

## ORAOA STREAM SALTMARSH

Survey no. O05/124  
Survey date 23 June 1994  
Grid reference O05 570 587  
Area 1 ha  
Altitude < 2 m asl

### ***Ecological unit***

(a) *Coprosma propinqua* swamp shrubland on estuary/alluvium (90%)



### Oraoa Stream Saltmarsh O05/124

Each grid is 1000m x 1000m  
and = 100 ha  
S = shrubland  
F = forest  
W = wetland  
E = estuarine  
D = duneland

(b) Raupo-harakeke association on estuary/alluvium (10%)

***Landform/geology***

Alluvium and estuarine deposits.

***Vegetation***

A very small upper saltmarsh/freshwater wetland ecotone which should be considered as part of the greater Hokianga estuarine habitat. It has been identified here mainly in order to signal the scarcity of this plant association and wildlife habitat type.

(a) *Coprosma propinqua* is common to abundant with frequent manuka and occasional ti kouka, kohuhu, kahikatea, mapou, harakeke, koromiko, totara, kowhai and raupo.

(b) Raupo is abundant in a small area with harakeke common. *Gabnia* sp. is occasional.

Pest plants include honeysuckle and pampas.

***Fauna***

NI fernbird (Sparse).

***Significance***

Of the c. 2400 ha (1978 figure) of reclamation which has occurred within the harbour, a large percentage would have been of this upper saltmarsh brackish wetland type where alluvium and a thick layer of organic soil has formed on top of estuarine deposits. These are the very areas which are critical as spawning sites for native galaxids (inanga, whitebait) and as nesting and feeding sites for wetland birds such as grey duck, Australasian bittern, crakes, rails and NI fernbird.

Representative site for both ecological units with type (b) unrecorded elsewhere in the Ecological District.

**UMAWERA BUSH**

Survey no.	O05/125
Survey date	14 June 1994
Grid reference	O05 607 575
Area	117 ha (94 ha forest, 23 ha shrubland)
Altitude	30-140 m asl

***Ecological unit***

(a) Kanuka-totara forest on hillslope (95%)

(b) Bracken-mahoe shrubland on hillslope (5%)

***Landform/geology***

This site is on dissected hill country underlain by Mangakahia Complex sandstone and mudstone.

***Vegetation***

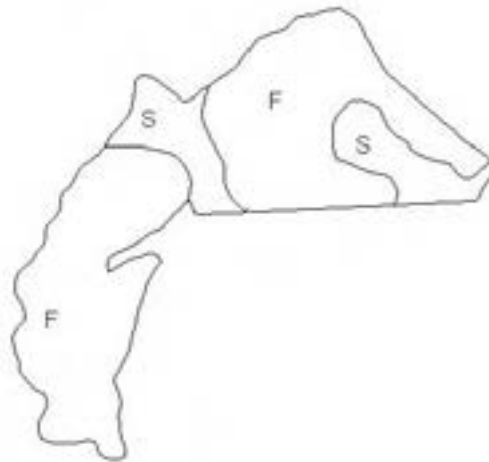
This site is closely associated with other natural areas to the north and west which occur in the adjoining Maungataniwha Ecological District. These areas have been located in this Ecological District due to the geological origin of the limestone country to the north. The southern forested area of the site is fenced.



### Umawera Bush O05/125

Each grid is 1000m x 1000m  
and = 100 ha

- S = shrubland
- F = forest
- W = wetland
- E = estuarine
- D = duneland



(a) Kanuka and totara forest is common over most of the site with frequent kahikatea, puriri and taraire and occasional northern rata, rimu, tanekaha, pukatea, rewarewa, towai, matai, kauri, nikau, karaka, mamaku and titoki.

(b) Bracken and mahoe shrubland occurs with frequent mingimingi, wheki, mamaku, totara and occasional hangehange.

This shrubland forms an important linkage between the forested areas of the site.

### ***Fauna***

NI brown kiwi, reported by owner (Serious Decline), kukupa (Gradual Decline) and common forest birds.

### ***Significance***

The area is likely to have a role in linking the forests to the southwest with the adjacent Omahuta Forest.

It is a representative site for both ecological units and the only site in the Ecological District where type (b) bracken-mahoe shrubland is recorded, and is more suggestive of the Maungataniwha Ecological District which it borders.

Presence of two threatened species.

At least part of this site is fenced (in the southern area of the site).

The site contributes to upper catchment water and soil protection.

## **RANGIAHUA WETLAND**

Survey no.	O05/128
Survey date	14 June 1994
Grid reference	O05 690 552
Area	12 ha
Altitude	<2 m asl

### ***Ecological unit***

(a) Harakeke-*Coprosma propinqua*-manuka-ti kouka swamp association on alluvium

### ***Landform/geology***

Alluvial and estuarine deposits.

### ***Vegetation***

This site is another small remnant of a once extensive transitional ecotone between alluvial swamp forest and true saltmarsh associations. It is influenced primarily by a high water table, high fertility and periodic inundation by brackish water during spring tides.

Harakeke is dominant with *Coprosma propinqua*, manuka and ti kouka in association. Raupo and crack willow are frequent and kowhai, kahikatea, *Coprosma robusta*, *C. tenuicaulis* and *Carex virgata* are occasional.

### ***Fauna***

Not surveyed but sites of this nature are used extensively by spawning galaxids and wetland birds such as NI fernbird and banded rail which are known from sites further downstream.



## Rangiahua Wetland O05/128

Each grid is 1000m x 1000m  
and = 100 ha

S = shrubland  
F = forest  
W = wetland  
E = estuarine  
D = duneland

### ***Significance***

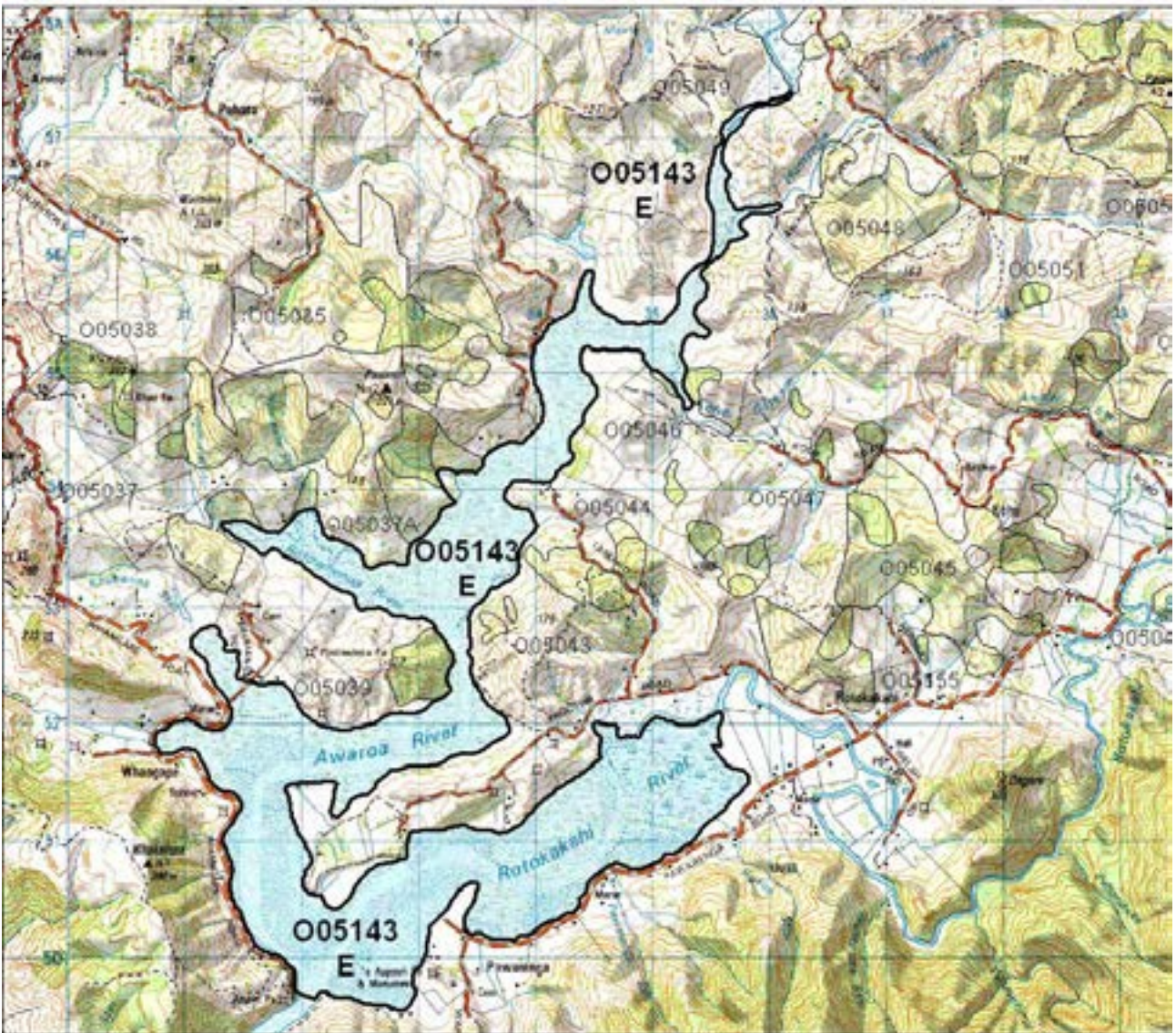
A representative site and the only occurrence of this vegetation type recorded in the Ecological District. Harakeke-dominant wetlands are a nationally rare habitat type. Such sites are under threat from pastoral development and indeed since the time of this survey partial destruction of this site has already occurred.

## WHANGAPE HARBOUR

Survey no. O05/143  
Survey date 16 January 1995  
Grid reference O05 334 534  
Area 916 ha  
Altitude sea level

### *Ecological unit*

(a) Mangrove forest on estuary



Whangape Harbour O05/143

Each grid is 1000m x 1000m  
and = 100 ha  
S = shrubland  
F = forest  
W = wetland  
E = estuarine  
D = duneland

- (b) Sea rush saltmarsh on estuary
- (c) Sea rush–mangrove association on estuary
- (d) Oioi–sea rush saltmarsh on estuary
- (e) *Juncus* sp.–oioi saltmarsh on estuary

### ***Landform/geology***

Deeply penetrating drowned river valley.

### ***Vegetation***

Tidal flats, saltmarsh and mangroves.

(a) On the Whangape side are tall mangroves with sea rush, bachelor's button and sea primrose on the landward edges.

At Pawarenga the mangroves are generally low. Livestock access to sand flats and type (b) sea rush saltmarsh and reclamation have degraded some of the habitat.

On the Awaroa River, the salt/freshwater interface is relatively undisturbed, generally with taller mangroves, type (a), fringing the channel and sea rush saltmarsh, type (b) on the landward edge.

At the Kohe Stream mouth type (c) occurs. Sea rush is abundant, mangroves common and oioi frequent.

Further towards Kohe Stream type (d) occurs. Oioi and sea rush are co-dominant with occasional mangrove, raupo and saltmarsh ribbonwood.

At the head of the Awaroa River about 40% of the wetland is type (b) sea rush with a small amount of raupo. There is a small percentage of type (d) sea rush and oioi with occasional mangrove. Type (e) raupo with frequent *Juncus* sp. comprises about 30% of the wetland, with the remainder grading into low manuka shrubland (see O05/049).

### ***Fauna***

Australasian bittern (Nationally Endangered), Northern NZ dotterel, banded rail and NI fernbird (all Sparse) and banded dotterel (Gradual Decline).

### ***Significance***

Although only c. 6% of the area retains significant riparian vegetation, the high proportion of intertidal area in this harbour contributes to its value as an ecosystem. The Awaroa arm retains a considerable degree of naturalness, particularly in the Rotowhenua River, Kohe and Humanga Streams and upper reaches.

The Rotokakahi River mouth is more modified, but the area of mangrove and saltmarsh remaining is sufficient to maintain productivity and be of significant habitat potential.

Representative site for all ecological units and only one of two sites in the Ecological District where type (b) and (c) are recorded.

Presence of at least five threatened species.

## WAIWHAKARUKU BUSH

Survey no. O05/146  
Survey date 17 July 1995  
Grid reference O05 479 528  
Area 11 ha  
Altitude 120-160 m asl

### *Ecological unit*

(a) Pukatea-taraire-towai forest on alluvium



### Waiwhakaruku Bush O05/146

Each grid is 1000m x 1000m  
and = 100 ha.

S = shrubland  
F = forest  
W = wetland  
E = estuarine  
D = duneland



### ***Landform/geology***

Hill country of Mangakahia Complex sandstone.

### ***Vegetation***

A mature podocarp-broadleaf remnant of towai, pukatea and taraire, with scattered tawa, puriri, rimu, kahikatea, rewarewa, nikau and northern rata.

The area has never been milled and contains several very large, mature rimu.

The understorey is sparse due to grazing and consists of common shrubs such as mahoe, putaputaweta, hangehange, kotukutuku and ferns such as wheki, thread fern, and *Deparia petersenii*. Parataniwha occurs in damper sites.

The pest plant *Elaeagnus* is present and is smothering some trees.

### ***Fauna***

Kukupa (Gradual Decline) and common forest birds.

### ***Significance***

Old-growth riparian podocarp-broadleaf forest is a rare habitat type and this area contains some of the largest rimu remaining in the Ecological District. Presence of a threatened species.

A representative site and only one of two sites in the District where pukatea, taraire and towai forest type is recorded.

## **ORIRA RIVER REMNANTS**

Survey no.	O05/148
Survey date	3 May 1995
Grid reference	O05 626 546, O05 621 547, O05 637 528 O05 624 525, O05 615 517
Area	88 ha (22 ha forest, 66 ha shrubland)
Altitude	0-80 m asl

### ***Ecological unit***

(a) Manuka-totara shrubland on coastal hillslope

(b) Puriri-totara forest on coastal hillslope

### ***Landform/geology***

Occurring largely on dissected hill country underlain by Mangakahia Complex sandstone and mudstone.

### ***Vegetation***

A loosely associated group of five secondary forest and shrubland remnants within the Orira River catchment.

(a) Most of the area comprises two manuka and totara shrublands in which puriri is occasional and featuring c. 1.5 km of riparian edge.

(b) The other remnants are generally of an older secondary forest nature, puriri and totara forest with a riparian coastal/riparian influence. Kahikatea and titoki are frequent and northern rata, kohekohe, kowhai and taraire are occasional.

### ***Fauna***

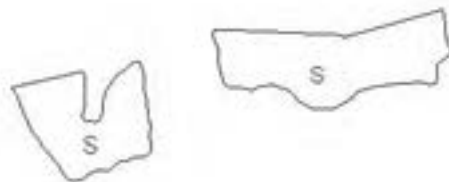
Not surveyed.



### Orira River Remnants O05/148

Each grid is 1000m x 1000m  
and = 100 ha.

- S = shrubland
- F = forest
- W = wetland
- E = estuarine
- D = duneland



### ***Significance***

Representative site for and only record of type (b) puriri-totara forest in the Ecological District and a good example of coastal forest, although the understorey is mostly grazed out.

The site adjoins and provides a riparian buffer to the Orira River providing habitat for estuarine/wetland birds (see Hokianga Harbour (O05/152) for details).

### **RAWHIA REMNANTS**

Survey no.	O05/149
Survey date	3 May 1995
Grid reference	O05 659 537, O05 642 521
Area	18 ha
Altitude	0-60 m asl

### ***Ecological unit***

- (a) Kanuka/manuka forest on coastal hillslope
- (b) Kanuka/manuka-totara forest on coastal hillslope
- (c) Kanuka/manuka-puriri forest on coastal hillslope

### ***Landform/geology***

Remnants on coastal hills underlain by Mangakahia Complex siliceous mudstone and adjoining tidal estuarine flats.

### ***Vegetation***

Two small remnants, adjoining the Waihou River.

- (a) Kanuka/manuka forest with occasional wattle.
- (b) Kanuka/manuka and totara are common with occasional kowhai and pine.
- (c) Kanuka/manuka and puriri are associated with frequent totara and occasional rewarewa.

### ***Fauna***

Not surveyed.

### ***Significance***

This site has coastal riparian value in a relatively early stage of succession and is a buffer to the upper reaches of the Hokianga Harbour.

Representative site for and only record of type (c) in the Ecological District, although the extent of this association is limited.

Marginal Strip of 2 ha administered by the Department of Conservation occurs within this site.



## Rawhia Remnants O05/149

Each grid is 1000m x 1000m  
and = 100 ha.

S = shrubland  
F = forest  
W = wetland  
E = estuarine  
D = duneland

### HAUTAU STREAM REMNANT

Survey no.	O05/151
Survey date	25 July 1995
Grid reference	O05 682 544
Area	55 ha (5 ha forest, 45 ha shrubland, 5 ha wetland)
Altitude	0-c. 100 m asl

### *Ecological unit*

(a) Kanuka/manuka shrubland on coastal hillslope

- (b) Kanuka/manuka-tanekaha-totara forest on coastal hillslope
- (c) Towai forest on coastal hillslope
- (d) *Coprosma propinqua*-manuka-ti kouka swamp shrubland on alluvium
- (e) Oioi-saltmarsh ribbonwood association in estuary
- (f) *Coprosma propinqua* swamp shrubland on alluvium

### **Landform/geology**

Mangakahia Complex siliceous mudstone and alluvium adjoining estuarine deposits.

### **Vegetation**

A small area of freshwater marsh blending into true saltmarsh ribbonwood and seral riparian shrubland. Past drainage schemes and dykes have greatly reduced the area of this habitat type and, where it does remain, it is usually physically divorced from other transitional vegetation types, except saltmarsh.

- (a) Around 40% of the shrubland area is kanuka/manuka with frequent totara and ti kouka.
- (b) The rest of the shrubland area is kanuka/manuka, tanekaha and totara. Pine trees are frequent and rewarewa and kauri are occasional.
- (c) The forest in the western end is dominated by towai with frequent manuka and occasional rewarewa, ti kouka, totara, taraire and kahikatea.
- (d) *Coprosma propinqua*, manuka and ti kouka occur in the wetland area.
- (e) Oioi and saltmarsh ribbonwood occur in the saltmarsh with occasional raupo and marsh clubrush.
- (f) *Coprosma propinqua* is dominant in an area with occasional ti kouka and manuka.

Significant flora

*Ileostylus micranthus* (Regionally significant species).

### **Fauna**

Birds: Australasian bittern (Nationally Endangered). High numbers of NI fernbird (Sparse), recorded in year 2000 SSBI survey, are known to frequent this site and it is probable that at least one of the New Zealand swamp rails (other than pukeko) will also utilise the area.

Fish: red-finned bully, inanga, and common smelt.

### **Significance**

Representative site for all ecological units and a good example of a rare and diminishing habitat type as well as providing habitat for threatened species. Contains sequential gradients from hill country to brackish and saline wetland types.

It is the only site recorded in the Ecological District of type (e) and (f).

Presence of threatened species.

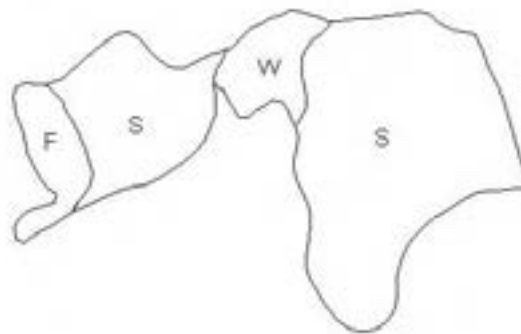
Approximately two hectares of the freshwater wetland is protected Stewardship Land administered by the Department of Conservation.



**Hautau Stream Remnant O05/151**

Each grid is 1000m x 1000m  
and = 100 ha

- S = shrubland
- F = forest
- W = wetland
- E = estuarine
- D = duneland



## HOKIANGA HARBOUR

Survey no.	O05/152
Survey date	Various
Grid reference	O05 454 399, O05 559 450
Area	11, 065 ha
Altitude	sea level

### ***Ecological unit***

- (a) Mangrove shrubland and forest in estuary
- (b) Sea rush saltmarsh in estuary
- (c) Mangrove-sea rush association on estuary
- (d) Oioi saltmarsh in estuary
- (e) Oioi-sea rush saltmarsh in estuary
- (f) Bachelor's button-*Isolepis cernua*-sea primrose-*Selliera radicans* herbfield in estuary
- (g) Oioi-raupo-saltmarsh ribbonwood-sea rush association in estuary
- (h) *Coprosma propinqua* swamp shrubland in estuary
- (i) *Paspalum vaginatum* grassland in estuary
- (j) *Spartina alterniflora* grassland in estuary
- (k) Marsh clubrush sedgeland in estuary
- (l) Mud and sandflats on estuary
- (m) Rock platforms

### ***Landform/geology***

The fourth largest estuarine harbour in New Zealand, the Hokianga Harbour is an old drowned river valley which has become a 'bar-built' estuary with the deposit of sands at the harbour entrance.

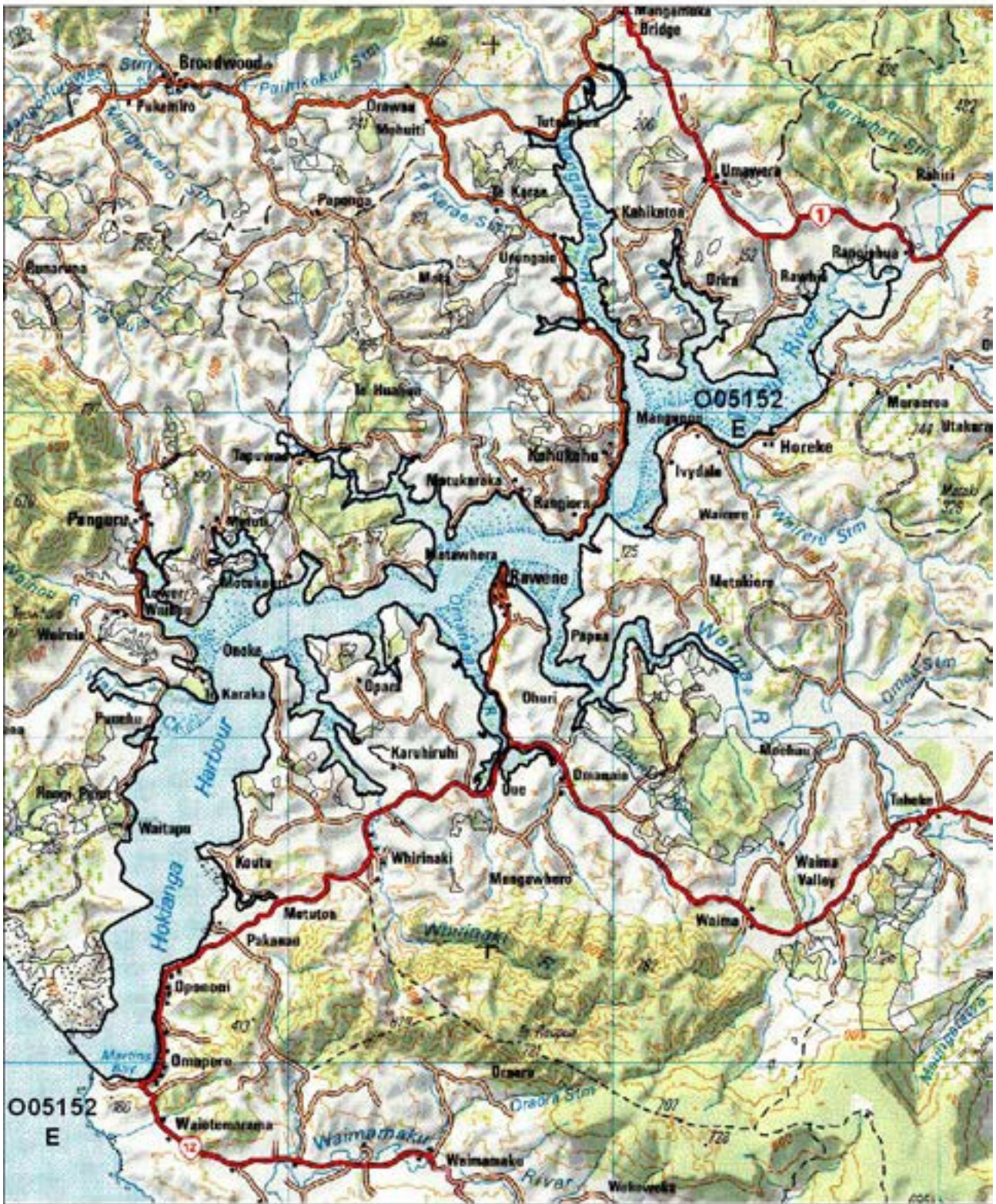
This Harbour covers approximately 11, 065 ha of which about 6500 ha is exposed at low tide. Of this intertidal area, approximately 2900 ha is vegetated, leaving approximately 3600 ha of bare tidal flats. However, the area of intertidal vegetation had been reduced by approximately 2400 ha or 45% (V. J. Chapman 1978) by 1977 due to reclamation for pastoral farming - some of it without legal authority. This is a reduction of total intertidal area of approximately 27%. Many vegetated areas continue to be degraded by frequent livestock grazing.

### ***Vegetation***

(a) Mangrove shrubland and forest is the most common vegetation type, fringing the main channels and shores. Davis & Bellingham (1984) estimate that this harbour contains 14% of the mangroves in New Zealand.

Tall mangroves up to 12 m occur in the Mangamuka River and at Tapuwae. Taller mangroves usually occur along the tidal channels, with smaller plants up to 2 m tall occurring on the inland side, with open spaces of bare ground.

A dense understorey of mangrove seedlings usually occurs under the taller trees. Type (e), sea rush-oioi saltmarsh, may be found beneath low mangroves and type (h), *Paspalum* grassland under taller mangroves. Type (a), mangrove shrubland/forest frequently grades into type (b), sea rush saltmarsh.



Hokianga Harbour O05/152

Each grid is 1000m x 1000m  
and = 100 ha.

- S = shrubland
- F = forest
- W = wetland
- E = estuarine
- D = duneland



(b) Sea rush is mostly found in the middle and lower harbour, where it dominates saltmarshes. Clumps of oioi and occasional mangroves may occur with patches of sea primrose, *Selliera radicans*, *Triglochin striatum*, *Isolepis cernua* and pohuehue on better drained areas.

(c) Sea rush is common amongst mangroves under 1 m tall. Sparse vegetation of tall mangrove, sea rush and occasional low mangroves is found on the east of the Whirinaki River and from Onoke to Koutu.

(d) Oioi sedgeland is common in the brackish upper reaches of the harbour e.g. Waihou River and Tapuwae, where dense swards up to 1.5 m tall occur, with occasional scattered mangrove trees. Saltmarsh ribbonwood fringes the channels and occasional patches of raupo and sea rush are present.

(e) Oioi and sea rush occur in the Whirinaki River and upstream from Horeke. Isolated mangrove may occur.

(f) Saline tolerant herb species such as bachelor's button, *Isolepis cernua*, sea primrose, and *Selliera radicans* are generally found near the land edge, sea primrose is the most common and bachelor's button is common where reclamation has occurred. *Triglochin striata* and *Paspalum vaginatum* may also be present.

(g) Sea rush, oioi, raupo, and saltmarsh ribbonwood association occurs mainly in brackish areas of the Mangamuka, Waihou, Waima and Orira Rivers. *Coprosma propinqua*, manuka and harakeke may be scattered throughout.

(h) *Coprosma propinqua* is dominant at Rangiahua where the regionally significant plant *Ileostylus micranthus* is found.

(i) *Paspalum vaginatum* forms dense swards on higher ground and beneath taller mangroves. This type is found at Matawhera.

(j) Dense swards up to 1 m of the tall environmental weed *Spartina alterniflora* cover tidal flats beneath mangroves on the Waima and Wairere Rivers, and along the shoreline at Mangungu, and at Tapuwae. *S. x townsendii* is found locally on tidal flats in the middle and lower harbour with sea rush.

(k) A small amount of marsh clubrush sedgeland occurs along riverbanks in the upper reaches of the rivers, e.g. Whirinaki and Waihou. Small, dense stands of marsh clubrush to 2 m tall occur with scattered *Coprosma propinqua*, raupo, harakeke and giant umbrella sedge.

#### Significant flora

*Pimelea arenaria* and pingao (both Gradual Decline), *Korthalsella salicornoides* (Sparse), *Olearia solandri*, *Ileostylus micranthus* and black maire (all Regionally significant species).

#### **Fauna**

Birds: White heron (Nationally Critical), Australasian bittern and reef heron (both Nationally Endangered), Caspian tern (Nationally Vulnerable), grey duck (Serious Decline).

Banded dotterel, white-fronted tern and northern little blue penguin (breeding harbour entrance) (all Gradual Decline).

Pied shag, black shag, little black shag, banded rail, spotless crane, marsh crane, NI fernbird (large numbers at Rangihua Reserve in 2000) and northern NZ dotterel (all Sparse).

Other regulars include royal spoonbill (Coloniser), variable oystercatcher (Regionally significant species), grey-faced petrel (breeding harbour entrance), bar-tailed godwit, lesser knot, South Island pied oystercatcher, pied stilt, paradise shelduck, cattle egret and many other common species.

Fish: giant bully (Regionally significant species), red-finned bully, common bully, Cran's bully, inanga, common smelt, short-finned eel, long-finned eel (Gradual Decline). Short-jawed kokopu (Gradual Decline) have been recorded in catchment waters.

Lizards: Pacific gecko (Gradual Decline) from Waihou River and shore skink.

### ***Significance***

The Hokianga Harbour and its many arms and tidal streams (c. 156,000 ha) which feed into the harbour support populations of over 30 species of waterbird.

The Hokianga Harbour has a perimeter length in the order of 280 km of which approximately 40 km (c. 14%) includes sites which perform riparian functions and have other ecological values in their own right. This figure compares well with other west coast harbours such as Whangape which only retains c. 6.3% of its significant native riparian cover.

All ecological units are representative except type (i) and (j) and many do not occur elsewhere in the Ecological District - type (b), (c), (f), (g), (k), (m), (n), and (o) with type (d) recorded at only one other site in the Ecological District.

The Hokianga Harbour is known to support populations of three threatened and three regionally significant plants, and at least 16 threatened bird species are present around the Harbour. Historically, it has also supported populations of the threatened brown teal (Nationally Endangered) (Ogle 1982) and the Critically Endangered herb *Sebaea ovata*, but these species have not been confirmed for some time.

It has been suggested that the Hokianga Harbour supports 8% of the national population of the threatened Australasian bittern (Nationally Endangered) and 20% of the national population of banded rail (Sparse) (Davis and Bellingham 1984).

At 11, 065 ha, the Hokianga Harbour has the largest intertidal area of any Northland harbour except the Kaipara, despite having lost c. 27% of this zone to reclamation.

The Hokianga Harbour displays a sequential zonation from old-growth hill country forest through to secondary forest, shrubland, riparian forest and marshy zones into true saltmarsh and mangrove forest, which eventually grade into mud and sand flats before culminating in the mobile dune sands of North Hokianga Head.

In the national context, the Hokianga is undoubtedly one of the best remaining examples of a large northern harbour with a largely forested upper catchment (c. 30%) which has retained good examples of riparian forest, shrubland and marsh.

Threats to the Harbour include the pest plant *Spartina*, livestock grazing and trampling of saltmarsh, sediment deposition and turbidity derived from erosion in the catchments, and reduced water quality from effluent and pastoral run-off.