8 Diseases and pathogens | Ngā mate urutāme ngā tuku mate

Diseases and pathogens are a serious threat to Northland's native biodiversity, industry, cultural and social values. Diseases and pathogens are often difficult to detect and once they are detected, difficult to manage. Diseases and pathogens require new and novel methods for control and furthermore, a high level of community awareness especially for identifying and minimising vectors of spread. The following section describes the management of selected diseases and pathogens of particular concern in Northland.

Photo: G. Weavers

8.1 Sustained control diseases

Objective

For the duration of the pest management plan, prevent the spread of kauri dieback to reduce impacts on biodiversity, cultural and economic values in Northland.

Aims

- To maintain a complete record of the full distribution and severity of kauri dieback in Northland.
- To increase public knowledge and skills, and encourage people to take action to help reduce the spread of kauri dieback.

Banned from sale and distribution

Under sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute or otherwise spread any pest in this plan, or any unwanted organism. Section 53 also includes organisms which may contain or harbour a pest or unwanted organism. Not complying with section 52 or 53 is an offence under the Act, and may result in the penalties noted in s157(1).

Rules

Rule 8.1.1

Land occupiers within Northland must implement an approved management plan to reduce the risk of kauri dieback spreading, where an authorised person identifies the property as high risk.

A breach of this rule will create an offence under Section 154 N(19) of the Act.

Principal measures

Requirement to act

- Members of the public are required to take action to help reduce the impact and spread of kauri dieback.
- The purpose of the rules is to assist in preventing the spread of kauri dieback and so reduce the impact on values in Northland.

Council inspection

- Council staff and/or their contractors may visit places to undertake surveys for kauri dieback.
- Council staff and/or their contractors may visit places to determine whether rules and management programmes are complied with and effective.
- Council staff may undertake compliance activities such as rule enforcement, action of default, prosecution and exemptions.

Service delivery

- Council staff will provide education and advice to owners, occupiers and the public about kauri dieback and how to reduce the risks of spread.

Advocacy and education

- Council staff will assist land occupiers to develop management plans for kauri dieback.
- Council will provide training to relevant council staff and stakeholders about the identification of kauri dieback, and how to reduce the risks of spread.
- Council will provide advice, attend events and undertake publicity campaigns to increase public awareness of kauri dieback.

Kauri dieback (*Phytophthora agathidicida*)

Also known as: PA, PTA, kauri dieback disease, *Phytophthora taxon agatha*).

Kauri dieback is a deadly, fungus-like disease that can kill kauri trees of any age. Spores in the soil infect kauri roots and damage the tissues that carry nutrients within the tree. Infected trees show a range of symptoms including yellowing of foliage, loss of leaves, canopy thinning, dead branches and lesions that bleed gum at the base of the trunk. However, some trees can show symptoms of dieback and even be killed without any gum showing on the trunks. Nearly all infected kauri die and the disease has killed thousands of kauri in New Zealand in the last 10 years. Kauri dieback disease produces millions of spores that are spread through soil movement. Resting spores (oospores) can be found in root tissue and soil around infected trees and can survive for at least three years, and possibly much longer. Motile spores (zoospores) are produced in wet conditions and move through water films in soil.

9 Freshwater | Wai Māori

Freshwater is one of Northland's most precious resources, and the lakes, rivers and streams provide habitats for native birds, fish, invertebrates and a wide range of aquatic and wetland plants. Northland lakes are of national and international significance, with dune lakes the predominant lake type. Northland has the greatest number of dune lakes nationally, and represents a large proportion of warm, lowland New Zealand lakes, still with relatively good water quality. These lakes and their surrounding wetland margins support a range of endemic endangered species. They provide the only known habitats and are national strongholds for animal and plant life.

Perhaps the most outstanding character of these lakes is the currently limited impact of invasive species on the animals and plants, which is unparalleled in any other region of mainland New Zealand. Freshwater pests can be hard to detect, more so than pests on land, and can easily spread throughout connected waterways. As a result, pest control can be a challenging exercise, alongside the fact that a limited number of management tools is currently available.

An example of Northland's outstanding freshwater biodviersity values can be found at the Kai iwi lakes.

9.1 Exclusion freshwater pests

The exclusion freshwater pests are potential pests which are not known to have established in Northland or have previously established and have been eradicated. These pests all have the potential to re-establish in the region and are capable of causing adverse effects on the environmental, economic, social or cultural values of the region. The following information applies to all of the exclusion pests.

Objective

For the duration of the Pest Plan, avoid impacts to biodiversity, cultural and economic values by preventing the establishment of exclusion freshwater pests in Northland.

Aims

- The exclusion freshwater pests will be detected before they become widely established in Northland.
- A prompt response with appropriate funding will be initiated to control or manage infestations in Northland.

Banned from sale and distribution

Under sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute, release or otherwise spread any pest in this plan. Not complying with section 52 or 53 is an offence under the Act, and may result in the penalties noted in s157(1).

Rules

Rule 9.1.1

Every person who sees, or suspects the presence of any freshwater exclusion pest, shall immediately report the sighting to the Northland Regional Council.

Rule 9.1.2

No person shall possess any freshwater exclusion pest (including any seeds or live vegetation) within the Northland region.

A breach of these rules will result in an offence under Section 154 N(19) of the Act.

Other relevant legislation or programmes

These species are unwanted organisms under the Biosecurity Act 1993 and are listed in the National Pest Plant Accord 2012.

Principal measures

Requirement to act

- People are required to report the presence or suspected presence of freshwater exclusion pests and may not possess those pests.
- The purpose of the rules is to assist in preventing the freshwater exclusion pests from becoming established in Northland.

Council inspection

- Council staff and/or their contractors will conduct searches in areas that are vulnerable to infestation by freshwater exclusion pests.
- Council staff may undertake compliance activities when required, such as rule enforcement, action on default, prosecution and processing exemptions.

Service delivery

- Eradication of infestations of freshwater exclusion pests will be attempted by the council in conjunction with relevant Crown agencies and stakeholders where practicable.

Advocacy and education

- Council will provide training to relevant council staff and stakeholders about the identification of the freshwater exclusion pests to assist in early detection.
- Council will provide advice, attend events and undertake publicity campaigns to increase public awareness of these freshwater pests.

Marshwort (Nymphoides montana)

Marshwort is a bottom-rooted perennial water lily-like plant. It has long-branched running stems, several metres long. The leaves are 30-80 mm long, broadly ovate and are smaller than the leaves of other water lilies. Marshwort has bright-yellow flowers with five petals and hair-like margins, which sit above the water surface on long stalks that grow in pairs. Marshwort rapidly colonises shallow water, forming dense mats which block waterways and smother other aquatic plants. It has a history of invasiveness overseas and closely related plants are also invasive. It can rapidly out-compete other ornamental lily species.

Photo; T. James

Water poppy (Hydrocleys nymphoides)

Water poppy looks like a water lily. It has thick, glossy, floating leaves attached to rubbery creeping stems and distinctive yellow flowers with a purple centre. The flowers have three petals and are up to 8cm across. Water poppy can grow in still or slow-flowing water that is less than two metres deep, especially if the water is warm and well-lit. It is an aggressive coloniser of ponds, streams, farm dams and lake margins. Water poppy quickly forms mats that block waterways and drains, causing flooding. It is a particular threat to native species that cannot compete with its aggressive growth.

Photo; Auckland Council

9.2 Eradication freshwater pests

The eradication freshwater pests are pests that are present in low numbers or have a limited distribution within the Northland region and their eradication is thought to be feasible and cost-effective. These pests all have the potential to establish widely in the region, and are capable of causing adverse effects on the environmental, economic, social or cultural values of Northland. The council is either the lead agency or a partner for eradicating these pests from the region.

Objective

For the duration of the Pest Plan, reduce impacts to biodiversity, cultural and economic values by eradicating identified pests in Northland.

Aims

- The eradication freshwater pests will be controlled to zero-density in Northland by 2027.
- A prompt response with appropriate funding will be initiated to control or manage infestations in Northland.

Banned from sale and distribution

Under sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute, release or otherwise spread any pest in this plan. Not complying with section 52 or 53 is an offence under the Act, and may result in the penalties noted in s157(1).

Rules

Rule 9.2.1

Every person who sees, or suspects, the presence of any freshwater eradication pest shall immediately report the sighting to the Northland Regional Council.

Rule 9.2.2

No person shall possess any freshwater eradication pest (including any seeds, live vegetation, eggs or juveniles) within the Northland region.

A breach of these rules will result in an offence under Section 154 N(19) of the Act.

Principal measures

Requirement to act

- People are required to report the presence or suspected presence of freshwater eradication pests.
- No person shall possess freshwater eradication pests.
- The purpose of the rules is to assist in preventing freshwater eradication pests from spreading in Northland.

Council inspection

- Council staff and/or their contractors will conduct searches in areas that are vulnerable to infestation by freshwater eradication pests.
- Council staff may undertake compliance activities when required, such as rule enforcement, action of default, prosecution and processing exemptions.

Service delivery

- Control of infestations of the freshwater eradication pests will be attempted by the council in conjunction with relevant Crown agencies and stakeholders where practicable, unless defined by a specific rule.

Advocacy and education

- Council will provide training to relevant council staff and stakeholders in the identification of freshwater eradication pests to assist in early detection.
- Council will provide advice, attend events and undertake publicity campaigns to increase public awareness of these freshwater pests.

FRESHWATER PLANTS

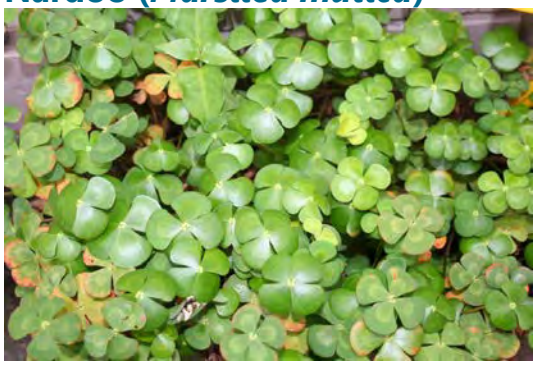
Eel grass (*Vallisneria australis*)

Photo; P. Champion

Also known as: ribbongrass, eel weed.

Eelgrass is a submerged, bottom-rooted freshwater plant. It produces long, thick, strap-like leaves that are up to 3m long and 0.5-5cm wide. The leaves never extend above the surface of the water. Eelgrass can be found in moderately-fast flowing water and still water bodies. It forms dense beds that displace native plants, may affect recreational activities, impede navigation and obstruct water out-takes.

Nardoo (*Marsilea mutica*)



Nardoo looks like a member of the clover family, but is actually a freshwater fern. It has flat leaves that resemble a large four-leaf clover. Leaves float on the surface of the water on stalks up to 1m long, and roots form dense, floating masses. Nardoo grows either in water or on mud, and prefers water that is less than 1m deep, such as swamps, dams, lake edges and garden ponds. It can form dense beds of vegetation which can block dams and waterways, impede drainage and disrupt recreational activities. Nardoo out-competes native species and is also highly toxic to stock.

Salvinia (*Salvinia molesta*)

Also known as: kariba weed.

Salvinia is a free-floating aquatic fern. With its hairy leaves and floating habit, it can be hard to recognise as a fern. Young, small leaves lie flat on the water surface but mature leaves tend to become crowded and fold up. Salvinia quickly forms extensive mats, completely smothering waterways. The mats exclude native plants, block dams and waterways, impede drainage, disrupt recreational activities and reduce water quality by lowering oxygen levels.

Salvinia is a Notifiable Organism (Biosecurity (Notifiable Organisms) Order 2010) and is part of the National Interest Pests Response (NIPR). Management of this pest plant is led by the Ministry for Primary Industries.

Senegal tea (*Gymnocoronis spilanthoides*)

Photo; Auckland Council

Also known as: temple plant, costata.

Senegal tea is a hardy, semi-aquatic, perennial herb. It can form rounded bushes up to 1.5m tall or scrambling mats of tangled stems that spread out over water. It has shiny, dark green leaves produces distinctive, white, clover-like flowers in summer. Its larger stems are buoyant in water. Alligator weed and willow weed look similar, but the margins of Senegal tea leaves are bluntly serrated. Senegal tea grows very quickly. It can rapidly cover water bodies with a floating mat that displaces and out-competes native plants. Infestations can block drainage channels causing flooding. Recreational activities and irrigation may also be affected.

Water hyacinth (*Eichhornia crassipes*)

Photo; A. Lamb

Water hyacinth is a free-floating plant that can grow in dense mats. It has glossy green leaves and its leaf stems are swollen and spongy and act like floats. Each plant has a mass of purple roots. It produces a spike of up to ten large, lilac-mauve flowers. Water hyacinth grows in still or slow moving freshwater, forming dense mats which can completely smother waterways and reduce water quality. The mats exclude native plants, block dams and waterways, impede drainage and disrupt recreational activities.

Water hyacinth is a Notifiable Organism (Biosecurity (Notifiable Organisms) Order 2010) and is part of the National Interest Pests Response (NIPR). Management of this pest plant is led by the Ministry for Primary Industries.

FRESHWATER ANIMALS

Red-eared slider turtle (*Trachemys scripta elegans*)

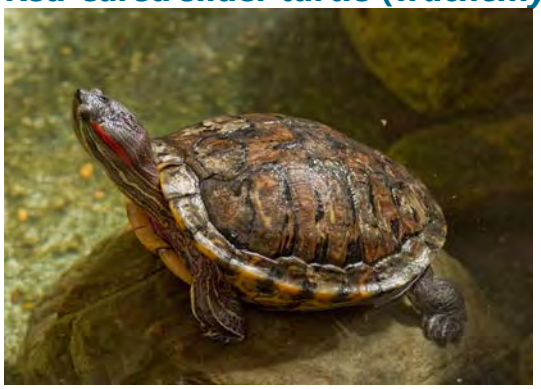


Photo: G Hume

Red-eared sliders are commonly sold as hatchlings, at an upper carapace (shell) length of approximately 4cm. Adults grow up to 30cm long. The carapace is olive to brown with yellow spots/stripes, and the turtles have a distinctive red stripe behind each eye. The diet is omnivorous, including vegetation, zooplankton, molluscs, frogs, crustaceans, insects, gastropods, birds and small reptiles.

Red-eared sliders can inhabit a wide variety of still and slow-moving water bodies including ponds, lakes, wetlands and rivers - including brackish reaches and salt marshes - and drainage ditches. They are capable of rapid range expansion via overland dispersal, and may seasonally use varied habitats on land including golf courses, farmland and forest.

Red-eared slider turtles are classified as one of the "World"s Worst Invasive Alien Species" by the World Conservation Union"s (IUCN) Invasive Species Specialist Group.

Rule 9.2.3

Every person who sees an unconfined red-eared slider turtle or suspects the presence of any unconfined red-eared slider turtle must immediately report the sighting to the council.

Exemption to Rule 9.2.3

Red-eared slider turtles may be held in captivity, bred and sold, but it is illegal to release them into the wild

Snake-neck turtle(*Chelodina longicollis*)

Snake-neck turtle.

Snake-necked turtles are medium-sized turtles, with an average length of 25cm. They have long, narrow necks, with a brown to grey upper surface and yellow underneath, and a shell that is black to light brown oval shell. Snake-neck turtles are endemic to Australia. They are semi-aquatic, preferring slow moving water such as wetlands, lakes, dams and ponds. They are capable of long distance overland migration. If conditions are dry, they will seek out new habitat.

Snake-necked turtles are opportunistic carnivores and feed on a broad range of plankton, bottom-dwelling macro-invertebrates, carrion and terrestrial insects.

There are no known populations established in the wild in Northland or elsewhere in New Zealand. Climatic suitability modelling suggests that snake-necked turtles could find suitable nesting sites in some parts of New Zealand, including Auckland and Northland.

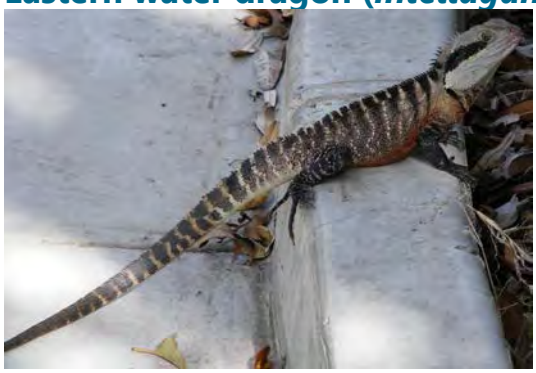
Rule 9.2.4

Every person who sees an unconfined snake-neck turtle or suspects the presence of any unconfined snake-neck turtle must immediately report the sighting to the council.

Exemption to Rule 9.2.4

Snake-neck turtles may be held in captivity, bred and sold, but it is illegal to release them into the wild.

Eastern water dragon (*Intellagama lesueurii lesueurii*)



Photo; Adam J. W. C.

Eastern water dragons are the largest species of exotic lizard available in the New Zealand pet trade and can grow about 80 to 90cm long. Eastern water dragons are a grey to brownish-grey colour above with patterns of black stripes along the ridge of the back as well as down the tail. They have a dark stripe horizontally from the eye extending down the neck. The limbs are mostly black with spots and stripes of grey and the tail is patterned with grey and black stripes. They are coloured yellowish-brown underneath, with the chest and upper belly becoming bright red in mature males. Large adult water dragons have very sharp claws and can deliver a serious bite. They are capable of thriving in urban environments.

There are no known populations currently established in the wild in Northland, or elsewhere in New Zealand. Modelling indicates a very high risk of establishing in the wild in parts of New Zealand. Eastern water dragons could be spread via the pet trade, accidental/intentional release or escape from captivity.

Rule 9.2.5

Every person who sees an unconfined eastern water dragon or suspects the presence of any unconfined eastern water dragon must immediately report the sighting to the council.

Exemption to Rule 9.2.4

Eastern water dragons may be held in captivity, bred and sold, but it is illegal to release them into the wild.

9.3 Progressive containment freshwater pests

Progressive containment freshwater pests are those that are present in the region in numbers that mean eradication is not possible in the short term, but populations can be contained or reduced over time. These freshwater pests can have a severe impact on waterways and are capable of causing adverse effects to the environmental, economic, social or cultural values in Northland.

Objective

For the duration of the Pest Plan, reduce impacts on biodiversity, cultural and economic values by containing and, where practicable, reducing or eradicating populations of pest fish and the geographic distribution of populations of pest fish species in Northland.

Aims

- Existing populations will be monitored and, where appropriate, systems set in place to prevent further spread
- New incursions will be monitored and efforts made to trace their source
- A prompt response with appropriate funding will be initiated to control or manage infestations in Northland
- New technologies and methods will be investigated and introduced where possible.

Banned from sale and distribution

Under sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute, release or otherwise spread any pest in this plan. Not complying with section 52 or 53 is an offence under the Act and may result in the penalties noted in s157(1).

Rules

Rule 9.3.1

Every person who sees, or suspects the presence of, any containment pest fish species outside the identified locations must immediately report the sighting to the council. Any person who catches containment pest fish species intentionally or accidentally in the Northland region must kill them immediately upon capture.

Rule 9.3.2

No person will transport any live or dead containment pest fish species (including spawn and juvenile fish) into or around the Northland region.

Rule 9.3.3

No person will keep any live containment pest fish species (including spawn and juvenile fish) in captivity or for resale purposes in the Northland region.

A breach of these rules will result in an offence under Section 154 N(19) of the Act.

Principal measures

Requirement to act

- People are required to report the presence or suspected presence of the freshwater progressive containment pests outside the mapped containment areas.
- The purpose of the rules is to assist in the progressive containment of freshwater pests in Northland.

Council inspection

- Council staff and/or their contractors will conduct searches in areas that are vulnerable to infestation by the progressive containment freshwater pests.
- Council staff may undertake compliance activities when required, such as rule enforcement, action on default, prosecution and processing exemptions.

Service delivery

- Eradication and/or reduction of infestations of the progressive containment freshwater pests may be attempted by the council in conjunction with relevant Crown agencies and stakeholders where practicable.

Advocacy and education

- Council staff will assist land occupiers to develop management plans.
- Council will provide training to relevant council staff and stakeholders in the identification of pests to assist in early detection.
- Council staff will provide advice, attend events and undertake publicity campaigns to increase public awareness of pests.

Other relevant legislation or programmes

Koi carp is listed as an unwanted organism under the Biosecurity Act 1993 and a noxious pest fish under the Freshwater Fisheries Regulations 1983. Perch and tench are considered sport fish by coarse anglers, however there is no catch or weight limit set by Fish and Game New Zealand in the Northland region. The introduction of any aquatic life into an area where it does not already occur is an offence under Part 5b (26ZM) of the Conservation Act 1987.

Koi carp (*Cyprinus carpio*)

Photo: DOC

Koi carp are an ornamental strain of common carp. Body colouration is variable, often in a blotchy pattern, which can include black, red, orange, gold and white. They have two pairs of barbels around the mouth. Koi carp grow up to around 700mm long. They are bottom-feeding omnivores and eat plankton as juveniles. Adults mainly eat macro-invertebrates, but also some plant material and fish eggs/larvae.

Koi carp grow rapidly, and have wide environmental and habitat tolerances, including poor water quality. When feeding, koi carp suck up and expel material from the bottom, filtering out edible material. They can greatly increase the turbidity of the water because they are constantly stirring up and dislodging the substrate. Koi prefer still or slow moving freshwater bodies, especially shallow, warm water. They may spend a lot of time in one area, but some individuals undertake long distance movements (greater than 20km in some cases), particularly during the spawning season.

Koi carp reach sexual maturity early in New Zealand; males mature by two years old, females by three years old. The time to maturation is influenced by water temperature. Multiple spawning events (batches) can occur within one season, and koi carp are highly fertile. Eggs stick to submerged vegetation and reproduction may be limited in habitats devoid of vegetation. Where available they will seek off-stream wetland habitats for spawning.

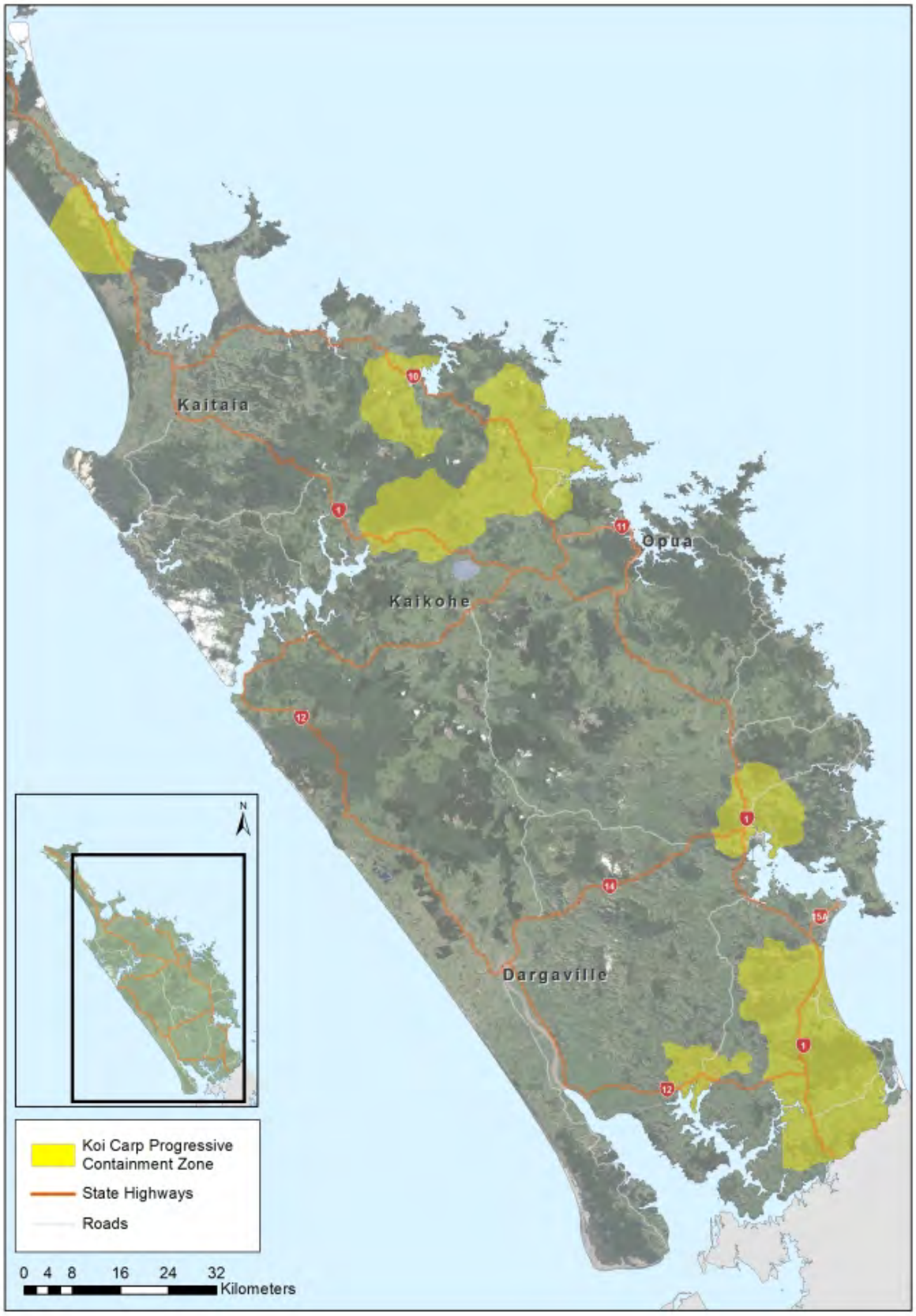


Figure 9.1 Koi carp progressive containment zones - Map 1

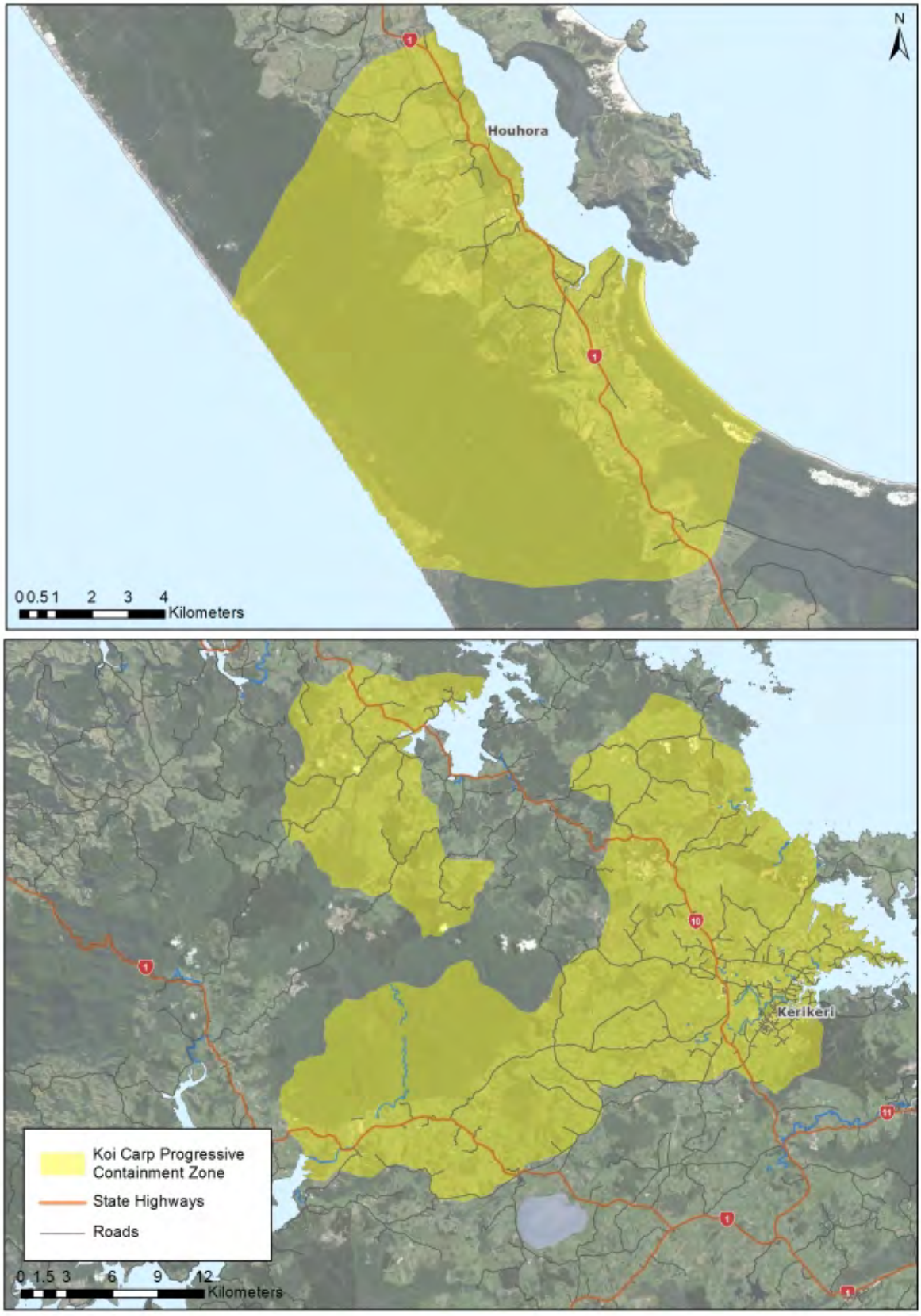


Figure 9.2 Koi carp progressive containment zones - Map 2

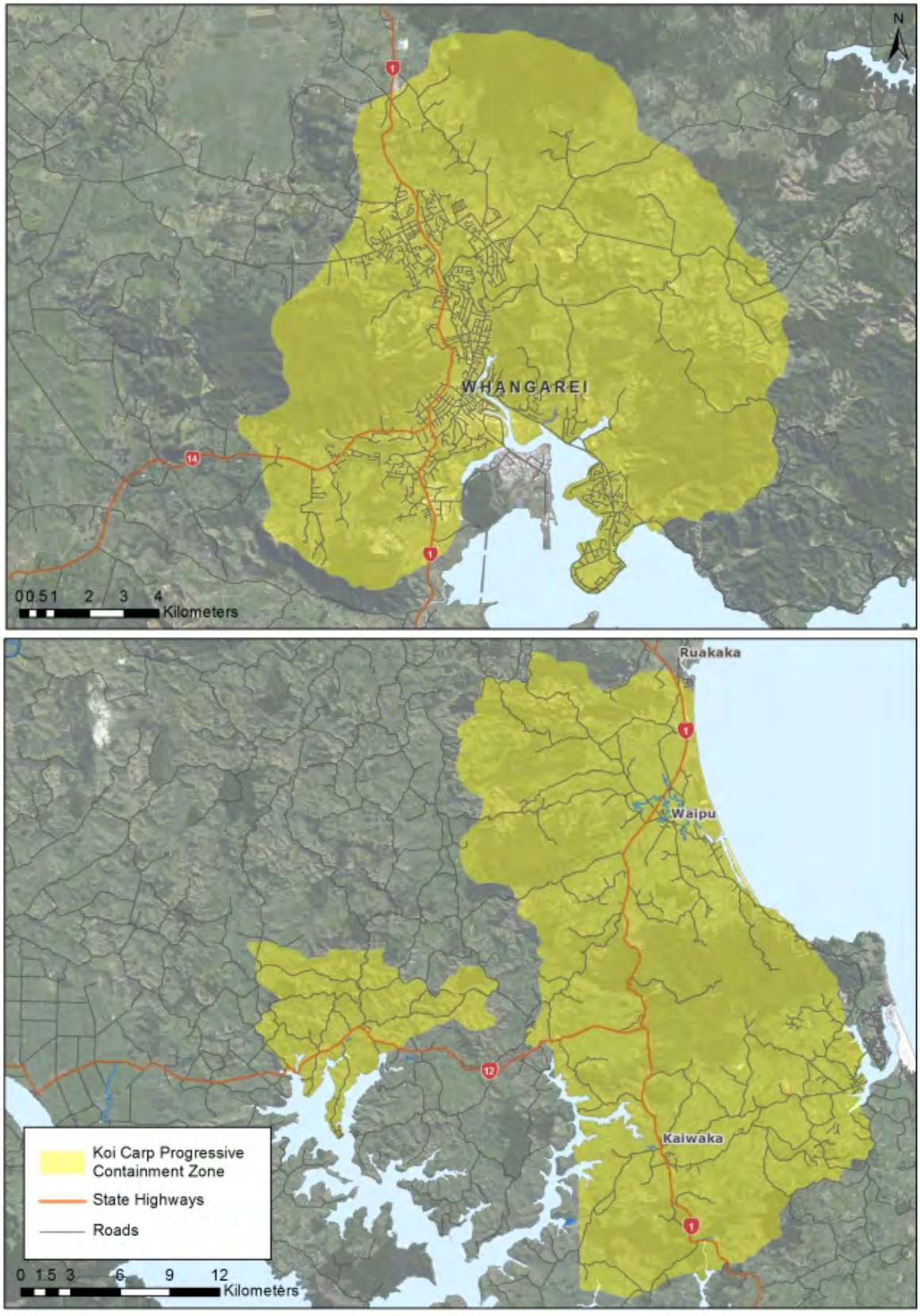


Figure 9.3 Koi carp progressive containment zones - map 3

Perch (*Perca fluviatilis*)

Perch are olive green-grey, with six or more dark vertical bands across their sides. The pelvic and anal fins and lower half of the tail are bright red-orange. Adults are reported at around 400-450mm long and1-2kg overseas. The fish are predominantly active during the day and are Known to live to 20 plus years overseas. Perch shoal as young and are more solitary as adults. The larvae eat free swimming zooplankton and larger juveniles eat bottom-dwelling macro-invertebrates. Adults mainly eat other fish (including cannibalising juvenile perch). Perch are a warm-water species and becomes less active during winter, but tolerate a wide temperature range.

Photo; P. Spaans

The spread of perch in Northland beyond known locations should be avoided as far as possible as this species has the potential to create major problems in lakes through its effects on water quality and endemic biodiversity. Perch have the potential to significantly alter native freshwater communities through predation and competition with native fish species. They show habitat and behavioural flexibility and fill a niche not represented within native freshwater fauna. Perch can dominate fish fauna of freshwater bodies and are invasive overseas.

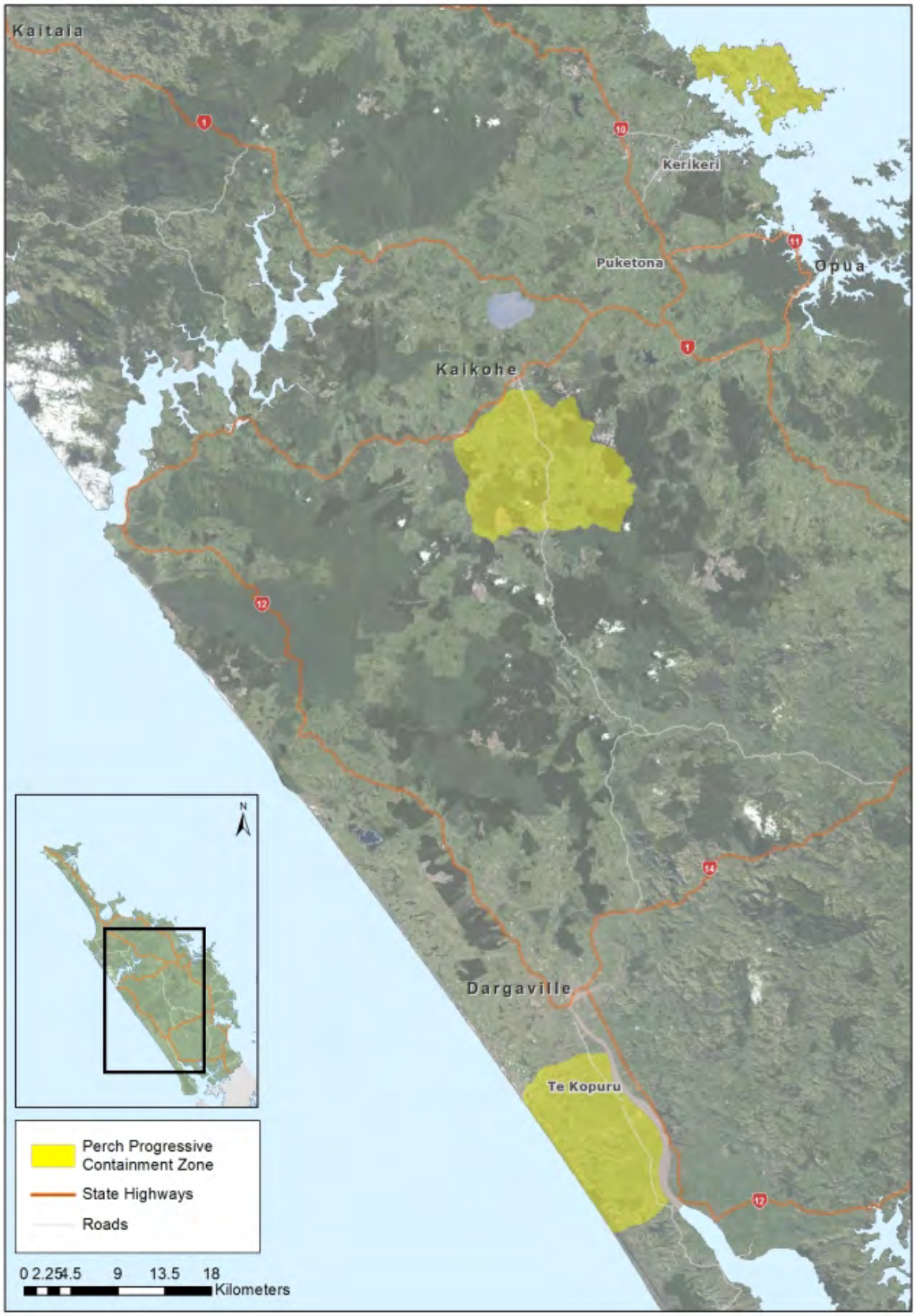


Figure 9.4 Perch progressive containment zone - map 1

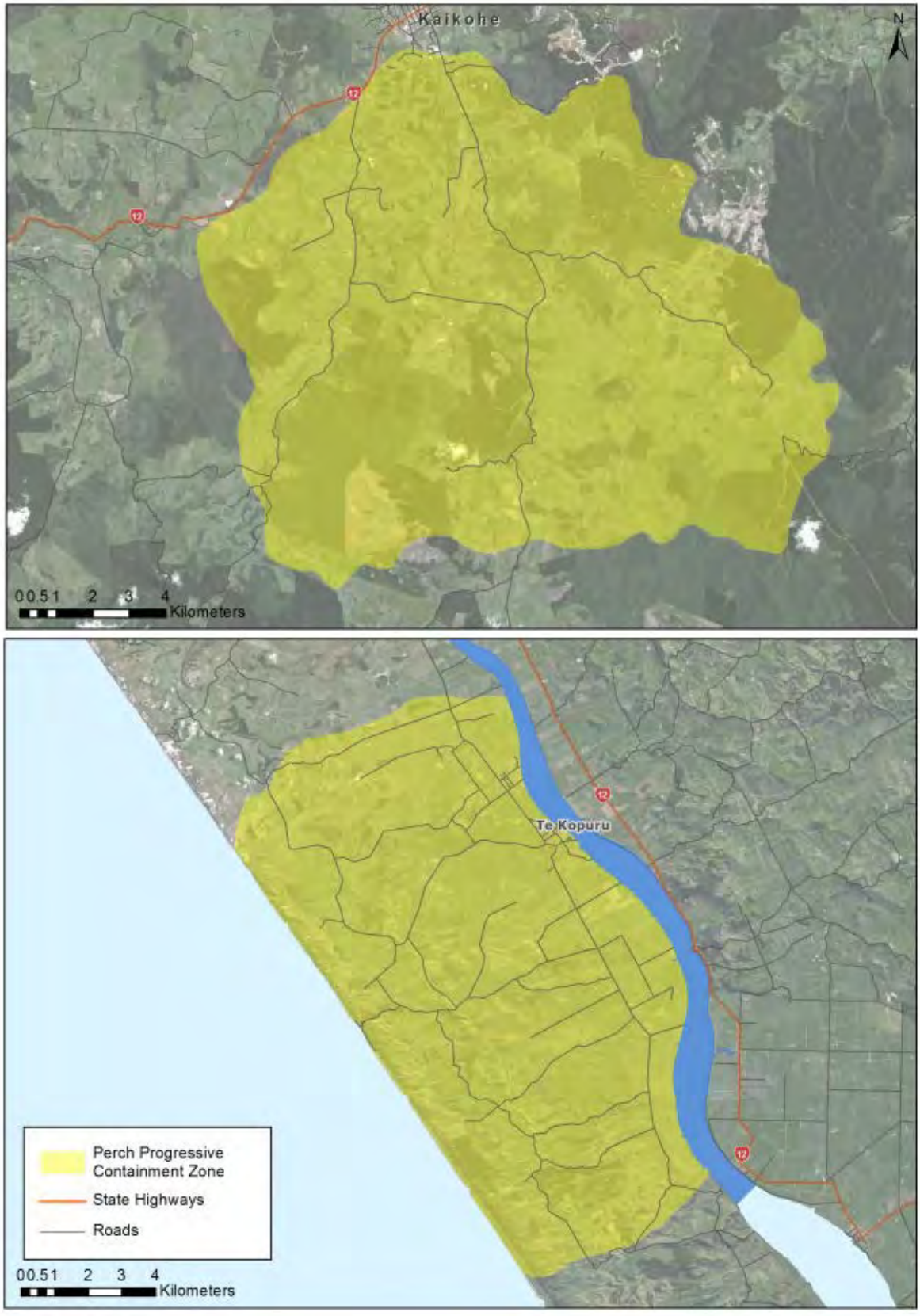


Figure 9.5 Perch progressive containment zone - map 2

Tench (*Tinca tinca*)

Photo; S. Ziernert

Tench were first introduced to New Zealand in 1867 as a sport fish. They grow to a large size in New Zealand and fish weighing more than 2kg are not uncommon. Tench are usually olive green-bronze in colour, with red eyes, two barbels, large soft-rayed fins and copious mucous. Adults are about 30-40cm long (sometimes up to 70cm) and the lifespan is around five-plus years. Male and female fish look slightly different. Juveniles predominantly feed on zooplankton. Adults are primarily bottom feeders, preferring small molluscs when available, but can survive solely on zooplankton when alternative food sources are absent. Tench are predominantly nocturnal foragers and are a warm water species, becoming less active during winter.

Tench are found in shallow regions of warm, still or slow moving freshwater bodies with soft substrates (mud/silt/sand) and preferably some submerged vegetation. They tolerate very low oxygen levels, high turbidity, brackish water and a wide pH range. Tench spawn in shallow water, broadcasting eggs over substrate. They can spawn more than once within one season. Warmer temperatures favour earlier sexual maturation and higher fertility. Tench have the potential to significantly alter native freshwater communities. They have few predators in New Zealand.

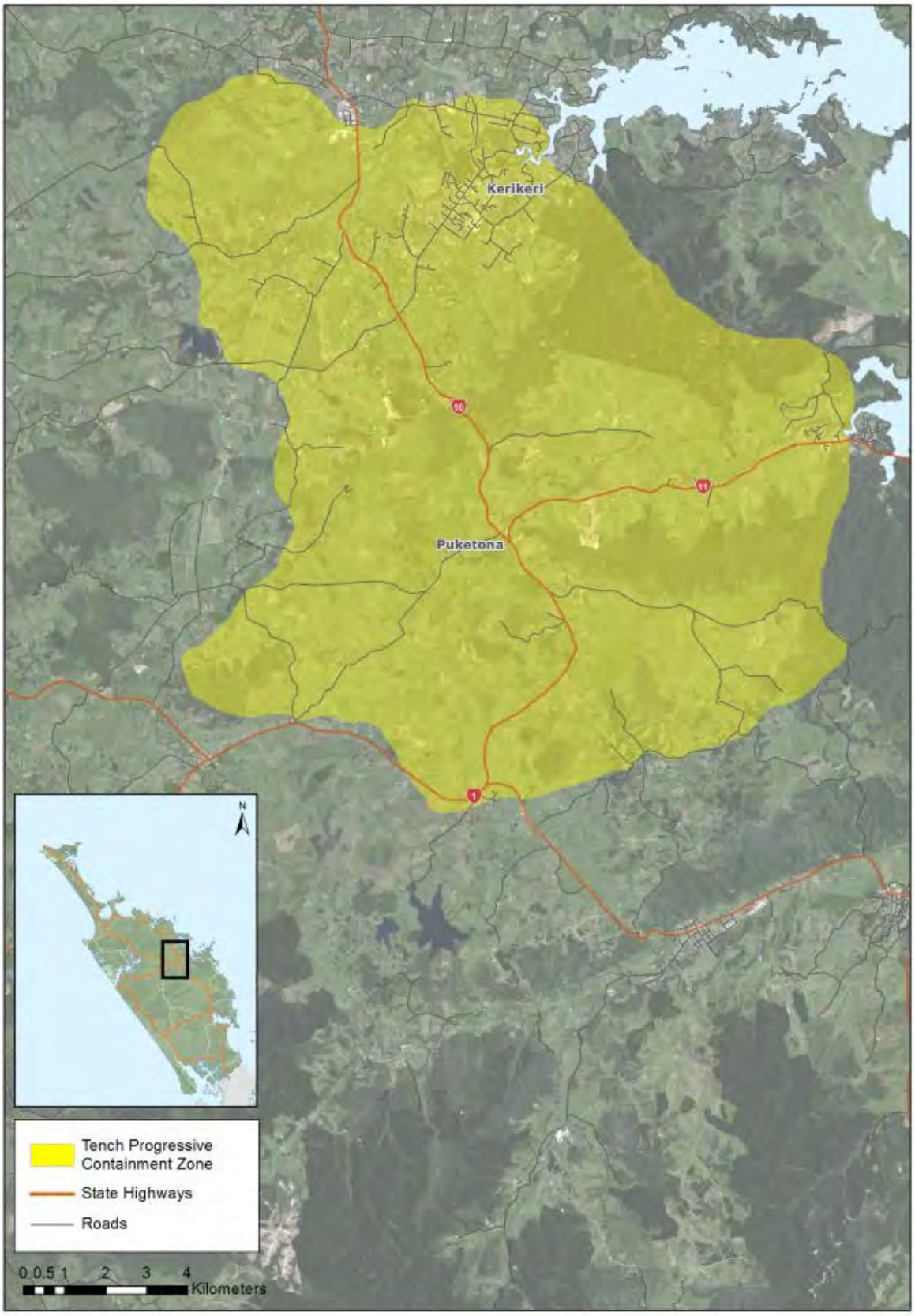


Figure 9.6 Tench progressive containment zone

9.4 Sustained control freshwater pests

The freshwater pests in the sustained control programme are pests that are widespread in suitable habitats throughout Northland. These pests all cause adverse effects to the environmental, economic, social or cultural values of the region. Biodiversity projects involving the freshwater sustained control pests are managed outside the pest management plan through the Biosecurity Partnerships Programme.

Objectives

For the duration of the Pest Plan, reduce impacts to biodiversity, cultural and economic values by controlling identified pests in Northland and prevent unreasonable impacts from these sustained control pests spreading.

Aim

To help landowners, occupiers and the public gain knowledge and skills to help reduce the impacts and spread of the sustained control pests.

Banned from sale and distribution

Under sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute, release or otherwise spread any pest in this plan. Section 53 also includes organisms which may contain or harbour a pest or unwanted organism. Not complying with section 52 or 53 is an offence under the Act, and may result in the penalties noted in s157(1).

Rules

Rule 9.4.1

Any person who catches sustained control pest fish species intentionally or accidentally in the Northland region must kill them immediately upon capture.

Rule 9.4.2

No person will transport any live or dead sustained control pest fish species (including spawn and juvenile fish) into or around the Northland region.

Rule 9.4.3

No person will keep any live sustained control pest fish species (including spawn and juvenile fish) in captivity or for resale purposes in the Northland region.

A breach of these rules will result in an offence under Section 154 N(19) of the Act.

Principal measures

Requirement to act

- People are required to undertake actions to help reduce the impacts and spread of the freshwater sustained control pests.
- The purpose of the rules is to assist in reducing the impacts of the freshwater sustained control pests in Northland on values and spread to other properties.

Council inspection

- Council staff and/or their contractors may visit places to determine whether rules and management programmes are complied with and effective.
- Council staff may undertake compliance activities such as rule enforcement, action of default, prosecution and exemptions.

Service delivery

- Council staff will provide education and advice to owners, occupiers and the public about the freshwater sustained control pests and how to control them.

Advocacy and education

- Council will provide training to relevant council staff and stakeholders in the identification and control of the freshwater sustained control pests.
- Council will provide advice, attend events and undertake publicity campaigns to increase public awareness of these freshwater pests.

Other relevant legislation or programmes

Rudd are listed as a noxious pest fish under the Freshwater Fish Regulations 1983 and as a sport fish under Schedule 1 of that Act. However, there is no catch or weight limit set by Fish and Game New Zealand in the Northland region. The introduction of any aquatic life into an area where they do not already occur is an offence under Part 5b (26ZM) of the Conservation Act 1987.

Brown bullhead catfish (*Ameiurus nebulosus*)

Photo; M. Kesl

Brown bullhead catfish are a dark brown to olive green colour with paler sides and bellies. They have eight distinctive barbels around the mouth, small eyes and smooth, scaleless skin. The leading edge on their dorsal and pectoral fins has a sharp toxic spine.

Catfish are found in lakes and slow-moving water bodies including streams and drainage channels. They favour areas with submerged vegetation. Tolerance of poor water quality enables them to cope with habitats that many other species are unable to tolerate. Tolerance of low oxygen levels could also increase their chance of survival if people move them between water bodies.

Catfish form pair-bonds and are territorial during the preparation of the spawning site and during spawning. They are one of the few freshwater fish species that provide parental care of their broods, significantly increasing offspring survival. Catfish are now well established in the Wairoa River catchment, but they appear to be relatively scarce elsewhere in Northland (only 10 known sites). Catfish could be readily spread from the Wairoa River catchment to a range of other waters, including lakes, in Northland.

Rudd(*Scardinius erythrophthalmus*)

Photo; U.S. Geological Survey

Rudd were illegally imported into New Zealand in 1967, and widely released into freshwater systems. Rudd are darker on their backs than on their bellies and have bronze highlights when the light catches their scales. Their fins are usually bright reddish-orange. They do not have spines on the front edge of the dorsal fin, but have projections at the bases of their pectoral and pelvis fins. Rudd are usually 200-250mm long.

Rudd are restricted mainly to lakes and ponds in Northland. Current data indicates they are present in Lakes Rototuna, Ngatu, Parawanui, Kapoai and Kai Iwi, along with four unnamed lakes and ponds. Populations have been recorded in the Waitangi River and a small tributary of the Wairoa River.

Rudd are prolific breeders. Juvenile rudd are carnivorous, but as adults their diet consists mainly of aquatic plants. A high-density rudd population could impact on native fish and plant communities, particularly where plant communities are limited. Rudd are often caught for sport by coarse anglers.

10 Marine | Wai moana

Northland's coastal marine area is of significant economic, ecological, social and cultural value, comprising approximately 3000 kilometres of coastline, encompassing offshore islands and stacks, 17 harbours and major estuaries, and extensive stretches of rocky and sandy open coast. It also includes a vast expanse of shallow and deep subtidal habitats, ranging from rocky reefs to sand or mud bottom areas. Largely due to this diversity of habitat and the region's warm subtropical climate, Northland has a greater biodiversity of marine fish and invertebrates than any other region in New Zealand. It also contains marine ecosystems of national and regional importance, including two marine reserves and a number of nursery areas for economically and culturally significant fish stocks.

The Poor Knights Islands Marine Reserve off the Tutukaka coast exemplifies Northland's high marine biodiversity values.

Marine pest and pathways management

Once introduced, marine pests have the potential to impact on the region's natural environment, human health and Māori values and cause serious harm to Northland's economy, in particular the aquaculture, fishing, and tourism industries. The subtropical climate that creates high biodiversity also encourages many pest species to survive and spread. Marine pests can be difficult to detect (more so than pests on land) and can easily spread through a fluid environment. Both this difficulty in detection and the limited number of management tools available make effective marine pest management challenging and expensive.

The council is proposing a three-pronged approach to manage the risks posed to our environment by marine pests:

1. The Marine Pathway Management Plan will deal with the spread of new marine pests into, and around, Northland before they become established;
2. The inclusion of marine pests in the Regional Pest Management Plan is designed to help the council and the public manage the impacts of marine pests already present in the region; and
3. The new Regional Plan will have provisions to deal with the discharges from in-water boat hull cleaning.

The marine pest and pathway management rules will apply to the area around Northland's coast from Mean High Water Springs (MHWS) to the 12 nautical mile (22.3 kilometre) limit of New Zealand's territorial sea (the Northland coastal marine area).

Management of marine pests in Northland will align with policies and objectives in both the Northland Regional Council's Long Term Plan 2015-2025 and the Regional Plan.

10.1 Marine Pathway Plan

Introduction

A pathway plan is designed to prevent marine pests from reaching new areas, rather than responding to a pest once it has arrived and had time to establish. Put simply, 'pathways' are human activities that may transport a (marine) pest from one place to another; for example, hull biofouling, ballast water, movement of aquaculture equipment.

Experience has shown that the eradication and control of established marine pest populations is difficult and expensive, therefore reducing the spread of marine pests through management of pathways is a high priority. An effective pathways plan will not only prevent incursions of new marine pests into the region, but will also reduce the spread of harmful marine species that are already established in Northland's coastal marine area .

As well as addressing recognised harmful marine organisms, pathways plans have the benefit of including all of the unknown or potential risk species that may be associated with a pathway, irrespective of their designated pest status. The pest management national plan of action clearly defines roles and responsibilities of agencies within the scope of marine biosecurity. The Ministry for Primary Industries manages border biosecurity, the national high-risk site surveillance and national incursion responses. The Ministry for Primary Industries is also responsible for setting marine pest priority species at a national level and carrying out the risk assessments of new-to-New Zealand organisms. At the time of development of this plan, New Zealand has an existing list of 10 marine pests designated as Unwanted Organisms by the Ministry for Primary Industries. However, as these are set at a national level, some of the regionally-specific threats may be overlooked; for example, species that may not pose a threat in cooler southern waters could become problematic if introduced to Northland.

Marine pest pathways into Northland

Biofouling on the hulls of moored, anchored or berthed vessels is widely regarded as an important contributor to the spread and establishment of marine pests. Significant fouling can arise on vessels, particularly those that spend long periods of time idle. Some vessel types (e.g. yachts) also travel at slow speeds, meaning that fouling pests are not dislodged and can easily be transported to new locations.

Both recreational and commercial vessels have the potential to transport marine pests as hull biofouling. Vessels will accumulate local biofouling organisms on their hull during periods of inactivity or when the antifouling coating is not working effectively. This accumulation of local hull fouling may look unsightly but does not pose a biosecurity risk until vessels move and take the local biofouling with them to new locations.

Northland is highly connected to other regions of New Zealand through the movement of both commercial and recreational vessels and it is likely that new species will continue to be introduced unless effective management systems are put in place.

Commercial and recreational vessels arrive into Northland from both domestic and overseas ports. Northland receives about 400 large (>99 tonnes) commercial vessels annually with the vast majority of these being bulk and cargo vessels that travel to Northport in Whangārei Harbour. However, the majority of vessel movements in Northland are visiting recreational vessels (more than 2000 per year). Recreational vessels arrive in Northland from many parts of the country and the region's two customs clearance ports mean it also receives a large proportion of vessels from overseas. Ōpua is among New Zealand's busiest ports for recreational vessels, with more than 1300 long-distance arrivals and departures each year, while Whangārei receives about half that number. Vessel hull biofouling has been implicated in incursions of the 'unwanted organisms' *Sabella spallanzanii* (Mediterranean fanworm) and *Styela clava* (a sea squirt) in Northland.

The Northland marine environment not only supports high biodiversity values, but also has economic and recreational value

Objective

The objective of the Marine Pathway Plan is to prevent the introduction of new marine pests into Northland and slow the spread of established marine pests within Northland.

Aims

For the duration of the plan:

- There will be an increase in the number of vessel owners and/or persons in charge of vessels complying with the Marine Pathway Plan rules;
- There will be an increase in awareness of the risk hull fouling poses to marine pest spread;
- There will be a reduction in the new marine pest introductions to Northland;
- There will be a reduction in the rate of spread of established marine pests within Northland; and
- Appropriate funding and resources will be allocated to the control and/or management of hull fouling in Northland.

Principal measures

Requirement to act

- The person in charge of a vessel is required to ensure there are no pest species or unwanted organisms present on the hull of the vessel.
- The person in charge of a vessel is required to ensure the fouling on the hull of the vessel meets the requirements of the pathway management plan.
- The purpose of the rules is to prevent the spread and establishment of marine pests into and around Northland.

Council inspection

- Council staff and/or their contractors will conduct surveys to assess hull fouling on vessels in all areas within Northland.
- Council staff and/or their contractors will manage compliance activities such as rule enforcement, action on default, prosecution and rule exemption applications.

Service delivery

- Council will support voluntary compliance by vessel owners by funding surveillance and education activities.
- Council will ensure tools and best practice guidelines are available to vessel owners and relevant industries.

Advocacy and education

- Council will encourage owners and/or persons in charge of vessels to control hull fouling.
- Council will work co-operatively with other agencies and stakeholders to facilitate research to understand potential risks of hull fouling, and develop tools and best practice guidelines to manage hull fouling.
- Council will provide training to relevant council staff and stakeholders in the assessment of vessel hull fouling and identification of marine pest species.
- Council will provide advice, attend events and undertake publicity campaigns to increase public awareness of marine pests and hull fouling as a vector of spread.

Marine pests and Unwanted organisms

Even when the requirements of the Marine Pathway Plan rules are met, the following legislation still applies:

Under Sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute or otherwise spread any pest in this plan, or any unwanted organism. Not complying with Section 52 or 53 is an offence under the Act, and may result in the penalties noted in Section 157(1).

Other relevant legislation or programmes

- The Regional Plan has rules relating to in-water cleaning of vessel hulls and marine pests. These rules cover the following sections of the RMA: discharge of contaminants to water (Sections 15(1)(a) and 15B(1)(a)); deposit any substance in, on and under any foreshore or seabed (Section

12(1)(d)), and introduce or plant any marine pest in, on and under any foreshore or seabed (Sections12(1)(f) and 12(3)(a)).

- The pathway plan rules will not apply to international vessel arrivals because the Pest Management National Plan of Action allocated responsibility for border biosecurity to the Ministry for Primary Industries, which has developed the Craft Risk Management Standard 2014 to manage the risk of international vessels introducing marine pests to New Zealand. This is currently voluntary at the time of development of this plan and will become a statutory requirement from 2018.

Rules

Light fouling on moving vessels or craft.

Rule 10.1.1

The owner or person in charge of a craft entering Northland must ensure that the fouling on the hull and niche areas of the craft does not exceed 'light fouling'.

Rule 10.1.2

The owner or person in charge of a craft moving between 'places' in Northland must ensure that the fouling on the hull and niche areas of the craft does not exceed 'light fouling'.

'Light fouling' is defined as: small patches (up to 100mm in diameter) of visible fouling, totalling less than 5% of the hull and niche areas. A slime layer and/or goose barnacles are allowable fouling.

A breach of this rule will create an offence under section 154 N(19) of the Act.

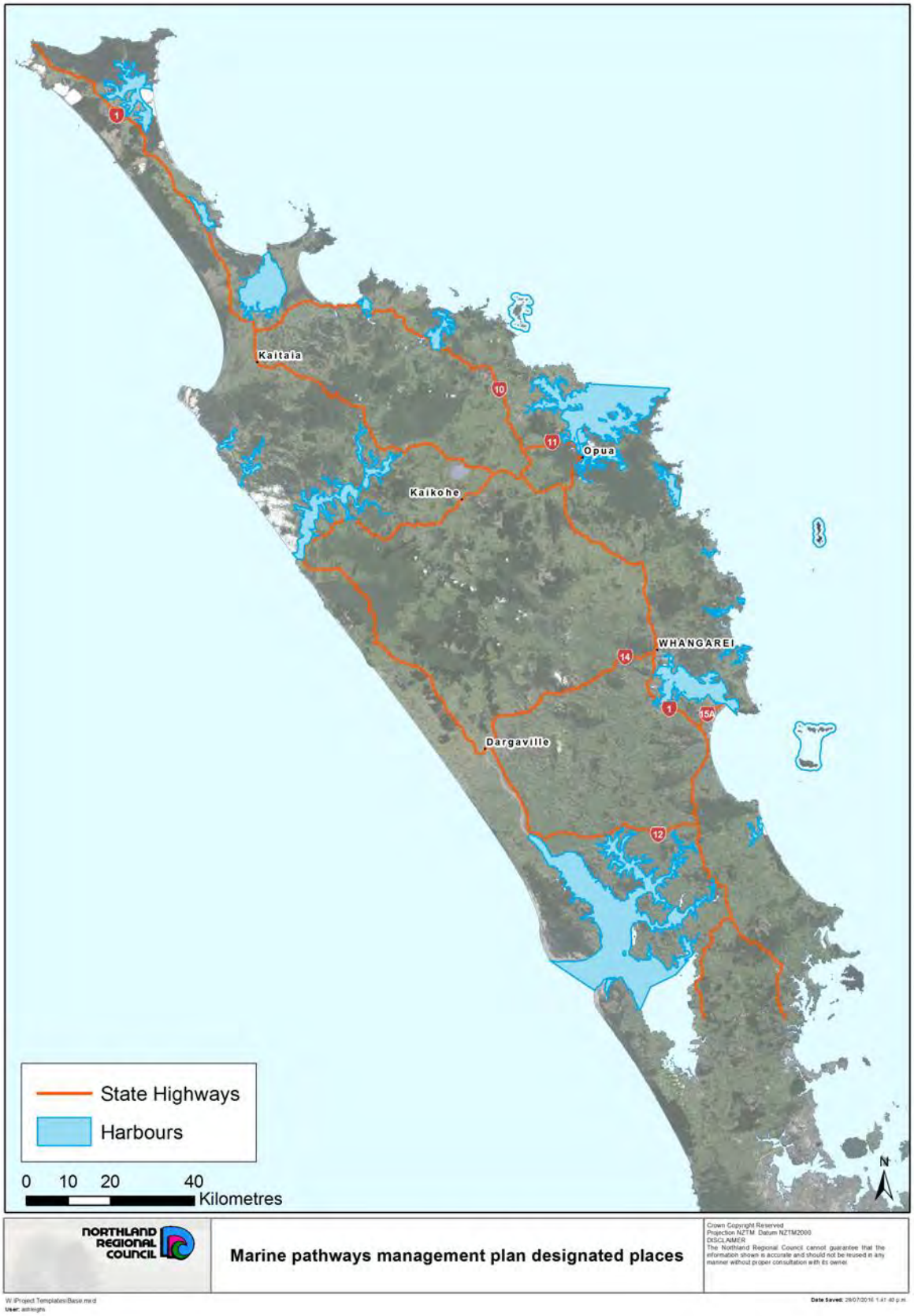
Exemptions

- The above pathway plan rules will not apply to craft entering Northland, or moving between areas in Northland in an emergency situation. For the purposes of this pathway plan, an emergency arises when the craft enters Northland, or moves between areas in Northland, because of an emergency relating to:
- The safety of the craft; and/or the health and safety of any person on board the craft.

Marine Pathway Management Plan designated 'places'

Council has designated harbours and popular anchorages as discrete 'places'. A vessel moving between these designated 'places' must ensure fouling on the hull does not exceed 'light fouling'.

The 'place' boundaries take into account the known marine pest risks of the 'place', common vessel movements and anchorages, and the proximity of haul out or cleaning facilities.



NORTHLAND REGIONAL COUNCIL

Marine pathways management plan designated places

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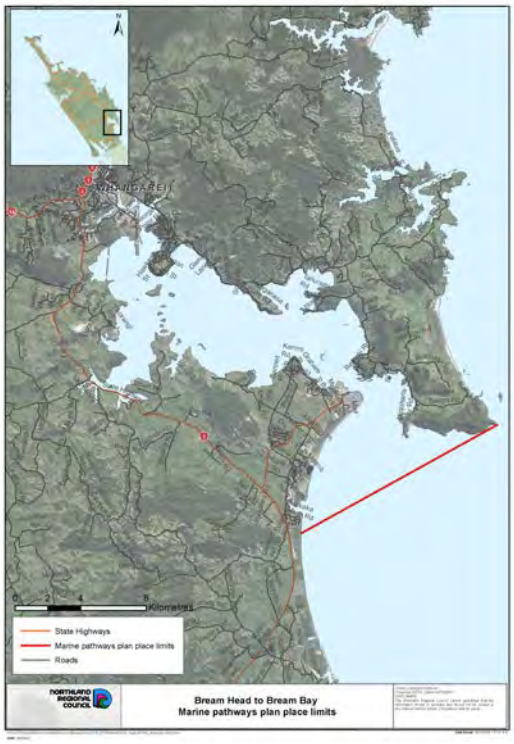
Picture 10.1 Figure 10.1 Map of the harbours and popular anchorages designated as discrete 'places' in the Marine pathway plan

Picture 10.2 Marine pathways plan designated 'place' limit for Bay of Islands

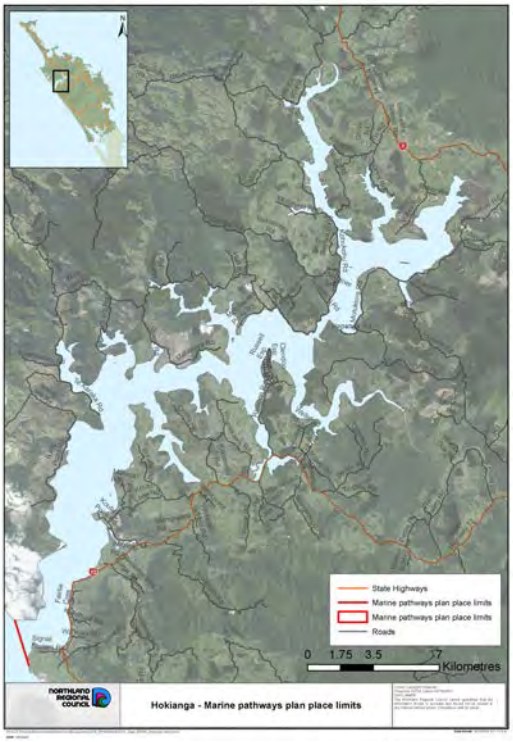
Picture 10.4 Marine pathway plan designated 'place' limit for the Cavalli Islands



Picture 10.3 Marine pathway plan designated 'place' limit for Bream head to Bream bay

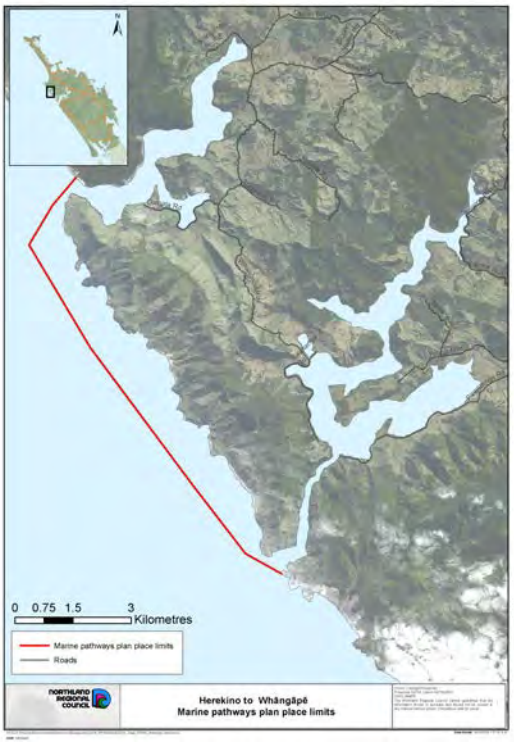
Picture 10.5 Marine pathway plan designated 'place' limit for Doubtless Bay

Picture 10.6 Marine pathway plan designated "place" limit for the Hen & Chicken Islands (800m from closest land)



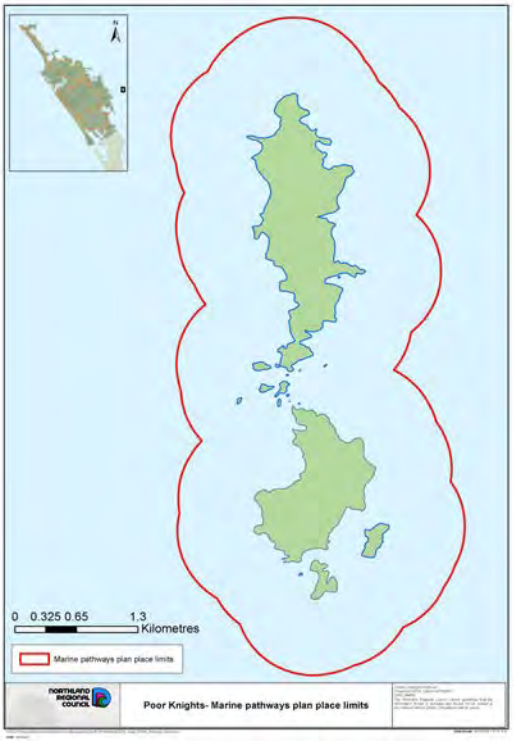
Picture 10.9 Marine pathways designated 'place limit for Hokianga Harbour

Picture 10.7 Marine pathways designated 'place limit for Mangawhai Harbour and Waipu estuary

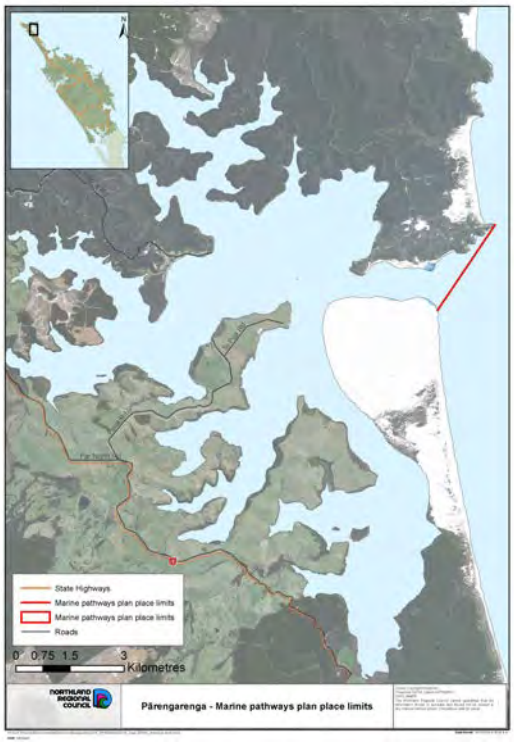


Picture 10.8 Marine pathways designated 'place limit for Whangape and Herekino harbours

Picture 10.10 Marine pathway plan designated 'place' limit for Houhora Harbour

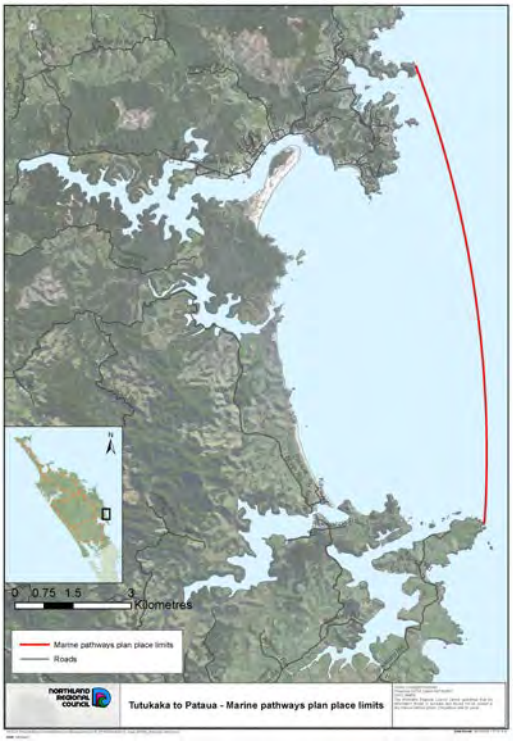


Picture 10.12 Marine pathway plan designated 'place' limit for the Poor Knights Islands

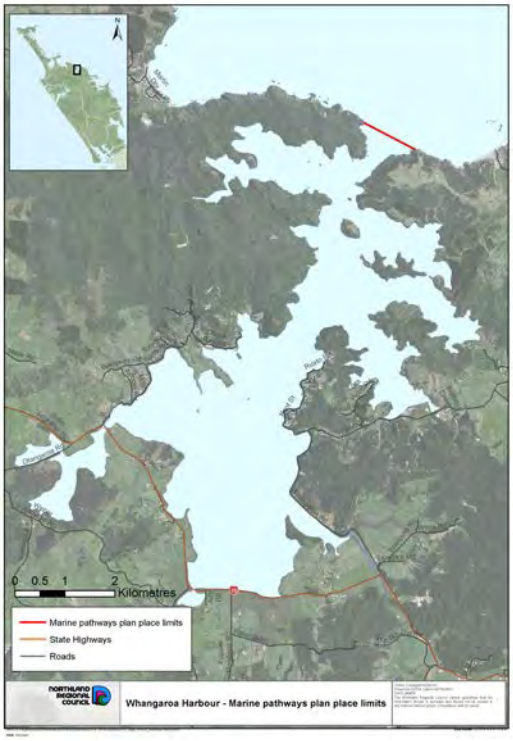


Picture 10.11 Marine pathway plan designated 'place' limit to Parengarenga Harbour

Picture 10.13 Marine pathway plan designated ' place' limit for Rangaunu Harbour

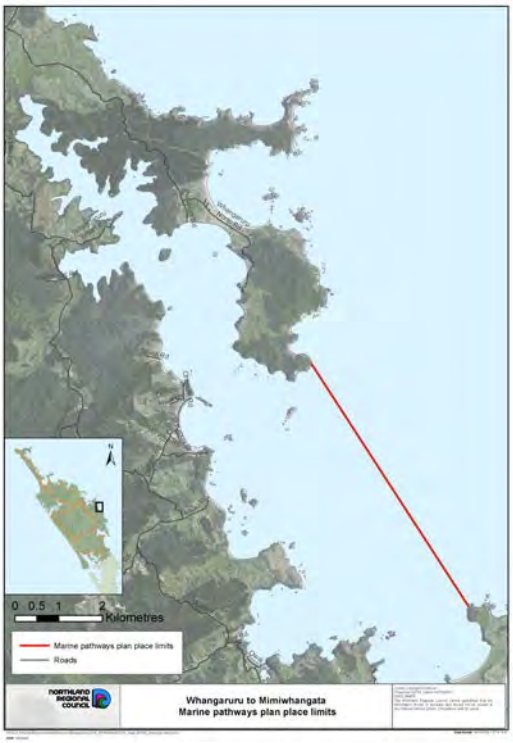


Picture 10.14 Marine pathway plan designated 'place' limit for Tutukaka harbour to Pataua estuary



Picture 10.16 Marine pathway plan designated 'place' limit for Whangaroa Harbour

Picture 10.15 Marine pathway plan desginated 'place' limit for Whananaki Harbour



Picture 10.17 Marine pathway plan designated ' place' limit for Whangaruru Harbour

10.2 Sustained control marine pests

The marine pests in the sustained control programme are pests that are already established in suitable habitats throughout Northland. These pests all cause adverse effects to the environmental, economic, social or cultural values of the region.

Objective

For the duration of the Pest Plan, reduce the impacts of sustained control marine pests on the biodiversity, cultural and economic values in the Northland coastal marine area.

Aim

- To help marine stakeholders, coastal marine area occupiers, vessel owners and the public to gain knowledge and skills to help reduce the impacts and spread of the sustained control pests.

Banned from sale and distribution

Under Sections 52 and 53 of the Biosecurity Act 1993 no person can sell, propagate, breed, distribute or otherwise spread any pest in this plan. Not complying with Section 52 or 53 is an offence under the Act, and may result in the penalties noted in Section 157(1).

Rules

Rule 10.2.1

No person shall knowingly transport, distribute, sell or offer for sale any material or equipment that may contain or harbour a marine sustained control pest without first undertaking suitable measures to ensure all marine sustained control pests are removed or rendered non-viable.

A breach of this rule will create an offence under Section 154 N(19) of the Act.

Other relevant legislation or programmes

Biodiversity programmes and community-led projects involving the sustained control pests are managed outside the pest management plan through the 'Biosecurity Partnerships' programme.

Principal measures

Requirement to act

- People are required to undertake actions to help reduce the impacts and spread of the sustained control pests.
- The purpose of the rules is to assist both in reducing the impacts of sustained control pests in Northland on values, and the spread of sustained control pests to other places within and beyond the Northland coastal marine area.

Council inspection

- Council staff and/or their contractors may visit places and conduct surveys to determine whether rules and management programmes are complied with and effective.

Service delivery

- Council staff will provide education and advice to stakeholders, occupiers and the public about the sustained control pests and how to manage them.

Advocacy and education

- Council will provide training to relevant council staff and stakeholders in the identification and control of the sustained control pests.
- Council will provide advice, attend events and undertake publicity campaigns to increase public awareness of these marine pests.

Asian paddle crab*(Charybdis japonica)*

Asian paddle crabs are relatively large swimming crabs with paddle-like hind legs.The carapace (shell) of adults can reach 12cm across and is covered in small hairs (which are not always visible). The adults also have six distinct spines or spikes on each side of the carapace below the eyes. There are also five prominent spines on the upper surface of each claw. The crabs range in colour from pale-green or olive-green to a deep chestnut-brown with purplish markings on the shell.

They are are typically found in estuaries where there is firm sand, muddy fine sand, or muddy-shelly fine sand. These crabs are very aggressive and have the potential to compete with native crabs for space and food. They also prey on native species including shellfish, fish, other crustaceans and polychaete worms. This species has a number of life history traits that make it a good invader: a long larval life that facilitates spread, rapid growth to maturity, high reproductive rates, high environmental tolerance and a broad diet.

Rule 10.2.2

Any person who catches Asian paddle crabs in Northland intentionally or accidentally must kill them immediately.

Rule 10.2.3

No person is allowed to transport any live Asian paddle crabs, eggs and larvae into or within Northland.

Rule 10.2.4

No person is allowed to keep any live Asian paddle crabs, eggs and larvae in captivity or for resale purposes in the Northland region.

Exemption to rules 10.2.2 to 10.2.4

Any person, company or stakeholder that wishes to catch Asian paddle crabs for commercial purposes must apply in writing for a permit from the council.

Australian droplet tunicate *(Eudistoma elongatum)*

Photo; H Blomfield

The Australian droplet tunicate is a type of sea squirt. It forms large colonies that look like clusters of white or cream-coloured cylindrical tubes. Each colony contains numerous small individuals and they can appear orange flecked due to the colour of the larvae within them. The Australian droplet tunicate is firm and gelatinous to the touch and the cylindrical colonies are generally 5-30cm long, but can occasionally reach 1.5m in length. Colonies over-winter as small cream buds, re-growing into larger colonies when the conditions are favourable.

The Australian droplet tunicate is able to occupy a wide range of lower inter-tidal and shallow sub-tidal habitats in both sheltered bays and semi-sheltered coastlines. It is generally found in soft-bottomed tidal habitats and on hard structures such as wharf piles, aquaculture equipment and mangrove roots. The Australian droplet tunicate competes with native species for both space and food. It has a rapid growth rate, can inhabit a wide range of habitats, and can reach high abundances. The larvae of Australian droplet tunicates can disperse naturally with water currents. Australian droplet tunicates are most commonly spread as fouling on marine farming equipment and potentially as fouling on boat hulls.

Rule 10.2.5

Owners of structures in the Northland coastal marine area must implement an approved management plan to reduce the risk of Australian droplet tunicates spreading where an authorised person identifies the property or structure as high risk.

Japanese mantis shrimp*(Oratosquilla oratoria)*

Photo; Dr S. Ahyong

The Japanese mantis shrimp is a large light grey mantis shrimp that can grow up to 185mm long. As with other mantis shrimp, it has two long spiny claws to capture food. Japanese mantis shrimp has red-maroon ridges running down the mid-length of its body, and the outer surface of the tail fan is blue and yellow (it is grey and yellow in the native species). Japanese mantis shrimp live in burrows in soft sediments, sand and mud in sheltered bays and estuaries. It is native to the north-west Pacific where it is most common in the temperate waters of China and Japan.

In New Zealand, Japanese mantis shrimp has been reported in harbours along the west coast of the North Island. It was found in the Kaipara Harbour in 2009 and has subsequently been discovered in the Hokianga Harbour and reported in the Waikare Inlet. The Japanese mantis shrimp preys on shrimps, crabs and juvenile fish and can alter habitats through its burrowing activities.

Rule 10.2.6

Any person who catches Japanese mantis shrimps in Northland intentionally or accidentally must kill them immediately.

Rule 10.2.7

No person is allowed to transport any live Japanese mantis shrimp, their eggs and larvae into or around Northland.

Rule 10.2.8

No person is allowed to keep any live Japanese mantis shrimp, eggs and larvae in captivity or for resale purposes in Northland.

Exemption to rules 10.2.6 to 10.2.8

Any person, company or stakeholder wishing to catch Japanese mantis shrimps for commercial purposes must apply in writing for a permit from the council.

Mediterranean fanworm*(Sabella spallanzanii)*

Mediterranean fanworm is a large tube-dwelling bristle worm that is typically found in estuaries and sheltered sites up to depths of around 30m. Mediterranean fanworm consists of a tube up to 80cm tall, which is always anchored to a hard surface, topped with a single spiral fan (radiole). The tube is tough and flexible and often muddy in appearance. It can often have other organisms growing on the surface. Mediterranean fanworm can live in most artificial and natural habitats in the marine environment but it will not tolerate freshwater. It is generally found on hard sub-tidal structures, but can also be buried up to 10cm deep in soft substrates. It is also a fouling species on moored vessels and this is the most common way it is spread.

Mediterranean fanworm can form dense beds that are likely to out-compete other species, clog fishing gear and dredges, and interfere with biological processes. It has the potential to compete with native filter-feeding organisms for food and space, and in high densities is likely to impact commercially on important species (mussels, oysters, scallops, etc). Mediterranean fanworm is established in the Whangārei Harbour, Waitemata Harbour and elsewhere in the Auckland region and in Lyttelton Harbour.

Rule 10.2.9

Owners of structures in the Northland coastal marine area must implement an approved management plan to reduce the risk of Mediterranean fanworm spreading, where an authorised person identifies the property or structure as high risk.

Pyura sea-squirt*(Pyura praepetualis and Pyura doppelgangera)*

Formerly known as *Pyura stolonifera praeputialis*

The pyura sea-squirt has a sack-like body with a brown, or reddish-brown, leathery skin. There is sometimes sand and shell material incorporated into the outer skin and other sea life such as sea lettuce can grow on and around them. Each sea squirt has two siphons or holes for inhaling and exhaling sea water and adults grow up to 15cm or more in height and around 3 to 5cm in diameter. The only visible difference between the two species of sea-squirt is that *Pyura praepetualis* generally grows to a larger size.

The pyura sea-squirts are native to Australia and South America, and have established at a number of sites in the Far North. They generally inhabit the low to mid-intertidal, zone as well as shallow subtidal areas less than 12m deep. In New Zealand, they mainly colonise rocky platforms and outcrops, rock pools and the underside of rock overhangs, but they are also found on artificial structures such as oyster farms and wharf piles. Aggregations are often in very exposed areas with strong wave or tidal action. The pyura sea squirt is an aggressive competitor for space and has the potential to significantly alter the structure and composition of intertidal communities. Dense mats have already engulfed and displaced native green-lipped mussel beds in some areas of the Far North.

Styela sea squirt*(Styela clava)*

Photo; M. Conmee

Steyla sea squirt is a large, solitary sea squirt that is native to the north-west Pacific. The styela sea squirt has a long, club-shaped body and uses a short, tough stalk to attach to substrate. Its surface is leathery and usually brown in colour; however, underwater it can appear fuzzy with secondary growth coating it. Styela sea squirts grow attached to hard artificial and natural surfaces and are frequently transported as biofouling on vessels and other mobile marine structures.

The Sytela sea squirt poses a threat to biodiversity values through its smothering behaviour. It can multiply rapidly and forms dense stands in suitable sites and competes with other filter feeders for space and food. As a result it can disrupt native ecosystems. The Styela sea squirt can also add significant maintenance costs to marine structures and vessels through its fouling behaviour. Styela is established in Northland and is prevalent in Marsden Cove Marina and Bay of Islands (Ōpua) Marina.

Rule 10.2.10

Owners of structures in the Northland coastal marine area must implement an approved management plan to reduce the risk of Styela sea squirt spreading, where an authorised person identifies the property or structure as high risk.

Undaria seaweed*(Undaria pinnatifida)*

Undaria is a large seaweed that grows to 1 to 2m long. Mature plants are golden brown or green-brown in colour, crinkly in appearance, slightly slimy to the touch, and have a distinct midrib. Juvenile plants have an undivided blade which looks like a single leaf with the midrib starting to become apparent once the plant grows more than 5cm. Undaria plants have a holdfast, a stem and a sporophyll at the base of the stem (a frilly-shaped reproductive structure which produces spores).

Undaria is present in many harbours and ports around New Zealand and is established in Rangaunu and Houhora harbours. Undaria can produce millions of spores, tolerate a wide range of light levels and grow on a variety of surfaces. These characteristics allow it to spread rapidly in favourable conditions and form dense underwater forests. Through competition for light and space, stands of Undaria can displace native species and alter habitats.

11 Monitoring | Aroturuki

11.1 Measuring what the objectives are achieving

Anticipated result	Indicator	Method of monitoring	Frequency of monitoring	Frequency of reporting
Exclusion	Presence/absence	Field inspections, public reports	At least once annually or as reports are received.	Annually and as required
Eradication	Presence/absence	Field inspections, public reports	At least once annually or as reports are received.	Annually and as required
Progressive containment	Presence/absence distribution and extent	Field survey and GIS mapping	On-going and in accordance with operational plans.	Annually and as required
Sustained control	Outcome and result based, pest trend monitoring	Species led, national protocols	On-going and in accordance with operational plans	Annually and as required
Marine Pathways Management Plan	Level of hull fouling	Diver survey, passive and active reporting by the public	Continuous, active dive surveys concentrated around the summer months when vessel movements peak	Upon completion of diver surveys and as reports are received from the public

Table 11.1

11.2 Monitoring the management agency's performance

Northland Regional Council is the management agency. As the management agency responsible for implementing the plans, the council will:

a. prepare operational plans within three months of the Pest Plan and the Marine Pathway Plan being approved;
b. review the operational plans, and amend them if needed;
c. report on the operational plans each year, within five months after the end of each financial year;
d. implement the Pest Plan and Marine Pathway Plan in line with the operational plans; and
e. maintain up-to-date databases of complaints, pest levels and densities, and responses from the regional council and owners and/or occupiers.

11.3 Monitoring plan effectiveness

Monitoring the effects of the Pest Plan and Marine Pathway Plan will ensure that they continue to achieve their purpose. It will also check that relevant circumstances have not changed to such an extent that the plans require review. A review may be needed if:

a. the Act is changed, and a review is needed to ensure that the plans are not inconsistent with the Act;
b. other harmful organisms create, or have the potential to create, problems that can be resolved by including those organisms in the Pest Plan;
c. monitoring shows the problems from pests, other organisms to be controlled, or pathways (as covered by the plans) have changed significantly; or
d. circumstances change so significantly that [organisation] believes a review is appropriate.

If the plans do not need to be reviewed under such circumstances, they will be reviewed in line with s100D of the Act. Such a review may extend, amend or revoke the plans, or leave them unchanged.

The procedures to review the plans will include officers of the Northland Regional Council

- assessing the efficiency and effectiveness of the principal measures (specified for each pest and other organism (or pest group or organisms) or pathway to be controlled to achieve the objectives of the plans;
- assessing the impact the pest or organism (covered by the plan), or pathway has on the region and any other harmful organisms that should be considered for inclusion in the plans; and
- liaising with other agencies and key interest groups on the effectiveness of the plan.

12 Powers conferred | Ngā mana i tuku

12.1 Powers under Part 6 of the Act

The Principal Officer (Chief Executive) of the Northland Regional Council may appoint authorised persons to exercise the functions, powers and duties under the Act in relation to a regonal pest management plan or pathway plan.

The Northland Regional Council will use those statutory powers of Part 6 of the Act as shown in Table 12.1, where necessary, to help implement these plans. Any or all of the powers described in table 12.1 may be granted to Authorised Persons as per the Biosecurity Act 1993.

Administrative provisions	Biosecurity Act Reference
Power to request information from land occupiers	Section 43
Grant exemption from the plan rules	Section 78
The appointment of authorised and accredited persons	Section 103(3) & (7)
Authorised persons to comply with instructions	Section 104
Delegation to authorised persons	Section 105
Power to require assistance	Section 106
Power of inspections entry and duties	Section 109, 110 , 111& 112
Power to record information	Section 113
General powers	Section 114 & 114A
Use of dogs and devices	Section 115
Power to seize evidence	Section 118
Power to seize abandoned goods	Section 119
Power to intercept risk goods	Section 120
Power to examine organisms and apply substances	Section 121,121A
Power to give directions	Section 122
Power to act on default	Section 128
Liens	Section 129

Declaration of restricted areas	Section 130
Declaration of controlled areas	Section 131
Duration of place and area declarations	Section 133
Options for cost recovery	Section 135
Failure to pay	Section 136
Offences	Sections 154M,154N,154O

Table 12.1 Powers from Part 6 to be used

Note: The Biosecurity Act 1993 sets out the procedures the Northland Regional Council will follow when land owners and/or occupiers or other persons do not comply with the rules or other general duties.

12.2 Powers under other sections of the Act

An owner and/or occupier or any person in breach of a plan rule creates an offence under s154N(19) of the Act, where the rule provides for this. The Northland Regional Council can seek prosecution under s157(5) of the Act for those offences.

A Chief Technical Officer (employed under the State Sector Act 1988) may appoint authorised people to implement other biosecurity law considered necessary. One example is where restrictions on selling, propagating and distributing pests (under s52 and s53 of the Act) must be enforced. Another example is where owners and/or occupiers are asked for information (under s43 of the Act).

12.3 Power to issue exemptions to plan rules

Any owner and/or occupier or other person may write to the Northland Regional Council to seek an exemption from any provision of a plan rule set out in Part Two of the Pest Plan or Marine Pathway plan. However, a rule may state that no exemptions will be considered, or it may limit the circumstances to which exemptions apply (for example, scientific purposes).

The requirements in s98 of the Act must be met for a person to be granted an exemption.

The council will keep and maintain a register that records the number and nature of exemptions granted. The public will be able to inspect this register during business hours.

13 Funding | Pūranga putea

13.1 Introduction

Section 70 of the Act requires funding of the plan to be addressed in the proposal. For the purpose of identifying the most appropriate funding regime, the matters to be addressed as set out in the Act include:

- An analysis of the benefits and costs of the plan and any reasonable alternative measures;
- The extent to which any person is likely to benefit from the plan;
- The extent to which any person's actions or inactions may contribute to creating, continuing or making worse the problems that the plan proposes to resolve;
- The rationale for the allocation of costs; and noting the reason for allocating costs; and
- Whether any unusual administrative problems or costs are expected in recovering the costs from any persons who are required to pay.

13.2 Analysis of benefits and costs

An analysis of the expected benefits and costs associated with implementing the plan, and reasonable alternative measures, has been undertaken. The analysis is contained within the Northland Regional Pest and Pathway Management Plan Cost Benefit Analysis Report, published alongside the plan.

13.3 Beneficiaries and exacerbators

Beneficiaries are people or organisations that, under the Pest Plan, will experience lower costs, higher production or the benefits of a healthier natural environment. Exacerbators are people or organisations that, through their actions (or non actions), contribute to the creation, continuing or worsening of a pest problem.

Pest management is an individual's obligation in the first instance. Individuals are beneficiaries and exacerbators of pest problems, to varying degrees. The extent to which an individual contributes to pest problems depends on whether their inaction has the potential to cause significant impairment to other occupier values or to the environment generally. It is often difficult to distinguish between beneficiaries and exacerbators as they can be one and the same.

The underlying reason for identifying beneficiaries and exacerbators is that they are expected to share the cost of implementing the plan. By identifying the beneficiaries and exacerbators, an equitable funding policy can be formed for each pest. Table 13.1 below provides an assessment of the groups of people who are contributing to the pest or pathway problem (exacerbators), and those who benefit from the control of pests or pathways (beneficiaries).

Pest	Beneficiaries	Exacerbators
Pest plants	• People who benefit from economic values being protected, including production values; • Neighbouring property owners and/or occupiers, who benefit from pests not crossing the boundary onto their property; • Regional community, including the public, communities and individuals who derive direct or indirect benefit from pest control; and • Regional community, including the public, communities and individuals who benefit from biodiversity values being protected.	• Owners and/or occupiers (including Crown agencies) who do not undertake management of pest plants on their properties; and • People or organisations that propagate, sell and distribute pest plants (knowingly or otherwise).
Pest animals	• People who benefit from economic values being protected, including production values; • Regional community, including the public, communities and individuals who derive direct or indirect benefit from pest control; and • Regional community, including the public, communities and individuals who benefit from biodiversity values being protected.	• Owners and/or occupiers (including Crown agencies) who do not undertake management of pest animals on their properties; and • People or organisations that liberate pest animals into or within the Northland region (knowingly or otherwise).
Diseases	• Regional community, including the public, communities and individuals who derive direct or indirect benefit from pest control; and • Regional community, including the public, communities and individuals who benefit from biodiversity values being protected.	• Owners and/or occupiers (including Crown agencies) who do not take action to reduce the risk of diseases spreading from one place to another; and • Regional community, including the public, communities and individuals who do not take action to reduce the risk of diseases spreading from one place to another.
Freshwater pests	• Regional community, including the public, communities and individuals who derive direct or indirect benefit from freshwater pest management (including tourism, local iwi, etc); and • Regional community, including the public, communities and individuals who benefit from biodiversity values being protected.	• Regional community, including the public, communities and individuals who do not take action to reduce the risk of freshwater pests spreading from one place to another; • People or organisations that transport, spread or provide habitat for freshwater pests (knowingly or otherwise); and • People or organisations that liberate freshwater pests into or within the Northland region (knowingly or otherwise).
Marine pests	• Regional community, including the public, communities and individuals who derive direct or indirect benefit from marine pest and pathway management (tourism, local iwi, etc);	• Vessel owners/operators who do not maintain their vessel hulls to an acceptable level;

Pest	Beneficiaries	Exacerbators
	• Occupiers of the coastal marine area; • Sectoral public (industries, interest groups); and • Regional community, including the public, communities and individuals who benefit from biodiversity values being protected.	• Regional community, including the public, communities and individuals who do not take action to reduce the risk of marine pests spreading from one place to another; • People or organisations that transport, spread or provide habitat for marine pests (knowingly or otherwise); and • People or organisations that liberate marine pests into or within the Northland region (knowingly or otherwise).

Table 13.1 Pest exacerbators and beneficiaries

13.4 Funding sources and reasons for funding

The Biosecurity Act 1993 and the Local Government (Rating) Act 2002 require that funding is sought from:

- Those people who have an interest in the plan;
- Those who benefit from the plan (beneficiaries);
- Those who contribute to the pest problem (exacerbators); and

in a way that reflects economic efficiency, equity and the ability to target those funding the plan and the costs of collecting the funding.

These factors were considered when the council developed the proposed pest and marine pathway management plan, and will continue to be considered during development of the council's annual and long term plans as required by section 100T of the Biosecurity Act. The proposed plan will be funded by rates , user charges, and other council income (e.g dividends). The pests in question have the potential to significantly impact the economic, biodiversity, recreation, amenity and cultural values of the region as a whole, and the regional community has an interest in protecting these values. There are some instances where it is appropriate for exacerbators of pests to contribute by way of user charges, and these are set out in Council's charging policy. The details of the cost allocation are described in full in the Northland Regional Pest and Pathway Management Plan cost benefit analysis report.

13.5 Anticipated implementation costs

The anticipated costs of implementing the proposed Pest Plan and Marine Pathway Plan reflect a best estimate of expenditure levels. Funding levels will be further examined and set during subsequent Long Term Plan and Annual Plan processes, including the revision of rates and user charges. While community funding is mainly sourced from rates, alternative funding sources will be sought by the council. Such funds will offset rates or be used as a value-added component in appropriate circumstances.

The funding of the implementation of the proposed Plans is from a region-wide targeted rate, set and assessed under the Local Government (Rating) Act 2002, and in determining this, the council has had regard to those matters outlined in Section 100T of the Biosecurity Act.

Where the implementation of these plans are to be funded by a targeted rate, or a user pays charge the matters outlined in Section 100T of the Biosecurity Act will be given specific regard to as part of the Annual Plan or Long Term Plan process.

Activity (principal measure)	Cost ($)	Rates ($)
Inspection, monitoring and response	2,230,000	2,075,700
Education	155,000	90,000
Total	2,385,000	2,103,207

Table 13.2 Pest Plan cost allocation

Activity (principal measure)	Cost ($)	Marine biosecurity charge
Inspection, monitoring and response	420,000	420,000
Education	30,000	30,000
Total	450,000	450,000

Table 13.3 Pathway Plan cost allocation

Presently rates are not set to cover the full cost associated with the council's activity. Council has other forms of revenue, such as dividends, interest and user charges which are used to fund the balance of costs not funded by rates. The portion funded by rates may vary from year to year. In addition, council may from time to time include a user pays charge for targeted rate programmes.

13.6 Funding limitations

No unusual administrative problems or costs are expected in recovering the costs to any of the people that are required to pay.

14 Glossary | Papakupu

Term	Definition
Act	The Biosecurity Act 1993.
Amenity values	Those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.
Animal	Any mammal, insect, bird, including invertebrates and any living organism (except a plant or a human being). This includes any egg, larva, pupa or other reproductive material.
Animal pest	An animal that has been declared a pest in this Regional Pest Management Plan (Pest Plan).
Appropriate	As determined to be appropriate by the Northland Regional Council or their officers acting under delegated authority.
Authorised person	A person for the time being appointed an authorised person under section 103 of the Biosecurity Act 1993.
Biodiversity	The variability among living organisms from all habitats, including terrestrial, marine and other aquatic ecosystems and the ecological systems of which they are part. This includes diversity within species, between species and of ecosystems.
Beneficiary	The receiver of benefits accruing from the implementation of a pest management measure or the Pest Plan
Biological control	The application to a pest of a natural enemy, which will prey upon or adversely affect the pest with the intention of reducing the level of infestation of the pest.
Chief executive	The head of a Department, and includes a chief executive appointed under the State Sector Act 1988.
Chief technical officer	A person appointed a chief technical officer under section 101 of the Biosecurity Act 1993.
Coarse fish	For the purposes of Freshwater Containment and Sustained Control species, this means perch (*Perca fluviatilis*), rudd (*Scardinius erythrophthalmus*), brown bullheaded catfish (*Ameiurus nebulosus)* and tench (*Tinca tinca*).
Controlled Area	An area for the time being declared under subsection (2) of Section 131 of the Biosecurity Act 1993 to be an area that is controlled for the purposes of that section.
Costs and benefits	Includes costs and benefits of any kind, whether monetary or non-monetary.
Craft	*See vessel definition*
Craft (Vessel or sea-craft)	Is a subset of 'craft' as defined in the Biosecurity Act and means every description of boat or other craft used in water navigation. Whether or not it has any means of propulsion; also includes: a barge, lighter, hovercraft or floating drilling rig. It does not include aircraft.

Term	Definition
Defined area	An area as shown on maps appended to this Pest Plan that illustrates where a pest designation is operative.
Department	Has the same meaning as in the State Sector Act 1988.
Destroy	Kill or dispose of in a manner that will not allow the pest to reinfest an area.
District council	A district council constituted under Part 1A of the Local Government Act 1974.
Distribute	To propagate, offer for sale or sell, transport, release or in any way spread a pest, whether for commercial gain or not.
Easement	Right of way or a similar right over another person's ground or property.
Ecosystem	A dynamic complex of plant, animal and micro-organism communities and their non-living environment, interacting as a functional unit.
Effect	Unless the context otherwise requires, the term 'effect' includes: (a) Any positive or adverse effect; and (b) Any temporary or permanent effect; and (c) Any past, present or future effect; and (d) Any cumulative effect which arises over time or in combination with other effects – regardless of the scale, intensity, duration or frequency of the effect; and also includes: (e) Any potential effects of high probability; and (f) Any potential effect of low probability which has a high potential impact.
Environment	Includes: (a) Ecosystems and their constituent parts, including people and communities; and (b) All natural and physical resources; and (c) Amenity values; and (d) The aesthetic, cultural, economic, and social conditions that affect or are affected by any matter referred to in paragraphs (a) to (c) of this definition.
Eradicate	In relation to an organism, means to completely remove it from New Zealand, the region or a defined area of the region.
Eradication	Refers to pests that are known to have limited distribution in Northland. The council will assume responsibility to treat by recognised methods at intervals that will ensure the infestations are controlled, reduced in size and eventually eradicated.
Exacerbator	The person, who by activities or inaction, contributes to the creation, continuance, or aggravation of a pest management problem.

Term	Definition
Exclusion	Potential pests not yet known to be present in Northland.
Exotic plant	Introduced plants that are not native to New Zealand.
Feral animal	Any animal not held behind effective fences or otherwise constrained or identified in accordance with the Animal Identification Act 1993. (Excluding feral cats – see below.)
Feral cat	Cats that have none of their needs provided by humans.
Fishing	For the purpose of Rule 9.3 and 9.4, means the catching, taking, or harvesting of pest, coarse or sport fish; and includes: (a) any other activity that may reasonably be expected to result in the catching, taking or harvesting of pest, coarse or sport fish; or (b) any attempt to catch, take or harvest pest, coarse or sport fish.
Forestry planting	An area principally comprised of exotic tree plantings.
Hapū	Sub-tribe, usually a number of whanau with a common ancestor.
Goose barnacles	Also called stalked barnacles or gooseneck barnacles, goose barnacles are ubiquitous foulers of tropical, subtropical and temperate seas, with a wide oceanic distribution that includes attachment to drift wood, floating plant debris and vessel hulls, as well as turtles and whales.
Health	In relation to human health, a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity.
High Value Area	An area containing valuable botanical or wildlife resources that has been assessed and added to the list of areas that will be subject to prioritised pest control by the regional council.
Integrated management	Regionally co-ordinated responses through different sectors (e.g. biodiversity issues and cross-boundary issues).
Intrinsic values	In relation to ecosystems, means those aspects of ecosystems and their constituent parts which have value in their own right, including: (a) Their biological and genetic diversity; and (b) The essential characteristics that determine an ecosystem's integrity, form, functioning and resilience.
Iwi	Māori tribe, usually a number of hapū with a common ancestor.

Term	Definition
Iwi authority	The authority which represents an iwi and which is recognised by that iwi as having authority to do so.
Kaitiaki	The Tangata Whenua guardian who exercises the ancestral responsibilities of kaitiakitanga.
Kaitiakitanga	The exercise of guardianship by the tangata whenua of an area in accordance with tikanga Māori in relation to natural and physical resources, and includes the ethic of stewardship.
Landowner	As for occupier below.
Local authority	A regional council or territorial authority.
Manaakitanga	Expression of hospitality towards people.
Mana	Prestige, power, authority.
Mana whenua	Customary authority exercised by an iwi or hapu in an identified area.
Māori land	Māori customary land and Māori freehold land as defined by section 4 of the Māori Land Act 1993.
Management agency	The Department, authority, or body corporate specified in a pest management plan as the agency given the task of implementing the Strategy.
Minister	Minister of the Crown; and: (a) In relation to a national pest management plan, means the Minister who recommended the making of the order under Section 68 (of the Biosecurity Act 1993) making the plan; and (b) In relation to a proposal for a national pest management plan that has been notified, means the Minister who notified the proposal.
Naturalise	Introduced plants that form self-sustaining populations outside of cultivation, either through the production of viable seed or by vegetative reproduction.
Occupier	(a) In relation to any place physically occupied by any person, means that person; and (b) In relation to any other place, means the owner of the place; and (c) In relation to any place, includes any agent, employee, or other person acting or apparently acting in the general management or control of the place.
Operational Plan	The Pest Plan prepared by the management agency under Section 85 of the Biosecurity Act 1993. The operational plan sets out how objectives in the plan will be achieved in any given financial year.

Term	Definition
Organism	(a) Does not include a human being or a genetic structure derived from a human being; (b) Includes a micro-organism; (c) Subject to paragraph (a) of this definition, includes a genetic structure that is capable of replicating itself (whether that structure comprises all or only part of an entity, and whether it comprises all or only part of the total genetic structure of an entity); (d) Includes an entity (other than a human being) declared by the Governor-General by Order in Council to be an organism for the purposes of the Biosecurity Act 1993; (e) Includes a reproductive cell or developmental stage of an organism; (f) Includes any particle that is a prion.
Pathogen	A bacterium, virus, or other microorganism that can cause disease.
Person	Includes the Crown, a corporation sole, and a body of persons (whether corporate or non-corporate).
Pest	An organism specified as a pest in a pest management plan.
Pest agent	In relation to any pest, means any organism capable of: (a) Helping the pest replicate, spread, or survive; or (b) Interfering with the management of the pest.
Pest fish	For the purposes of Rule 9.3 and 9.4, means brown bullhead catfish (*Amerious nebulosus)*, koi carp (*Cyprinus carpio*), gambusia (*Gambusia affinis*), perch (*Perca fluviatilis*), tench (*Tinca tinca*) and rudd (*Scardinius erythrophthalmus*).
Pest Management Strategy (and Strategy)	A strategy, made under Part 5 of the Biosecurity Act 1993, for the management or eradication of a particular pest or pests.
Pest plant	A plant that has been declared a pest in the Pest Plan.
Place	Includes any building, conveyance, craft, land or structure, and the bed and waters of the sea and any canal, lake, pond, river or stream.
Plant	Any grass, tree, shrub, herb, flower, nursery stock, culture, vegetable, or other vegetation. This includes the fruit, seed, spore, portion or product of any plant and Includes all aquatic plants.
Principal officer	The principal administrative officer of a regional council; and: (a) In relation to a regional council, its chief executive; and

Term	Definition
	(b) In relation to a region, the chief executive of the region's regional council. This includes an acting chief executive.
Private covenanted bush or wetland	Refers to an area of native bush or wetland on private land that is protected in perpetuity by a covenant registered on the title of the land.
Progressive Containment	Refers to pests that landowners/occupiers are required to treat throughout or in defined areas of the region, or in boundary situations. Pests are to be treated by a recognised method, at intervals that ensure the pest is completely controlled or controlled to or from a stipulated distance from a property boundary.
Public notice	(a) A notice published in a newspaper circulating generally in the district to which the subject-matter of the notice relates; or (b) Where there is no newspaper circulating generally in any district, a notice published on placards affixed to public places in the district to which the subject-matter of the notice relates. "Published' and 'publicly notified' have corresponding meanings. A public notice setting forth the object, purport, or general effect of a document shall in any case be sufficient notice of that document.
Quarry	Land used for commercial mining, taking or extraction of minerals in their natural state, including roading metal, sand, coal, and other aggregate material. It is noted that Rule 6.4 of this Pest Plan is only applicable to the operational areas of quarries (i.e. the active areas of extraction, processing and stockpiling, and a buffer zone around each of those areas).
Region	In relation to a regional council, means the region of the regional council as determined in accordance with the Local Government Act 2002.
Regional council	(a) Has the same meaning as in section 5 of the Local Government Act 2002; and (b) Includes a unitary authority within the meaning of that Act.
Regional plan	An operative plan (including a regional coastal plan) approved by a regional council or the Minister of Conservation under Schedule 1 of the Resource Management Act; and includes all operative changes to such a plan (whether arising from a review or otherwise).
Regional policy statement	An operative regional policy statement approved by a regional council under Schedule 1 of the Resource Management Act. This includes all operative changes to such a policy statement (whether arising from a review or otherwise).
Release	For the avoidance of doubt, in relation to any Rule within this Pest Plan, release includes, but is not limited to, the deliberate or neglectful liberation of any pest organism.
Responsible Minister	The Minister who, under the authority of any warrant or with the authority of the Prime Minister, is for the time being responsible for the administration of the Biosecurity Act 1993.

Term	Definition
Restricted place	Any place that an inspector or an authorised person has declared to be a restricted place under section 130 of the Biosecurity Act 1993.
Road	Includes all bridges, culverts, and fords forming part of any road.
Rule	Means a Rule included in a pest management plan in accordance with Section 69(b) or Section 80(b) of the Biosecurity Act 1993.
Rural areas	Those areas of a region which lie outside the defined urban areas: that is, those areas which lie outside the metropolitan urban limits and outside the urban area of rural town and coastal settlements.
Rūnanga	Tribal representative and administrative body.
Secure containment	Means a facility or structure that effectively prevents the escape or passage of an organism.
Sell	Includes barter; and also includes offering, exposing, or attempting to sell, or having in possession for sale, or sending or delivery for sale, causing or allowing to be sold, offered, or exposed for sale, and also includes any disposal whether for valuable consideration or not. "Sale" has a corresponding meaning.
Slime layer	A layer of microscopic organisms, such as bacteria and diatoms, and the slimy substances that they produce.
Species	For the purpose of this Pest Plan, a species is considered to include all cultivars, varieties and forms of that species, unless stated otherwise. However, a species is considered to exclude any hybrids of that species with another species, unless stated otherwise.
Sustained Control	Refers to pests for which the sale, propagation, distribution and exhibition has been prohibited, in order to arrest the further spread of these pests by humans, as well as those pests that people are required to undertake control of to further mitigate spread.
Tangata Whenua	In relation to a particular area, means the iwi, or hapū that holds mana whenua over that area.
Taonga	Something highly prized or treasured, tangible or intangible, that contributes to Māori wellbeing. The term equates roughly to the concept of a resource, but incorporates a range of social, economic and cultural associations. Included, for example, are te reo (the Māori language) waahi tapu, waterways, fishing grounds, mountains and place names.
Tapu	Sacred, restricted.
Tikanga Māori	Māori customary values and practices.
Tino rangatiratanga	Chieftainship, chiefly authority, full authority.
Transport corridor	Local roads, state highways and railway lines as owned or occupied by district/city councils, New Zealand Transport Agency and KiwiRail. A local road is one that is not a state highway.

Term	Definition
Unwanted organism	Any organism that a chief technical officer believes is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health; and (a) Includes – (i) Any new organism, if the Authority has declined approval to import that organism; and (ii) Any organism specified in Schedule 2 of the Hazardous Substances and New Organisms Act 1996; but (b) Does not include any organism approved for importation under the Hazardous Substances and New Organisms Act 1996, unless – (i) The organism is an organism which has escaped from a containment facility; or (ii) A chief technical officer, after consulting the Authority and taking into account any comments made by the Authority concerning the organism, believes that the organism is capable, or potentially capable, of causing unwanted harm to any natural and physical resources or human health.
Urban area	Means the area included within the metropolitan urban limits and the areas included within the urban zones of rural or coastal settlements.
Vessel	Ship, boat or other machine or craft used, or able to be used, for the transport of people or goods, or both, by sea.
Waterbody	Means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.
Waahi tapu	A place sacred to Māori in the traditional, spiritual, religious, ritual or mythological sense.
Wetland	Includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.
Whanau	An extended Māori family.
Zero-density	A medium term target of maintaining an area free from the adverse effects of the pests. The pests may still be present in the region, but they are managed so they cease to be a threat to economic, environmental or social/amenity values.
Zone	A specified area within the region as defined in the maps in the Appendices of this Pest Plan and Marine Pathways Plan.

Table 14.1 Glossary

Appendix 1 | Āpitihanga tuatahi: Non-regulatory regional pest methods

This Pest Plan and Marine Pathway Plan sets out the rules used by the council to manage specified plant and animal pests in Northland. However, effective pest management also requires the development and maintenance of partnerships with our communities, Māori and a range of agencies, under the umbrella of a complementary suite of non-regulatory activities. This section summarises the council's key non-statutory pest management methods and possible future options.

Partnerships

The council has strong alliances at a national and local level with Crown agencies such as the Ministry for Primary Industries and the Department of Conservation, and also with non-governmental organisations such as the Queen Elizabeth II National Trust, the NZ Landcare Trust, Ngā Whenua Rāhui and Northland Fish & Game. Working relationships with primary industry - farming and forestry, and the horticulture sector, are also key.

Relationships are also being built up with national initiatives, such as Predator Free NZ, and regional initiatives, such as Reconnecting Northland - a large-scale ecological restoration programme inspired by similar landscape projects in North America, Europe and Australia.

Technology and biocontrol

Advances in technology are offering new ways of controlling some individual pest species. The council will continue to work with communities and researchers to leverage funding and foster investigation into new or improved pest control tools, such as the biological control agents aimed at weeds and insect pests. These tools have been used effectively in Northland for the past five years. Another developing technology is remote surveillance technology to track and detect pests such as possums, mustelids and feral pigs.

National Accords

A list of plant pests and pets that could impact on the environment and are banned from sale and distribution is administered by the Ministry for Primary Industries under the National Plant Pest and Pet Trade Accords. Such accords are co-operative agreements between regional councils and government departments with shared pest control responsibilities. The council's role in implementing these will be to provide trained biosecurity staff to carry out inspections of nurseries and pet shops to ensure compliance with the Accord.

Stakeholder/community education

The number of people and community groups involved in pest control throughout Northland is building steadily, and the actions they take on an everyday basis help to limit the spread of pests in the region. To continue to grow the region's capacity and pest control capability, communities need opportunities to share knowledge and improve pest control skills. To enable this, the council provides advice and publications, offers public workshops, and provides low cost pest control materials to support landowners' efforts. Importantly, our advice is not limited to the pests contained within our pest management plan – we recognise that there are many more species that might also be considered pests by particular individuals and communities within our region. The council also regularly provides displays and/or attends public events with a pest management element, and uses a variety of social media platforms to increase pest awareness.

Species-led initiatives

Northland's diversity of habitats and warm, moist climate makes the region especially vulnerable to new pests and diseases, potentially impacting on our economic, social and cultural values. Preventing new pest species from entering Northland and slowing the spread of established pest species are priority pest management activities. The most serious pest species arrivals generally require an urgent and effective response focused on eradication and

involving resourcing, advance planning and implementation. Where possible, such responses involve Crown agencies and other key stakeholders working alongside the council.

Biosecurity partnerships

Site-led pest management approaches aim to manage the impacts of several pests all at the same time at a defined site or location. High value sites such as Kai Iwi lakes are a good example of a suite of aquatic animal and plant pests being targeted through a site-led approach. This contrasts with a species-led approach which targets the pest wherever it occurs within the region with the aim of preventing spread and establishing. Many weed species are managed via the site-led approach.

Pest management at identified sites will be managed under an umbrella programme called Biosecurity Partnerships. This supports the current policies of high-value areas (see below), a refocused approach to the existing programme of Community Pest Control Areas (CPCAs), and grants for pest control work made through the council's Environment Fund. The attached Map 2 shows key site-led initiatives proposed over the next 10 years.

High-value areas

The high-value area approach aims to reduce pest impacts in specific identified areas of high biodiversity and/or cultural, recreational or economic value. These areas are identified in conjunction with landowners, the Crown and other stakeholders. Pest plans (subject to NRC approval) will be developed in these areas in partnership with landowners and the community.

The council proposes to align some of its activities with Reconnecting Northland and the New Zealand Biodiversity Action Plan as part of implementing site-led pest control and responding to community initiatives to restoring biodiversity. An aspirational goal will be that, for the next 50 years, predator pests are eliminated or effectively controlled in all areas of ecological significance throughout Northland. To give effect to this goal, a programme called "Seven in Ten" will aim to restore seven of Northland's large native forests over the next 10 years. This programme will be planned in conjunction with key agencies, stakeholders and communities. It is intended that a precedent will be set by using/trialling new and innovative pest control funding which will eventually produce a financial and social gain to the regional economy.

Community Pest Control Areas (CPCAs)

Community Pest Control Areas are a way of assisting communities to manage pests on private land and can be awarded to defined community groups for terrestrial, marine or freshwater pest control. Fifty-two CPCAs covering a total of 60,050 hectares have been implemented since the programme was established in 2005. There is now increasing emphasis on providing support and mechanisms directed toward landowners becoming self-funding over time.

Proposals for establishing new CPCAs are assessed for feasibility and the environmental, cultural or economic benefit likely to accrue as a result of pest control. The costs and level of ongoing stakeholder support are also taken into account. For more information, go to: http://www.nrc.govt.nz/cpca The attached Map 2 shows site-led programmes throughout Northland.

Roading authorities

The construction and maintenance of roads can exacerbate pest problems by creating establishment sites and by spreading pests via machinery, equipment and materials. Roads are recognised as corridors for the spread of pest plants, while the construction and maintenance of bridges and structures in water bodies can introduce marine or freshwater pests. The Biosecurity Act allows the option of making either roading authorities or neighbouring landowners responsible for road verge pest control. In Northland, the responsibility for roadside verge control for all formed roads will be the responsibility of the roading authority, in common with other pest management strategies in New Zealand. Responsibility for pest control on unformed roads will lie with the land occupier who physically occupies the land. The council believes there is benefit in developing operational plans with road controlling authorities to limit the spread of pests and facilitate effective pest management.

Rail corridor occupiers

Rail corridors can exacerbate pest problems by creating establishment sites and by spreading pests via machinery, equipment and materials. Rail corridors also act as pathways for the spread of pest plants, while the construction and maintenance of bridges and other structures in water bodies can introduce and spread marine or freshwater pests. The council believes there is benefit in developing

operational plans with rail corridor occupiers to limit the spread of pests and facilitate effective pest management.

Case study 1: Community Pest Control Area

Warawara Forest (Ngahere) ranks as one of the region's highest priority kauri forests, covering more than 13,000 hectares. The council is a partner in the 'Warawara Whakaora Ake' project, which aims to restore the ecological health of the 13,000ha forest by ridding it of introduced pests.

The project is supported and backed by Te Rarawa Anga Mua and led by representatives of the 10 marae that surround the forest, which comprises private, Maori and Crown land. Other partners include Northland Regional Council and the Far North District Council, Reconnecting Northland (an ecological restoration collaboration between World Wildlife Fund, New Zealand and New Zealand Landcare Trust), the Department of Conservation, Ngā Whenua Rāhui, Kiwi for Kiwis and the Ministry for Primary Industries.

Possum and rat numbers are significantly reducing through the pest control work carried out to date, and the forest is beginning to recover. A survey of plant and bird life was carried out in late 2016 by survey teams comprising botanists, bird experts and people from the local area (the last comprehensive vegetation survey was in the 1950's).

Warawara is home to the most northern population of North Island rifleman (Titi pounamu) and the survey found evidence of further rifleman populations and of kiwi well beyond the current known range of both species within the forest.

Council staff member Mike Knight with Rongo Bentson Te Rarawa - Komiti kaitiaki

Case study 2: High value area approach

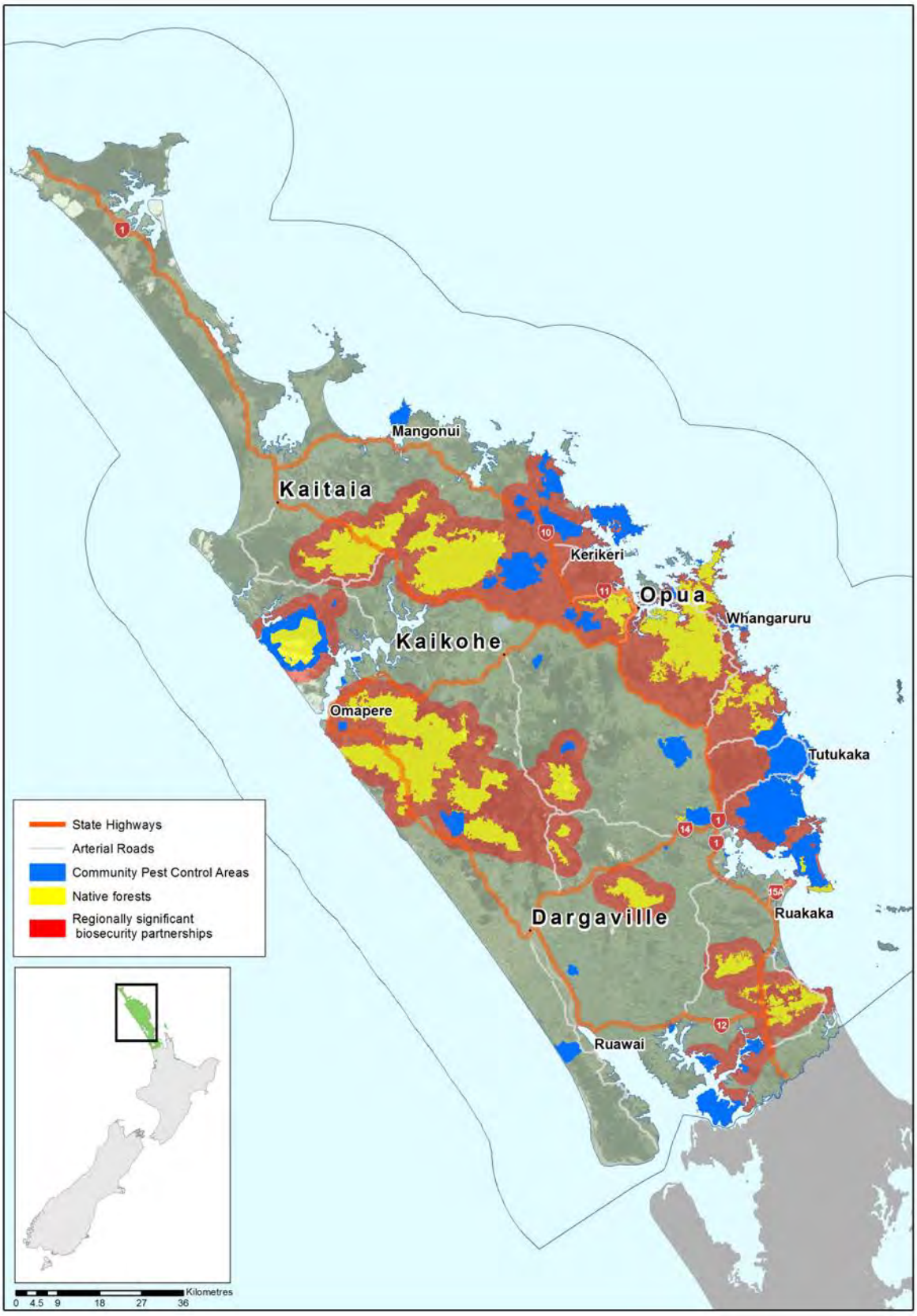
Lakes Kai Iwi, Taharoa and Waikare are outstanding Northland dune lakes with excellent water quality and outstanding ecological condition, providing habitats for a range of endangered plants and animals. However, their accessibility and high recreational use raises the risk of aquatic pest introduction, and there are already significant threats to the lakes from terrestrial weeds and pest animals.

Since 2013/14, council staff have been working with the Taharoa Domain Governance Committee, Kaipara District Council, iwi and surrounding landowners on a series of projects to reduce the impact of introduced pests, improve wetland and water quality on adjacent farms, and raise public awareness of the lakes and how to look after them.

A public open day held at Kai Iwi Lakes

Case study 3: Pest control targeted rate area

In June 2015, following consultation on its Long Term Plan (LTP) 2015-2025, the council formally adopted a targeted rate to help control pests which threaten kiwi and help eradicate selected weeds on private land at Whangarei Heads. Believed to be one of the first of its kind in New Zealand, the $50 annual Whangarei Heads Pest Management Rate is levied on about 2000 ratepayers in an area of about 10,000ha stretching roughly from Bream Head to Parua Bay. The Whangarei Heads Landcare Forum, a collective of several groups, is working to restore a range of environmental and social values in the area.



Biosecurity partnerships site led map

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