



# Mangrove Management

A Review of the Provisions of the Auckland Regional Plan Coastal and Assessment of Plan Options for Mangrove Management

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## Executive Summary

Mangrove management is a complex and in some places contentious issue for the Auckland region – as it is for much of the northern half of the North Island. Over time the extent of mangroves in the region has increased, significantly in some places, typically where accelerated land erosion has caused increased sedimentation of estuarine areas – providing greater areas of favourable mangrove habitat.

While the benefits of mangrove ecosystems are generally (but not universally) accepted the expansion of mangroves can cause detrimental effects, particularly in relation to public use and amenity of the coastal environment. Possible adverse amenity and use effects include loss of views and recreational space, reduced access to coastal structures and areas, and restriction of stormwater flows. Adverse ecological effects may also occur including the loss of existing habitat, such as sandflats and associated ecology, through mangrove colonisation.

Communities are often polarised in their views about mangroves and the extent to which they should (or should not) be removed or managed, reflecting the debate between public use and enjoyment of the coastal marine area and the ecological value of mangroves and their role in the wider marine ecosystem.

The Auckland Regional Council (“ARC”) is concerned to ensure that the Auckland Regional Plan: Coastal (“Coastal Plan”) provides an appropriate framework to manage mangroves in the region and engaged Hill Young Cooper to undertake a review of the current plan provisions and scope possible options should changes be warranted.

A review of the Coastal Plan, and the equivalent Coastal Plans of other Regional Councils where mangroves are present, indicates that the provisions of the Coastal Plan are generally less restrictive than those of its counterparts – with a restricted discretionary activity status for mangrove removal over much of the coastal marine area compared with generally discretionary activity status in other regions.

Several areas of potential improvement in the Coastal Plan provisions were identified. These were classified into three broad areas:

1. Those that should be undertaken to address problems and internal consistency with the current framework in the Coastal Plan:
  - (i) Revise the restricted discretionary and discretionary activities to resolve the logic of the rules and address internal inconsistencies; and

- (ii) Revise the prohibited activity status for removal of mangroves in a Coastal Protection Area (“CPA”) 1 to a non-complying activity to allow mangrove removal in these areas, particularly where mangroves adversely impact on the natural or physical values of the CPA.
- 2. Those that could be undertaken, with minimum of change to the existing Coastal Plan, to improve the management of mangroves across the region:
  - (i) Include specific objectives and policies in respect of mangroves to provide better guidance to the community and the resource consent process;
  - (ii) Increase the scope of the permitted activity for minor mangrove removal to facilitate other authorised uses of the coastal marine area which may be adversely affected by increased mangrove colonisation; and
  - (iii) Provide greater provision for the small scale removal of mangroves.
- 3. The development of a more comprehensive approach within the Coastal Plan to provide a more robust context for mangrove management in the region – specifically identifying those areas where mangroves should be protected and those areas where it may be appropriate for mangroves to be controlled due to their expansion and impacts on other natural, cultural or public values. Two options for achieving this have been identified:
  - (i) Holding the Line – identifying a point in time at which subsequent mangrove expansion can be managed to; or
  - (ii) Development of a Mangrove Management Strategy – a more comprehensive approach to identifying areas of value and areas of mangrove expansion which is significantly impacting on other uses and values of the coastal marine area.

# 1 Introduction

## 1.1 Introduction

Mangrove management is a complex and in some places contentious issue for the Auckland region – as it is for much of the northern half of the North Island. Typically mangrove colonisation occurs where accelerated land erosion has caused increased sedimentation of estuarine areas – providing greater areas of favourable mangrove habitat.

Over time the extent of mangroves in the region has increased, significantly in some estuaries. Morrisey et al (1999) estimated the increased area of mangroves in several creeks, estuaries and harbours in the Auckland Region as summarised in Table 1.

Table 1: Change in Areas of Mangroves at Sites in the Auckland Region

Estuary	Monitoring Date Range	Number of Years	% Increase in Mangrove Area
Lucas Creek	1950 to 1996	46 years	6%
Mangamangaroa Estuary	1960 to 1997	37 years	54%
Mullet Creek (Kaipara Harbour)	1953 to 1996	43 years	18%
Okura Estuary	1951 to 1996	45 years	57%
Puhinui Inlet	1939 to 1996	57 years	162%

*From Morrisey et al (1999)*

As can be seen from Table 1, the increase in the area of mangroves over time is highly variable, ranging from 6 % in the Lucas Creek to more than 160% in the Puhinui Inlet.

While the benefits of mangrove ecosystems are generally (but not universally) accepted, the expansion of mangroves can cause detrimental effects – primarily in relation to other uses and amenity of the coastal environment. Potential adverse amenity and use effects include loss of views and recreational space, reduced access to coastal structures and other areas of the coastal environment, and restriction of stormwater flows. Some adverse effects on ecological values may also occur, but these are not proven. Possible adverse ecological effects include the loss of tidal flushing and the replacement of saltmarsh and bird habitats – although these adverse effects may be associated more with

the increased sedimentation of estuaries/rivers rather than the resulting mangrove colonisation.

Communities are often polarised in their views about mangroves and the extent to which they should (or should not) be removed or managed, reflecting the debate between public use and enjoyment of the coastal marine area and the ecological value of mangroves and their role in the wider marine ecosystem. Within the Auckland region, there is a high level of community interest in mangrove management – particularly in areas where mangrove expansion is considered to be adversely affecting amenity values.

Despite the issues raised by some sectors of the community in respect of mangrove expansion, there have been few applications for resource consents to remove mangroves – with most of those lodged being in conjunction with consents for constructing a structure or reclamation. It is understood that only two consent applications for mangrove removal, that were not associated with other activities, have been processed by the ARC – one for channel clearance in the Wairoa River, Clevedon and one off a boat ramp in Pahurehure Inlet, Papakura.

However, the community is concerned at the costs of resource consent applications, the amount of supporting information that may be required and possible ongoing costs for monitoring or further consent applications. As such, there is a high level of community interest in the Coastal Plan provisions for mangrove removal and management.

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## **1.2 Purpose of this Report**

The Auckland Regional Plan: Coastal (“Coastal Plan”) contains provisions relating to the management of mangroves. Given the high level of public interest in this issue, the Auckland Regional Council is concerned to ensure that the provisions in this plan provide an appropriate basis for the sustainable management of mangroves in the region, recognising the complex and often contentious issues involved.

The key objectives of this report are therefore to:

- Review the current provisions of the Coastal Plan and provide commentary on the appropriateness of these provisions;
- Develop and discuss possible options for improving the existing statutory provisions, where warranted;
- Discuss the benefits and drawbacks of the options that have been presented.

It is important to note that the purpose of this report is not to prepare a plan change to address the mangrove issue, but to explore possible options for improving the plan and the manner in which mangrove management is addressed where appropriate. It is

anticipated that any future plan change, should one be deemed necessary, will go through a thorough assessment, consultation and development process.

It is recognised that mangrove management requires a holistic approach – particularly in relation to the management of land disturbing activities and other land management practices to reduce sediment inputs to important estuarine environments. While the importance of such programmes is recognised, the focus of this report is on the Coastal Plan provisions for mangrove management, not these wider contributing activities.

## 2 Introduction to the Mangrove Debate

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### 2.1 Introduction

In the review of the provisions of the Coastal Plan, and the development of options to improve those provisions, it is necessary to understand the key issues that surround the debate around mangroves and their spread and role in the marine ecosystem. The purpose of this section is to provide a brief introduction to these issues, and the differences in scientific opinion, to provide a context in which the review and development of Coastal Plan options for the management of mangroves can take place. It is not intended to provide a detailed scientific evaluation of the values of mangroves or the causes of their expansion, but to provide a brief background for the planning review.

The introduction is primarily based on recent publications and reports – which in turn have drawn on earlier previous and original work. Several of the documents referenced include significant reference lists should the reader require more detailed information.

### 2.2 The Mangrove Debate

#### 2.2.1 The Mangrove and its Distribution

The New Zealand mangrove, *Avicennia marina* var. *australasica* or Manawa, is native to New Zealand and the only species of mangrove that is present here (NIWA 2003). The mangrove is believed to have arrived on our shores at least 14,000 years ago when New Zealand was entering the current inter-glacial period, although some scientists believe that mangroves may have been present on earlier shorelines that have now been inundated by sea level changes (Burns 2003).

The distribution of mangroves is limited to the top half of the North Island and they do not naturally occur south of Ohiwa Harbour on the east coast and Kawhia Harbour on the west coast (although a few isolated mangroves are present in Gisborne, northern Taranaki and Nelson (ARC undated). Despite this limited distribution, they are not considered threatened (NIWA 2003). Mangroves can be found in the sheltered waters of the northern harbours, rivers (where brackish) and estuaries – juvenile mangroves are unable to establish along coasts that are exposed to strong waves and currents. In northern New Zealand, mangroves grow as tall trees, but become smaller and more shrub-like further south.

It is well known that mangroves have the ability to rapidly colonise estuarine areas, particularly where increased sedimentation has provided suitable conditions for their establishment. While the extent of this colonisation is anecdotal in some areas, it is

supported by photo documentation and other information in others. McShane (2005) has provided historical photos which indicate areas of significant mangrove colonisation in the Kaipara Harbour, and the Waikaraka Estuary Managers (2002) prepared similar information for the Waikaraka Estuary (Tauranga) supported by iwi observations of the estuary over several hundred years. Park (2004) also mapped mangrove expansion around Tauranga Harbour. In the Auckland region, aerial photography records demonstrate increased mangrove colonisation of harbours and estuaries over time (Morrisey et al 1999 - see Table 1). Areas in Auckland where the public have expressed concern at mangrove expansion include the Manukau Harbour areas of Pahurehure Inlet, Mangere Bridge, the Waiuku Estuary; Waitemata Harbour sites including Cox's Bay, Herald Island and Shoal Bay; Otara Lake; Kaiiua; parts of the Waiwera Estuary, Mahurangi Harbour, Orewa Estuary and areas of the Kaipara Harbour.

The cause of the increased extent of mangroves is generally considered to be due to a combination of factors including:

- Increased sedimentation of low energy marine environments due to accelerated erosion of the contributing catchments as a result of historic and current land practices (for example deforestation, cultivation and urban development). The increased sedimentation increases the areas that provide favourable habitat for mangroves.
- Increased nutrient runoff from contributing catchments, including pasture runoff and wastewater discharges from urban areas.
- The development of structures such as causeways, bridges etc (for example Auckland's north-western motorway) which have the potential to significantly alter the tidal regime in estuarine areas.
- Climate change leading to a reduction in the climatic limits on mangrove expansion.

Irrespective of the cause, it is widely accepted that the distribution of mangroves in Auckland's estuaries, harbours and rivers is increasing in many areas - sometimes significantly.

### **2.2.2 The Value of Mangroves**

In addition to debates about the causes of increased mangrove distribution the values, particularly ecological, of the mangrove are also the subject of debate and further research.

The Auckland Regional Council Fact Sheet - The New Zealand Mangrove (ARC, undated) notes that mangrove ecosystems are nursery grounds for coastal fisheries that contribute significant organic matter to the food chain - supplying about half of the nutrients that feed fish and shellfish food chains. The mangroves provide a rich and

diverse habitat, both at high and low tide, for fish, crabs, shell fish, snails, shrimps and other marine organisms. However, Park (2004) noted that many of the ecological interactions of mangroves with estuarine ecosystems, particularly in terms of productivity and biodiversity remain uncertain with more study needed. It is understood that further research in this area is currently being undertaken by NIWA and other parties.

The values of mangroves are not just limited to their productivity as part of a wider food chain. Other values identified in various documents (eg ARC undated, Park 2004, Burns 2003, Burns undated) include:

- Protection of the shoreline from waves, storm surges and floodwaters;
- Filtering of stormwater runoff/trapping of sediments with associated water quality benefits;
- Increased habitat complexity;
- Extended habitat for a number of rare bird species;
- Important colonising species and a component of an intact ecotone from saline to freshwater to terrestrial; and
- A variety of human uses including firewood, lichens for dyeing flax and wool, and honey.

However, the ecological values of mangroves are not universally accepted. La Bonte *et al* (2003) discussed the value of the mangrove in a discussion document which was widely circulated but not peer reviewed or published. Their view is that the values that have historically been attributed to the mangrove are associated with the complex tropical mangrove ecosystems, rather than the single mangrove species that is found in the northern half of the North Island. In addition they consider that the New Zealand mangrove has only arrived on New Zealand shores relatively recently (approximately 14,000 years ago) and therefore most fish species have evolved without mangroves and are therefore unlikely to have life cycles that require association with mangroves. The view taken in the discussion document is that the accelerated sedimentation of estuaries and harbours and the rapid mangrove colonisation of these areas are contributing to the loss or alteration of other important habitats such as shellfish beds, seagrass beds and wading bird habitat.

This view on the value, role and history of mangroves, and their part in displacing other ecosystems and habitat, was challenged in Burns (2003). This letter suggested that the contribution of mangroves to estuarine food chains was significant, and that the suggestion that mangroves displaced other habitat such as saltmarshes was “counterintuitive” as they developed in different areas. Park (2004) assessed the intrusion of mangroves into saltmarsh areas around Tauranga Harbour by comparing aerial photos and found that there was usually only marginal intrusion into rush communities at the seaward fringe.

NIWA (2003) takes a middle ground, recognising the value of mangroves in stabilising sediments (therefore reducing erosion and improving water clarity) and contributing to the diversity of estuarine ecosystems and the problems associated with the loss of tidal flushing and other habitats.

In summary, it is recognised that mangroves are an important component of estuarine and harbour environments – although their contribution to wider ecological values is not universally accepted and further research in this area is being undertaken. However despite the differing positions taken by La Bonte *et al* (2003), Burns (2003) and NIWA (2003), all recognised that some control of the expansion of mangroves was likely to be appropriate in some areas.

### **2.2.3 The Effects of Mangrove Expansion**

In addition to the potential to displace sandflat and saltmarsh habitat, there are a number of effects potentially associated with increased mangrove colonisation of estuaries. These include negative effects such as:

- Increased sedimentation of estuarine areas and reduction in tidal prisms and hence tidal flushing;
- Reduced access to structures and part of the CMA, including boat ramps and launching sites;
- Blockage of drainage channels and stormwater outlets, leading to increased flooding of neighbouring land;
- Loss of views of open water;
- Loss of public recreation areas; and
- Loss of cultural values through loss of kaimoana beds or waka access routes.

The positive effects of mangrove expansion can include:

- Increased habitat for bird, fish and invertebrate species, including yellow-eyed mullet, flounder, crabs, kingfishers, herons and banded rail.
- Sediments are locked in place rather than smothering ecosystems in other parts of an estuary or making the water more turbid.
- Reduction in erosion of shorelines.
- Increased nutrient inputs to estuaries contribute to photosynthetic organisms which become a significant food source for other species.

As indicated previously, the primary conflict that results from the expansion of mangroves in estuarine and harbour areas is in relation to public use and amenity values. Significant mangrove expansion can affect the ability of some sectors of the community to access, use and enjoy the coastal environment.

## 3 Statutory Context

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### 3.1 Introduction

This section provides an overview of the statutory context for the management of mangroves.

In addition, a summary of the provisions for mangroves in Regional Coastal Plans of the northern North Island (where mangroves occur) has also been provided, together with an overview of the relevant provisions in the Proposed Auckland Regional Plan: Air, Land and Water.

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### 3.2 Statutory Context

#### 3.2.1 Resource Management Act

The purpose and principles of the Resource Management Act 1991 (“RMA”) are outlined in Sections 5, 6, 7 and 8.

Clause 2 of Section 5 (purpose) reads:

- (2) *In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while–*
- (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
  - (b) *Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
  - (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

While Section 6 reads:

6 *Matters of National Importance*

*In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:*

- (a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- (b) *The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- (c) *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- (d) *The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
- (e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*
- (f) *The protection of historic heritage from inappropriate subdivision, use, and development.*
- (g) *The protection of recognised customary activities.*

In addition, Sections 7 and 8 direct that regard shall be had for, amongst other matters, the maintenance and enhancement of amenity values, the intrinsic values of ecosystems and the principles of the Treaty of Waitangi.

Accordingly, in providing for sustainable management, the RMA is recognising the importance of public use/development/amenity alongside the need to appropriately manage natural character, outstanding natural features/landscapes and significant ecosystems.

Section 30 of the RMA gives Regional Councils certain functions including the control of activities within the Coastal Marine Area (in conjunction with the Minister of Conservation). Section 30 (ga) also gives Regional Councils the function of establishing, implementing, and reviewing objectives, policies, and methods for maintaining indigenous biological diversity.

### **3.2.2 New Zealand Coastal Policy Statement**

The New Zealand Coastal Policy Statement (“NZCPS”) provides an overarching framework for the sustainable management of New Zealand’s coastal environment. Policies 1.1.2 and 3.4.3 are of specific relevance to the management of mangroves.

#### *Policy 1.1.2*

*It is a national priority for the preservation of the natural character of the coastal environment to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna in that environment by...*

- (c) *protecting ecosystems which are unique to the coastal environment and vulnerable to modification including estuaries, coastal wetlands, mangroves and dunes and their margins; and*

- (d) *recognising that any other areas of predominantly indigenous vegetation or habitats of significant indigenous fauna should be disturbed only to the extent reasonably necessary to carry out approved activities.*

#### *Policy 3.4.3*

*The ability of natural features such as beaches, sand dunes, mangroves, wetlands and barrier islands, to protect subdivision use, or development should be recognised and maintained and where appropriate, steps should be required to enhance that ability.*

These policies of the NZCPS focus on the protection of natural character and significant indigenous vegetation and habitats – including specifically both estuaries and mangroves. Although it is noted that the NZCPS is currently undergoing review and that a recommendation of the first stage of that review was to amend Policy 1.1.2 (c) to include “manage” as well as “protect” (Rosier 2004).

Other NZCPS policies relate to the maintenance and enhancement of amenity values and the maintenance and enhancement of public access to and along the Coastal Marine Area.

### **3.2.3 Auckland Regional Policy Statement**

The Auckland Regional Policy Statement (ARPS) contains a range of objectives and policies in relation to the management of the Auckland Region, including the coastal marine area. Objectives in the ARPS seek to preserve the natural character of the coastline and protect areas of significant indigenous vegetation and habitat, while at the same time enabling appropriate use and development, the maintaining and enhancing public access and enabling a range of recreational opportunities. There are few specific policies relating to mangroves. The most applicable is:

#### *Policy 7.4.4.1*

*The natural character of the coastal environment shall be preserved, and protected from inappropriate subdivision, use and development by:*

- (i) *in areas of high natural character, avoiding adverse effects on:*
  - (b) *areas of indigenous vegetation and habitats of indigenous fauna and associated processes; ...*
  - (i) *the healthy functioning of estuaries, coastal wetlands, mangroves, dunes, sand spits and their margins.*

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## **3.3 Regional Plan Provisions**

### **3.3.1 Auckland Regional Plan: Coastal**

The current Coastal Plan provisions are attached as Appendix A. However, a brief summary of the policies and rules is provided here.

The policies in the Auckland Coastal Plan do not specifically address the issue of mangrove removal, but are more focused on the more general issue of disturbance of the foreshore and seabed – which is considered inappropriate unless it is identified as necessary for a range of purposes. Where vegetation removal is appropriate, Policy 16.4.2 of the Coastal Plan indicates that the minimum area of vegetation necessary for the intended purpose should be removed.

In respect of the rules<sup>1</sup>:

- The removal of indigenous vegetation is permitted for the purposes of gaining access to a lawful structure, other than in a CPA 1 (subject to conditions);
- The removal of indigenous vegetation from a lawful structure is permitted (subject to conditions);
- The removal of indigenous vegetation which does not comply with the permitted activities is a restricted discretionary activity;
- The removal of indigenous vegetation for the purpose of maintaining or gaining access to a lawful structure in a CPA 1 is a discretionary activity, as is the removal of vegetation for the purposes of habitat or geopreservation site enhancement.
- The removal of indigenous vegetation from within any CPA 1, other than to maintain or gain access to a lawful structure is a prohibited activity.
- The removal of indigenous vegetation that was classified as a discretionary activity and extended over an area equal or greater than 10 hectares, or extended 10,000 metres over the foreshore and seabed, is a restricted coastal activity.

### **3.3.2 Proposed Auckland Regional Plan: Air Land and Water**

It is also relevant to consider the Proposed Auckland Regional Plan: Air, Land and Water in respect of the provisions that relate to indigenous vegetation removal on the landward side of the coastal marine area.

In this proposed plan, the removal of up to 30 square metres of mangroves in any 12 month period to maintain or gain access to a lawful structure is a permitted activity (Rule 7.5.11). More extensive clearance is provided for as a permitted activity if hand held removal or chemical spraying is used (7.5.12).

Where removal cannot meet the permitted activity terms, removal of indigenous vegetation is either:

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<sup>1</sup> Note that the rules relate to general disturbance activities – only those aspects that relate to vegetation removal are presented.

- a controlled activity where the work is undertaken for stormwater management purposes;
- a restricted discretionary activity for most other purposes including enhancement of a lake, natural stream or wetland management area or by handheld methods in these high value areas; or otherwise,
- a non complying activity where removal is for purposes other than enhancement in a lake, natural stream or wetland management area.

It is noted that the mangrove provisions of the Air, Land and Water Plan are subject to appeals and may be changed through the process of resolving these appeals.

### **3.3.3 Environment Bay of Plenty Coastal Plan**

The Environment Bay of Plenty Regional Coastal Plan sets out that the removal, damage, modification or destruction of indigenous vegetation that is growing in the foreshore or seabed, is a discretionary activity.

Applicants are required to provide details of what the works will entail, where they will be located, alternatives considered, any actual or potential effects, measures which will be used to avoid, remedy or mitigate any likely, actual or potential adverse effects on the environment, details of consultation undertaken by the applicant and outcomes, and any other information necessary to demonstrate that the proposed activity will comply with all relevant objectives, policies, rules and other methods of implementation contained within the plan. In the case of works affecting an area greater than 4 hectares, the activity is a restricted coastal activity and the approval of the Minister of Conservation is required.

### **3.3.4 Environment Waikato Coastal Plan**

The Environment Waikato Proposed Regional Coastal Plan states that the removal of vegetation is a permitted activity in the CMA provided it complies with the conditions stated in Rule 16.2.1. The conditions are:

- The removal is undertaken by iwi for traditional harvesting purposes.
- The removal is undertaken for the sole purpose of maintaining an existing boat access, clearing an existing navigational channel, or an existing boat launching site and the vegetation to be removed in any one year covers a ground area of less than 10 square metres.
- The vegetation is removed by Transit NZ in response to visual road safety concerns and the vegetation to be removed covers a ground area less than 10 square metres in accordance with section 55 of the Transit New Zealand Act 1989.

- In all cases, except the activities provided for in Rule 16.6.23, the vegetation to be removed shall not be identified as a conservation value within the ASCV areas marked on maps in Appendix III and described in Appendix IV of the Plan.
- The removal is undertaken for the purpose of maintaining existing drainage canal outlets, floodgate outlets and stopbanks as provided for in Rule 16.6.23.

The removal or eradication of any indigenous plant species in the CMA which does not comply with the conditions for a permitted activity in Rule 16.2.1 is a discretionary activity. A range of assessment criteria for assessing any application for the removal or eradication of indigenous vegetation are provided.

### **3.3.5 Northland Region Council Coastal Plan**

The Northland Regional Coastal Plan sets out rules for the removal or pruning of mangrove trees in its six marine management areas. In summary:

- The removal of mangroves from artificial drainage channels for the purpose of avoiding flooding of adjacent land (subject to controls on the extent of mangrove removal) is a permitted activity in Marine 2 (conservation) and Marine 6 (wharves), a controlled activity in Marine 1 (protection), Marine 3 (marine farming) and Marine 5 (port facilities), and a restricted discretionary activity in, Marine 4 (moorings).
- The removal or pruning of mangroves where the progressive growth or proliferation of these has led to the obstruction of existing public access to and along the coastal marine area; or interferes with the reasonable or safe use or operation of authorised structures or facilities on adjoining land or in the coastal marine area; is a permitted activity in Marine 6, and controlled activity in Marine 3 and 5 and a restricted discretionary activity in Marine 1, 2 and 4.
- The pruning or removal of live mangroves trees that is not otherwise a restricted discretionary activity is prohibited in Marine 1, and a discretionary activity by default in the other marine management areas.

Where controlled or restricted activity resource consents are required, NRC has retained control over/restricted its discretion to a range of matters including the duration of the permit, the area of removal/pruning, the timing of the work and methods employed, and the ecological effects and alternatives (in Marine 1 and 2 zones).

The Northland Regional Council has recently notified a plan change to provide for the removal of mangroves in all areas as a short term management tool where mangroves are encroaching on communities' abilities to provide for their social, cultural, and economic needs. This is in response to recognition that the expansion of mangrove forests is the result of more favourable environmental conditions affording them increased habitat as a result of increased nutrient and sediment loads entering Northland's harbours and estuaries – which will require long term solutions.

# 4 Assessment of the Existing Mangrove Provisions in the Auckland Regional Plan: Coastal

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## 4.1 Introduction

The purpose of this section is to review the existing provisions of the Auckland Coastal Plan to identify any obvious problems or issues with these provisions – essentially, whether there are changes to the existing provisions that are necessary to make them more functional.

Section 5 of this report provides some options for improving the existing plan provisions, together with taking a broader view of possible plan approaches and options for the management of mangroves should more widespread changes be contemplated.

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## 4.2 Issues, Objectives and Policies

### 4.2.1 Plan Approach

The policy framework of the Coastal Plan provides for values such as natural character, landscape, significant ecosystems and processes etc through a set of generic issues, objectives and policies. When combined with other aspects of the Plan, such as use and development, an overall statutory framework for the management of the coastal environment is obtained – of which mangrove management is simply a part.

Whilst the plan identifies mangroves as an important indigenous species and recognises the ecological significance of mangrove habitat and their contribution to other issues of importance, such as natural character and coastal processes, it does not directly address mangrove management. The Coastal Plan has no specific guidance in respect of mangrove management, such as key issues and objectives, policies or areas of specific importance (other than the Coastal Protection Areas which may have been identified on the basis of the values of a mangrove ecosystem or on other ecological or geological values).

### Commentary on Issues, Objectives and Policies

This general valued-based management approach has generally been adopted through the Coastal Plan, and is common to other Plans such as Environment Waikato's Coastal Plan. However, where some activities (for example aquaculture) are significant enough to

warrant it the Plan has provided specific activity-based issues, objectives and policies in addition to the more general provisions of the plan.

Arguably the issue of mangrove management is significant, or at least contentious, enough to warrant some more specific direction being provided. The inclusion of specific issues, objectives and policies would provide more guidance to the resource consent process in respect of applications for mangrove removal.

Ideally, such provisions would be linked with a more defined strategy for mangrove management across the region. This will assist both the community, and those processing resource consents, to have a clearer understanding of the Council's objectives in respect of mangroves and will facilitate a more strategic approach to mangrove management. In particular it should identify areas or receiving environments where mangrove removal may be more appropriate to manage human use and related activities and others where the retention of mangroves for ecological/natural character values is preferred.

In summary, it is considered that providing more guidance in respect of mangrove management is desirable in the context of the existing plan provisions. By providing specific policies in relation to mangrove issues and management, the plan would provide more guidance to the consent process as to outcomes sought by the Council and the community and enable a more strategic approach to mangrove management to be taken.

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## **4.3 Rules**

### **4.3.1 Permitted Activity Rules**

The Coastal Plan provides for the removal of up to 30 square metres of mangroves to gain access to a lawful structure (excluding those in a CPA 1) or removal of vegetation from a structure as permitted activities (Rules 16.5.2 and 16.5.3 subject to conditions in Rule 16.5.8). The extent to which these rules are utilised is unknown. No equivalent rule is present in the Bay of Plenty or Northland coastal plans. A similar permitted activity rule is provided in the Waikato Coastal Plan, although this rule is directed at traditional iwi use, maintaining drainage outlets, boat access and launching and for traffic safety concerns – with the extent of mangrove removal limited to 10 square metres for the latter two activities.

#### **Commentary on Permitted Activity Rules**

While the permitted activities of the Auckland Coastal Plan are generally more enabling than those of neighbouring plans, there are various circumstances which are not included in the Auckland plan but which other plans recognise as cases where expansion of mangroves may significantly impede other activities. There is scope to extend the permitted activity provisions to include such activities. These include:

- Clearance of river mouths and stormwater drainage channels. Sediment discharged from the rivers and stormwater drains may accumulate in these

channels leading to mangrove colonisation and accelerated sediment accumulation/blockage of the channel. This may result in, or exacerbate, flooding of upstream areas. It can be argued that such drainage problems should be addressed upstream by restoring riparian margins and wetlands but this is not always possible, particularly in urban catchments. However, removal of mangroves in such circumstances may lead to the release of accumulated sediment and contaminants that could impact on the wider estuary or harbour and this should be taken into consideration in any conditions attached to a permitted activity.

- Removal of mangroves in boat access areas, water ski lanes or other designated areas of use. There are parts of the coastal marine area that are designated for specific uses where mangrove colonisation may impact on that use. It is considered appropriate to allow a greater ability to control mangroves in these areas but that the extent of such removals should be limited to avoid adverse ecological effects on the surrounding area.

In the instances identified above, it would be appropriate to impose a restriction on the area of removal that is allowed under this rule (for example 30 square metres in the immediate area) as currently exists and to include an annual time restriction as is done in the ALW plan. It may also be appropriate to provide for these activities as a controlled activity (rather than a permitted activity) so that limits can be placed on the scale of clearance on a case by case basis.

In summary, the permitted activity rules in the plan enable minor removal associated with existing structures. This could be extended to include other authorised uses or relevant activities in the coastal marine area. Such an extension is desirable, but not essential and it may be appropriate to make such provision as a controlled activity rather than permitted activity to enable removal to be assessed on a case by case basis.

#### **4.3.2 Restricted Discretionary Activity/Discretionary Activity Rules**

The Coastal Plan provides for the removal of indigenous vegetation from most areas of the CMA as a restricted discretionary activity (Rules 16.5.12/13). The removal of indigenous vegetation in a CPA 1, for the purpose of gaining access to a lawful structure, is a discretionary activity (Rule 16.5.15); while the removal of vegetation from CPA 1 or 2, for the purpose of habitat or geopreservation site maintenance, is also a discretionary activity (Rule 16.5.17). The Coastal Plan states that restricted discretionary activities will be non-notified unless the ARC considers there are special circumstances warranting notification.

It is noted that removal of indigenous vegetation from a CPA 1 is a prohibited activity (other than where it is for access to a lawful structure) as discussed in Section 4.3.3.

### **Commentary on Restricted Discretionary Activity/Discretionary Activity Rules**

In Rule 16.5.12, the provision of restricted discretionary activity status for the removal of mangroves from the majority of the CMA provides a more “enabling” rule framework than provided for in neighbouring regional plans by restricting the range of issues that can be assessed through the resource consent process. Discretion has been restricted to the quantity and area, navigation and safety, and the effects of the activity on cultural heritage sites, ecological values, physical processes and public access. Issues that are therefore outside of the consent process include effects on natural character and visual amenity. It is unclear why this split has been chosen – although the purpose of restricting discretion to focus on the key issues of concern is considered appropriate.

In respect of this rule, it specifically refers to removal that does not comply with “16.5.2a to e” whereas other similar rules refer to the rule number eg “16.5.8”. This provides some unnecessary confusion as to whether it only relates to activities that cannot meet the conditions of the rule (eg removal of an area greater than 30m<sup>2</sup>) or any activity outside of the scope of the rule itself (eg a removal not for the purpose of accessing a lawful structure).

Rule 16.5.17 appears illogical. Vegetation removal in a CPA 2 for enhancement purposes is a discretionary activity. However, any vegetation removed from a CPA 2 for purposes other than enhancement appears to be a restricted discretionary activity under Rule 16.5.12. Accordingly, a higher statutory “test” is applied to projects that seek to enhance habitat and geo-preservation sites than projects which are undertaken for other purposes.

Similarly, together Rules 16.5.15 and 16.5.17 provide discretionary activity status for vegetation removal for the purposes of gaining access to a lawful structure or geopreservation site maintenance or enhancement in a CPA 1. However, the removal of exotic vegetation from a CPA 1 for other purposes appears to be covered by the restricted activity Rule 16.5.12.

Rule 16.5.17 only provides for the removal of exotic vegetation from a CPA 1 for enhancement purposes as the removal of indigenous vegetation, including mangroves, from a CPA 1 is prohibited in all circumstances other than for gaining access to a lawful structure (see Section 4.3.3). It is noted that this is a different interpretation of this rule to that of some ARC officers (ARC 2005). The lack of a cross reference to exclude activities covered by Rule 16.5.17 from Rule 16.5.20 may be an error that occurred in amending the plan. The exclusion was present when the plan was notified in 1995 but was removed in the process of addressing submissions to the plan. It is not clear from the Hearing report for Chapter 16 why the exclusion was removed.

In summary, the restricted activity and discretionary activity rules do not appear to be logically formed and it is unclear what is trying to be achieved (especially in relation to CPA 2s). It appears that vegetation removal for ecological and geological site

enhancement work in CPA 1 and 2 (where not prohibited) has a higher statutory test applied to it than the removal of vegetation from these areas for other purposes. These apparent inconsistencies should be resolved.

In all circumstances, resource consent applications for mangrove removal will be subject to the general objectives and policies of the Coastal Plan. As indicated in Section 4.2, there may be benefit in providing some more targeted policies to assist consent decision making.

#### **4.3.3 Prohibited Activity Rule**

Rule 16.5.20 prohibits the removal of indigenous vegetation, including mangroves, from a CPA 1 other than for the purpose of maintaining or gaining access to a lawful structure.

##### **Commentary on Prohibited Activity Rule**

As indicated previously, the effect of this rule is to prohibit the removal of mangroves from CPA 1s. This prohibited activity status is known to have caused problems in some projects. For example in the North Shore Busway project, the project proponents were unable to remove mangroves from a CPA 1 (to enhance the City of Cork Shell Bank), despite the presence of mangroves being detrimental to the bird roosting and nesting habitat of the New Zealand Dotterel and other shorebirds that gave the site its status. In a further example from that project, two individual mangroves were required to be transplanted to enable bridge piles to be optimally placed – again, the mangroves were not associated with the primary values of the CPA 1.

These examples indicate the conflict provided by this rule – the removal of mangroves is prohibited in a CPA 1 even when the presence of mangroves does not contribute to, or may even be detrimental to, the values of that area. Clearly, this rule has the potential to lead to sub-optimal environmental outcomes and requires amendment.

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#### **4.4 Summary and Conclusion**

A review of the Coastal Plan provisions indicates that despite the provisions of the Plan being generally more “enabling” than the equivalent provisions of neighbouring plans, there are some internal consistency issues and problems that should be addressed. In addition, there are some areas where more clarification or expansion of the provisions could be considered to improve the functionality of the plan. In summary:

- Consideration *could* be given to including some specific objectives and policies in relation to mangrove removal to improve guidance to the community and the resource consent process;
- Consideration *could* be given to expanding the range of coastal activities or functions for which mangrove removal is a permitted or controlled activity;

- Revision of the restricted discretionary and discretionary activity provisions *should* be undertaken to clarify the provisions and resolve internal inconsistencies;
- The prohibited activity provision *should* be amended or removed to enable management of mangroves to enhance the values of a CPA 1 or where it can be shown that the adverse effects will be minor.

# 5 Coastal Plan Options for Mangrove Management

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## 5.1 Introduction

Sections 2 to 4 of this report have outlined the issues associated with the management of mangroves; the statutory guidance provided by the NZCPS and ARPS and the approach taken by neighbouring Regional Councils; and have reviewed the existing ARC Coastal Plan provisions to assess whether there are specific issues that require addressing.

The purpose of this Section is to explore possible plan options for the management of mangroves. Two approaches are presented as follows:

1. Relatively minor improvements to the existing Coastal Plan provisions to address the issues identified in Section 4;
2. A wider suite of possible plan options, building on the alternatives identified in ARC (2005), with an assessment of their benefits and drawbacks.

Recommendations regarding the options are then made, recognising that any particular option will need to be developed in more detail prior to any plan change being notified. It is noted that this review identifies plan options for mangrove management. Ideally, a range of management tools would be used, recognising that a comprehensive strategy for managing mangroves in an estuarine area requires an understanding of the whole system to provide a broader context for determining an appropriate management response – with a focus on “estuary management” rather than simply “mangrove management”.

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## 5.2 Changes to Existing Provisions

### 5.2.1 Objectives and Policies

It has been identified that it may be beneficial to provide more specific objectives and policies to provide clearer guidance in respect of mangrove management and removal in particular. Some examples of objectives and policies relating to mangrove removal include:

#### **Example Objectives**

*To provide for the protection of indigenous vegetation, including mangroves, where it contributes significantly to the natural values of the coastal environment including natural character, ecological functioning, coastal processes, landscape and amenity.*

To provide for the management of mangroves in areas where their uncontrolled expansion may adversely affect lawful uses of the coastal marine area and community use, enjoyment and amenity of the coastal environment.

### **Example Policies**

Mangrove removal shall generally be considered inappropriate where:

- i. mangroves contribute significantly to the ecological, natural character, landscape, coastal process or other natural or physical values of that part of the coastal marine area, especially in relation to Coastal Protection Area 1 or 2;
- ii. the removal of mangroves will have more than a minor impact on the values of a Coastal Protection Area 1 or 2, or an area of cultural heritage significance;

Subject to the above, mangrove removal shall generally be considered appropriate where it is demonstrated that the expansion of mangroves:

- i. has adversely affected the values of a Coastal Protection Area 1 or 2 or other sites of significance;
- ii. has adversely affected the use of lawful structures and defined areas of public use such as water ski lanes and boat access ways;
- iii. adversely affects public safety;
- iv. adversely affects drainage from stream mouths, stormwater outfalls or other drainage structures;
- v. has adversely affected the community's social or cultural needs including public use and enjoyment, including amenity, of the coastal environment.

### **5.2.2 Permitted Activity Rules**

In respect of the changes suggested in Section 4, the following provides some options for providing more clarity and consistency to the existing rules.

#### **Permitted Activity Rule 16.5.2**

The scope of this rule could be amended to provide a greater range of activities for which small scale vegetation removal is permitted subject to conditions including the extent of removal.

The removal of vegetation, including indigenous vegetation, for the purposes of:

- i. gaining access to a lawful structure;
- ii. maintaining an existing boat access or existing boat launching site;
- iii. providing for public safety;
- iv. maintaining drainage away from a stream mouth, stormwater outfall or other drainage structure; or
- v. use by iwi for traditional harvesting purposes.

Subject to the following conditions....(as per Rule 16.5.2).

### **5.2.3 Restricted Discretionary Activity/Discretionary Activity Rules**

As previously indicated, it is unclear what the existing rule framework was attempting to achieve in respect of areas designated as CPA 2. The example rules provided below (together with the existing rules where relevant) provide for restricted discretionary activity status for most mangrove removal, with discretionary activity status for mangrove removal in a CPA 2 and CPA1 (to gain access to a lawful structure or for exotic vegetation removal). These rules, together with the suggested Objective and Policy framework, should provide a clearer and more consistent approach.

#### **Restricted Discretionary Rule 16.5.12 - example**

*Any disturbance of the foreshore or seabed, including excavation, drilling and tunnelling; the removal of vegetation other than in any Coastal Protection Area 1 or 2; and the removal of sediment or encrusting organisms, which does not comply with Rules 16.5.2, 16.5.3, 16.5.7 or 16.5.8.*

#### **Restricted Discretionary Rule 16.5.13**

*Unchanged.*

#### **Discretionary Rule 16.5.15**

*Unchanged*

#### **Discretionary Rule 16.5.17 - example**

*The removal or clearance of vegetation from within any Coastal Protection Area 2.*

*The removal or clearance of exotic vegetation from within any Coastal Protection Area 1.*

### **5.2.4 Prohibited Activity Rule 16.5.17**

As discussed in Section 4, it is considered that a prohibited activity status is too “absolute” in relation to the removal of indigenous vegetation, including mangroves, from a CPA 1. A non-complying activity, in conjunction with a stronger policy framework, should enable mangrove removal for enhancement purposes whilst protecting the important primary values of these areas.

#### **New Non-complying Activity Rule - example**

*The removal of indigenous vegetation, including mangroves, from within any Coastal Protection Area 1, except where provided for under Rule 16.5.15.*

### **5.2.5 Summary of Possible Changes to Existing Provisions**

In order to address the issues raised in Section 4, some possible additions and changes to the Objectives, Policies and Rules in the Coastal Plan have been suggested. This is not intended to be a comprehensive revision of the provisions. Rather, the purpose of these changes is primarily to make minor extensions to the permitted activity provisions, resolve inconsistencies within the restricted discretionary and discretionary activity provisions and to remove the problems associated with a prohibited activity status for

mangrove removal in CPA 1s. Some possible options for more comprehensive changes to the provisions are provided in the Section 5.3.

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### **5.3 Other Possible Mangrove Management Options for the Coastal Plan**

There is a range of tools and options available to provide for the management of mangroves in Regional Coastal Plans. What option is ultimately chosen depends on a number of factors including the extent of the issue in the region, whether mangroves are seen as a problem or an important component of the marine environment, the overall outcomes that are being sought and consistency with the approach taken within other sections the Plan.

For the purposes of this assessment, it has been assumed that the ARC is not seeking a major departure from the current approach of the Coastal Plan. The current approach taken by the ARC is reasonably pragmatic, and consistent with its neighbouring Regional Councils, and wholesale changes do not appear warranted. Accordingly, the assessed options present ways in which mangrove management may be facilitated or improved to achieve better outcomes for the community and the natural environment. It should be noted that most of the options presented below are not mutually incompatible, and that a mixture of different approaches may be appropriate. These may also be considered in conjunction with some of the changes suggested in Section 5.2, and in particular the development of a more specific policy framework. Three approaches are discussed:

1. Greater Provision for Small Scale Mangrove Removal
2. Holding the Line
3. Mangrove Management Strategy

The options presented below provide a brief overview of each option and some of the benefits and drawbacks of such an approach. It is noted that a more robust and detailed assessment will be required to support any proposed plan changes.

#### **5.3.1 Greater Provision for Small Scale Mangrove Removal**

From a review of the information provided and discussions with ARC officers, it appears that much of the demand for mangrove removal is at a local scale. Accordingly, greater provision for the removal of mangroves at this scale may address some of the resource conflicts that occur as a result of the accelerated spread of mangroves. Some options for providing for small scale mangrove removal, and comments on the benefits and drawbacks of these, are given in Table 5.1. A key issue with each of these options is how the council would set a threshold for how much is allowed and what is "small scale". This would need to be addressed in detail through any proposed plan change based on scientific data and other considerations.

**Table 5.1: Greater Provision for Minor Mangrove Removal**

Option	Description	Potential Benefits	Potential Drawbacks
Increase the Permitted Area of Removal for Access to Structures etc	As indicated in Section 4, the existing permitted activity for the removal of mangroves to gain or maintain access to structures could be extended to encompass a wider range of activities that mangrove expansion may impact on eg boating access points, swimming areas. In addition, consideration could be given to a minor increase in the size of the area of mangroves that is able to be removed as a permitted activity in these circumstances. Selected maximum area of removal needs to reflect both potential effects and pragmatic requirements	<p>Will facilitate small scale mangrove removal to allow other authorised or essential activities to function</p> <p>May reduce compliance costs for Councils for maintenance of stream channels (minor reduction as there are very few such applications at present)</p> <p>Unlikely to be significant effects if scale of removal is appropriately assessed.</p>	<p>Permitted area of removal would be inconsistent with ALW Plan on landward side of CMA.</p> <p>A larger permitted activity area would be inconsistent with the provisions in adjoining regions.</p> <p>May encourage local residents to go beyond the permitted activity thresholds</p>
Allow limited mangrove removal outside of CPAs as a permitted activity	Provide a permitted activity that allows for limited mangrove removal outside of CPAs with no restriction on the purpose of the removal. Would establish a maximum area in any one year to control the extent of removal.	<p>Will enable small scale removal to address local conflicts of use/amenity</p> <p>May reduce costs to the community</p> <p>Unlikely to be major environmental effects if scale of removal is appropriately established</p>	<p>May encourage local residents to go beyond the permitted activity thresholds</p> <p>Difficult to deal with contiguous areas under such a rule</p> <p>Mangroves may be removed from areas outside of a particular community of interest – which may cause conflict with local residents</p> <p>CPAs have not always been established on basis of mangrove values and may not be best mechanism to determine areas where mangrove removal could be permitted.</p>

<p>Allow removal of mangroves by hand outside of CPAs</p>	<p>Provide a permitted activity that allows mangroves to be removed by hand outside of CPAs on the basis that it is self limiting.</p>	<p>Will enable small scale removal to address local conflicts of use/amenity. May reduce costs to the community.</p>	<p>May result in communities engaging professional assistance to clear large areas of mangroves with associated environmental effects and some size limitation would probably be required. CPAs are not necessarily a good basis to determine areas where mangrove can be removed. There is evidence that such a situation is not self-limiting. Would be difficult to enforce.</p>
<p>Allow removal of mangrove seedlings in some circumstances</p>	<p>Provide a permitted activity that enables communities to remove seedlings to arrest spread of mangroves. Likely to be subject to conditions including outside of CPAs.</p>	<p>Will enable communities to arrest spread of mangroves May reduce cost of mangrove control</p>	<p>Does not address existing issues May be difficult to enforce in respect of size of mangroves removed. May result in trampling of other areas</p>
<p>Provide controlled activity or restricted activity with non-notification for small scale removal</p>	<p>Provide controlled activity or restricted activity with non-notification for small scale removal outside of CPAs, subject to conditions such as maximum area etc Could be used to implement a coastal compartment plan or mangrove strategy that has identified where mangrove removal may be appropriate.</p>	<p>Will reduce statutory process costs and facilitate minor removal while protecting key areas Will enable ARC involvement in extent and methods of removal Will enable better compliance monitoring Will reduce information requirements for the consent process.</p>	<p>Will reduce community involvement in consent process CPAs may not be the best basis for determining appropriate areas for mangrove removal</p>

As can be seen from Table 5.1, there are several options that are available to provide a greater scope for minor mangrove removal if this is considered desirable. Of these options, providing a greater area and scope of circumstances for the removal of mangroves as a permitted activity, allowing seedlings to be removed from certain areas as a permitted activity, and providing a controlled activity or restricted discretionary activity without notification for small scale removal appear to have significant merit and could be considered further.

However a key issue is how to define the areas where the removal of established mangroves is likely to be appropriate. While Coastal Protection Areas 1 and 2 have been used in the above options to differentiate between those areas where limited mangrove removal may be appropriate and where it is not, they may not be the best determinant of this as they are primarily ecological or geological based, rather than reflecting other factors such as natural character and visual amenity.

The following two options are primarily focussed on identifying those areas where mangrove removal may be considered more appropriate.

### **5.3.2 Holding the Line**

It is clear that one of the major issues associated with mangroves is the extent to which they have expanded in estuarine and harbour areas as a result of increased sedimentation and other factors. One method of determining the areas where mangrove removal may be considered more appropriate is to identify a certain date (either past or current) that will be used as the “status quo” for the extent of mangroves and enable mangrove removal back to that line in appropriate areas.

The date can be identified in a policy in which case the council can examine whether that line is appropriate in a certain place, or in a rule where it becomes a non-negotiable element.

A benefit of this approach is that it targets the expansion of mangroves past a certain point, rather than just areas of mangroves, recognising that whatever the reason mangrove expansion is accelerating, some control may be warranted in certain circumstances. Clearly drawbacks of the approach include the need to establish a baseline year and whether such an approach will raise community expectations that control will be undertaken to manage mangroves in areas where expansion may be significant. The Northland Regional Council plan change which has recently been notified includes a new policy with October 1991 as a baseline. This date is when the RMA came into force.

Table 5.2 details some statutory options associated with the holding the line approach.

**Table 5.2: Holding the Line**

Option	Description	Benefits	Drawbacks
Identify a date in time where the extent of mangroves is deemed “acceptable” and provide for mangrove removal up to that line	Provide a statutory framework that establish a point in time as the status quo for mangroves and manage to that line in appropriate areas. Likely to be subject to various conditions as discussed below.	Provides a quantifiable reference point to manage mangrove to. Will address the issue of accelerated mangrove expansion. Can specify areas where mangroves cannot be removed (ie CPAs).	May result in large areas being identified for removal with associated effects such as sediment release and erosion. May create expectations that control should be carried out by the ARC. Will still need to identify those areas where the “line” does not apply.
Provide permitted activities to enable management to line	Provide permitted activities to allow mangrove removal back to the identified line in most areas. Would probably exclude CPAs from areas of removal.	Will provide clearer direction to the community. Low regulatory involvement. Better certainty of extent of mangrove removal. Can still protect areas of ecological significance through appropriate rules.	Line may not be representative of ecological or other values. May encourage a high level of mangrove removal with associated adverse effects. May be difficult to enforce and require the “line” to be well defined. CPAs are not necessarily reflective of mangrove values.
Provide controlled activity or restricted discretionary activity with non-notification for removal in identified areas up to the line	Provide controlled activity or restricted activity (possibly with non-notification) for the removal of mangroves outside of defined areas (CPAs). Conditions of consent could then focus on removal methods and managing the effects of this process.	Clearer direction to community through plan change. Will reduce statutory process costs and facilitate removal to defined extent. Will enable ARC involvement in methods of removal and management of effects and enable better compliance monitoring Will reduce information requirements for the consent process.	Will reduce community involvement in consent process Holding the line may not be valid in all circumstances so will still have to rely on other areas (ie CPAs) CPAs are not necessarily reflective of mangrove values.

### 5.3.3 Mangrove Management Strategy

Throughout the consideration of options for mangrove management, a consistent problem arises – specifically, in what areas is it appropriate to control mangroves and where should they be protected. In many of the options presented above, coastal protection areas have often been used as a determining factor as to where mangrove removal should be restricted or at least more controlled. However, it is recognised that the CPA 1 and 2s in the Coastal Plan have not always been identified on this basis. They are areas that may have high values (including ecological or geological) or be more sensitive to change or adverse effects, rather than reflecting values specifically associated with mangroves. While the “holding the line” approach provides for mangrove control to an identified extent (ie at a specified date), it does not distinguish the areas where mangrove expansion may be significantly beneficial to the estuarine ecosystem.

A further, more comprehensive option for the management of mangroves is therefore to develop a Mangrove Management Strategy at a regional or waterbody scale that considers the range of factors associated with mangroves including rate of expansion, effects on other uses of the CMA, natural character and landscape values, ecological significance, protection of other habitats, effects of removal on other values etc and defines areas for protection and areas where removal may be appropriate to manage other values. Having identified those areas (or those circumstances) where mangroves should be protected or those where removal is appropriate, policies and rules could be developed to support this approach – facilitating removal where appropriate and controlling removal elsewhere.

Such an approach could be progressed at either a regional level, or as part of Coastal Compartment Plans in specific areas. Information such as the rate of accumulation of mangroves and community uses of the coastal environment could be used to identify broad areas where control may be desirable. Similarly, ecological and other information on natural values could be used to identify areas where mangroves are an important component of ecosystem values and should be protected. More detailed assessments can then be undertaken in respect of potential areas for removal, including consultation with the local community and other parties and assessment of the potential effects of removal, to ascertain the potential benefits and adverse effects of control and identify areas where control is generally considered appropriate. The strategy would be supported by a policy and rule framework that enabled removal in identified areas, whilst discouraging removal in others.

The strategy could be developed in an incremental manner as it is likely that most of the areas where significant mangrove expansion is causing conflict with other uses are well known, as are mangrove areas of high ecological value. Areas with significant conflicts can be prioritised for initial assessment, with other lower priority areas assessed over time.

Table 5.3 details how this approach might be provided for in the Coastal Plan

**Table 5.3: Mangrove Management Strategy**

Option	Description	Benefits	Drawbacks
<p>Develop a mangrove management strategy and use it to identify areas of control and areas of preservation.</p>	<p>Consider a range of variables to develop a strategy for managing mangroves, and in particular, those areas whether mangrove removal may be appropriate to enhance other values. Use this as the basis of policies and rules in the plan.</p>	<p>Provides a robust basis by which to manage mangroves.            Will address the issue of accelerated mangrove expansion.            Will specify areas where mangroves cannot be removed.            Can be developed in an incremental manner, with high priority areas considered first.</p>	<p>Has the potential to be a major study requiring significant investment in both time and funds.            May be seen as the ARC undertaking AEE assessments for potential consent applicants.            May create expectations that control should be carried out by a third party.</p>
<p>Provide permitted activities or controlled activities in identified mangrove management areas.</p>	<p>Provide a lower statutory “test”, such as permitted or controlled activities within mangrove management areas to enable removal in these areas.            A higher statutory threshold will be applied outside of mangrove management areas.</p>	<p>Will provide clearer direction to the community.            Facilitates mangrove removal where appropriate and reduce process costs.            Better certainty of areas of mangrove removal.            Can still protect areas of ecological significance through appropriate policies and rules.</p>	<p>May enable a high level of mangrove removal with associated adverse effects that will need to be managed.            Will reduce community involvement in the consent process, although this will largely be offset by an involvement in the development of the strategy.</p>

## 6 Conclusion and Recommendations

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### 6.1 Conclusion

Mangrove management is a complex and in some places contentious issue for the Auckland region – as it is for much of the northern half of the North Island. Over time the extent of mangroves in the region has increased, significantly in some places, typically where accelerated land erosion has caused increased sedimentation of estuarine areas – providing greater areas of favourable mangrove habitat.

Communities are often polarised in their views about mangroves and the extent to which they should (or should not) be removed or managed, reflecting the debate between public use and enjoyment of the coastal marine area and the ecological value of mangroves and their role in the wider marine ecosystem.

A review of the Auckland Coastal Plan, and the equivalent Coastal Plans of other Regional Councils where mangroves are present, indicates that the provisions of the Auckland Coastal Plan are generally less restrictive than those of its counterparts – with a restricted discretionary activity status for mangrove removal over much of the coastal marine area compared with generally discretionary activity status in other regions.

However there are areas where the plan provisions can be revised to:

- Include some specific objectives and policies in relation to mangrove removal to improve guidance to the community and the resource consent process;
- Expand the range of coastal activities or functions for which mangrove removal is a permitted or controlled activity;
- Revise the restricted discretionary and discretionary activity provisions to clarify the provisions and resolve internal inconsistencies;
- Remove the prohibited activity rule and replace it with a non-complying activity rule.

All of the options above are relatively minor changes to the existing plan provisions with the objective of improving the guidance and workability of the plan in respect of mangrove management. Further amendments could also be made to further expand the range of circumstances in which mangrove removal may be facilitated through permitted or controlled activities.

Should a more comprehensive approach to mangrove management be desirable, then two alternative methods warrant further consideration:

- (i) Holding the Line – identifying a point in time at which subsequent mangrove colonisation can be managed to; or
- (ii) Development of a Mangrove Management Strategy – a more comprehensive approach to identifying areas of value and areas where mangrove expansion which is significantly impacting on other uses and values of the coastal marine area.

A Mangrove Management Strategy in particular, combined with a suitable statutory framework, provides a regional context for the management of mangroves.

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## **6.2 Recommendations**

As indicated previously, the decision whether to amend the Coastal Plan to amend or expand the provisions ultimately rests with the ARC – the primary purpose of this report is to assess the current plan provisions and identify potential options to amend or enhance these provisions. However, as a result of this review of the plan provisions, the following recommendations are made:

1. The provisions of the Auckland Coastal Plan relating to mangrove removal should be revised to address, at a minimum, the issues raised in Section 4 of this report and summarised in the four bullet points in Section 6.1 above. These amendments will provide a clearer and more consistent framework for the management of mangroves in the Auckland Region.
2. The ARC should give consideration as to whether there is benefit in expanding the permitted activity (or introducing a controlled activity) to facilitate minor mangrove removal which may address the majority of community concerns regarding the expansion of mangroves. This consideration should include a more detailed assessment of the benefits and drawbacks of this approach than is provided in this report.
3. Should the ARC consider a more comprehensive approach to mangrove management to be desirable, a regionwide Mangrove Management Strategy should be scoped. Scoping should include an assessment of the information that would be required to support such a strategy (and the cost of acquiring this information) and whether the benefits the strategy would warrant the level of resources required to develop it – particularly given the current level of demand for mangrove management and removal. As an alternative, further consideration could be given to identifying a point in time to which mangrove management will be facilitated.

## 7 References

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# Appendix A

## Existing Provisions in the Auckland Regional Plan: Coastal for the Management of Mangroves

### Policies

- Policy 16.4.1 Any activity other than dredging or extraction (as addressed in Chapters 14 and 15) which results in the disturbance of the foreshore and seabed shall be considered inappropriate unless:*
- a it can be demonstrated that the disturbance is necessary to:
    - i rehabilitate or restore a coastal ecosystem; or*
    - ii enhance public access to, use and enjoyment of the coastal marine area; or*
    - iii protect public health and safety; or*
    - iv improve navigation and safety; or*
    - v avoid, remedy or mitigate adverse effects caused by natural processes; or*
    - vi enable the carrying out of a lawful activity, consistent with the provisions of this chapter; and**
  - b there is no practicable alternative to disturbance of the foreshore and seabed; and*
  - c the activity will not result in the permanent loss of any habitat of a rare or endangered species; and*
  - d the activity will not have a significant adverse effect on Tangata Whenua values identified in accordance with Tikanga Maori; and*
  - e the activity will not be likely to result in significant changes to natural coastal processes, or cause or exacerbate coastal erosion either within the coastal marine area or on adjacent coastal land; and*

- f* the disturbance is not likely to lead to cumulative adverse effects, including those from regular or maintenance type disturbance in the same area.

*Policy 16.4.2* Activities which are considered appropriate under Policy 16.4.1 shall: ...

- d* where the purpose of the activity is to remove vegetation or Pacific Oyster shell from the coastal marine area; and
  - i* remove only the number of individual plants necessary or clear the minimum area necessary for the purpose; and
  - ii* dispose of the vegetation or shell by an appropriate method or land-based disposal site.

### **Rules – Permitted Activities**

*Rule 16.5.2* The removal of vegetation, including indigenous vegetation, for the purpose of maintaining or gaining access to a lawful structure, subject to the following conditions:

- a* the activity does not take place in a Coastal Protection Area 1; and
- b* the total cleared area shall not at any time exceed 30 square metres and shall be immediately adjacent to the structure; and
- c* all vegetation removed from the site shall be disposed of via an approved land-based disposal system; and
- d* the removal shall not involve the discharge of chemical herbicides into the coastal marine area; and
- e* any consequential disturbance to the foreshore and seabed shall be able to be remedied by the operation of natural processes within 7 days.

*Rule 16.5.3* The removal of vegetation, sediment and encrusting organisms from any existing lawful structure, subject to the following conditions:

- a* the removal shall not involve the discharge of chemical herbicides into the coastal marine area; and
- b* any material deposited in the coastal marine area, which is capable of hand retrieval shall be removed as soon as practicable; and
- c* any consequential disturbance other than that necessary for the clearance, shall be able to be remedied by the operation of natural processes within 7 days.

- Rule 16.5.8     *The activities in Rules 16.5.1 to 16.5.7 are permitted subject to the following further conditions:*
- a       the activity shall not lead to the destabilisation of any sand dune areas or the destruction or removal of any living vegetation, except as provided for in Rules 16.5.2 to 4 and 16.5.6 ; and;*
  - b       all equipment and materials shall be removed from the site on completion of the operation; and*
  - c       there shall be no modification, damage, or destruction to any site, building, place or area scheduled for preservation or protection in Cultural Heritage Schedule 1 or 2; and*
  - d       the foreshore and seabed shall be reinstated in a manner which is, as far as practicable, in keeping with the pre-existing contour of the foreshore and seabed and the natural character and visual amenity of the area, as soon as is practicable.*

#### **Restricted Discretionary Activities**

Rule 16.5.12     *Any disturbance of the foreshore or seabed, including excavation, drilling and tunnelling, and the removal of vegetation (including indigenous vegetation), sediment, or encrusting organisms which does not comply with Rules 16.5.2a to e, or 16.5.3a to c, or 16.5.7, or 16.5.8.*

Rule 16.5.13     *The ARC will restrict the exercise of its discretion under Rules 16.5.11 and 16.5.12 to the following matters:*

- a       the quantity and area of Pacific Oyster shell or vegetation to be removed, with reference to likely environmental effects;*
- b       navigation and safety matters;*
- c       the effect of the disturbance on any cultural heritage site, building, place or area scheduled for preservation or protection in Cultural Heritage Schedules 1 or 2;*
- d       the effect of the disturbance on the ecological values and physical processes;*
- e       the effect of the disturbance on public access;*
- f       the relevant conditions of the permitted activity with which the proposed activity fails to comply;*
- g       the timing and method of the removal or disturbance;*

- h the quantity of material to be removed or disturbed;
- i the duration of the resource consent; and
- j monitoring of the resource consent.

#### **Discretionary Activities**

*Rule 16.5.15* The removal of vegetation, including indigenous vegetation, for the purpose of maintaining or gaining access to a lawful structure in a Coastal Protection Area 1.

*Rule 16.5.17* The removal or clearance of vegetation from within Coastal Protection Areas 1 or 2, for the purpose of habitat or geopreservation site maintenance and enhancement. This includes clearance associated with the erection and maintenance of an interpretative board walk.

#### **Restricted Coastal Activities**

*Rule 16.5.18* Any discretionary disturbance of the foreshore or seabed other than dredging or extraction (as addressed in Chapters 13 and 14), involving, in any 12-month period, disturbance which:

- a is greater in volume than 300,000 cubic metres; and
- b is over an area equal to or greater than 10 hectares; and
- c extends 10,000 metres or more over the foreshore and seabed.

#### **Prohibited Activity**

*Rule 16.5.20* The removal of indigenous vegetation, including mangroves, from within any Coastal Protection Area 1, except where provided for under Rule 16.5.15.