspoiled coastline and remote rural atmosphere, steep rugged and rock shoreline interrupted by several main bays, precipitous formations of the Pinnacles and Sugar Loaf Rocks, extensive seascape contrast of Hauraki Gulf, Colville channel, Great Barrier, and Cuvier Islands (Department of Lands and Survey 1986). High interest landform, lack of natural cover, broken vegetation, main coastal road are features noted by Brown 1990, with recommendations suggesting changes in management needed to account for existing land uses and that remaining natural areas should be conserved.

Historic

This area has a great diversity of archaeological sites including pa, terraces, middens, taro, burials, rock shelters, fish traps and stone structures. European sites include a flaxmill at Port Jackson and timber sites (refer attached Archaeological summary, L Furey pers comm.).

SITE IMPORTANCE: **International** **National** **Regional** **Local** **Unknown**

Comment:

Coastal streams within this site are assigned international importance because of the presence of endangered endemic brown teal (Bell 1986). The area is of high regional significance as a recreation resource enjoyed by increasing numbers of visitors from beyond the Coromandel Peninsula (R Hutchings pers comm.), and the recommended areas for protection are of regional importance (L Humphreys pers comm.).

EXISTING THREATS: Type: a, d, m
Comment:

The understorey and regeneration of vegetation is being threatened by goats, pigs and stock. Eradication and control of possum and goat wild animal populations within this area is a high priority by the Department of Conservation (K Broome pers comm.).

Coastal dunes at Port Jackson are suffering from camping disturbance and farming practices. Vegetation is being destroyed and subsequently the dunes are destabilised.

HUMAN MODIFICATION AND USE: Type: d, h, i

Road access is limited, but pedestrian access has been developed over the farm park area as part of the NZ Walkway system. The area offers a variety of recreational pursuits and enjoyment including camping, picnicking, fishing, swimming, tramping and general outdoors appreciation. The areas of leased farm park for grazing provide a rural atmosphere to the camp areas (R Hutchings pers comm.).

EXISTING PROTECTION: Type: a, f, i

Comment:
McDonald recreation reserve (1.2 ha) at Waiaro; Cape Colville Farm Park which includes the 657 ha Port Jackson Recreation Reserve, Fantail Bay Recreation Reserve (375 ha) and Fletcher Bay Recreation Reserve (198 ha); and Stony Bay and Sandy Bay Recreation Reserves of 362 ha and 59 ha respectively are included within this site.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Most of the values are fairly well documented by a number of reports, although the spiritual input requires liaison.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	①	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	3	4	5	6	⑦
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; Department of Lands and Survey 1986 : Cape Colville Farm Park Management Plan, Hamilton.

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
Keith Broome, Conservation Officer, Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) Up to 9 SSWI, as listed in text; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). Fantail Bay; Fletcher Bay; Stony Bay Recommended Areas for Protection; 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls within the tribal areas of Ngati Tamatera, Ngati Paoa, Nga Moehau Tangata Whenua Trust.

Fire is a risk due to associated campfires of the transient populations which intensively use this area over summer.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Potiki Bay-Waikawau

SITE NO: CRI 030010

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T10

GRID REF: 27360 65100

DATE: 27/07/90

BRIEF DESCRIPTION OF SITE:

The site incorporates Potiki Bay; an east-facing deeply embayed shoreline sheltered by a large headland to the north, a rocky shoreline south, with vertical sea cliffs up to 100m and several sea caves to the long (approximately 2.5 km) sandy north-east facing Waikawau Beach. At Waikawau, a shallow estuary has formed bounded by a longitudinal Pleistocene and Holocene barrier system separated by a low-lying partly swampy depression extending along the length of the beach. Waikawau beach has a notable dune system, particularly for its botanical values (Partridge 1990). A substantial area for camping has been developed at Waikawau, and it has become one of the most popular high use public areas on the Coromandel Peninsula (R Hutchings pers comm.).

CONSERVATION VALUES:

Natural: a, b, c, d, e, f

Cultural:

Historic: b

Comment:**Natural**

Around Potiki Bay on the headland cliffs pohutukawa rock treeland grows. Behind the bay, good pohutukawa-broadleaved (*Metrosideros excelsa*) forest and large areas of regenerating coast scrub extend by the slopes. Semi-coastal (rata-podocarp)/tawa (*Metrosideros robusta*)/*Beilschmiedia tawa* forest grows in the gullies, while on the ridges kauri (*Agathis australis*) and hard beech (*Nothofagus truncata*) flourish. The hardbeech-kauri-tanekaha (*Phyllocladus trichomanoides*) associations at Potiki Bay which occur with pohutukawa, is a rare situation anywhere on the Coromandel Peninsula (A Garrick pers comm.). Hardbeech which was once very common down the east side of the Coromandel Range, now only survives in two other small areas. This area is therefore recommended for protection under the PNA programme (Protected Natural Areas Programme 1990), and is of regional importance (L Humphreys pers comm.).

At Waikawau, the beach is backed by a high ridge of sand dunes which constitutes an extremely valuable representative community, noted for its dominance by native species, predominantly a natural spinifex (*Spinifex hirsutus*) community and the lush condition of this vegetation (Partridge 1990, PNAP 1990). Beyond this there are limited areas of flat pastureland changing to steep scrub covered hillsides with mixed native bush around some of the lower slopes and valleys, especially at the southern end. On the northern headland, regenerating native bush includes kauri, pohutukawa, tanekaha and a magnificent stand of kanuka (*Kunzea ericoides* var.). A number of significant plants are recorded, including *Corokia cotoneaster*, *Paratrophis banksii*, *Scandia rosaefolia* (L Humphreys pers comm.).

The indigenous bush is described as being a good area of coastal forest with a diverse fauna (Sites of Special Wildlife Interest, 1981). The Waikawau estuary has a good range of estuarine vegetation communities including eel grass (*Zostera* spp.), mangroves (*Avicennia resinifera*), manuka (*Leptospermum scoparium*) and raupo (*Typha orientalis*) and kahikatea (*Dacrydium dacrydioides*) where there is a freshwater influence. The wide estuary (40 ha) fed by the Waikawau River which breaks the beach on the northern end has been identified as having moderate to high habitat value for the breeding of threatened NZ dotterel (*Charadrius obscurus*) and banded dotterel (*Charadrius bicinctus bicinctus*) (SSWI).

The endangered brown teal (*Anas aucklandica chloritis*); regionally threatened NI fernbird (*Bowdleria punctata vealeae*); threatened caspian tern (*Hydroprogne caspia*), banded rail (*Rallus philippensis assimilis*), Australasian bittern (*Botaurus stellaris poiciloptilus*); and the rare variable oyster catcher (*Haematopus unicolor*) are reported at this site. Additional bird species reported for this section of coast include Australasian gannet (*Sula bassana serrator*), threatened reef heron (*Egretta sacra sacra*) and several shag species (SSWI).

Historic

There are recorded sites of historic significance within this site. A pa site and kumara pits are found near Waikawau River, with records of artifacts and early occupation in the vicinity. At Potiki, two pa sites, a kainga and urupa are noted (NZ Register of Archaeological Sites). No systematic surveys have been undertaken in the area, but in view of intensive Maori settlement in the past it is clear that much more work is required to identify and record further sites.

SITE IMPORTANCE:International

National

Regional

Local

Unknown

Comment:

The Potiki Bay-Waikawau site is assigned national importance for the presence many rare and threatened species and international importance for the endangered endemic brown teal (Bell 1986). It is an important site of regional significance for its coastal forest and unusual associations of kauri, tanekaha, hardbeech and pohutukawa as well as a notable dune community (L Humphreys pers comm.).

EXISTING THREATS: Type: a, c, d, k
Comment:

This area lies within the priority area for wild animal control on the Coromandel Peninsula, which involves eradication of possums, no deer farming allowed and control of goat numbers (K Broome pers comm.). Wild animals are having a large impact on the regeneration of native forest. *Spartina* (*Spartina townsendii*) is present in Waikawau estuary.

Over the summer period the beach area and dunes are intensively used including vehicle access. Stock graze on the dunes and along estuarine margins. Both these activities are disturbing the natural vegetation.

HUMAN MODIFICATION AND USE: Type: a, h, i

The Waikawau beach area is intensively used over the summer period for swimming, fishing and walking (R Hutchings pers comm.). Boating and fishing are popular water-based activities toward Potiki Bay. The lowlying areas of this site, mainly at Waikawau are used as a camping ground as part of the management of Waikawau Bay Farm Park.

EXISTING PROTECTION: Type: a
Comment:

At Potiki Bay the land is in private tenure, however the new owner is managing largely for conservation. At Waikawau, the dune area, lowlying flats and hillsides are recreation reserve managed as a Farm Park by the Department of Conservation. The Waikawau Farm Park has an area of 927 ha.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	2	③
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

The cultural and marine ecology components have very little information available.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	7
Historic	①	2	3	4	5	6	7
Threats	1	2	3	4	5	6	⑦
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; Partridge 1990 : The sand dune and beach vegetation inventory of New Zealand, Botany Division Report for Department of Conservation, Wellington.

Historic: NZRAS

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Andy Garrick, Conservation Officer, Department of Conservation, Rotorua
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Keith Broome, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1990 (SSWI)
Waikawau Estuary; moderate-high wildlife habitat value; 1981
Potiki Bush; moderate-high habitat value; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Potiki Bay and Waikawau Recommended Areas for Protection; 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site lies within the tribal area of Ngati Paoa.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Kennedy Bay

SITE NO: CRI 030011

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T10

GRID REF: 27400 64990

DATE: 25/03/90

BRIEF DESCRIPTION OF SITE:

Kennedy Bay, an embayed section of the coastline which is 2.5 km deep and 2 km wide has a small catchment with associated alluvial and tidal flats and recent dune formations consisting of a barrier spit and a series of dune ridges in the south. The distal portion of the spit is separated by a small stream forming an island. The headland to the south, consists of a north facing moderate to steep hillside dissected by many small streams. Steep ridges also terminate abruptly in rocky headlands and coastal cliffs to the south of Kennedy Bay.

CONSERVATION VALUES:

Natural: a, b, c, d, f

Cultural:

Historic: a,b

Comment:Natural

The predominantly natural area of Kennedy Bay includes two recommended areas for protection, a catchment with known fisheries values and it is a site of special wildlife interest.

The catchment is relatively unmodified, with a significant percentage forested, in DOC estate and within the streams representative freshwater fauna are reported. This catchment is one of four areas identified as having significance for freshwater fish species (T Roxburgh pers comm.).

The Kennedy Bay catchment is covered by (rata/podocarp)/tawa-hinai (*Metrosideros robusta*/podocarp)/*Beilschmiedia tawa-Eleaocarpus dentatus*) forest with scattered kauri (*Agathis australis*) regeneration on the lower slopes and several stands of modified pohutukawa (*Metrosideros excelsa*) in the lower reaches. Flax varieties are present.

The southern headland and catchment is also a recommended area for protection under the PNA programme. It is dominated by pohutukawa-kowhai-puriri (*Metrosideros excelsa-Sophora microphylla-Vitex lucens*) forest with kohekohe (*Dysoxylum spectabile*), wharangi (*Melicope ternata*), and karaka (*Corynocarpus laevigatus*) understorey. The pattern has been disrupted by past burning and now regenerating manuka scrub.

The slopes of the southern headland have kowhai (*Sophora microphylla*) as a major component in the coastal forest canopy (Protected Natural Areas Programme 1990). This is significant, as elsewhere in Coromandel Ecological Region it only occurs as scattered trees.

The associated wetland vegetation includes *Baumea rubiginosa*, *Elaeocharis actua* with occasional manuka (*Leptospermum scoparium*), flax (*Phormium cookianum*, *Phormium tenax*), toetoe, karamu (*Coprosma robusta*), and *Coprosma tenuicaulis* on the fringes. In the wetland there is manuka, scattered raupo (*Typha orientalis*), *Gleichenia dicarpa*, *Blechnum minus*, *Baumea minus*, *Baumea tenax*, *B. teretifolia* and *B. juncea*. In the estuary patches of *Leptocarpus similis*, *Juncus maritimus* and *Baumea juncea* occur, grading into marsh ribbonwood (*Plagianthus divaricatus*), *Olearia solandri* to kanuka (*Kunzea ericoides* var.), kowhai, and cabbage tree (*Cordyline australis*) on the margin (PNAP 1990). The Kennedy Bay estuary and wetlands are a site of special wildlife interest of an outstanding wildlife habitat value. The endangered brown teal (*Anas aucklandica chloritis*) and threatened NZ dotterel (*Charadrius obscurus*) are reported as breeding at this site while there is a rare variable oyster catcher (*Haemotopus unicolor*) roost on a rocky point. The threatened Australasian bittern (*Botaurus stellaris poiciloptilus*), banded rail (*Rallus phillippensis assimilis*) and the regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) are present (Sites of Special Wildlife Interest, 1981).

A rocky point north of Tokangawha Pt, is known as a whale rubbing rock (G Hovell pers comm.).

Historical:

There is a range of archaeological sites including pa, midden, pits and terraces (NZ Register of Archaeological Sites). Historic sites of regional significance include a timber mill and ship building yard of the 1860's, an early 1900's whaling station and goldmining sites (N Ritchie pers comm.).

SITE IMPORTANCE:International

National

Regional

Local

Unknown

Comment:

The Kennedy Bay estuary is assigned national importance because of the many, threatened and rare bird species using the area and is of international importance due to the presence of endangered endemic brown teal (Bell 1986). The two recommended areas for protection under the PNA Programme are of regional importance (L Humphreys). The wetland is the only remaining wetland in the Coromandel Ecological Region with its catchment in natural forest. This area also has known fisheries values (T Roxburgh pers comm.).

EXISTING THREATS:

Type: a, d, i, k, l

Comment:

There is some erosion of the low dunes mainly through uncontrolled access. Browsing by low numbers of goats and possums is a threat to the understorey of these significant forested catchments (K Broome pers comm.). The estuary margin has been altered to a degree by many coastal structures including jetties and wharves. The waters of Kennedy Bay are enclosed in a prohibitive fishing technique zone, where trawling and danish seining are prohibited.

HUMAN MODIFICATION AND USE: Type: a, b, d

Lowlying areas have been developed for Kennedy Bay settlement, with numerous jetties and shore protection works along the estuarine margins (L Abrahamson pers ob).

EXISTING PROTECTION: Type: a, i

Comment:

Along the Kennedy Bay shoreline is an unformed legal road. Much of the Kennedy Bay Catchment is contained within the Coromandel Forest Park which has a total area of 73000 ha.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	2	③
Historic	①	2	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values are fairly well documented for this area, except the marine ecological component. Cultural and recreational values require additional liaison and survey.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	7
Historic	①	2	3	4	5	6	7
Threats	1	2	3	4	5	6	⑦
Human Mod & Use	1	2	③	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990.

Historical: NZ Register of Archaeological Sites (NZRAS).

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Keith Broome, Conservation Officer, Department of Conservation, Hamilton
Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
George Hovell, Kennedy Bay

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Kennedy Bay estuary; outstanding wildlife habitat value; 1981*
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). *Kennedy Bay and Hapapawera Recommended Areas for Protection; 1990*
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This area falls within the tribal boundaries of Ngati Porou. The contact persons are George Hovell, Andrew Potai, Kennedy Bay.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Whangapoua Harbour and Beach

SITE NO: CRI 030012

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T10

GRID REF: 27455 64925

DATE: 25/03/90

BRIEF DESCRIPTION OF SITE:

Whangapoua Harbour is one of the few remaining harbours on the Coromandel Peninsula that has remained largely unmodified (R Thorpe pers comm.). It is a large shallow 1300 ha harbour with almost complete turnover of water at low tide in a drowned river valley complex of Quaternary alluvial deposits derived from Coromandel Group volcanic rock. It includes estuarine sand and mudflats, alluvial flats and is enclosed by a barrier dune spit which is modified by pine plantation and a subdivision known as Matarangi Beach. This site also incorporates Whangapoua Beach and Wainuiototo Bay (known as New Chums) which lie to the north of Whangapoua Harbour. Whangapoua Beach is backed by the coastal subdivision of Whangapoua which has severely altered the natural dunes and resulted in dramatic erosion of the foreshore in recent years.

CONSERVATION VALUES:

Natural: a, b, c, d, f

Cultural:

Historic: a, b

Comment:Natural

A complete range of estuarine vegetation associations occurs at Whangapoua Harbour. Significant eelgrass (*Zostera* spp.) beds occur on the harbour flats, and are considered to be the best example on the Coromandel Peninsula (S Miller pers comm.). Large stands of mangroves (*Avicennia resinifera*) occur in the tidal zone with manuka-marsh ribbonwood-knotted sedge (*Leptospermum scoparium-Plagianthus divaricatus-Scirpus nodosus*) shrubland and *Juncus maritimus-Leptocarpus similis* rushland communities fringing the upper harbour. Saltmarsh herbs such as *Sarcocornia quinquefolia*, *Samolous repens* and *Selliera radicans* occur on the sandflats amongst the rushes. Several small islands particularly in the south eastern area of the harbour have flax (*Phormium* spp.), karamu (*Coprosma robusta*), and the vines pohuehue (*Muehlenbeckia* spp.) and shore bindweed (*Calystegia soldanella*). The botanical values of the dune systems at Matarangi and Whangapoua beach have been largely lost to planting by adventive species and coastal subdivision respectively (Partridge 1990). The Matarangi dunes are largely modified by exotic species, though a narrow band of spinifex (*Spinifex hirsutus*) and minor rare pingao (*Desmoschoenus spiralis*) occur with pohuehue and shore bindweed (Protected Natural Areas Programme 1990).

The Whangapoua Harbour has an outstanding wildlife habitat value attributed to it, providing a large unmodified habitat with good diversity and numbers of wildlife including rare and threatened species (R Thorpe pers comm.). The threatened NZ dotterel (*Charadrius obscurus*) is reported using the harbour, Wainuiototo Bay, and Whangapoua Beach. The eastern bar-tailed godwit; threatened reef heron (*Egretta sacra sacra*), Australasian bittern (*Botaurus stellaris poiciloptilus*), banded dotterel (*Charadrius bicinctus bicinctus*), banded rail (*Rallus philippensis assimilis*); rare variable oyster catcher (*Haematopus unicolor*) and the regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) use this estuary (Sites of Special Wildlife Interest, 1981). A good diversity of macrofauna including eight species of bivalves, horse mussels, cockles, pipis, native rock oysters and mussels, six species of worm, eight species of crustacean and 13 species of snail including mud snail (PNAP 1990) are present.

Historical:

A range of archaeological sites occur on the beach dunes and headlands and the low rolling land behind Whangapoua Harbour (NZ Register of Archaeological Sites). A timber mill situated below Opera Point is a historic site of significance (N Ritchie pers comm.).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

Whangapoua Harbour is an outstanding wildlife habitat and is assigned national importance because of the presence of threatened and rare bird species (Bell 1986). Whangapoua Harbour is a site designated for protection under the PNA programme, and represents the best and largest estuarine system in the ecological district.

EXISTING THREATS:

Type: a, c, e, k, l, i

Comment:

Houses at Whangapoua Beach and some sections of Matarangi are threatened by severe erosion of the coastal foredunes, particularly at Whangapoua Beach where inadequate coastal protection works have been erected. The noxious weed spartina (*Spartina* spp.) has established itself within the harbour. Pollution from the sewage ponds located on the margin of Whangapoua Harbour is a threat to the biota of this area. The coastal dunes have been affected by uncontrolled pedestrian use. Coastal subdivisions at Whangapoua and Matarangi Beach have altered the natural dune systems. The offshore waters are enclosed in a prohibitive fishing technique zone, where trawling and danish seining are prohibited.

HUMAN MODIFICATION AND USE: Type: a, b, d, h

Much of the catchment area is in pine plantation or grazed farmland. The shallow estuarine harbour is ideal for boating activities including windsurfing and small boat sailing. Swimming, fishing, walking and shellfish gathering are also popular along this coastline (R Hutchings pers comm.). A number of jetties occur on the west margin of the harbour and two causeways across the tidal flats have partially cut off small areas of harbour.

EXISTING PROTECTION: Type: a

Comment:

Islands at Opitonui River Mouth are a government purpose reserve (2.6 ha), and the headland to the north of the harbour, Opera Point is a historic reserve of 8 ha. The harbour has no protection status.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	2	③
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

There is good documentation of the natural values of this site. Cultural and historical information needs liaison and updating.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	7
Historic	①	2	3	4	5	6	⑦
Threats	1	2	③	4	5	⑥	7
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; T R Partridge 1990, The sand dune and beach vegetation inventory of New Zealand, Botany Division Report prepared for Department of Conservation, Wellington.

Historical: NZ Register of Archaeological Sites (NZRAS).

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Sue Miller, Ministry of Agriculture and Fisheries, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
Raewyn Hutchings, Recreational Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1990 (SSWI) *Whangapoua Harbour; outstanding wildlife habitat value; 1981*
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). *Whangapoua recommended area for protection; 1990*
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

Whangapoua falls within the tribal area of Ngati Pupu. The contact person is Lou Mangakahia, Whangapoua. Milling of the Whangapoua Forest must be carefully managed to avoid increased siltation within the harbour.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Rings Beach-Kuaotunu		SITE NO: CRI 030013
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: T10	GRID REF: 27505 64945	DATE: 23/03/90

BRIEF DESCRIPTION OF SITE:

In the vicinity of Rings Beach steep coastal rocky cliffs abound a small beach bay. The access road winds around the cliffs and then runs close behind the beach, defining the dune area and dividing it from housing behind.

Kuaotunu consists of two main beaches known as Kuaotunu East and Kuaotunu West separated by a series of rocky outcrops and reefs. The township of Kuaotunu has developed behind the beaches and the surrounding hills are farmed.

CONSERVATION VALUES:	Natural: c, e	Cultural: e	Historic: b
Comment:			

Natural

A notable shag colony is found at Rings Beach (Sites of Special Wildlife Interest, 1981). The threatened NZ dotterel (*Charadrius obscurus*) is reported at Kuaotunu East (P Thomson pers comm.).

Scenic coastal cliffs are partially covered by pohutukawa-(karo)-hangehange-(karaka)-karamu-houpara/manuka-bracken-flax-koromiko-mungimingi (*Metrosideros excelsa*-(*Pittosporum crassifolium*)-*Geniostoma rupestre* var.-(*Corynocarpus laevigatus*)-*Coprosma robusta*-*Pseudopanax lessonii*/*Leptospermum scoparium*-*Pteridium esculentum*-*Phormium* spp. - *Hebe stricta* var. *stricta*-*Leucopogon fasciculatus*) shrub (Regnier 1987).

A significant plant, *Hebe pubescens* var. *pubescens* which is endemic to Coromandel Ecological Region is found here (L Humphreys pers comm.).

Cultural:

Interesting rocky platforms and weathering features of these and the coastal cliffs are visited by university field trips (T Healy pers comm.). Kuaotunu West has been a field site for University earth science trips, where the effects of sand mining were demonstrated. This scenic piece of coastline has been the subject of a number of paintings by local artists.

Historical:

A range of archaeological sites occur particularly on the headlands and ridges (NZ Register of Archaeological Sites).

SITE IMPORTANCE:	International	National	Regional	Local	Unknown
Comment:					

At Kuaotunu East beach is assigned national importance due to the presence of the threatened NZ dotterel (Bell 1986). A noted site for education studies and a significant plant species is recorded.

EXISTING THREATS:	Type: a, k
Comment:	

Kuaotunu Beach underwent significant erosion during the 1970's, when sand extraction licences were granted for Kuaotunu West Beach. Sand blowouts have developed in a few areas as a result of uncontrolled pedestrian access.

HUMAN MODIFICATION AND USE: Type: h

The rocky platforms and outcrops are very popular for rock fishing (L Abrahamson pers obs.).

EXISTING PROTECTION: Type: a

Comment:

Matarangi Bluff Scenic Reserve is 253 ha in area. At Kuaotunu, there is a small block of allocated land (1 ha) and Kuaotunu Recreation Reserve which fronts much of the beach is 11 ha in area.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Information for this area is quite limited.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; C Regnier 1987; Coromandel Ecological Region Protected Natural Areas Programme Phase 1, Department of Conservation, Wellington

Historical: NZ Register of Archaeological Sites (NZRAS)

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Dr Terry Healy, University of Waikato, Hamilton
Phil Thomson, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Department of Conservation, Wellington (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Department of Conservation, Hamilton (SSWI) *Rings Beach Shag Colony; moderate wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This area lies within the goldmining interest area of Kuaotunu.

This site falls into the tribal boundaries of Ngati Pupu for Whangapoua to Kuaotunu; and Ngati Hei for Kuaotunu to Opito. The contact persons are Lou Mangakahia, Whangapoua and Peter Johnson, Wharekaho.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Otama and Opito Bays		SITE NO: CRI 030014
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: T10	GRID REF: 27365 64085	DATE: 23/03/90

BRIEF DESCRIPTION OF SITE:

Otama and Opito Bays are characterised by approximately 2 and 4 km long white sandy beaches and dune systems that front incised drainage basins, now partially infilled by alluvial sediments. At Whaorei (Sarahs Gully), a small beach between the two bays, a very large dune system is encroaching over alluvial flats.

CONSERVATION VALUES: Natural: a, b, c, d, e, f Cultural: e Historic: b
Comment:

Natural

Otama estuary and beach system is particularly significant as a recommended area for protection under the PNA programme of regional importance (L Humphreys pers comm.). The 10 ha estuary is of moderate-high wildlife habitat value with threatened Australasian bittern (*Botaurus stellaris poiciloptilus*), banded rail (*Rallus philippensis assimilis*); endangered brown teal (*Anas aucklandica chloritis*); rare variable oyster catcher (*Hydroprogne caspia*); regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) reported (Sites of Special Wildlife Interest, 1981). The estuary is dominated by manuka-marsh ribbonwood (*Leptospermum scoparium-Plaginthus divaricatus*) rushland. The dune system of Otama is fairly large and stable, protected to date from many of the pressures that other dune systems are subjected to, like pedestrian access due to its isolation. Noted as a valuable representative community and ranked highly in the sand dune and beach vegetation inventory of New Zealand (Partridge 1990). The diversity of native species including *Austrofestuca* and others rare in many of the dune systems; important scrub communities including manuka, *Cassinia retorta*, sand dune coprosma (*Coprosma acerosa*); and good wetland communities are noted for this Otama site (Partridge 1990). In particular, the dune community is dominated by spinifex (*Spinifex hirsutus*) with a few exotic species, and some scattered rare pingao (*Desmoschoenus spiralis*). Old pohutukawa (*Metrosideros excelsa*) occur on the old dunes, which immediately back the beach in the east, and the rocky headland in the west supports a pohutukawa/flax community and regenerating coastal broadleaved species scrub with kanuka (*Kunzea ericoides* var.) (Protected Natural Areas Programme 1990).

The Otama beach/dune complex is an important site for geomorphological landforms, noted in the Geopreservation Inventory as a regionally significant site. Particularly the abandoned Pleistocene dune barrier is a classic example and the best in Coromandel (T Healy pers comm.).

Opito Bay Beach and wetland are sites of special wildlife interest of moderate-high wildlife habitat value supporting the threatened Australasian bittern and NZ dotterel (*Charadrius obscurus*).

Cultural:

The interesting landforms of Otama Beach/dune complex are a regular site for university field trips (T Healy pers comm.).

Historical:

Significant archaeological sites occur at Opito and Sarah's Gully area, including pa, midden, terraces, pits, burials and an adze quarry (NZ Register of Archaeological Sites). Tahanga (adze quarry) is of national significance and early east polynesian beach middens on the foredunes of Opito are regionally significant (L Furey pers comm.).

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

Archaeological sites of national and regional significance occur in this area (L Furey pers comm.). Landforms at Otama are of regional significance according to the Geopreservation Inventory. The Otama complex is a recommended area for protection of regional importance having the best example of dune and estuarine wetland communities in the ecological district (PNAP 1990). The endangered endemic brown teal is reported, and the site is therefore assigned international importance (Bell 1986).

EXISTING THREATS: Type: a, j, k, l
Comment:

Erosion of the older Pleistocene dunes is occurring mainly through wind erosion, erosion through uncontrolled pedestrian access and digging in banks and some wave erosion. Uncontrolled access across the recent dunes is a threat in some areas to the stability of these formations. A refuse transfer site occurs behind the dunes at Opito, and roading at this site has modified the dune form.

HUMAN MODIFICATION AND USE:

Type: h, i

Farming has greatly modified the catchment areas of these bays. Fishing, swimming, walking and boating are recreational activities pursued within and around these bays (R Hutchings pers comm.).

EXISTING PROTECTION:

Type: a

Comment:

The Otama dunes are within a recreation reserve (14 ha) while a coastal strip from Sarah's Gully along Opito is reserved from sale. There is also a small block of allocated land (23 ha) at Otama. Opito Bay Recreation Reserve is 1.9 ha in area. Although most of the dune area is contained within recreation reserves, the main threat is uncontrolled recreation or access across the dunes.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	2	③
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values are fairly well documented, other than the marine ecology of the area. Cultural values require more liaison.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	⑦
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	③	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; T R Partridge 1990, The sand dune and beach vegetation inventory of New Zealand, Botany Division Report prepared for Department of Conservation, Wellington.

Historical: NZ Register of Archaeological Sites (NZRAS).

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Dr T R Healy, University of Waikato, Hamilton
Raewyn Hutchings, Recreational Planner, Department of Conservation, Hamilton
Louise Furey C/- Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Otama Estuary; moderate-high wildlife habitat value; 1981
Opito Bay Swamp; moderate wildlife habitat value; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Otama Bay recommended area for protection; 1990
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989
Otama beach/dune complex; regional significance; 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

The site falls into the tribal boundaries of the Ngati Hei. The contact person is Peter Johnson, Wharekaho.

Sand mining of the beach sands has been a potential threat in the past. This area is also within the goldmining interest area of Kuaotunu.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Mercury Islands and Cuvier Island including Whauwhau and Horseshoe Bay Catchments SITE NO: CRI 030015

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T10

GRID REF: Z7650 64990

DATE: 25/03/90

BRIEF DESCRIPTION OF SITE:

This rather extensive site extends from the group of Mercury Islands including a number of rocky stacks located off the Kuaotunu Peninsula, to a rugged natural piece of coast on the mainland known as Whauwhau and Horseshoe Bay area and also includes Cuvier Island. Extensive reef systems extend from the islands and along this mainland coast. A mostly natural unmodified area, where the islands provide habitat for many threatened species and the mainland area incorporating a number of steep catchments contributes a modified coastal forest-kanuka scrub that is regenerating after past disturbance. The offshore islands range from highly modified states where farming is the main land use to islands in natural states.

CONSERVATION VALUES:

Natural: a, b, c, d, f

Cultural: c, e

Historic: a,b,d

Comment:

Natural

Cuvier Island has a rugged coastline with sheer cliffs giving way to rounded slopes and open valleys further inland. The island is covered in rich native forest interspersed with stands of pohutukawa (*Metrosideros excelsa*) and grassland. The rare North Island saddleback (*Philesturnus carunculatus rufusater*) and regionally threatened red-crowned parakeet or kakariki (*Cyanoramphus novaezealandiae novaezealandiae*) have been reintroduced to Cuvier Island after cats and goats were removed in the mid 1960's. Blue penguin, (*Eudyptula minor iredalei*), red-billed gull and greyfaced petrel (*Pterodroma macroptera gouldii*) all breed on Cuvier Island. Only remnant populations of regionally threatened tuatara (*Sphenodon punctatus*) survive on Cuvier Island, threatened by the kiore (rat) population (P Thomson pers comm.).

The Mercury Islands consist of seven islands of steep, rocky cliffs and boulder beaches lying 20 km off the east Coromandel Coast. Natural vegetation is the predominant cover of the islands. Coastal birds on the Mercury Islands include the rare Pycrofts Petrel (*Pterodroma pycrofti*), four species of shearwater, pied shags (*Phalacrocorax varius varius*); blue penguins and threatened NZ dotterel (*Charadrius obscurus*). The tusked weta (undescribed spp. and gen.) and status unknown survives on Middle Island, while the threatened Whitakers (*Cyclodina whitakeri*) skink; regionally threatened robust (*Cyclodina alani*) skink, marbled (*Cyclodina oliveri*) skink and tuatara are reported on a number of the Mercury Islands (R Thorpe pers comm.).

Moderately steep catchments occurring on Coromandel Group andesites and dacites drain to a coastline characterised by rocky cliffs and reefs intercepted by sandy beaches along the southern side of Kuaotunu Peninsula, the mainland section of this site. On the coastal cliffs pohutukawa rock-treeland is dominant grading into pohutukawa modified forest and (rata)/tawa (*Metrosideros robusta/Beilschmiedia tawa*) forest broken by various successional stages of manuka (*Leptospermum scoparium*) and kanuka (*Kunzea ericoides* var.) scrub and some kauri (*Agathis australis*) regeneration on ridges (Protected Natural Areas Programme 1990). These catchments are recommended area for protection selected for its contribution to the protection of the coastal zone and containing an interesting variation of the lowland coastal-forest interface (PNAP 1990). Diverse invertebrate fauna in Whauwhau Stream is noted, and the threatened NZ dotterel is reported as breeding at Matapau Bay.

Cultural:

This area of coastline has high scenic value (PNAP 1990), and is a regionally significant landscape worthy of preservation status (Brown 1990). It is described as a high interest landscape, with dominant natural pattern and integrated land use. It is a sensitive area where the visual impact of change would be especially high (Brown 1990). Brown describes only four such areas on the Coromandel Peninsula.

Waitaia on the mainland coast is used for a regular school camp, while the Mercury Islands and waters are the subject of regular school oceanography trips (J Charteris pers comm.).

Historical:

Archaeological sites in this area are numerous (NZ Register of Archaeological Sites). It is suggested that the sites on the islands should be considered of high significance as a microcosm of the mainland situation (L Furey pers comm.). The Mercury Islands are significant to the Maori as one of the best kumara growing areas free from frosts. A wrecked site of the ship "Maranui" is on Northern Great Mercury Island and a whaling station is sited in the south.

SITE IMPORTANCE: International National Regional Local Unknown

Comment: The Mercury Islands and portion of the south side of Kuaotunu Peninsula is assigned national importance because of the many threatened species reported (Bell 1986). The only population of endangered tusked weta occurs here, as well as the most viable population of Whitakers skink (P Thomson pers comm.). It is also of national significance for its habitat values (L Humphreys pers comm.). A regionally significant landscape, and the largest and most significant group of islands off the east Coromandel.

EXISTING THREATS:

Type: a, d, i

Comment: Soil slip erosion occurs around the mainland headland. Wild animal populations are damaging the regeneration of native forest on the mainland portion, and rats are threatening skink, bird and tuatara populations on the islands (P Thomson pers comm.).

HUMAN MODIFICATION AND USE: Type: h, i

The islands are a popular diving destination with considerable diversity, for example the Garden of Eden patch has large areas of attractive anemones, crayfish and a scallop bed all within a small area (Ministry of Agriculture and Fisheries 1985).

Swimming, boating and fishing are other recreational activities pursued along this stretch of coastline, however access is limited. An historic walking track exists from Matapaua Bay to Opito.

EXISTING PROTECTION: Type: c, i
Comment:

A number of recreation reserves including Waitaia Recreation Reserve (107 ha) occur on the mainland section, along with an area (194 ha) recently purchased by the Department of Conservation at Horseshoe Bay.

Mercury Islands except for Great Mercury which is privately owned, are all owned by the Crown and largely managed as wildlife sanctuaries. Cuvier Island is a nature reserve.

Several unformed legal roads dissect the mainland area.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

There is limited information for this area. The cultural component requires more liaison.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: PNAP 1990; Ministry of Agriculture and Fisheries 1985 : Draft Auckland Marine Reserves Plan, Auckland.

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Historical: NZ Register of Archaeological Sites (NZRAS).

Personal Communication: Phil Thomson, Conservation Officer, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Keith Broome, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Department of Conservation, Wellington (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Department of Conservation, Hamilton (SSWI)
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Whauwhau and Woodcock Streams, Horseshoe and Sandy Bays recommended areas for protection; 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls into the tribal boundaries of the Ngati Hei. The contact person is Peter Johnson, Wharekaho.

Coromandel goldmining exploration is a threat to the mainland area, Kuaotunu and surrounding catchments are a focus area for activity.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Wharekaho Beach

SITE NO: CRI 030016

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T11

GRID REF: 23535 64855

DATE: 23/03/90

BRIEF DESCRIPTION OF SITE:

Wharekaho Beach is approximately 1.5 km long and situated within the greater Mercury Bay so that it is relatively protected. It is a curved beach that is characteristically cusped and dominated by black sand. Most of the beach has been subdivided with houses built close to the foreshore. Sand dunes are confined to the south section of the beach and in the north Akeake Stream has a small estuarine habitat. It is a popular beach for water-based activities during the summer (L Abrahamson pers ob.).

CONSERVATION VALUES:

Natural: a, b, c, e

Cultural: e

Historic: b,c

Comment:

Natural

Akeake Stream estuary is a site of special wildlife interest of moderate wildlife habitat value (Sites of Special Wildlife Interest, 1981). Rare variable oystercatcher (*Haematopus unicolor*), and threatened Australasian bittern (*Botaurus stellaris poiciloptilus*) and caspian tern (*Hydroprogne caspia*), as well as common species use the saltmarsh along the estuarine margins and the tidal flats (R Thorpe pers comm.).

Cultural:

The black sands of this beach are an interest site for university geology field trips (T Healy pers comm.).

Historical:

Wharetaewa Pa located on the southern headland of Wharekaho was visited by Captain Cook in 1769 and is of national significance (L Furey pers comm.). Other archaeological sites occur in this area (see Archaeological Summary). A pohutukawa tree near the centre of the beach is of historic interest, reported to be under which Captain Cook had tea, as noted in his diary (L Abrahamson pers comm.).

SITE IMPORTANCE:

International

National

Regional

Local

Unknown

Comment:

Wharetaewa Pa is rated of national significance, but with further research and evaluation many others would merit a similar designation (N Ritchie pers comm.). Akeake estuary is also assigned national importance due to the presence of threatened bird species (Bell 1986).

EXISTING THREATS:

Type: a, l

Comment:

Wave-cut storm erosion of the dunes is causing problems for close subdivision towards the south end of the beach.

HUMAN MODIFICATION AND USE:

Type: a, d, h

Especially during the summer period, swimming, surfing, beach walking, fishing and windsurfing are popular activities pursued along this coastal area. Offshore from the northern end of this beach a sheltered area for boat moorings is provided (L Abrahamson pers ob).

Coastal development has modified much of the dune area of Wharekaho Beach.

EXISTING PROTECTION:

Type: a, c

Comment:

Local authority recreation reserves and esplanade reserves provide public access to the beach. A scenic pohutukawa grove is part of these reserves in the centre of the beach.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

There is very little information available on this area other than historic information.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
Linda Abrahamson, Conservation Officer, Department of Conservation, Hamilton
Louise Furey C/- Department of Conservation, Hamilton
Dr Terry Healy, University of Waikato, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Akeake Stream estuary; moderate wildlife habitat value; 1981*
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls into the tribal boundaries of the Ngati Hei. The contact person is Peter Johnson, Wharekaho.

This area lies within the Kuaotunu goldmining interest area, with several exploration licences extending on to the surrounding hillsides particularly Mount Maungatawhiri, the northern headland.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Whitianga		SITE NO: CRI 030017
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: T11	GRID REF: 27505 64785	DATE: 23/03/90

BRIEF DESCRIPTION OF SITE:

This site is located in the innermost embayed portion of Mercury Bay consisting of a large fairly natural estuarine harbour formed from drowned river valleys and partially enclosed by an extensive low-lying beach ridge plain and Buffalo Beach. Approximately 40 km of coastline including estuarine margins falls within this site Whitianga township which has developed over this plain and borders the northern margins of the estuary is well integrated with the natural pattern of the shoreline. Whitianga is a major destination in summer for holidaymakers, increasing from approximately 2,000 residents during the year to a population around 20,000 over summer.

CONSERVATION VALUES: Natural: a, b, c, d, e, f Cultural: e Historic: a,b,d
Comment:

Natural

The harbour is a large area of intertidal flats (74% of the 1560 ha estuary area is exposed at low tide) surrounded by extensive alluvial flats, low alluvial terraces, low-lying hills and ignimbrite cliffs. The estuarine to terrestrial vegetation gradient is represented (Protected Natural Areas Programme 1990). Up to 40% of the intertidal area is covered by mangrove (*Avicennia resinifera*) stands, as well as some small areas of eelgrass (*Zostera* spp.). Natural terrestrial vegetation borders the estuary including pohutukawa (*Metrosideros excelsa*) rock treeland on ignimbrite cliffs, modified coastal forest and kanuka (*Kunzea ericoides* var.) forest on hillslopes.

The estuary is a site of special wildlife interest of high wildlife habitat value supporting breeding colonies of pied (*Phalacrocorax varius varius*) and little (*Phalacrocorax melanoleucos brevirostris*) shags. The threatened reef heron (*Egretta sacra sacra*); regionally threatened North Island fernbird (*Bowdleria punctata vealeae*); threatened banded rail (*Rallus philippensis assimilis*), Australasian bittern (*Botaurus stellaris poiciloptilus*); and the rare variable oystercatcher (*Haematopus unicolor*) are all reported from this area. The estuary also supports the only estuarine inhabiting dolphins (Common dolphin, *Delphinus delphis*) known in New Zealand. It is also noted for its rich marine macrofauna and its extensive fish breeding grounds (Miller 1987).

Taputaputea Stream found halfway along Buffalo Beach is another site of special wildlife interest of moderate wildlife habitat where the threatened reef heron has been reported and NZ dotterel (*Charadrius obscurus*). This stream is also a site listed in the Geopreservation Inventory as regionally significant for the hot springs in its stream bed.

Cultural:

Buffalo Beach is visited by university geology field trips, not for its geological attributes but for its examples of shore protection works (T Healy pers comm.).

Historical:

Large numbers of gold mining and timber industry sites exist in the hinterland behind Mercury Bay. A notable site is the ship wreck (HMS Buffalo) which is just offshore of Buffalo Beach. Other sites of interest include Browne's sawmill and stone wharf at Ferry's Landing at the estuary mouth, and the upper mill site (1864) and Waiwawa timber booms at the head of the harbour. Archaeological sites are numerous (NZ Register of Archaeological Sites) but up to date surveys are required (N Ritchie pers comm.).

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

The Whitianga area is assigned national importance because of the presence of threatened and rare bird species (Bell 1986). The estuary is a recommended area for protection providing the largest area of intertidal flats in the Tairua Ecological District and representing 2% of the total national population of mangroves (PNAP 1990). The estuary supports populations of notable wildlife including the only estuarine inhabiting dolphins known in New Zealand. Sites of historical importance and geological significance also add to the value of this site.

EXISTING THREATS: Type: c, g, j, l
Comment:

The noxious weed *Spartina* (*Spartina townsendii*) occurs in the upper reaches of the estuary and is impacting on natural vegetation communities. The estuarine margins have been modified by partial reclamations and shore protection works in the vicinity of the Whitianga township as well as gabian baskets and rip rap lying on the foreshore of east Buffalo Beach, near the wharf which affect sedimentation patterns. Whitianga refuse tip has partially reclaimed mangrove area but has recently been closed down. Whitianga township continues to develop including the likely development of a marina within the estuary.

HUMAN MODIFICATION AND USE: Type: a, b, d, h, i

Whitianga township, a number of reclamations and a large area of boat moorings is well integrated into the natural pattern of the area (Brown 1990). Whitianga and surrounding area, a popular holiday destination for families is used for many recreational activities including swimming, all types of boating and fishing (R Hutchings pers comm.).

EXISTING PROTECTION: Type: a, c, f, i

Comment:

A number of scenic reserves with good natural forest cover lie around the margins of the estuary. A QE II covenant is located in the southern portion as well as unformed legal road. Local authority esplanade reserves cover much of the remaining area. The scenic reserves total at least 180 ha, and there is an area of allocated land of 142 ha.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	①	2	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

A number of surveys and reports have provided good information on the natural values. Archaeological surveys need to be updated (refer attached Archaeological Summary), and the cultural component requires liaison.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: PNAP 1990; SSWI; S Miller 1987 : Baseline Macrobiodiversity Survey of the Whangapoua and Whitianga Estuaries - Coromandel Peninsula. Hauraki Catchment Board Report No. 213; Geopreservation Inventory.

Historical: NZ Register of Archaeological Sites (NZRAS).

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Human Modification and Use: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Personal Communication: Dr T Healy, University of Waikato, Hamilton
Raewyn Hutchings, Recreational Planner, Department of Conservation, Hamilton
Neville Ritchie, Archaeologist, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Taputaputea Stream Estuary; moderate wildlife habitat value; 1981
Whitianga Harbour; high wildlife habitat value; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Whitianga Harbour; recommended area for protection; 1990
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989
Taputaputea Hotsprings; regional significance; 1981
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls into the tribal boundaries of the Ngati Hei. The contact person is Peter Johnson, Wharekaho.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Cooks Beach

SITE NO: CRI 030018

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T11

GRID REF: 27555 64810

DATE: 22/03/90

BRIEF DESCRIPTION OF SITE:

Cooks Beach area is a semi-enclosed embayment lying in a relatively sheltered position on the south side of Mercury Bay. The sandy ocean beach, about two and a half kilometres long is backed by several hundred metres of Holocene parallel dune ridge progradation. At the eastern end of the beach lies Purangi estuary. To the north a small bay Maramaratotara Bay (also known as Front Beach and Flaxmill Bay) is characterised by marine eroded ignimbrite cliffs. Between these two bays lies Shakespeare's Cliff, a sheer ignimbrite sea-cliff forming a large headland and prominent landscape feature of Mercury Bay (L Abrahamson pers obs.).

CONSERVATION VALUES:
Comment:

Natural: a, b, c, d, e

Cultural: e

Historic: b,c

Natural

Purangi estuary is a site of special wildlife interest of high wildlife habitat value. A breeding site for black-backed gull (*Larus bulleri*), with the rare variable oystercatcher (*Haematopus unicolor*); and threatened caspian tern (*Hydroprogne caspia*), Australasian bittern (*Botaurus stellaris poiciloptilus*), reef heron (*Egretta sacra*), banded rail (*Rallus philippensis assimilis*) and regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) reported as using this estuary (Sites of Special Wildlife Interest 1981). The threatened NZ dotterel (*Charadrius obscurus*) is recorded using the beaches in the vicinity of this area (P Thomson pers comm.). The estuary of 150 ha is dominated by mangrove (*Avicennia resinifera*) throughout, with margins of manuka (*Leptospermum scoparium*), flax (*Phormium* spp.), marsh ribbonwood (*Plagianthus divaricatus*), jointed sedge (*Leptocarpus similis*), saltmarsh and areas of eelgrass (*Zostera* spp.). The coastal dunes have a number of rare plants within their vegetation cover (L Humphreys pers comm.).

The Maramaratotara Bay coastline is of national significance, according to the Geopreservation Inventory. It is described as a visor notch carved into a distal ignimbrite with two levels of platforms relating to high tide and ground water levels.

Cultural:

These coastal features of Maramaratotara Bay are a site of geological interest for university field trips (T Healy pers comm.).

Historical:

More recent archaeological surveys are needed for this site, with the usual suite of Maori occupation sites present (NZ Register of Archaeological Sites). Of historical significance is Cooks watering place in Cooks Bay (L Furey pers comm.).

SITE IMPORTANCE:
Comment:

International

National

Regional

Local

Unknown

The site incorporates a nationally significant geological feature (Geopreservation Inventory) and a wildlife habitat of high value, and important historical sites.

EXISTING THREATS:

Type: a, j, k, l

Comment:

Coastal erosion of beach sections is a major problem along Cooks Beach towards the east end, with several houses threatened during storm periods. Purangi refuse tip reclamation now closed occurs in the upper reaches of the estuary and had reclaimed mangrove area. Uncontrolled access tracks over the dunes are disturbing vegetation resulting in destabilised dunes to be managed.

HUMAN MODIFICATION AND USE:

Type: d, h, i

Cooks Beach settlement has developed over the parallel dune ridges. Historic interpretation, swimming, boating, boat access, fishing, diving are carried out and provided in this area (R Hutchings pers comm.). Flaxmill Bay provides sheltered water and is a popular area for mooring boats (L Abrahamson pers obs.).

EXISTING PROTECTION:

Type: a

Comment:

Shakespeare's Cliff is a historic and scenic reserve of 36 ha. Purangi Estuary has no protection status .

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	①	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

The wildlife information is good, however more detailed data is required for many of the other components.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; Geopreservation Inventory

Historical: NZ Register of Archaeological Sites (NZRAS).

Personal Communication: Dr T Healy, University of Waikato, Hamilton
 Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
 Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
 Raewyn Hutchings, Recreational Planner, Department of Conservation, Hamilton
 Phil Thomson, Conservation Officer, Department of Conservation, Hamilton
 Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Department of Conservation, Wellington (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Department of Conservation, Hamilton (SSWI)
Purangi Estuary; high wildlife habitat value; 1981
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989
Maramaratotara Bay coastal features; national significance; 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This site falls within the tribal boundaries of Ngati Hei. The contact person is Peter Johnson, Wharekaho.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Cathedral Cove-Hotwater Beach

SITE NO: CRI 030019

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: T11

GRID REF: 27600 27760

DATE: 22/03/90

BRIEF DESCRIPTION OF SITE:

This coastal site extends for approximately 25 km along the east coast of Coromandel Peninsula from Cathedral Cove, north of Hahei southwards to Te Karo Bay and Sailors Grave, just north of Tairua.

Within this site lies Cathedral Cove and associated bays, significant coastal features carved from ignimbrite by the action of the sea. Hahei a popular holiday destination and Hotwater Beach where notable geothermal activity is a significant tourist attraction also lie along this stretch of coastline. To the south of Hotwater Beach the coastline consists of rocky andesite cliffs, prominent headlands, sheltered bays and small sandy beaches backed by several coastal catchments covered by diverse coastal vegetation which is an area recommended for protection under the PNA programme. The many small offshore islands including Mahurangi Island and associated reef systems enhance the diversity of coastal habitats and environs within this area.

CONSERVATION VALUES: Natural: a, b, c, d, e, f

Cultural: c, d

Historic: b, c, d

Comment:**Natural**

In the north, the Cathedral Cove locality is currently under investigation for a marine reserve and includes some 6 kilometres of intertidal zone from Hahei to Cooks Bluff, and seaward to include all of Mussel Rock, Motorua, Motueka and Waikaranga Islands and Mahurangi Island and a series of reef systems. These islands are eroded remnants of rhyolite domes, with flows of rhyolite lava forming complex folds making up the underwater reef systems. The coastline is dominated by small coves with beaches of sand and rhyolitic boulders and steep marine eroded ignimbrite cliffs rising to 80 m above sea level. Cathedral Cove is a regionally significant geomorphological feature, described as a natural amphitheatre coast formed in ignimbrite by wave action along joint plains, including a large gothic arch passing beneath a small headland and a small mushroom shaped stack (Geopreservation Inventory 1989). A good range of intertidal habitats provides for an interesting mix of intertidal organisms, and subtidal habitats include high quality kelp forests, rock flats, sponge gardens, red algal assemblages, and sandflats with locally dense scallop populations (Coffey et al 1990). Interesting features of the area include a relatively high abundance of the pencil urchin (*Goniochidaris umbraculum*) and the presence of a seaweed, *Pedobesia clacaeformis*, which has only been found at the Three Kings Island and the Kermadec Islands (Coffey et al 1990).

Motueka Island, the second largest of the offshore islands, supports fragile coastal plant communities which are representative of the area. Some locally rare plant species were also identified. A healthy colony of grey-faced petrels (*Pterodroma macroptera*) is known to nest on Motueka Island (Protected Natural Areas Programme 1990).

At Hotwater Beach a partially vegetated dune complex, including stabilised and active dune blowouts and a rhyolitic rocky knoll has blocked off and encroached upon an infilled estuarine basin consisting of swamp, estuarine and alluvial depositis. The beach and dune system is a site of special wildlife interest of high wildlife habitat value, and is important for the threatened banded dotterel (*Charadrius bicinctus bicinctus*), and threatened breeding NZ dotterel (*Charadrius obscurus*), and rare variable oystercatcher (*Haemotopus unicolor*) (Site of Special Wildlife Interest, 1981). The threatened caspian tern, and Australasian gannet feed offshore. Threatened Whitakers skink (*Cyclodina whitakeri*) and regionally threatened marbled skink (*Cyclodina oliveri*) are reported here (R Thorpe pers comm.). This is a recommended area for protection under the PNA programme, and is noted for its spectacular vegetation patterns (Partridge 1990). An unusual part is the extensive dune crest stands of *Agave americana*, a species otherwise only rarely found on other dunes. Extensive rush-vineland occurs on the rear dunes with *Coprosma acerosa*. The rocky headland supports representative pohutukawa (*Metrosideros excelsa*) coastal forest. Notable geothermal activity occurs on the beach, known as Otua hot springs where water and gas bubble through the beach sand about 2 m above low tide. This feature which draws a large number of visitors especially during the summer period is listed as a regionally significant geothermal feature in the Geopreservation Inventory.

The small coastal catchments in the vicinity of Te Ororoa Point and Tapuaetahi Bay (Boat Harbour) flow eastwards off low coastal hills. Pohutukawa rock treeland is found along the cliffed coastline while the coastal hillslopes are a mosaic of (rata-podocarp)/tawa (*Metrosideros robusta-podocarp*)/*Beilschmeidia tawa* coastal forest and scrub with pockets of pohutukawa forest in gullies and areas that have escaped burning. There is a substantial area of abundant kauri (*Agathus australis*) regeneration in coastal and semi-coastal scrub. Two remnant raupo-flax (*Typha orientalis-Phormium* spp.) wetlands are found in small basins and bordered by swamp maire (*Syzgium maire*) (PNAP 1990). Significant plant species include *Loxoma cunninghami*, *Hebe pubescens* var. *pubescens*, and Ngaio (*Myoporum laetum*) (PNAP 1990).

Cultural:

An historic event which has special significance to the descendants of Hei (a priest or taura on the Te Arawa waka, which sailed with the great fleet from Hawaii to Aotearoa in 1350AD), was when two Ngapuhi war canoes returning with Ngati Hei slaves, capsized off Hereheretaura Peninsula. There were few survivors, but of those that did survive a small number were Ngati Hei. Those fortunate few are believed to be the ancestors of the present tangata whenua (Mr Peter Johnson pers comm.).

The whole area received a moderate-high vulnerability and importance rating in the landscape assessment due to it being a fairly sensitive area, where the visual impact of change would be high, and being a landscape that is regularly seen (Brown 1990).

Historic:

Archaeological sites in this area include pa, midden, pits, terraces and burials. Clusters of sites occur on the foredunes and land of low relief (NZ Register of Archaeological Sites). Early east polynesian sites occur on the foredunes at Hahei and Hotwater and are regionally significant (L Furey pers comm.). European sites include timber roads and unlocated (2840-42) timber camps as well as the ship wreck of HMS Tortoise at Sailors Grave (Te Karo 1841) (N Ritchie pers comm.).

SITE IMPORTANCE: International National Regional Local Unknown
Comment: This nationally important site has a wide variety of conservation values. Cathedral Cove is one of the most visited sites on the Coromandel Peninsula and is a regionally significant site for its recreational opportunities (R Hutchings pers comm.). If approval is granted for the Marine Reserve this will provide another significant recreational opportunity for this area. Hotwater Beach is another regionally significant site for its tourism opportunities, geothermal activity, botanical and archaeological values. The southern coastal catchments of this site are recommended for protection and of regional importance (L Humphreys pers comm.). The site is assigned national importance because of the presence of a number of threatened bird species (Bell 1986).

EXISTING THREATS: Type: a, d, g, k, l
Comment: Foredune erosion is identified at Hahei, where coastal subdivision has occurred over the foredunes meaning several houses and properties are threatened during storm attack and the esplanade reserve has already been lost. Rip rap has been dumped to protect the properties. At Hotwater Beach, uncontrolled pedestrian access and recreation has destabilised the dunes creating blow outs. Wild animals, mainly goats occur in low numbers along coastal cliffs and are having an impact on the regeneration of the coastal forest.

HUMAN MODIFICATION AND USE: Type: h, i
 Recreational use in the Hahei area is heavy, including boating, fishing, walking, swimming. This area is a main diving area, used by many dive schools from as far away as Auckland and Hamilton. Hotwater Beach is a popular day trip destination where activities associated with the geothermal wonders is the major recreational use in this area. Recreational use of the area for line and spearfishing and the collection of crayfish, paua and kina is also heavy particularly during summer. Hotwater Beach is one of the main surf spots for the east coast of the Peninsula (R Hutchings pers comm.).

EXISTING PROTECTION: Type: a, c
Comment: The Cathedral Cove complex is contained within a recreation reserve (47 ha), and at Hahei a foreshore reserve extends along much of the beach except where it has been lost to the sea and housing development now backs the beach. Recreation reserve (37 ha) vested in the local authority covers much of the Hotwater Beach area. Further south, historic and recreation reserves up to 80 ha, part of the Department of Conservation Estate, and esplanade reserves run along the coast.

AVAILABILITY OF INFORMATION:

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

Comment: The Hahei/Cathedral Cove area is well documented due to the marine reserve proposal. While further south, botanical values are only covered adequately.

SOURCES OF INFORMATION:

					1. Derived info from existing lit. & D/bases			
Natural	①	2	3	④	⑤	⑥	7	2. Derived info as above & field check
Cultural	1	2	3	4	5	6	⑦	3. Derived from existing maps & aerial photo
Historic	①	2	3	4	5	6	7	4. Recent DOC survey inc sampling & analysis
Threats	1	2	3	4	5	⑥	7	5. Recent DOC survey exc sampling & analysis
Human Mod & Use	1	2	3	4	5	6	⑦	6. Experience
								7. Expert opinion

Natural: SSWI; PNAP 1990; Geopreservation Inventory; B Coffey and Associates 1990, Proposed Marine Reserve : Hahei a preliminary assessment and habitat inventory, Report prepared for Department of Conservation, Hamilton; T R Partridge 1990, The sand dune and beach vegetation inventory of New Zealand, Botany Division Report prepared for Department of Conservation, Wellington.
Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation
Historical: NZ Register of Archaeological Sites (NZRAS)
Site Importance: B Bell (1986): The Conservation Status of NZ Wildlife, NZ Wildlife Service, Occas. Publ. No. 12
Personal Communication: Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
 Louise Furey, Archaeologist, C/- Department of Conservation, Hamilton
 Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
 Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
 Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
 Peter Johnson, Ngati Hei contact, Wharekaho

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Hotwater Beach; high wildlife habitat value; 1981*
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). *Whenuakite-Tapuaetahi recommended area for protection; 1989*
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989 *Cathedral Cove; regional significance; 1989*
Otua hot springs; regional significance; 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS: This Hahei area falls within the tribal boundaries of Ngati Hei. The contact person is Peter Johnson, Wharekaho.

SITE NAME/S: East Coromandel Islands		SITE NO: CRI 030020
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: U11	GRID REF: 27730 64620	DATE: 22/03/90

BRIEF DESCRIPTION OF SITE:

A number of offshore islands lie off the eastern Coromandel Peninsula, these include Slipper, Shoe, Penguin, Rabbit and The Alderman Islands. The vegetation and flora of these islands varies according to their individual histories which includes burning, clearing and introduction of rabbits. Presently some of the islands are in a fairly natural state like Penguin and Rabbit Islands, while others are still farmed for example Slipper Island. Nevertheless the islands provide predator-free habitat for many threatened species.

CONSERVATION VALUES:	Natural: a, b, c, f	Cultural: e	Historic: b, c
Comment:			

Natural

Penguin and Rabbit Islands are covered by forest vegetation composed of mixed mahoe (*Melicytus ramiflorus* spp. *ramiflorus*) and pohutukawa (*Metrosideros excelsa*) communities. Penguin Island is a recommended area for protection under the PNA programme (Protected Natural Areas Programme 1990). The Alderman Island group is a barren cluster of 3 main islands, the remnants of an ancient volcano. The Aldermans coastline is described as craggy with regenerating scrub and forest on the coast. Up to 70% of Shoe Island is largely covered in mixed scrub with an isolated valley of coastal forest (Court 1970). Slipper in contrast has been farmed for many years and only the coastal cliffs preserve an intact cliff community dominated by pohutukawa.

Fauna values of the islands include breeding seabirds like flesh-footed shearwater (*Puffinus carneipes hullianus*), sooty shearwater (*Puffinus griseus*), fluttering shearwater (*Puffinus gavia gavia*), allied shearwater (*Puffinus assimilis assimilis*), whitefaced storm petrel (*Pelagodroma marina maoriana*), and diving petrel (*Pelecanoides urinatrix urinatrix*). Flat Island of the Alderman Group supports the largest NZ colony of the whitefaced storm petrel. Threatened species reported on the islands include the threatened Robust skink (*Cyclodina alani*) on Aldermans Island; the regionally threatened Duvaucels gecko (*Hoplodactylus duvauceli*) on Slipper Island and the regionally threatened Tuatara (*Sphenodon punctatus*) on the Alderman Islands (Hauraki Gulf Maritime Park Board 1983).

The coastal waters surrounding the Aldermans are considered unique providing an outstanding underwater scenery and an abundance and diversity of flora and fauna. Spanish lobster (*Scyllarides* spp.) occur in large numbers and many species associated with warmer water, for example Mado (*Atypichthys latus*) and Lord Howe Island Coralfish (*Amphichaetodon howensis*) (Ministry of Agriculture and Fisheries 1985).

Cultural:

Teacher training courses on oceanography and coastal ecology focus on Shoe and Slipper Island and their nearshore waters (J Charteris pers comm.).

Historical:

Archaeological sites are of regional significance and include pas, middens, stone walls and terraces (NZ Register of Archaeological Sites). The offshore islands are a significant landscape feature of the east Coromandel coastline. They are sensitive areas where the visual impact of change would be high and have a high naturalness (Brown 1990).

SITE IMPORTANCE:	International	<u>National</u>	Regional	Local	Unknown
Comment:					

The islands assume national importance because of the presence of (Bell 1986) threatened bird species and are regionally significant for their archaeological values (L Furey pers comm.). The underwater habitats of the Aldermans are considered to be unique (Ministry of Agriculture and Fisheries 1985).

Not enough is known about the flora and fauna values of these islands, however offshore islands are considered special features that incorporate most mainland characteristics in a small area, and can be relatively easily managed to provide significant habitats for many threatened and common species (P Thomson pers comm.).

EXISTING THREATS:	Type: d
Comment:	

Rabbits have been introduced to some of the islands and have had a dramatic impact on regeneration of the natural vegetation.

HUMAN MODIFICATION AND USE: Type: i

Slipper, Shoe and the Alderman Group Islands and their surrounding waters are used intensively for fishing and diving (R Hutchings pers comm.). The NZ Spearfishing championships are often held around Slipper Island.

EXISTING PROTECTION: Type: f

Comment:

The Alderman Islands are a wildlife sanctuary.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Very little information in all of the categories was available. More liaison and updating of survey work needs to be carried out.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; Hauraki Gulf Maritime Park Board 1983: The Story of Hauraki Gulf Maritime Park; Ministry of Agriculture & Fisheries 1985 : Draft Auckland Region Marine Reserves Plan; D J Court (1970), Botany of Shoe Island and the Slipper Island Group, Tane (20): 56-65.

Historical: NZ Register of Archaeological Sites; B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Louise Furey, Archaeologist, C/-Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Phil Thomson, Conservation Officer, Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
3. Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Penguin Island recommended area for protection; 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

The Alderman Island (Ruamaahu) Group lies within the tribal boundaries of Ngati Hei and Ngatu Maru; Slipper Island (Whakahau) lies within the tribal area of Ngati Hei.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Tairua Harbour including Pauanui		SITE NO: CRI 030021
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: T12	GRID REF: 27640 64600	DATE: 22/03/90

BRIEF DESCRIPTION OF SITE:

Tairua embayment contains a largely sand infilled harbour enclosed by a 3 km long barrier spit known as Pauanui, consisting of approximately 60 parallel dune ridges. In the north, a Holocene barrier tombolo bridges Paku Island and the northern volcanic headland. Fronting this system is the 1.2 km exposed ocean beach of Tairua, which frequently exhibits good berm and cusp development.

A prominent and steeply sloping coastal headland with sea cliffs on Coromandel group rhyolite lies to the south with a small alluvial flat formed in the gully bottom. Pohutukawa cliff vegetation is well represented and includes regenerating coastal scrub. The area is surrounded by sea and pine forest. Pauanui settlement lies immediately to the north of this headland.

The townships of Tairua and Pauanui combine to be one of the main coastal resorts for summer holidaymakers on the Coromandel Peninsula.

CONSERVATION VALUES:	Natural: a, b, c, d, e, f	Cultural: e	Historic: b, c
Comment:			

Natural

The 640 ha Tairua Harbour is a site of special wildlife interest with a high wildlife habitat value, and important for the rare variable oystercatcher (*Haemotopus unicolor*); eastern bar-tailed godwit (*Limosa stellaris poeciloptilus*); regionally threatened North Island fernbird (*Bowdleria punctata vealeae*), and threatened NZ dotterel (*Charadrius obscurus*) which are breeding at several sites along the harbour margins (Sites of Special Wildlife Interest, 1981).

The rare coastal sand plant, pingao (*Desmoschoenus spiralis*) occurs on Tairua Beach. The southern headland referred to as Pauanui Hill has a vegetation cover of predominantly coastal manuka-broadleaved species scrub with kanuka (*Kunzea ericoides* var.), pohutukawa (*Metrosideros excelsa*), and abundant emergent rewarewa (*Knightia excelsa*). *Pomaderris rugosa*, an endemic species to the Coromandel is a frequent shrub species. This headland is a recommended area for protection under the PNA programme as so much of the coastal forest of the Coromandel Peninsula has been lost or modified (Protected Natural Areas Programme 1990).

The Pauanui mudflats, barrier spit and shore platform are recorded as being superb geomorphological examples and are listed on the Geopreservation Inventory as being regionally significant. Pauanui spit and its dune ridges represent 6500 years of barrier dune progradation.

Cultural:

The geomorphological examples described as well as the cusped Tairua Ocean Beach are important sites for university geomorphological field trips. School camps and teacher courses in coastal ecology are based at Tairua Harbour (J Charteris pers comm.).

Historical:

Early east polynesian beach middens on the Tairua foredunes are regionally significant archaeological sites (L Furey pers comm.). European occupation in this area is represented by kauri dams, logging boom, tramways, goldmines, camp sites and settlements (refer attached Archaeological Summary).

SITE IMPORTANCE:	International	<u>National</u>	Regional	Local	Unknown
Comment:					

This area is assigned national importance because of the presence of threatened bird species (Bell 1986). It is also of regional significance for its geomorphological features, archaeological sites, and also incorporates a locally significant recommended area for protection (L Humphreys pers comm.).

EXISTING THREATS:	Type: a, b, c, g, k, l
Comment:	

Foredune erosion occurs at Tairua Ocean Beach and Pauanui. At Tairua it is due to houses being built within the dune area, and at Pauanui from the recreational use over the dunes. Sedimentation within the harbour from catchment practices is a main threat to the system. Studies indicate the average yearly sedimentation rate is above that for other estuaries with some shellfish being smothered (Hume and Gibb 1987). Wilding pines are a threat to the coastal vegetation on Pauanui hill, and *Spartina* (*Spartina townsendii*) plants have established in a small area of Tairua Harbour. Shore stabilisation works occur around the margins of the harbour in the vicinity of Tairua township largely associated with reclamations and roading development. These have altered the natural shoreline disturbing the vegetated margin.

HUMAN MODIFICATION AND USE: Type: a, b, d, h, i

Tairua Harbour and surrounding beaches provide conditions for swimming, surfing, water skiing, boating, boardsailing, yachting and fishing (Raewyn Hutchings pers comm.). The recreational importance of this area is acknowledged by Ministry of Agriculture and Fisheries (1985). Tairua and Pauanui township and Tanners sawmill have modified the margins of the harbour, as well as roading developments. Boat moorings are provided in the main channel of Tairua Harbour.

EXISTING PROTECTION: Type: c, i

Comment:

Much of the harbour margin is incorporated in local purpose reserves. Pauanui Hill is under Crown and Timberland ownership and unformed legal road lies along areas of the harbour margin. Tairua Harbour has no protection status.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	①	2	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values and historic values are fairly well documented with the exception of the marine ecological component.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	⑦
Threats	1	2	③	4	5	⑥	7
Human Mod & Use	1	②	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; Geopreservation Inventory; PNAP 1990

Historical: NZ Register of Archaeological Sites (NZRAS).

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Human Modification and Use: Ministry of Agriculture and Fisheries 1985 : Draft Auckland Marine Reserves Plan.

Existing Threats: T M Hume, J Gibb 1987: The wooden-floor marker bed - a new method of determining historical sedimentation rates in some New Zealand estuaries, Journal of the Royal Society of NZ:17(1).

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Louise Furey, Archaeologist, C/-Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Department of Conservation, Wellington (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Department of Conservation, Hamilton (SSWI) *Tairua Harbour; high wildlife habitat value; 1981*
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990). *Pauanui Hill recommended area for protection; 1990*
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989 *Pauanui Coastal Features; regional significance; 1989*
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This area falls within the tribal area of Ngati Hei.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S:	Opoutere Spit, Wharekawa and Whangamata Harbours	SITE NO:	CRI 030022
NAME:	Linda Abrahamson	CONSERVANCY:	Waikato
MAP No:	T12	GRID REF:	27650 64460
		DATE:	22/03/90

BRIEF DESCRIPTION OF SITE:

From Ohui in the north, this site extends south incorporating approximately 18 km of open coastline of Opoutere sand spit, rocky cliffs, Onemana beach, and approximately 25 km of sheltered harbour margins within Wharekawa and Whangamata Harbour.

The Ohui-Opoutere sandspit - Wharekawa Harbour locality is a very scenic area consisting of a small harbour with extensive intertidal flats, a large sand dune system partially covered in pines, a sandspit pointing southward which lies across the harbour mouth, and behind lies remnants of a previously extensive peatland. Lying between Wharekawa Harbour and Whangamata Harbour in the south is a strip of coastline comprising steep rocky coastal cliffs and small sandy bays of which Onemana is the largest beach system. Whangamata Harbour is a 400 ha shallow estuarine harbour comprising muddy intertidal flats, sandy deposits, and several small peninsula's jutting out from its western margin.

CONSERVATION VALUES: Natural: a, b, c, d, f Cultural: c, e Historic: a, b

Comment:**Natural**

At Ohui, large pohutukawa (*Metrosideros excelsa*) trees border the small stream. The Ohui swamp is a site of special wildlife interest with high wildlife habitat values, supporting threatened Australasian bittern (*Botaurus stellaris poiciloptilus*) and regionally threatened North Island fernbird (*Bowdleria punctata vealeae*). Opoutere sand spit has a large representative extent of foredune vegetation with abundant pingao and other significant plant species (Protected Natural Areas Programme 1990), the rare dunes are largely colonised by adventive species including lupin and pines. The southern tip of the sandspit is a wildlife refuge and a significant site for breeding threatened NZ dotterel (*Charadrius obscurus*). This site has averaged 9 fledged chicks, since dotterel management involving a ranger was initiated in 1987 (P Thomson pers comm.). Wharekawa Harbour with its extensive eelgrass beds (*Zostera* spp.), shellfish beds and mangroves (*Avicennia resinifera*) is a site of special wildlife interest of outstanding wildlife habitat value providing important feeding ground for wading birds. Notable species reported include regionally threatened fernbird; rare variable oystercatcher (*Haematopus unicolor*); threatened caspian tern (*Hydroprogne caspia*), Australasian bittern, banded rail (*Rallus philippensis assimilis*), NZ dotterel; and eastern bar-tailed godwit (*Limosa lapponica baueri*). The relatively unmodified nature of Wharekawa River and estuary also has significant freshwater fishery values (T Roxburgh pers comm.). Wharekawa Harbour with its sandspit, sand dunes and remnant brackish and freshwater wetlands is the most representative of the range of vegetation associated with estuary and dune systems in the Tairua Ecological District, and is a recommended area for protection under the PNA programme, of regional importance (L Humphreys pers comm.). The scenic Onemana stretch of coastline supports a narrow strip of pohutukawa dominated coastal vegetation which has been replaced elsewhere in Tairua Ecological District by farming and forestry. The scarcity of this natural coastal cover warrants it as a recommended area for protection under the PNA programme, of regional importance (L Humphreys pers comm.). Common bush birds are recorded in the coastal forest. At Onemana, threatened NZ dotterel nest and rare variable oystercatcher breed. Whangamata Harbour is a site of special wildlife interest of high wildlife habitat value with representative estuarine vegetation including many substantial areas of good mangrove forest. It is important for the eastern bar-tailed godwit, rare variable oyster, threatened caspian tern and banded rail.

Cultural:

The Ohui-Opoutere ocean beach is used by many schools and the public for outdoor education including, cooking, surfing, snorkelling, sailing skills, water safety, rowing, canoeing, rope bridges, confidence courses and ecological studies (B Miller, pers comm.). This section of coast is of high interest with a dominant natural pattern and has a moderate high importance due to being a visible landscape (Brown 1990).

Historical:

A range of archaeological sites are located in this area and include pa, middens, pits, terraces, wahi tapu, an obsidian source and flaking area (NZ Register of Archaeological Sites). Significant sites are early polynesian middens near the wharf at Whangamata and on the foredunes at Onemana (L Furey pers comm.). Early european sites are found in the upper reaches of Wharekawa River.

SITE IMPORTANCE: International National Regional Local Unknown

Comment:

The Wharekawa Harbour and sandspit area is assigned national importance due to the presence of many threatened bird species (Bell 1986). Further features which enhance the overall value of the greater coastal area include high-outstanding wildlife habitats, several recommended areas for protection (PNAP 1990), significant archaeological sites, and significant freshwater fishery values.

EXISTING THREATS: Type: k

Comment:

There is increased human use of the fragile dune area and estuary at Opoutere by the general public. Vehicles over the tidal flats are destroying eelgrass beds, and pedestrians are creating tracks through the dune vegetation.

HUMAN MODIFICATION AND USE: Type: a, b, d, h, i

Several coastal margins have been modified by land development. At Wharekawa, Whangamata, and Onemana farmland, housing, campgrounds and roading have modified parts of the harbour margins and dune areas. Reclamation has occurred in small areas for roading. The main channel of Whangamata harbour provides suitable mooring sites for the many boats that use this area. Boating, shellfish gathering, swimming, sunbathing, fishing and other water-based activities are pursued along this coastline, particularly off Opoutere beach and Onemana (R Hutchings pers comm.).

EXISTING PROTECTION: Type: a, c, f, i

Comment:

Most of Opoutere sandspit is a recreation reserve (81 ha), with the southern end a wildlife refuge (6.6 ha). Part of the Onemana coastline lies within Onemana Scenic Reserve (10 ha), and is locally protected by Section 58 strips. Whangamata harbour margins are locally protected, reserved from sale under Section 58 and two small peninsulas are unformed legal road.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	1	②	3
Threats	1	2	③
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Natural values are fairly well documented other than marine ecological values. Cultural values require liaison.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	⑥	⑦
Historic	①	2	3	4	5	6	⑦
Threats	1	2	③	4	5	⑥	7
Human Mod & Use	1	2	③	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZ Register of Archaeological Sites (NZRAS)

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Phil Thomson, Conservation Officer, Department of Conservation, Hamilton
Brian Miller, Morton Road, Katikati
Louise Furey, Archaeologist, C/-Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Ohui Swamp; high wildlife habitat value; 1981
Wharekawa Harbour and Spit; outstanding wildlife habitat value; 1981
Whangamata Harbour; high wildlife habitat value; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Wharekawa Harbour recommended area for protection; 1990
Onemana recommended area for protection; 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This area lies within the tribal boundaries of Ngati Tamatera.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S:	Otahu Catchment, Estuary and Whiritoa	SITE NO:	CRI 030023
NAME:	Linda Abrahamson	CONSERVANCY:	Waikato
MAP No:	T12	GRID REF:	27640 64370
		DATE:	22/03/90

BRIEF DESCRIPTION OF SITE:

Otahu River catchment, Otahu estuary, several small rock stacks and islands off Whangamata, and approximately 7 km of coast from Whangamata beach south to Whiritoa beach lie within this coastal site.

Otahu catchment is largely forested and is drained by Otahu River and tributaries to Otahu Estuary. This estuary is approximately 110 ha providing significant vegetation associations and wildlife habitat. Whangamata Beach is a complex dune ridge system which has two steep islands (Hauturu and Whenakura) and four rocky stacks connected to it at low tide. Rocky coastal cliffs covered in remnant coastal forest in parts, rocky platforms and small sandy coves dominate the coastline south to Whiritoa. At Whiritoa, a sequence of dunes enclose a low-lying depression with two small lagoons at either end. Whiritoa has also been a site of foreshore sand extraction for at least the last 40 years, with much public opposition suggesting extraction is causing erosion of adjacent dunes.

CONSERVATION VALUES: **Natural:** a, b, c, d, e, f, g **Cultural:** c, e **Historic:** a, b

Comment:Natural

The Otahu catchment area is noted as one of four catchments on the Peninsula with known fisheries values, largely due to recorded freshwater fish species, relatively unmodified habitat with a significant percentage of the catchment still forested and part of the Department of Conservation Estate (T Roxburgh pers comm.). The Otahu estuary has the largest, reasonably intact estuarine vegetation in the Waihi Ecological district representing the diversity and sequence of coastal to freshwater to terrestrial types (Protected Natural Area Programme, 1990). Estuarine communities range from mangroves (*Avicennia resinifera*), rushlands, and sedge shrublands to raupo-flax freshwater wetland. *Empodisma minus* is present in the sedge-shrubland, a plant of acid peat bogs. This is only the second record of this species from the Coromandel Ecological Region (PNAP 1990). It is an outstanding wildlife habitat (Sites of Special Wildlife Interest, 1981) important for wading birds like threatened Australasian bittern (*Botaurus stellaris poiciloptilus*) and banded rail (*Rallus philippensis assimilis*) and regionally threatened North Island fernbird (*Bowdleria punctata vealeae*).

The Whangamata Islands are covered in pohutukawa-houpara (*Metrosideros excelsa-Pseudopanax lessonii*) forest almost to high water mark, and are a wildlife sanctuary. Tuatara (*Sphenodon punctatus*) were recorded up until the 1970's on these islands and northern blue penguin (*Eudyptula minor iredalei*) and grey-faced petrel (*Pterodroma macroptera gouldi*) breed here.

The Whangamata dune ridge system is known as a cusped foreland. This landform is of regional significance being the largest one in the Coromandel Peninsula and Bay of Plenty (Geopreservation Inventory). The foredunes of Whangamata are in an erosive state largely through uncontrolled pedestrian use disturbing the vegetation. Recent scientific studies have been conducted on these dunes, involving the replanting of the rare sand plant, pingao (*Desmoschoenus spiralis*) and fertiliser trials. Breeding threatened NZ dotterel (*Charadrius obscurus*) are found on Whangamata foreshore, with the public initiating a ranger protection system during the summer months.

At Whiritoa, the sand dunes receive a high rating for their valuable assemblage of native species including *Austrofestuca* (Partridge 1990), and are the largest and most natural area of sand dune vegetation in Waihi Ecological District (PNAP 1990). Rare pingao also occurs at this site. Ramarama and Whiritoa lagoons, 20 ha and 10 ha respectively are sites of special wildlife interest with moderate wildlife habitat rankings (SSWI). The regionally threatened North Island fernbird is reported using the lagoons, and the threatened NZ dotterel and rare variable oystercatcher are recorded on the beach.

Cultural:

The Whiritoa blowhole is a unique geological feature visited by university geology field trips (T Healy pers comm.). This section of coast is described as a sensitive landscape with a high visibility where the visual impact of change would be especially high (Brown, 1990).

Historical:

Archaeological sites include goldmines, tramways, camp sites, settlements, logging booms of local significance, as well as pa, middens, pits, terraces and wahi tapu sites (refer attached Archaeological Summary). A notable rock art site is recorded at Waimana, north of Whiritoa (L Furey pers comm.).

SITE IMPORTANCE: **International** **National** **Regional** **Local** **Unknown**

Comment:

The Otahu estuary and catchment is one of only a few areas left on the Coromandel Peninsula which can provide a reasonably intact natural sequence of habitats from the upper reaches of stream tributaries in the mountains to the marine habitats of the ocean (L Humphreys pers comm.). The Whangamata cusped foreland is a landform of regional significance (T Healy pers comm.).

Whiritoa contains a diverse range of important habitats including significant sand dune vegetation associations which are the best remaining example in the Waihi Ecological District, two lagoons listed as sites of special wildlife interest; and significant sites for both the threatened NZ dotterel and rare pingao plant occur at Whangamata and Whiritoa. This site is assigned national importance due to the presence of threatened bird species (Bell 1986) and rare plant species (Given et al. 1987).

EXISTING THREATS: Type: a, d, f, j, k, l

Comment:

Coastal development and uncontrolled pedestrian use has created destabilised dunes along the foreshore of Whiritoa and Whangamata. Hauturu Island is also under pressure where constant human traffic is modifying the vegetation. Tree and marram planting is a threat to the natural vegetation of these dunes. Further disruptions to natural sediment movement and to vegetation communities include shore protection works erected to protect properties along Whiritoa Beach. Reclamation and dumping of rubbish in Whiritoa lagoon also occurs. At Whangamata and Whiritoa, coastal subdivision has modified the dune system including levelling. Sand extraction occurs at Whiritoa foreshore on Maori land.

HUMAN MODIFICATION AND USE: Type: a, d, h, i

Whangamata is one of the main coastal summer resorts on the Coromandel Peninsula with the population increasing dramatically over the Christmas period. As a result there is a high recreational use including fishing, all types of boating, water skiing, swimming and surfing (R Hutchings pers comm.) which also brings associated problems of pedestrians across the dunes and on to the islands, as with other coastal townships the dunes have been modified by coastal development at Whangamata and Whiritoa. Swimming, boating and fishing are also popular at Whiritoa. Several jetties and moorings are located near the mouth of Otahu estuary.

EXISTING PROTECTION: Type: a, d, c

Comment:

The Whangamata Islands are a Maori Reservation and in the vicinity of Whiritoa, the coastal strip lies within recreation reserve or in Te Ramarama Scenic Reserve (32 ha).

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	①	2	3
Threats	①	2	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

The information for this site is varied, from well documented to sparse depending on the topic. Spiritual and marine ecological values require liaison and research.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	⑦
Threats	1	2	③	4	5	6	⑦
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; Geopreservation Inventory

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZ Register of Archaeological Sites (NZRAS)

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12; D R Given, W R Sykes, P A Williams, C M Wilson (1987): Threatened and Local Plants of New Zealand - a revised checklist, Botany Division Report, DSIR.

Personal Communication: Dr Terry Healy, University of Waikato, Hamilton

Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton

Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

Raewyn Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Otahu Estuary; outstanding wildlife habitat value; 1981*
Ramarama and Whiritoa Lagoons; moderate wildlife habitat values; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Otahu Estuary recommended area for protection; 1990
Whiritoa Beach recommended area for protection; 1990
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989
Whangamata Cuspate Foreland: regional significance, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

This area lies with the tribal boundaries of Ngati Tamatera.

Goldmining exploration and prospecting licences cover much of this area.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Mataora Bay-Orokawa Bay	SITE NO: CRI 030024
NAME: Linda Abrahamson	CONSERVANCY: Waikato
MAP No: U13	GRID REF: 27700 64220
	DATE: 22/03/90

BRIEF DESCRIPTION OF SITE:

A 13 km rugged stretch of rocky coastal cliffs from Otongo Point, north of Mataora Bay to Rapatiotio Point, north of Waihi, interrupted by several sandy bays like Mataora Bay, Homunga Bay, Boat Bay and Orokawa Bay characterises this coastal site.

It is a rugged scenic piece of coastline still covered largely by pohutukawa dominant forest.

CONSERVATION VALUES: Natural: a, b, c, d, e, f Cultural: c, e Historic: b
Comment:

Natural

The coastal cliff vegetation is representative of the original cover and includes pohutukawa-karo-houpara/kawakawa-koromiko/flax-Lobelia anceps-blueberry (*Metrosideros excelsa-Pittosporum crassifolium-Pseudopanax lessonii/Macropiper excelsum* var. *excelsum-Hebe stricta* var. *stricta/Phormium* spp - *Lobelia anceps-Dianella nigra*) shrubland and pohutukawa-tawa-rewarewa (*Metrosideros excelsa-Beilschmiedia tawa-Knightia excelsa*) forest on hillslopes and ridges (Regnier 1987). Significant plants in this area include *Metrosideros carminea* of local distribution, and *Hebe pubescens* var. *pubescens* which is endemic to Coromandel Ecological Region. The forest has a moderate wildlife habitat ranking, with common birds and NI brown kiwi (*Apteryx australis mantelli*) noted in Orokawa Scenic Reserve.

Waihi Beach swamp in the south is a site of special wildlife interest, and has a potential value for common species (Sites of Special Wildlife Interest, 1981).

The sandy bays along this coast are fairly isolated systems, with low vegetated dune backed by pohutukawa in dominant forest. At Mataora, a recommended area for protection under the PNA programme, there is coastal-cliff pohutukawa forest, and a mosaic of regenerating coastal and semi-coastal forest and scrub communities (Protected Natural Areas Programme 1990). The plant *Pomaderris rugosa* of local distribution is near its southern limit at Mataora. Mataora is also a site for breeding threatened NZ dotterel (*Charadrius obscurus*).

Cultural:

This area has high landscape values, with a dominant natural pattern, high degree of coherence and is a highly sensitive area where the visual impact of change would be especially high (Brown 1990). It is one of four areas on the Coromandel Peninsula worthy of preservation described by Brown (1990). These units are rare, good examples of their kind and regionally distinct. Mataora has old beach dunes which have educational values for university geology field trips, and Orokawa Bay is used regularly by schools for coastal ecology field trips (J Charteris pers comm.).

Historical:

This coastal site contains Maori site types similar to those found in other eastern areas of the Peninsula. Sites include pa, midden, terraces, pits and burials (NZ Register of Archaeological Sites).

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

This stretch of coastline is one of the last remaining natural vegetated coastal cliff areas on the east Coromandel coast, and is of regional importance (L Humphreys pers comm.). This naturalness enhances it as a regionally significant landscape feature (B Brown pers comm.). The site is assigned national importance because of the presence of threatened dotterel (Bell 1986).

EXISTING THREATS: Type: a, d, i
Comment:

Severe soil slip erosion is a problem along this section of coast. Invasion of farmed goats are a problem to the regeneration of the native vegetation, along with possums which are damaging the pohutukawa. The coastal waters from Homunga Bay south are within a fishing restricted methods zone.

HUMAN MODIFICATION AND USE: Type: h, i

The coastal area north of Waihi beach provides a range of locally significant land and water based recreational activities including swimming, fishing and a walking track on the cliffs of Orokawa Scenic Reserve (R Hutchings pers comm.).

EXISTING PROTECTION: Type: a, c
Comment:

Two areas of scenic reserve which provide the best and most representative coastal forest in Waihi Ecological District are included in this section as well as a narrow strip of coastline which is reserved from sale. This Orokawa Scenic Reserve is 486 ha and protects this important piece of coastal forest.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	①	②	3
Historic	1	②	3
Threats	1	②	3
Human Mod. & Use	1	2	③

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Landscape and most natural values are well documented. Cultural values need liaison and archaeological surveys require updating.

SOURCES OF INFORMATION:

Natural	①	2	3	4	⑤	6	7
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	⑦
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1990; C Regnier 1987 : Coromandel Ecological Region Protected Natural Areas Programme Phase 1;

Cultural: B Brown 1990: CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZ Register of Archaeological Sites (NZRAS)

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: John Charteris, Education Advisory Service, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Bernard Brown, Landscape Architect, Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Waihi Beach Swamp; potential wildlife habitat value; 1981
Orokawa Forest; moderate wildlife habitat; 1981
- ③ Protected Natural Area Programme 1990, E A Humphreys; Tyler A M : Coromandel Ecological Region Survey Report for Protected Natural Areas Programme (PNAP 1990).
Mataora recommended area for protection; 1990
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

The tribal affiliations of the area are Nga Marama (Tauranga), Nga Tamatera and Ngati Porou (Mataora Bay). The Orokawa area is located within the Waihi goldmining interest area and under several prospecting and exploration licences.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Mokau-Awakino	SITE NO: CRI 030025
NAME: Linda Abrahamson	CONSERVANCY: Waikato
MAP No: R17	GRID REF: 26515 62815
	DATE: 7/08/90

BRIEF DESCRIPTION OF SITE:

The estuaries and catchments of Mokau and Awakino Rivers and approximately 15 km of open coast are included within this coastal area. The rivers can be described as deep gorges with white water in sections, winding through mainly natural forest covered hill country on sandstones of the Mokau group. The lower reaches of the rivers are wide and sluggish draining swampland and scrub, arriving at the coast forming tidal river mouths partly enclosed by southward pointing sandspits covered in dunes. The rivers are a regionally significant recreational resource used for whitebaiting and canoeing.

CONSERVATION VALUES: Natural: a, b, c, d, e, f Cultural: a, c Historic: a, b
Comment:

Natural

The lower reaches of the Mokau River are lined with a series of scenic reserves which have the only full range of vegetation types from coastal karaka-kohekohe-nikau (*Corynocarpus laevigatus-Dysoxylum spectabile-Rhopalostylis sapida*) forest to inland tawa (*Beilschmiedia tawa*) forest, in the Taranaki ecological district. These reserves represent approximately 60% of the total area of this vegetation type presently reserved in New Zealand. The 2 ha Tainui Scenic Reserve contains a stand dominated by the nationally vulnerable *Pomaderris apetala*, only one of three sites for this plant in New Zealand. The Mokau River mouth provides 100 ha of saltmarsh containing *Cyperus ustulatus*, jointed rush and a large area of mudflat at low tide with up to 15 species of coastal/wader birds including the threatened reef heron (*Egretta sacra sacra*); and rare variable oystercatcher (*Haematopus unicolor*) reported (Sites of Special Wildlife Interest 1981). Little blue penguin (*Eudyptula minor iredalei*) and the threatened NZ dotterel (*Charadrius obscurus*) breed near the river mouth. The river habitat is important for the threatened blue duck (*Hymenolaimus malacorhynchos*) (R Thorpe pers comm.). The Mokau River mouth has significant fishery values, being particularly important for lamprey and contains a considerable eel population (T Roxburgh pers comm.). Mokau River is classified by the Taranaki Catchment Commission 1981 as a river of regional importance for whitebait fishing, receiving an excellent assessment grade and is one of the most heavily fished recreational whitebait rivers where individual whitebait catches are greater than other rivers. Benthic habitats are largely unknown for much of the west coast, however a coastal community occurring on muddy sand dominated by hermit crabs and a notable epifauna of sponges, hydroids, barnacles and starfish is known off the Mokau River (University of Auckland 1974).

Awakino River mouth provides 40 ha of moderate wildlife habitat consisting of intact, representative estuarine vegetation types mainly comprising sea rush (*Juncus maritimus*), jointed sedge (*Leptocarpus similis*), marsh ribbonwood (*Plagianthus divaricatus*) and coastal tree daisy (*Olearia solandri*) and alluvial flats, with notable species *Baumea articulata* and *B. juncea* (SSWI 1981). The estuarine vegetation is continuous with coastal hill forest at one place. The Awakino sandspit is described as an uplifted marine terrace, with notable dunes for their size and area of spinifex, otherwise dominated by marram and lupin. *Carex flagellifera* is a notable species (Protected Natural Areas Programme 1988). The threatened reef heron and banded dotterel (*Charadrius bicinctus bicinctus*) are reported with common species at Awakino. NZ fur seals (*Arctocephalus forsteri*) breed and forage in the inshore waters along this southern coast (R Thorpe pers comm.). Awakino River is considered to be the best western river for trout fishing, having a self-sustaining rainbow trout population and some brown trout.

Cultural:

The Awakino and Mokau River are important food sources for Maniaroa Marae (Ngati Maniapoto) for pipis, flounder, whitebait, crab and eels. Both rivers are considered to be of scenic value receiving a grading of 4 and 5 (for both naturalness and water quality) for Awakino and Mokau respectively (Waikato Valley Authority 1984). The anchor stone of Tainui canoe, which brought the ancestors of the Ngati Maniapoto to the area, is sited not far south of Awakino on the lefthand side of the New Plymouth Road. The stone was originally landed at Mokau, but is now set in concrete within a graveyard on the ancient pa of Maniaroa (refer attached Archaeological Summary).

Historical:

The site of the last long term mission station in the Waikato is located on the north bank of the Mokau River, approximately 2 km from the river mouth. The coastline has an extensive number of Maori occupation sites (NZ Register of Archaeological Sites), reflecting the rich food resources of the sea and the strategic sites offered by the cliff tops.

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

This area is assigned national importance because of the presence of threatened bird species in the area (Bell 1986) and a vulnerable plant (Given et al. 1987).

This area is of regional significance as a recreation resource and for its fishery values (T Roxburgh pers comm.).

EXISTING THREATS: Type: a, d, k, l
Comment:

Uncontrolled recreation use of the foredunes is threatening the dune vegetation of this area, and resultant dune erosion is occurring. Wild animals including goats and possums are causing damage to coastal forest bordering the estuary and river. Mokau settlement has modified the coastal area, with some levelling of the foredunes.

HUMAN MODIFICATION AND USE: Type: a, h, i, k

Mokau and Awakino settlements are located on the banks of the rivers. Whitebaiting is undertaken on both rivers, up to 35 km upstream on the Mokau River and local surveys indicate 50 whitebaiters on an average day. As a result of this activity whitebait stands are prevalent on both rivers.

EXISTING PROTECTION: Type: a, c, i
Comment:

At Mokau, a number of scenic reserves (approximately 110 ha) margin the river, and an esplanade reserve fronts the beach. Unformed legal road and a recreation reserve occur at Awakino.

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	

Comment:

In general, the values of this area are fairly well documented.

SOURCES OF INFORMATION:

Natural	①② 3 4 5 6 7	1. Derived info from existing lit. & D/bases
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 & aerial photo
Threats	1 2 ③ 4 5 6 ⑦	4. Recent DOC survey inc sampling & analysis
Human Mod & Use	① 2 ③ 4 5 6 7	5. Recent DOC survey exc sampling & analysis
		6. Experience
		7. Expert opinion

Natural: SSWI; University of Auckland 1974, Maui Development Study Report on Phase 1; PNAP 1988

Cultural: Waikato Valley Authority 1984, Wild and Scenic Rivers Policy

Historical: NZ Register of Archaeological Sites (NZRAS)

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12; D R Given, W R Sykes, P A Williams and C M Wilson 1987: Threatened and local plants of New Zealand in a revised checklist, Botany Division Report, DSIR, Wellington.

Personal Communication: Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Mokau Estuary; moderate wildlife habitat value; 1981*
Awakino Estuary; moderate wildlife habitat value; 1981
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

EXISTING THREATS: Type: a, d, k
Comment:

Natural wave erosion of the cliffed shoreline occurs in this area. Wind erosion of farmed areas is also a problem along sections of this coast. Wild animals of goats, pigs and possums are causing extensive damage to coastal forest remnants in this area.

HUMAN MODIFICATION AND USE: Type: h, k

Rock fishing is popular around the rocks of Waikawau Point. The offshore waters are within the main west coast area for trawlers fishing for snapper, terakihi, trevally and gurnard.

EXISTING PROTECTION: Type: a, i
Comment:

At Huikomako a scenic reserve (657 ha) exists, but wild animal control is a priority to maintain and prevent further destruction of this forest (K Broome, pers comm.). Unformed legal road traverses along the coast of this area.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Very little is known for much of this area.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; PNAP 1988; University of Auckland 1974, Maui Development Study Report on Phase 1.

Cultural: B Browne 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Keith Broome, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Huikomako Forest; moderate wildlife habitat value; 1981
Lower Waikawau River; moderate habitat value; 1981
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

EXISTING THREATS: Type: d
Comment:

Goats and pigs are widespread causing extensive damage. Goat browsing is preventing replacement of canopy species which die from natural or unnatural causes. Possums are common, with an 80% mortality rate of kamahi, in part due to possum damage (K Broome pers comm.).

HUMAN MODIFICATION AND USE: Type:

EXISTING PROTECTION: Type: a, i
Comment:

Moeatoa is a scenic reserve of 620 ha. Further protection is needed through fencing and wild animal control. Unformed legal road traverses the inland margin of this site.

AVAILABILITY OF INFORMATION:

1. Well documented
2. Little information (general)
3. Little information (if any)

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

Comment:

Very little is known on this area.

SOURCES OF INFORMATION:

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

Comment:

A recent Department of Conservation survey was completed, research has yet to be written up.

Personal Communication: Keith Broome, Conservation Officer, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S:	Marokopa Estuary and Kiritehere Coast	SITE NO:	CRI 030028
NAME:	Linda Abrahamson	CONSERVANCY:	Waikato
MAP No:	R16	GRID REF:	25605 63210
		DATE:	27/03/90

BRIEF DESCRIPTION OF SITE:

Marokopa Beach and estuary are situated 33 km south of Kawhia on a straight stretch of exposed west coastline. The small estuary of the Marokopa River is cut off from the sea by a projecting sandspit and meanders parallel to the coast for its last 1200 metres. Marokopa Beach is typical of west coast beaches characterised by ironsand and an exposed wave climate. This site extends from Marokopa Beach and estuary in the north, for 5 km southwards incorporating Kiritehere Stream and nearby coast.

CONSERVATION VALUES: **Natural:** a, b, c, d, e, f **Cultural:** a, e **Historic:** b
Comment:

Natural

Marokopa River estuary is 65 ha of tidal river mouth with areas of unmodified saltmarsh-marsh ribbonwood/rushes and sedges with a moderate wildlife habitat value (Sites of Special Wildlife Interest, 1981). Small areas of mud and sand flats provide habitat for 11 species of coastal and wetland birds including the threatened reef heron (*Egretta sacra sacra*), NZ dotterel (*Charadrius obscurus*), and banded rail (*Rallus philippensis assimilis*). The rare pingao plant (*Desmoschoenus spiralis*) occurs on the dunes. The macrofauna of Marokopa estuary and open beach has been studied but appears typical of these environments, except for a burrowing isopod (*Scyphax ornatus*). The occurrence of a burrowing semiterrestrial isopod on a sandy beach is unique to NZ so far as is recorded (Wood 1963). As well there is an absence of intertidal bivalve populations probably due to human predation. The Marokopa River is significant for whitebait and is an important recreational fishery.

In the vicinity of the Kiritehere Stream area dunes, small coastal wetlands and a lagoon provide habitat for common coastal birds. This area is the southern limit for a few plants, with the rare fern (*Cheilanthes siberii*) recorded here (L Humphreys pers comm.).

The Kiritehere area is a regionally significant site listed in the Geopreservation Inventory, for its rich gastropod fossils of Triassic age.

Cultural:

Marokopa River is an important food resource for pipis, flounder, whitebait and eels for the Ngati Maniapoto of Marakopa Marae.

The landscape assessment of this area is that of an extensively cleared river valley, which is ranked as a degraded area requiring better management particularly around riparian margins (Brown 1990). The Kiritehere area is used intensively by schools for fossil studies (J Charteris pers comm.).

Historical:

Pa and other evidence of Maori occupation (much unrecorded) are found around virtually every stream mouth along this coast (refer attached Archaeological Summary).

SITE IMPORTANCE: **International** **National** **Regional** **Local** **Unknown**
Comment:

The important fossil beds at Kiritehere are of regional significance (Geopreservation Inventory 1989).

The Marokopa area is assigned national importance because of the presence of threatened bird species (Bell 1986) and the rare coast plant, pingao (Given et al. 1987).

EXISTING THREATS: Type: d, g, l
Comment:

Stock grazing is destroying riparian margins. Land development and shore protection structures appear to be causing reclamation, and erosion within the river system (L Abrahamson pers ob).

HUMAN MODIFICATION AND USE: Type: a, b, h, i, k

Marokopa settlement and farming practices have modified this area. Reclamations occur along the river margins. Shellfish gathering, rock fishing and river fishing are undertaken in the area (R Hutchings pers comm.) and kahawai fishing in the river is also important to the local people.

EXISTING PROTECTION: Type: a, i
Comment:

Unformed legal road, and a Maori reservation occur on the foreshore of the sandspit.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	1	②	3
Threats	1	2	③
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

The marine macrofauna of Marakopa estuary is well documented, but further research, updating and liaison is needed for the other values.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	7
Cultural	①	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; D Wood 1963, A Study of the Macrofauna of an exposed "Ironsand" beach and a nearby estuary, Tane (9); Geopreservation Inventory

Historical: NZRAS

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12; D R Given, W R Sykes, P A Williams and C M Wilson 1987: Threatened and local plants of New Zealand in a revised checklist, Botany Division Report, DSIR, Wellington.

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Marokopa River Estuary; moderate wildlife habitat value; 1981*
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989
Kirifehere Gastropod Bed; regional significance; 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

EXISTING THREATS: Type: d
Comment:

Stock graze over the coastal dune area and wetlands destroying vegetation.

HUMAN MODIFICATION AND USE: Type: c, i

Farming has modified the natural coastal landscape. The coast is largely inaccessible and only used for boat fishing.

EXISTING PROTECTION: Type:
Comment:

Unformed legal road and an esplanade reserve extends southward to cover part of the foreshore in this area.

AVAILABILITY OF INFORMATION:

Natural	1	②	3
Cultural	1	2	③
Historic	1	2	③
Threats	1	2	③
Human Mod. & Use	1	2	③

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Very little exists for this area.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	⑦
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	3	4	5	6	⑦
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZRAS

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Peter de Lange, Botanist, Department of Conservation, Wellington

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Department of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Taharoa	SITE NO: CRI 030030
NAME: Linda Abrahamson	CONSERVANCY: Waikato
MAP No: R16	GRID REF: 26600 64360
	DATE: 9/08/90

BRIEF DESCRIPTION OF SITE:

Taharoa Beach, sand fields and three coastal lakes lie within this site which extends northwards to include Albatross Point and Huruhurumaku cliffs incorporating approximately 18 km of coastline.

The Taharoa sand fields mined by NZ Steel Mining Ltd, and Lakes Taharoa, Numiti and Rotoroa lie about 3 km southwest of Kawhia. The extensive ironsand dunes provide 50% of New Zealand ironsand production. Lake Taharoa is inter-connected with two smaller lakes, Numiti and Rotoroa, to form an extensive coastal dune lake system providing important wildlife habitat and supporting an important fishery, and representing the only significant coastal body of freshwater between Kaipara and South Taranaki Bight.

Albatross Point and Huruhurumaku cliffs is a coast section of dramatic sea cliffs forming a prominent geographical feature. The precipitous cliffs rise as high as 180 m and slope steeply, vertically in some places, to the sea. The cliffs are composed of well-bedded resistant sandstones which dip to the east. The shore is partially protected from the full force of the waves by a line of stacks and reefs immediately offshore.

CONSERVATION VALUES: Natural: a, b, c, d, e, f Cultural: a, e Historic: b
Comment:

Natural

The Taharoa dunes have been modified due to the large ironsand mining operation. After mining, the inland areas have been planted out largely in marram, lupin and pine, with some pingao revegetation schemes occurring. Botanical values are therefore restricted to the foredunes and a variable number of backdunes. The foredunes are in an excellent condition and carry rare pingao (*Desmoschoenus spiralis*), and only occasionally have marram (*Ammophila arenaria*) (Partridge 1990). The backdunes are, like much of the coast, dominated by lupin and other woody weeds. The Taharoa dune fields are listed in the geopreservation inventory as a site of regional importance where tephras are interbedded amongst the ironsand dunes.

Lake Taharoa has an open water area of 224 ha, with an extensive raupo-flax-sedge (*Typha orientalis-Phormium* spp.-*Cyperaceae* Family) wetland covering a further 145 ha. Extensive beds of aquatic macrophytes occur throughout the lakes. These large weed beds, extensive wetland fringe and large size make Lake Taharoa a very productive bird sanctuary, a feature of which is heightened by its proximity to the coast. It is given a high wildlife habitat value (Sites of Special Wildlife Interest, 1981). Large resident populations of black swan (*Cygnus atratus*), grey duck (*Anas superciliosa superciliosa*) and less common species in the Waikato Region including NZ scaup (*Aythya novaeseelandiae*) which is of restricted distribution and threatened NZ dabchick (*Podiceps rufopectus*) occur here. Spotless crane (*Porzana tabuensis plumbea*); threatened Australasian bittern (*Botaurus stellaris poiciloptilus*), banded rail (*Rallus philippensis assimilis*); regionally threatened North Island fernbird (*Bowdleria punctata vealeae*), and marsh crane (*Porzana pusilla affinis*) are also present. All three lakes are used extensively for refuge by moulting Paradise shelduck (*Tadorna variegata*) (SSWI 1981).

The coastal lakes are the most diverse natural freshwater fishery in the region with no known releases of exotic fish (T Roxburgh pers comm.). Important for eels (*Anguillidae* spp), mullet (*Mugal cephalus*), galaxids (*Galaxiidae* spp), smelt (*Retropina retropina*) and the rare species dwarf inanga (*Galaxias gracilis*).

Albatross Point is a notable landform, where large caves occur at water level. These rocks and environments provide an area for a colony of NZ fur seals (*Arctocephalus forsteri*), estimated at 30 individuals (3 August 1990), R Thorpe pers comm.). A rare plant (*Asplenium obtusatum* spp. *northlandicum*) has found suitable habitat within the Huruhurumaku cliffs (P de Lange pers comm.).

Cultural:

Taharoa lakes are popular with hunters during the game season with waterfowl representing a traditional food gathering source. Albatross Pt is an important food resource for the Ngati Maniapoto of Te Korahe Marae, for green-lipped mussels, paua and pupu (sea slug). Crayfish are also caught along the coast.

Historical:

There is considerable evidence of Maori occupation along this section of coast. Evidence of early historical practices have been recorded in the Taharoa/Te Maika area (refer attached Archaeological Summary).

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

This site is of national importance because of the presence of a number of threatened species (Bell 1986) in this area, and for the rare coastal plant, pingao (Given et al 1987). It also provides the only significant coastal body of freshwater between Kaipara and the South Taranaki Bight. The wetland habitats of this area provide for a regionally significant freshwater fishery (T Roxburgh pers comm.), and the Taharoa dunes are a regionally significant landform (Geopreservation Inventory 1989).

EXISTING THREATS: Type: a, f, g, k, l
Comment:

This area of coast undergoes severe wind erosion. Sandmining has meant that the botanical values of much of the dunes has been largely lost. At Arohaki Bay, several coastal structures exist and recreation use and coastal development have modified the foredune area, which is leading to dune erosion.

HUMAN MODIFICATION AND USE: Type: a, e, h
The iron sand mining operation has greatly modified this area. A large pipeline extends offshore from Taharoa beach used for piping the iron sand slurry to waiting container ships. Taharoa beach is a long flat beach used for land yachts while the rocky coast around Albatross as used for rock fishing and shellfish gathering (Raewyn Hutchings pers comm.).

EXISTING PROTECTION: Type: a, i
Comment:

Unformed legal road surrounds the Taharoa area, and there is a small scenic reserve in the south.

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	

Comment:

Other than the natural values which are fairly well documented for Lake Taharoa, many of the other components need further research.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	7	1. Derived info from existing lit. & D/bases
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 & aerial photo
Threats	1	2	③	4	5	6	7	4. Recent DOC survey inc sampling & analysis
Human Mod & Use	1	2	③	4	5	6	⑦	5. Recent DOC survey exc sampling & analysis
								6. Experience
								7. Expert opinion

Natural: SSWI; T R Partridge 1990, The sand dune as beach vegetation inventory of New Zealand, Botany Division Report for Department of Conservation, Wellington; Geopreservation Inventory

Historical: NZRAS

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12; D R Given, W R Sykes, P A Williams and C M Wilson 1987: Threatened and local plants of New Zealand in a revised checklist, Botany Division Report, DSIR, Wellington.

Personal Communication: Tony Roxburgh, Senior Conservation Officer, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
Peter de Lange, Botanist, Department of Conservation, Wellington
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Lake Taharoa; high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989 *Taharoa Dune Fields; regional significance; 1989*
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Kawhia Harbour	SITE NO: CRI 030031
NAME: Linda Abrahamson	CONSERVANCY: Waikato
MAP No: R15	GRID REF: 26720 63450
	DATE: 29/03/90

BRIEF DESCRIPTION OF SITE:

The extensive Kawhia Harbour and surrounding hill country are enclosed within this site. Kawhia Harbour has an area of 6600 ha and is important in being the southern-most of the chain of major estuaries in the northern North Island. It is the most extensive of West Coast harbours in this region and is largely unpolluted (McLay 1976). Its catchment comprises mainly friable sandstones, siltstones and limestones of the Te Kuiti group; soft sandstones and siltstones of Jurassic age along with Alexandra volcanics in the northeast and a small outcrop of Quaternary pumiceous alluvium. The harbour rates as an outstanding wildlife habitat value because of its importance to international and internal migratory bird species (Sites of Special Wildlife Interest, 1981).

CONSERVATION VALUES: Natural: a, b, c, d, e, f, g, h Cultural: c, d, e Historic: b
Comment:

Natural

Kawhia Harbour has a diversity of flora, fauna and geological values. The harbour is a major destination for migrating endangered endemic black stilts (*Himantopus novaeseelandiae*) from the Waitaki Basin. The eastern bar-tailed godwit (*Limosa lapponica baueri*) is the most common international migrant with up to 6% of the total migrant population recorded here during surveys (Moynihan 1986). Other migrant waders which have recorded using this harbour are turnstones (*Arenaria interpres interpres*), far eastern curlews (*Numenius madagascariensis*), and Asiatic whimbrels (*Numenius phaeopus variegatus*). The internal migrant South Island pied oystercatcher has a significant winter habitat in Kawhia Harbour with approximately 3-4% of the total population censused throughout New Zealand reported here. Other waders using the harbour in significant numbers during winter are pied stilt (*Himantopus limantopus leucocephalus*) and the threatened banded dotterel (*Charadrius bicinctus bicinctus*). The threatened NZ dotterel (*Charadrius obscurus*) is a resident wader of Kawhia Harbour with a significant breeding population. In many areas of the harbour there is a direct transition from mudflat to pasture or scrub. Where saltmarsh and reed vegetation is present; threatened Australasian bittern (*Botaurus stellaris poiciloptilus*), banded rail (*Rallus philippensis assimilis*) and regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) are reported. On Tiritirimatangi Peninsula a large area of saltmarsh provides good habitat for threatened Australasian bittern, and a sandspit is one of the few high tide roosts for estuarine birds in the harbour. Te Motu Island and sandbanks is another important high tide roost (Moynihan 1986).

Other conservation values of Kawhia Harbour include, the presence of threatened locally distributed plants like *Pomaderris rugosa*, *Metrosideros carminea*, good wetlands up Orongohura Stream, an unusual association of whau (*Entelea arborescens*) in coastal forest (P de Lange pers comm.), rich fossil localities ranked of national importance at Motutara Pt and Puti Pt (Geopreservation Inventory) along the northern inlets and peninsulas of the harbour. In the east, significant plants recorded include *Hebe obtusata*, *Scandia rosaeifolia* and *Empodisma minus*. Southern inlets and peninsulas have many kilometres of caves and cliffs full of fossils that are ranked nationally important for their Jurassic sequence (Geopreservation Inventory), unusual karst lakes and notable plant species present include king fern (*Marattia salicina*) at Para Cove, *Doodia mollis*, *Asplenium obtusatum* spp. *northlandicum* (P de Lange pers comm.). At Awaroa Scenic Reserve there is a number of unusual plants. At Rakanui Scenic Reserve, three localised plant species occur (L Humphreys pers comm.). At Arapatiki Bay, hot springs occur with threatened plants and birds present in the swamp (L Humphreys pers comm.). On Meurant Island fossils of whales and penguins exist, while at Motukarakea Island, *Scandia rosaeifolia* is at its southern limit and the notable *Asplenium lyalli* limestone fern occurs here.

Cultural:

A landscape assessment of Kawhia Harbour classifies it as a sensitive unit with a high priority. It is a highly modified area with insensitive development and degraded areas that requires better management, the southwest portion is an exception and has a preservation ranking (Brown 1990). Much of the Kawhia foreshore near Kawhia settlement and Puti Point is used extensively by schools for estuary and fossil studies, with rocky shore studies carried out at Te Maika (J Charteris pers comm.).

Te Pui beach, just inside Kawhia Harbour is celebrated in song and story by the Tainui tribes. At Maketu Marae, two stones mark the last resting place of the Tainui Canoe. On the foreshore, the ancient pohutukawa Tangi-te-korowhiti overhangs the rock Te Papa-o-Karewa.

Historical:

There is a high density of recorded archaeological sites around Kawhia (NZ Register of Archaeological Sites), especially along seaward margins and at Te Maika reflecting their favourable microenvironments and the richness of the marine resources.

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

This harbour is internationally important as a major destination for migrating endangered endemic black stilts, and nationally important for its geological values (Geopreservation Inventory 1989) and other fauna and flora values mentioned above.

EXISTING THREATS: Type: a, b, c, g, j, k, l
Comment:

Erosion of the catchment is generally slight, occurring predominantly on pasture and grass utilised for grazing. Land developments like at Te Maika where swamp drainage has resulted in increased sediment runoff affect the natural ecosystem. A number of reclamation and foreshore structures occur at Kawhia Settlement and Te Maika altering the natural shoreline. Fishing techniques including trawling, danish seining and dragnetting are prohibited within the harbour. Colonies of the exotic grass, spartina (*Spartina townsendii*) is noted in several locations. There are several refuse dumps or tips located around the harbour which are unsightly and are destroying fringe vegetation.

HUMAN MODIFICATION AND USE: Type: a, b, d, k

Land development of farming and settlements have modified this area. Many whitebait stands and maimais are scattered around the shoreline, particularly up the Oparau River. A number of jetties occur around the harbour as well as some reclamations.

EXISTING PROTECTION: Type: a, i
Comment:

A number of scenic reserves (approximately 9 making up 420 ha) are dotted around the harbour margins as well as a number of unformed legal roads.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	①	2	3
Historic	1	②	3
Threats	①	2	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Kawhia Harbour is well documented for most of the categories. Private research has provided valuable information.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	⑦
Cultural	①	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	⑦
Human Mod & Use	1	2	③	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; K T Moynihan 1986, Wildlife and sites of special wildlife interest in the Western Waikato Region, FSU Report no. 41; C M McLay 1976, An inventory of the status and origin of New Zealand estuarine systems, Proceedings of the New Zealand Ecological Society (23).

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZ Register of Archaeological Sites, refer attached Archaeological Summary

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Peter de Lange, Botanist, Department of Conservation, Wellington
John Charteris, Education Advisory Service, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Kawhia Harbour; outstanding wildlife habitat value; 1981*
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989
At least ten sites around Kawhia Harbour; national significance; 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Aotea Harbour	SITE NO: CRI 030032
NAME: Linda Abrahamson	CONSERVANCY: Waikato
MAP No: R15	GRID REF: 26720 63550
	DATE: 29/03/90

BRIEF DESCRIPTION OF SITE:

Aotea Harbour is located between Raglan and Kawhia Harbours, approximately 10 km of shoreline lies between Kawhia and Aotea. The harbour is 3000 ha in area, very shallow with a large expanse of sand and mud exposed at low tide. A considerable length of shore is vegetated with scrub and coastal forest. The surrounding catchment of Aotea harbour includes Quaternary pumiceous alluvium and Alexandra volcanics in the north, friable sandstone, siltstones and limestones of the Te Kuiti Group and sandstones of Jurassic age. Taranaki Point on the coast lies within this site and is notable for its geological formations (Geopreservation Inventory).

CONSERVATION VALUES: Natural: a, b, c, d, e, f, g, h Cultural: a Historic: b
Comment:

Natural

Aotea Harbour is enclosed by a large sandspit exhibiting a large sand area of very natural sand dunes and hills. These dunes are the largest and best example on the west coast of Waikato, and ranked as nationally important in the Geopreservation Inventory. There are very few adventive species and there is a good population of the rare sand plant pingao (*Desmoschoenus spiralis*). These dunes are protected within a reserve with scientific status.

Aotea Harbour is a large food resource for coastal birds particularly waders. Its value is enhanced by its close proximity to Kawhia Harbour. The eastern bar-tailed godwit (*Limosa lapponica baueri*) is the most numerous wader using the harbour. The threatened NZ dotterel (*Charadrius obscurus*), caspian tern (*Hydroprogne caspia*), reef heron (*Egretta sacra sacra*); and rare variable oyster catcher (*Haematopus unicolor*) are also reported with other common species. Considerable populations of waterfowl use the harbour, creeks and bays (Moynihan 1986). High tide roosts are provided at the southern end of the harbour, and at the harbour entrance. Good populations of threatened banded rail (*Rallus philippensis assimilis*) and regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) occur in the saltmarsh margins (Sites of Special Wildlife Interest, 1981).

The locally distributed plant, *Pomaderris rugosa* occurs on several of the peninsulas which occur along the northern margin. The saltmarsh zone of the harbour is mostly narrow, and vulnerable to stock grazing where it passes into pasture. Stretches of saltmarsh buffered by coastal forest is mostly unmodified, and particularly along the eastern margins of the harbour good examples of wetlands and their vegetation association occur (L. Humphreys pers comm.). Mudsnailes and crabs are abundant, whitebait and flounder are reported in shallow tidal channels (Moynihan 1986).

Taranaki Point is characterised by spectacular karst features outcropping on the coast. Pinnacles, caves and other karst landforms occur here and are of regional significance (Geopreservation Inventory). Notable plant species are also recorded at this point, *Asplenium obtusatum* spp. *northlandicum* and pig weed (*Enandia* spp) (P de Lange pers comm.).

Cultural

Aotea Harbour was the landing place of the Aotea canoe commanded by Turi (refer attached Archaeological Summary). On the southern shore near the harbour entrance is the well preserved remains of Puraho pa and local tradition holds that the unusual Korowai (a stone bird) was found nearby at the site of an ancient village a little to the west (refer attached Archaeological Summary).

Historical

There is a high density of recorded archaeological sites around Aotea Harbour (NZ Register of Archaeological Sites) especially along the seaward margin.

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

The harbour is an important link in the chain of estuarine habitat in the north of the North Island, providing seasonal or total needs of a large number and wide variety of birds. The sand dunes of Aotea sand spit are of national importance (Geopreservation Inventory) and also for the presence of rare pingao (Given et al 1987). The harbour is also nationally important for the threatened bird species using it (Bell 1986).

EXISTING THREATS: Type: a, b, d, g, l
Comment:

Wind erosion occurs on the sand spit area and foreshore erosion at Pourewa Point constitutes a hazard with up to 80 m of foreshore lost. Random dumping of concrete and erection of fences is adding to the problem. Coastal forest in the catchment continues to be cleared increasing the sediment runoff into the harbour which is detrimental to the wildlife values of the estuarine margins (Moynihan 1986). Stock grazing on some of the dunes and along the estuarine margins is noted (L Abrahamson pers ob) destroying the vegetation.

HUMAN MODIFICATION AND USE: Type: a, d

Aotea settlement has modified a small area, particularly the foreshore with ugly shore stabilisation works. Farm development occurs in the catchment and many whitebait and maimai stands are located around the harbour margins.

EXISTING PROTECTION: Type: a, i
Comment:

The sand dunes area on the spit is protected and reserved under scientific status. This scientific reserve has an area of 500 ha. The harbour has no protection status. Unformed legal road occurs around the harbour.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Information for this area is patchy, and surveys in general require updating. No information on fisheries.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; Geopreservation Inventory; K T Moynihan 1986, Wildlife and sites of special wildlife interest in the Western Waikato Region, Fauna Survey Unit Report no. 41

Historical: NZ Register of Archaeological Sites, refer Archaeological Summary

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12; D R Given, W R Sykes, P A Williams and C M Wilson 1987: Threatened and local plants of New Zealand in a revised checklist, Botany Division Report, DSIR, Wellington.

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Peter de Lange, Botanist, Department of Conservation, Wellington

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Aotea Harbour; high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989 *Aotea Dune Fields; national significance; 1989*
Taranaki Point Karst; regional significance; 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

Danish seining, trawling and drag netting are fishing techniques prohibited in the harbour.

ACCOMPANYING MAPS & PHOTOGRAPHS:

EXISTING THREATS: Type:
Comment:

HUMAN MODIFICATION AND USE: Type: i, k

Gannet Island lies within the main fishing grounds of west coast trawlers, and is also a popular dive spot.

EXISTING PROTECTION: Type: f
Comment:

Gannet Island is a wildlife sanctuary.

AVAILABILITY OF INFORMATION:

Natural	1	②	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	③

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Published data on this island is very limited.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	⑦
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	①	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI

Personal Communication: Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Gannet Island; high wildlife habitat value; 1981
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

EXISTING THREATS: Type: a, c, d, g
Comment:

Pigs, goats and possums are widespread in this area and are causing extensive damage to regenerating forest. Goats are relatively low in numbers, eradication is a high priority in this area for Waikato Region wild animal control (K Broome pers comm.). Sea and wind erosion of the dunes and cliff faces occurs along this exposed section of coast. Adventive plant species are a feature of most of the West Coast dune systems. At Manu Bay, a boat ramp and breakwater occur and at Whale Bay some reclamation work has been carried out, modifying the natural shoreline in these areas.

HUMAN MODIFICATION AND USE: Type: h, i

Rocks along this coast are used for rockfishing, and scenic walks traverse the area. Whale Bay and Manu Bay are a significant recreational resource for a large population including Hamilton, for surfing, swimming and sunbathing (R Hutchings pers comm.). This site is well known for its surfing, where one of the longest left-hand surfing breaks in the world is continuous from Indicator Pt to Manu Bay in rough conditions (R Thorpe pers comm.).

EXISTING PROTECTION: Type: a, c
Comment:

Karioi Mountain is part of Pirongia Forest Park which has an area of 17124 ha. Other portions of this coastal site are protected in Te Mata Wildlife Management Reserve (52 ha), Ruapuke Scenic Reserve (11.6 ha), Te Toto Gorge Scenic Reserve (94 ha), Bryant Memorial Scenic Reserve (16.7 ha) as well as Whaanga Recreation Reserve (9 ha) and two coastal strips of Crown land which are reserved from sale.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Very little information was assessed for this area.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; T R Partridge 1990, The sand dune and beach vegetation inventory of New Zealand, Botany Division Report prepared for Department of Conservation, Wellington

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
John Charteris, Education Advisory Service, Hamilton
Keith Broome, Conservation Officer, Department of Conservation, Hamilton
Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Raglan Harbour	SITE NO: CRI 030035
NAME: Linda Abrahamson	CONSERVANCY: Waikato
MAP No: R14	GRID REF: 26780 63770
	DATE: 30/03/90

BRIEF DESCRIPTION OF SITE:

Raglan Harbour is a large 2840 ha, fairly deep harbour with many arms leading off it. Compared to the other west coast harbours of Aotea and Kawhia it has a reduced area of exposed mudflat. The margins for many areas are characterised by shelves of rock and stony flats close to the high tide level. The estuary is generally clean (slightly polluted, McLay 1976) and fairly unmodified. The catchment area is dominated by friable sandstones, siltstones and limestones of the Te Kuiti Group, and soft Jurassic sandstones and siltstones.

CONSERVATION VALUES: Natural: a, b, c, d, e, f Cultural: e Historic: b,c
Comment:

Natural

Raglan Harbour is a site of special wildlife interest, of high habitat value and used by international migrants and common waders providing a food source and roosting areas (Moynihan 1986). Notable species recorded include the threatened reef heron (*Egretta sacra sacra*), banded rail (*Rallus philippensis assimilis*), Australasian bittern (*Botaurus stellaris poiciloptilus*); regionally threatened North Island fernbird (*Bowdleria punctata vealeae*); eastern bar-tailed godwit (*Limosa lapponica baueri*); spotless crane (*Porzana tabuensis plumbea*); and South Island pied oystercatcher (*Haematopus ostralegus finschi*). There are sighting reports of the rare NZ Hector's Dolphin (*Cephalorhynchus hectori*) outside Raglan Harbour (R Thorpe pers comm.).

The saltmarsh zone is narrow and discontinuous around most of the shoreline but there are larger areas in the heads of some of the estuarine arms. There is a particularly good stand of mangroves near Waingaro Landing (L Humphreys pers comm.). Raglan Harbour is considered to be the southern limit of mangroves on the west coast, although a few plants occur in Kawhia Harbour. A sandspit partially encloses the estuary entrance. The vegetation cover of this area is botanically interesting (L Humphreys pers comm.) with the presence of notable species like *Asplenium obtusatum* spp. *northlandicum*, *Sonchus kirkii*, *Blechnum banksii*. Lake Waitomoumou trapped between the dune hills on the spit is a freshwater wetland comprising cabbage tree (*Cordyline australis*), flax (*Phormium* spp.), raupo (*Typha orientalis*), *Scirpus* spp., *Eleocharis sphacelata*, *E. acuta*, *Glyceria fruitans* and is one of the last remaining freshwater wetlands in the ecological district.

Raglan Harbour supports commercial and recreational fisheries with snapper, trevally, mullet and flounder being the principle fish taken. Snapper nursery grounds occur outside Raglan Harbour (University of Auckland 1974). Mussels, scallops, cockles, pipis, tuatua and kina are found in the harbour. The main whitebait runs occur within the Waitetuna and Waingaro Rivers.

New Kotuku Trig on Pukewhangarangi Hill is a site listed in the Geopreservation Inventory of national significance. It is a type section of 200 m sequence for limestone and sandstone formations in this area.

Cultural:

The Raglan foreshore near Raglan settlement is used intensively by all age groups from Hamilton schools for estuarine studies. Landscape assessment of Raglan Harbour indicates it is a sensitive area with high significance to the region due to its visibility where extensive wetlands and sand dunes dominate, while settlement is good and bad (B Brown 1990).

Historical:

Raglan (Whaingaroa) Harbour was a favoured area of pre-European settlement. No systematic site surveys have been carried out, but over seventy sites are recorded (NZ Register of Archaeological Sites). The so called 'carved rocks' at Raglan are one of the best documented of the boulder sites on the Waikato Coast. Raglan township was established in 1854 with the first land sales and was an important seaport during the war. A Wesleyan mission station was built on the northern side of the harbour (refer attached Archaeological Summary).

SITE IMPORTANCE: International National Regional Local Unknown
Comment:

This site is of national importance for the many threatened bird species using the area, and significant for the rare endemic NZ Hector's Dolphin. A nationally significant site for geological formations also falls within this area.

EXISTING THREATS: Type: a, c, d, g, j, l
Comment:

Wind erosion occurs over the sand spit, while along the foreshore shore stabilisation works and reclamations have been erected. Many refuse sites are located around the margins. The noxious plant spartina (*Spartina townsendii*) occurs in some of the upper reaches of the arms. Grazing by stock also occurs in some sand dune areas and along estuarine margins. These activities have modified the natural system of the harbour in small ways, in particular the vegetation margins have been modified.

HUMAN MODIFICATION AND USE: Type: a, b, d, h, i, k

The harbour area has been modified with whitebait stands, maimais, scattered fences, reclamations, cables and boat moorings up the many arms. The harbour provides many recreational opportunities like shellfish gathering, fishing, wind surfing (R Hutchings pers comm.). Raglan settlement is focused on the harbour, while farming practices have modified much of the catchment.

EXISTING PROTECTION: Type: a, c, f, i
Comment:

A number of scenic reserves (Motukokokahe Pt, 41 ha and Hawea, 1 ha); local purpose reserves (Te Uku Domain, 6.7 ha and Raglan Domain 16.8 ha) and Pearts Finger a private reserve of 4.3 ha protect small areas around the margins of Raglan Harbour. A local purpose reserve extends around Raglan sandspit and unformed legal roads occur in areas including Raglan township.

AVAILABILITY OF INFORMATION:

Natural	①	2	3
Cultural	1	②	3
Historic	①	2	3
Threats	1	②	3
Human Mod. & Use	1	②	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Considering Raglan Harbour is one of the most populated areas on the West Coast, very little information exists.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	⑦
Cultural	①	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	①	2	③	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	⑦

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI; K T Moynihan 1990, Wildlife and Sites of Special Wildlife Interest in the Western Waikato Region, Fauna Survey Unit Report No. 41; University of Auckland 1974, Maui Development Environmental Study Report on Phase 1; C L McLay 1976, An inventory of the status and origin of NZ estuarine systems, Proceedings of the NZ Ecological Society, Vol 23

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: NZ Register of Archaeological Sites; refer attached Archaeological Summary.

Personal Communication: Rick Thorpe, Conservation Officer, Department of Conservation, Hamilton
Raewyn Hutchings, Recreation Planner, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI) *Raglan Harbour; high wildlife habitat value; 1981*
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase I (PNAP 1988).
- ④ Geopreservation Inventory, Geological Society of New Zealand, 1989 *New Kotuku Trig, Pukewhanganangi Hill, national significance, 1989*
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

A number of fishing techniques like trawling, danish seining and dragnetting are prohibited in the harbour.

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Otehe		SITE NO: CRI 030036
NAME: Linda Abrahamson		CONSERVANCY: Waikato
MAP No: R14	GRID REF: 26700 63940	DATE: 8/08/90

BRIEF DESCRIPTION OF SITE:

Thirty kilometres of the exposed western coastline extending from Te Hara Point north to Parikotuku Point, incorporating long ironsand beaches like Carters Beach, Gibson Beach and Waikorea Beach, the prominent point of Otehe (Crayfish Pt) and the lower reaches of Waikorea Stream, are included within this site.

This section of coast is described as a rugged barren coast of low interest, some limestone cliffs and a lack of natural vegetation (Brown 1990).

CONSERVATION VALUES:	Natural: a, b, c, d, e, f	Cultural:	Historic: b
Comment:			

Natural

The threatened NZ dotterel (*Charadrius obscurus*) is reported at several coastal sites within this area (P Thomson pers comm.).

At Carters Beach, notable plant species *Blechnum banksii* and *Sonchus kirkii* (native puha) are present, and at Gibson Beach *Collobanthus meulleri* occurs (L Humphreys pers comm.). At Waikorea Stream, good spinifex dunes occur and have been ranked (Partridge 1990), and native puha (*Sonchus kirkii*) is recorded here (L Humphreys pers comm.).

Interesting geological landforms occur along this coast mainly as limestone cliffs. In Waikorea Stream, hot springs are depositing a whitish precipitate. This site is listed on the Geopreservation Inventory as a site of regional importance.

Historical:

Little systematic recording has been done along this part of the coast but large numbers of pa and pit sites are known to exist (N Ritchie pers comm., refer attached Archaeological Summary).

SITE IMPORTANCE:	International	National	Regional	Local	Unknown
Comment:					

Hot springs at Waikorea Stream are listed as regionally important in the Geopreservation Inventory and several coastal sites are nationally important for the threatened NZ dotterel (Bell 1986).

EXISTING THREATS: Type: a
Comment:

Wind erosion of pastureland occurs along some portions of this coast.

HUMAN MODIFICATION AND USE: Type: h, k

Some rockfishing is carried out at Otehe Point, and whitebait stands occur along Waikorea Stream, indicating this recreational activity is pursued here.

EXISTING PROTECTION: Type: i
Comment:

No protection currently exists for this area. A number of unformed legal roads provide access to the coast.

AVAILABILITY OF INFORMATION:

Natural	1	2	3
Cultural	1	2	3
Historic	1	2	3
Threats	1	2	3
Human Mod. & Use	1	2	3

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

Not a lot of information exists for this area, with the botanical values largely assessed by private individuals.

SOURCES OF INFORMATION:

Natural	1	2	3	4	5	6	7
Cultural	1	2	3	4	5	6	7
Historic	1	2	3	4	5	6	7
Threats	1	2	3	4	5	6	7
Human Mod & Use	1	2	3	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: T Partridge 1990, The sand dune and beach vegetation inventory of New Zealand, Botany Division Report prepared for Department of Conservation, Wellington; Geopreservation Inventory

Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton

Historical: refer attached Archaeological Summary

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12

Personal Communication: Neville Ritchie, Archaeologist, Department of Conservation, Hamilton
Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Phil Thomson, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Department of Conservation, Wellington (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Department of Conservation, Hamilton (SSWI)
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
Waikorea Stream hot springs; regional significance; 1989
5. Historic Places Trust County Inventory, April 1983
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

EXISTING THREATS: Type: a, d
Comment:

Severe wind erosion occurs across the dunes in this area, and stock graze the dune vegetation at this site, threatening the stability of the dunes.

HUMAN MODIFICATION AND USE: Type: k

A number of whitebait stands occur along the river banks of Kaawa Stream.

EXISTING PROTECTION: Type: i
Comment:

Currently no protection exists for this area. Two unformed legal roads provide access to the coast at either end of this site.

AVAILABILITY OF INFORMATION:

Natural	1	②	3
Cultural	1	2	③
Historic	1	②	3
Threats	1	2	③
Human Mod. & Use	1	2	③

1. Well documented
2. Little information (general)
3. Little information (if any)

Comment:

This area is fairly isolated meaning little work has been done. A lot of documentation on the geology of this area exists.

SOURCES OF INFORMATION:

Natural	①	2	3	4	5	6	⑦
Cultural	1	2	3	4	5	6	⑦
Historic	①	2	3	4	5	6	7
Threats	1	2	③	4	5	6	7
Human Mod & Use	1	2	③	4	5	6	7

1. Derived info from existing lit. & D/bases
2. Derived info as above & field check
3. Derived from existing maps & aerial photo
4. Recent DOC survey inc sampling & analysis
5. Recent DOC survey exc sampling & analysis
6. Experience
7. Expert opinion

Natural: SSWI

Historical: refer attached Archaeological Summary

Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12; D R Given, W R Sykes, P A Williams and C M Wilson 1987: Threatened and local plants of New Zealand in a revised checklist, Botany Division Report, DSIR, Wellington.

Personal Communication: Liz Humphreys, Conservation Officer, Department of Conservation, Hamilton
Peter de Lange, Botanist, Department of Conservation, Wellington
Linda Abrahamson, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
- ② Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
Kaawa Stream Estuary; moderate wildlife habitat value; 1981
Ngatutura North and South Rock Stacks; moderate wildlife habitat value; 1981
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
- ⑤ NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:

ACCOMPANYING MAPS & PHOTOGRAPHS:

SITE NAME/S: Waikato River

SITE NO: CRI 030038

NAME: Linda Abrahamson

CONSERVANCY: Waikato

MAP No: R13

GRID REF: 26690 64300

DATE: 8/08/90

BRIEF DESCRIPTION OF SITE:

The Waikato River, the largest river system in New Zealand enters the ocean at Port Waikato. The river from Mercer downstream to Port Waikato is generally a broad and gently meandering waterbody characterised by elongated lowlying deltaic islands in its lower reaches, and bounded by a defined river valley surrounded by hills further inland. The river is made up of sandbars, islets, broad braided channels, with the last 5 km typically being deeper than the rest of the river channel in question and confined by a large sandspit. At present the large flat sandspit extends about 3 km northwards from the south head, Port Waikato area. At times a large island forms in the mouth. The northern bank of the river, planted in exotic *pinus radiata*, is steadily being eroded away causing continual loss of Waiuku State Forest land. This site also includes a section of the coast south to Huriwai Valley, which is interesting for its geological features (L Abrahamson pers comm.).

The area has a 'largely natural setting' as there are only a few isolated incidences of development, with the bulk of the landscape being in pasture for agriculture. Port Waikato township lies on the southern bank and a number of sand mining operations occur in the river. This area is used for many forms of land and water-based recreation (R Hutchings pers comm.).

CONSERVATION VALUES: Natural: a, b, c, d, e, g

Cultural: a,c,d,e

Historic: b,c,d

Comment:

Natural: This area is characterised by areas of flat land under pasture and exotic willow (*Salix* spp), alder (*Alnus* spp) and silver poplar (*Populus alba*) remnants alternating with steeper hills and gullies under regenerating native kahikatea (*Dacrydium dacrydioides*), pukatea (*Laurelia novae-zelandiae*), puriri (*Vitex lucens*) and cabbage tree (*Cordyline australis*). The river delta islands reflect the dynamic processes and hydrological characteristics of the river and are vegetated by significant stands of kahikatea. A few of the deltaic islands are characterised by kahikatea and totara (*Podocarpus totara*) forest cover, and have significance as the only forested islands in the Waikato. In the vicinity of the delta islands, large areas of wetland occur. The drier areas have a subcanopy and shrub tiers of native shrub species, and the wetter areas have a coverage of raupo (*Typha orientalis*), rush and sedges with large banks of waterweed in places. The vegetated margins near the estuary mouth is made up of sedges and rushes with the rare pingao (*Desmoschoenus spiralis*), spinifex (*Spinifex hirsutus*) and marram (*Ammophila arenaria*) grasses binding the sand areas, with lupin (*Lupinus arboreus*) in drier areas. A small area (1 ha) of fairly mature wetland occurs in this area. Raupo is dominant with some cabbage trees and flax present.

The Waikato River mouth is a site of special wildlife interest of 588 ha with an outstanding wildlife habitat value, particularly the sandspit and tidal flats at the entrance mouth are significant for bird species (Sites of Special Wildlife Interest, 1981). The main sand island is used as a high tide roost. Breeding populations of the threatened NZ dotterel (*Charadrius obscurus*), caspian tern (*Hydroprogne caspia*); rare variable oystercatcher (*Haematopus unicolor*); and white fronted terns (*Sterna striata*) are recorded. Threatened Australasian bittern (*Botaurus stellaris poiciloptilus*) breed in the thick raupo and *scirpus* spp. swamp. Thirty one bird species have been recorded as inhabiting the river and associated swamp and shore vegetation, including a high number of waterfowl. Other notable species include eastern bar-tailed godwit (*Limosa lapponica baueri*); threatened banded dotterel (*Charadrius bicinctus bicinctus*), banded rail (*Rallus philippensis assimilis*), reef heron (*Egretta sacra sacra*); and wrybill (*Anarhynchus frontalis*) (SSWI). Regionally threatened North Island fernbird (*Bowdleria punctata vealeae*) is also noted along the estuarine margins.

The Waikato River system is the singularly most important fishery in the North Island for whitebait and eels (T Roxburgh pers comm.) providing up to 25-30% of the national catch of eels. Mullet and smelt are also significant. Offshore waters are main fishing grounds for snapper, tarakihi, trevally and gurnard (University of Auckland 1974). The oldest rocks at Port Waikato are Jurassic mudstones which contain numerous fossil sites. Near the beach the rocks have notable fern leaf traces which are fossils of international interest (Cometti and Morton 1985). There are also cigar-shaped fossil; squid shells, belemnites and ancient bivalves including the shells of the giant mussel, *Inoceramus*. Huriwai Valley has good examples of the many limestones and sandstones of this Waikato Region, and is frequented by scientists for research.

Cultural: The burial grounds found in this area are of traditional value (B Sewell pers comm.). The Waikato River area receives a regionally significant ranking of preservation status by Brown (1990) for its landscape assessment. It is highly natural, a sensitive area where the visual impact of change would be high, a rare unit dominated by wetlands with a high coherence. The Waikato River is of considerable importance to the Maori both spiritually and physically. The following quotations which summarise Maori attitudes to the river are taken from an internal Waikato Valley Authority report for the NZ Steel Ltd water right at Glenbrook. "In the eyes of the Tainui tribes, the Waikato River is a single living entity; a threat to one part is a threat to the whole ..." "Five centuries of continuous occupation of its banks have embedded the river deep into the group and individual consciousness..." "One particular resource which has been important to the Maori has been that of whitebait ... Between the elbow and mine site ... 1500 to 2500 would use the river to fish for whitebait." The Port Waikato area and Huriwai Valley is used intensively by schools and universities for coastal and geological studies, who base themselves at Port Waikato school camp.

Historical: The site contains Maori archaeological stone structures on the northern banks of the river and the Alexandra Redoubt, both of which are of regional significance (Lawlor 1988). More generally the range of occupation sites include pa, undefended settlements, middens, burial sites and portions of 1860 land war sites (NZ Register of Archaeological Sites). The sand dunes at the northern mouth of the river were used as a burial grounds of great importance to Ngati Te Ata. There are six recorded shipwrecks within this site, that were all stranded and wrecked on the river mouth bars and spit within the period 1832-1883.

SITE IMPORTANCE: International National Regional Local Unknown
Comment: The fossils found in the Jurassic mudstone are of international interest (Cometti and Morton 1985). The site is of national significance for the many threatened bird species (Bell 1986) breeding and using this area, and the presence of New Zealand's largest eel fishery.

EXISTING THREATS: Type: a, c, d, e, f, j, k, l, m
Comment: Sand extraction and quarrying has high visual impact in this area and has damaged archaeological sites along the northern banks. This area is affected by seed stock from the adjacent forest and is prone to the establishment of lupins, marram, pines and pampas affecting natural vegetation communities. Runoff from developed land in the catchment is affecting the water quality of the site, as is the discharge of treated effluent from the Tuakau oxidation ponds. Cattle often graze down to the waters edge, destroying the river shoreline habitat. Discharge of heated water from the Huntly Power Station and water withdrawal from the river by NZ Steel (Waiuku) adds to the disruption of the natural system. Trail bikes and dune buggies are causing extensive damage to the sandspit vegetation and disrupting breeding birds particularly the threatened NZ dotterel. The northern bank of the river is continually eroding causing losses to Waiuku State Forest land. Port Waikato settlement has modified the river margin near South Head.

HUMAN MODIFICATION AND USE: Type: a b, d, h, i, j, k
 The vegetation of the area is highly modified, introduced Crack Willow (*Solix fragilis*) and Grey Alder (*Alnus incana*) dominate large stretches of the river bank and adjacent wetlands. Much of the surrounding land area has been developed into farmland, and has therefore undergone subsequent modification by stock and farm practices. Several mining installations have a high visual impact on the landscape. Some land-based recreation occurs in association with the wetlands, for example, bird watching. Water-based recreation includes whitebaiting and fishing (up to 1000 whitebaiters use the river in a season). The site is used for several different types of shore based recreation including walking, orienteering, horse riding, picnicking and fishing. As previously mentioned it is also used for off-road riding of motorbikes and dune buggies. There is only one jetty, located on the southern side of the mouth. Traditional Maori uses include whitebaiting, mullet and eel fishing.

EXISTING PROTECTION: Type: a, i
Comment: Port Waikato sandspit is a recreation reserve. Otherwise there is no protection status for this area. A number of unformed legal roads occur in the area.

AVAILABILITY OF INFORMATION:

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

Comment: The information base is very general in most cases, although cultural information is limited and archaeological work needs updating.

SOURCES OF INFORMATION:

Natural	1 2 3 4 5 6 7	1. Derived info from existing lit. & D/bases
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 & aerial photo
Threats	1 2 3 4 5 6 7	4. Recent DOC survey inc sampling & analysis
Human Mod & Use	1 2 3 4 5 6 7	5. Recent DOC survey exc sampling & analysis
		6. Experience
		7. Expert opinion

Natural: SSWI; University of Auckland 1974, Maui Development Environmental Study Report on Phase One; Cometti R and J Morton 1985, Margins of the sea - exploring NZ's coastline.
Cultural: B Brown 1990, CRI Landscape Assessment, Department of Conservation, Hamilton;
Historical: I Lawlor 1983, Archaeological Site Management in Waiuku State Forest 186 - a summary report. Forest Service A938/2 p 21; NZ Register of Archaeological Sites.
Site Importance: B Bell (1986): The Conservation Status of New Zealand Wildlife, NZ Wildlife Service, Occas. Publ. No. 12
Personal Communication: Tony Roxburgh, Conservation Officer, Department of Conservation, Hamilton

RECORDED ON EXISTING DATABASES:

1. Wetlands of Ecological and Representative Importance, Dept of Conservation, Wellington 1990 (WERI)
2. Sites of Special Wildlife Interest, Unpublished survey data, Dept of Conservation, Hamilton 1981 (SSWI)
3. Protected Natural Area Programme 1988 : C Regnier, B Clarkson : Tainui Ecological Region Protected Natural Areas Programme Phase 1 (PNAP 1988).
4. Geopreservation Inventory, Geological Society of New Zealand, 1989
5. NZ Register of Archaeological Sites, Department of Conservation, Wellington (NZRAS)
6. Other
7. None

OTHER CONSIDERATIONS:
 This site falls into the tribal boundaries of the Ngati Te Ata, Ngati Tipa and Ngati Tamaoho. The contact people are: Alex Kaihau, Waiuku; Carmen Kirkwood, Huakina Development Trust; and Barney Kirkwood, Huakina respectively.
 At Port Waikato approximately 50 Maori chiefs signed the english version of the Treaty of Waitangi in 1840.

ACCOMPANYING MAPS & PHOTOGRAPHS: