



INFORMATION REVIEW AND GAP ANALYSIS

Phase One

The Kaipara Atlas:
An Integrated Database

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INTRODUCTION

The Kaipara Atlas is an integrated land-sea database which brings the holistic resource management philosophy of kaitiakitanga into the management and knowledge of the Kaipara Harbour. The Kaipara Atlas is composed of three knowledge-bases: Mātauranga Māori, biogeophysical and socio-economic (Figure 1). Within each knowledge-base there are three types of datasets:

1. *Spatial* – datasets with regard to conservation features such as mangroves, seagrass, seabirds roosting and feeding areas; territorial authority management boundaries; marae locations; archaeological information regarding pa sites and pa-ditch-pits systems.
2. *Literature* – this is currently stored, maintained and organised in the reference manager software ENDNOTE. Information includes published, unpublished, grey literature, multi-media resources, charts, maps, books, theses.
3. *Temporal/Occurrence* – metadata information is stored here regarding Temporal/Occurrence data collected from research undertaken in the Kaipara. A majority of these are currently from physical and biological aspects of the Kaipara ecosystems, such as juvenile fish presence-absence and sand dollar biomass at Taporapora, shoreline profiles, water quality monitoring etc.

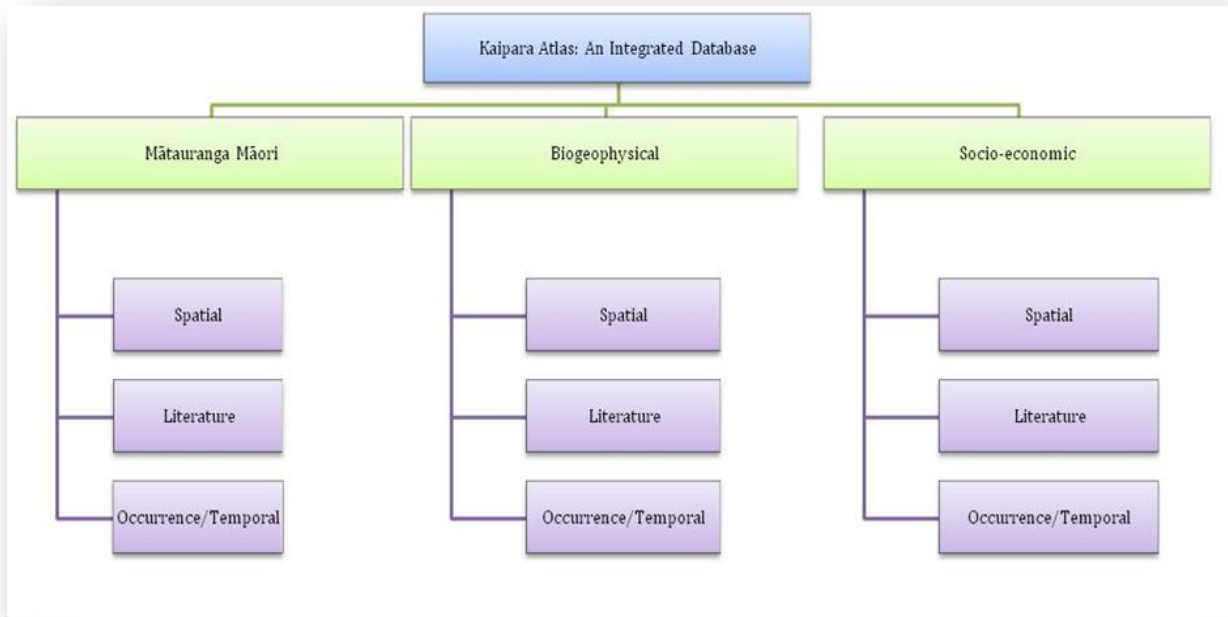
This spatial, Geographic Information System (GIS), supplement provides the current spatial information available for the Kaipara Harbour and catchment, that is relevant to the Integrated Kaipara Harbour Management Project longterm objectives of biodiversity, fisheries, mauri of the Kaipara, understanding climate change, integrated co-operative management and providing socio-economic opportunities. The use of spatial information provides a platform to visually display various data that is not readily available or compared. Most importantly, the spatial information greatly assisted with identifying data and research gaps in the three knowledge-bases: biogeophysical, Mātauranga Māori and socio-economic.

Using spatial information and technologies has been reported to have both productive and non-productive benefits to the New Zealand economy (ACIL Tasman 2009). Examples of the use of spatial technologies have been found in all sectors of the New Zealand economy and it is estimated that the use and re-use of spatial information contributes \$1.2 billion in productivity-related benefits to New Zealand's GDP. There have been a range of barriers to the use of spatial technology in New Zealand mainly around access to data, inconsistencies in data standards and a lack of expertise (ACIL Tasman, 2009).

This report describes, in general terms, the methodology and data used to construct the GIS database. The GIS software used was ESRI ArcInfo-ArcMap. Some datasets were digitised where data (such as points and lines) from maps or data from reports that did not use GIS where entered into ArcInfo-ArcMap.

An extensive GIS database was compiled which consists of spatially referenced physical, ecological, cultural and social data.

Figure 1. The composition of the Kaipara Atlas, an Integrated Database.



Non-Spatial Data and Literature Database

Non-spatial data was also documented and stored in an EXCEL database. Metadata, information about data, was produced for the datasets relevant to the IKHM Project. This process allowed us to identify for any future analysis, the sufficiency and limitations of the datasets compiled. The limitations of the data are generally related to the quality and/or quantity of data. Having complete and consistent datasets is desirable if any future analysis using various spatial modeling available, like Marxan or C-Plan decision-support tools.

Literature that was relevant to the IKHM Project was entered, stored and categorised in the reference manager software ENDNOTE. A majority of these references were utilised and reviewed to produce the Information Review and Gap Analysis report.

Figure 2. World of Kaipara. The Kaipara harbour and catchment.



METHODOLOGY

The approach used to document, review and identify gaps in the three knowledge bases (i.e. biogeophysical, Mātauranga Māori, socioeconomic) can be divided into three main areas: Literature Review, datasets and thirdly, local, corporate and cultural knowledge.

The following chapters document information about the datasets and spatial information available on: biodiversity, fisheries, climate change, mauri, socio-economic opportunities and integrated management.

Reminder:

This information review and gap analysis does not review marine biogeophysical information. This was carried out by ARC-NRC (Haggitt *et al.* 2008). However, this report does review the Mātauranga Māori and socioeconomic knowledge bases for the marine environment.

DATASETS

Datasets, or metadata (information about data), were listed from the literature review. An Excel database was developed to store and organise the metadata. A Geographic Information System (GIS), spatial information, database was developed to store and organise the spatial information acquired. Because an ecosystem-based management (EBM) approach is being taken it was necessary to gain an understanding of the spatial differences of ecosystems as management may vary between the ecosystems depending on how communities value or depend on a resource and the capacity of particular ecosystems for resource use. Therefore, EBM is concerned with the spatial organisation, or patterns, of ecosystems and their characteristics.

Spatial frameworks are tools that support ecosystem-based resource and conservation management by mapping spatial units according to multiple environmental and/or ecological characteristics. Within the framework data can be managed, manipulated and analysed across space and time (Wright & Scholz 2005).

Spatial frameworks have multiple applications in EBM. They help to organise information and aid data interpretation and reporting. They can be used to define areas that are managed to achieve a particular outcome. These areas can be linked to policy and plans. Spatial frameworks can also assist identifying areas for state of environment reporting and carrying out functions under the RMA. Biodiversity conservation also benefits from using spatial frameworks for identifying reserves optimally (Margules *et al.* 1988; Possingham *et al.* 2000; Stewart & Possingham 2002; Leslie *et al.* 2003), and assessing gaps in marine and terrestrial conservation (Jennings 2000; Dudley & Parish 2006; Gleason *et al.* 2006; Langhammer *et al.* 2007).

The disadvantage of using spatial frameworks is that only can represent the physical and biological environment statically rather than temporally. They are only as good as the input data used and it is important to select relevant data that can capture important ecosystem

processes (e.g. ecological processes, such as capturing redistribution of nutrients occurring within a catchment in order to protect the integrity and function of ecosystem processes on a subcatchment scale) (Klein *et al.* 2007), describe the distribution of species, and express the ecological constraints that determine their distribution.

Data recorded in the database had the following metadata information:

Dataset/Layer	<i>Spatially georeferenced data that captures the location of important features. Preference will be given to digital data.</i>
Description	<i>Brief description of the dataset/layer</i>
Geometry	<i>Geometry type (point, line, polygon)</i>
Provider/Custodian	<i>Data provider or custodian or reference</i>
Extent	<i>Geographical/spatial extent of dataset. Terms used were: Kaipara harbour, Kaipara catchment, national</i>
Key Fields/Attributes	<i>Descriptive information stored with the spatial data.</i>
Comments	<i>Additional information that may be important to correctly interpret/process the data. Location of metadata</i>

Data recorded in the database mostly had a consistent spatial extent across the Kaipara planning area, being the harbour and the catchment. Data that did not have a complete coverage but was recorded, was due to the ability to be used to extrapolate biological patterns across the entire planning region (e.g. southern Kaipara benthic habitat data (Hewitt & Funnell 2005).

However, such decisions on the use of what datasets are suitable to use for the future ecosystem-based management of the Kaipara are benefited from stakeholder participation (Margules & Pressey 2000; Margules & Sarkar 2007). Such an approach is a principle of ecosystem-based management (Ward *et al.* 2002; Knight *et al.* 2006; Knight *et al.* 2006b).

BIOGEOPHYSICAL DATA

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Nearshore classification	National	National	DoC	Y	Polygon	Y	Spatial	Written information on Kaipara and other Areas	Walls. 2006. Nearshore Marine Classification and Inventory. DoC.	Y	Completed
Benthic Habitats southern Kaipara	Southern Kaipara	Southern Kaipara	ARC	Y	Polygon	Y	Spatial	Spatial map of intertidal and subtidal habitats into particular habitat types. Metadata provided for GIS. Also see report on the definitions of these habitat types.	ARC. 2005. Benthic Marine Habitats and communities of the sthern Kaipara. ARC Technical Publication 275. Prepared by Hewitt and Funnell, NIWA Client Report HAM2005-077	Y	Completed
Intertidal benthic species abundance	Southern Kaipara	Southern Kaipara	ARC	Y	Points	Y	Occurrence	Species abundance & diversity	ARC. 2005. Benthic Marine Habitats and communities of the sthern Kaipara. ARC Technical Publication 275. Prepared by Hewitt and Funnell, NIWA Client Report HAM2005-077	Y	Completed
Subtidal benthic species abundance	Southern Kaipara	Southern Kaipara	ARC	Y	Points	Y	Occurrence	Species abundance & diversity	ARC. 2005. Benthic Marine Habitats and communities of the sthern Kaipara. ARC Technical Publication 275. Prepared by Hewitt and Funnell, NIWA Client Report HAM2005-077	Y	Completed
Sediment type southern Kaipara	Southern Kaipara	Southern Kaipara	ARC	Y	Points	Y	Occurrence	Sediment composition for sample sites - coarse sands, mud, fine sands, medium sands, sandy muds. Includes depth.	ARC. 2005. Benthic Marine Habitats and communities of the sthern Kaipara. ARC Technical Publication 275. Prepared by Hewitt and Funnell, NIWA Client Report HAM2005-078	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Southern Kaipara harbour coastal vegetation type	Southern Kaipara	Southern Kaipara	ARC	Y	Polygons	Y	Spatial	Mapped using aerial photography - mangroves, saltmarsh, seagrass, coastal scrub, sand, coastal bush, freshwater wetland.	Horsley, R. (2005). Capturing and classifying the coastal vegetation of the Kaipara Harbour. Auckland, New Zealand, Auckland Regional Council. ARC. 2005. Benthic Marine Habitats and communities of the sthern Kaipara. ARC Technical Publication 275. Prepared by Hewitt and Funnell, NIWA Client Report HAM2005-079	Y	Completed
Seagrass	Southern Kaipara	Southern Kaipara	ARC	Y	Points, Polygon	Y	Spatial	No biomass data, only presence/absence. Digitised from aerials and also from sample sites.	ARC. 2005. Benthic Marine Habitats and communities of the sthern Kaipara. ARC Technical Publication 275. Prepared by Hewitt and Funnell, NIWA Client Report HAM2005-078	Y	Completed
Estuary Classificaiton	National	National	NIWA-FRST	N		N	Occurrence	Digital topography database (eg. measurements of catchment size, estuary area); Various biological datasets including those for Manuaku & Maharangi; NIWA estuary database. Being developed to allow managers * researchers to appropriately apply estuarine research & monitoring results to areas beyond those of the original investigations	Hume & Herdendorf 1988. Geomorphic classification. Hume et al 2007. A controlling factor approach to estuary classification. NIWA Estuary Classification. Terry Hume. Ph. 07-8567026.	Y	Complete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
								The Structure of the classification is still being developed. Types of estuaries will be defined using physical parameters and processes, such as: tidal flow, salinity stratification, wave action.			
Coastal Resource Inventory (CRI) Northland - Natural Values	Regional	Northland	DoC	N	Polygons	N		Didn't do subtidal ecosystems. This was supposed to be done in the second order survey which was never done.	Shaw and Maingay. 1990. CRI. First Order Survey. Northland Conservancy	Photocopy only	Completed. Report written.
CRI Northland - Existing protection	Regional	Northland	DoC	N	Polygons	N					
CRI Northland - Existing threats	Regional	Northland	DoC	N	Polygons	N					
CRI Northland - Human modification & use	Regional	Northland	DoC	N	Polygons	N					

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
CRI-Northland-Historic Values	Regional	Northland	DoC	N	Polygons	N					
CRI-Auckland-Natural Values	Regional	Auckland	DoC	N	Polygons	N		Didn't do subtidal ecosystems. This was supposed to be done in the second order survey which was never done.	Fahy, Irving, John. 1990 CRI. First Order Survey. Auckland Conservancy	Photocopy only	Completed
CRI Northland - Existing protection	Regional	Auckland	DoC	N	Polygons	N					
CRI Northland - Existing threats	Regional	Auckland	DoC	N	Polygons	N					
CRI Northland - Human modification & use	Regional	Auckland	DoC	N	Polygons	N					
CRI-Northland-Historic Values	Regional	Auckland	DoC	N	Polygons	N					
Mangroves & Saltmarsh of important conservation value	Kaipara	Kaipara	DoC	N		N		Location of mangrove forests with important conservation value using his expert opinion.	Chapman. 1976. Mangroves, saltmarshes of Kaipara Hbr. Dept of Lands and Survey	Photocopy only	Completed. Report written.
Catch Effort Stat Area 045 & 044	Kaipara	Kaipara	NIWA/Mfish	Y	Points	Y	Occurrence	Location of trawling, set netting, for all years and trawling effort and catch. Mainly for stat area 045 (outside Kaipara).	Ministry of Fisheries commercial database (<i>fish_comm</i> database).	No	Ongoing
Licensed Fish Receivers (LFR)	Kaipara	Kaipara	NIWA/Mfish	N		Y	Occurrence	Number of LFR receiving fish from stat area 044 and 045 between 1990-2007.	Ministry of Fisheries commercial database (<i>fish_comm</i> database).	No	Ongoing

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Top Ten Fish species caught 1990-2007	Kaipara	Kaipara	NIWA/Mfish	N		Y	Occurrence	Top ten species caught (kg) for 1990/91, 1995/96, 2000/01, 05/06, 06/07.	Ministry of Fisheries commercial database (<i>fish_comm database</i>).	No	Ongoing
Commercial Fish Catch by Method	Kaipara	Kaipara	NIWA/Mfish	N		Y	Occurrence	Catch (kg) by method for years 1990/91, 95/96, 2000/01, 05/06, 06/07	Ministry of Fisheries commercial database (<i>fish_comm database</i>).	No	Ongoing
Recreational Fishing	Kaipara	Kaipara	NIWA/Mfish	N		Y	Occurrence	Surveys carried out for 1991, 1996, 2006, 2007. Locations include Shelley Beach, Helensville, Dargaville, Tinopai, Pouto. Information on rec fishing method, target species, hours fished, number caught.	rec_data database. Designed for data from range rec fishing surveys from 1991 using catch & effort diary surveys and boat ramp surveys.	No	Ongoing
Recreational Fishing density	Regional	Kaipara, west coast	Mfish	Y	Polygons	Y	Spatial	Recreational fishing density (per km2). D:GIS/Fisheries	Bruce Hartill (NIWA). Recreational fishing harvest estimate for SNA8 in 2006-07. Presentation to Mfish Recreational Research Committee.	No	Incomplete
Fisheries Trawl Research	Kaipara	Kaipara	NIWA/Mfish	Y	Points	Y	Occurrence	Research trawls 1984, 85, 86, 87, 89, 1991, 94, 96, 99. Species caught, lat/long data, weight, number.		No	Ongoing
Maui dolphin abundance	Ecoregion	Ecoregion	DoC/WWF-NZ	Y	Points	Y	Spatial/ Occurrence	Sightings w/in and outside harbour; categorised as research survey, sightings, mortality. Is GIS ready but may need analysing depending on what require for Marxan	Russell. 2008. Distribution of Maui's Dolphin Sightings 2002-07. Report prepared for DOC. 15p. Maui dolphins sighting database	No	Ongoing
Orca sightings	National	National	Ingrid Visser	N		N	Occurrence	Sightings within and outside harbour. Presence only.	Orca sighting database	No	Ongoing
Great White Shark Sightings	National	National	NIWA/DoC	N		N	Occurrence	Sightings & autopsies done on great whites and other sharks found in Kaipara. Unknown publication? Presence only data.	Shark sighting database. Owner Clinton Duffy, Malcom Francis	No	Ongoing

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
High Current Areas - Tidal Flow Kaipara entrance	Kaipara	Kaipara entrance	ARC	?		N	Occurrence	Unsure of format of database used. Will need to acquire from ARC the database. NIWA currently contracted by Winstone & Atlas to develop new sand transport model. This may assist?		No	
Marine sediment type - Kaipara entrance	Local	Kaipara entrance	CREST Energy	Y		N	Occurrence	Sediment composition. Grab samples taken outside, inside entrance of Kaipara harbour. Some data appended to AEE but not given lat/long. Needs to be acquired, inputted and digitised.	CREST Energy AEE.	Y	Completed
Ōtamatea estuarine habitats	Local	Ōtamatea River	MfE	Y	Polygons	Y	Spatial	Habitat mapping (Broadscale) of Ōtamatea River, Kaipara Harbour. Estuary reference information on location, size, estuary type, morphology, hydrology, human occupation, catchment characteristics, vegetation type.	Robertson et al. 2002. Estuarine environmental assessment and monitoring: a national protocol. Part A, B, C. Prepared for Supporting Councils and the Ministry for the Environment Sustainable Management Fund Contract No. 5096.	Y	Completed
Whangapae Harbour habitats	Local	Whangapae Harbour	DoC	Y	Polygons	Y	Spatial	Desktop study. Habitat map digitised by Morrison (2005). Some interesting GIS coverages for snapper, Spirits Bay, Whangarei Hbr and east coast of Northland habitats	GIS Layer. Hayward et al 1994. Whangape Harbour sediment types. Morrison, M. 2005. An information review of the natural marine features and ecology of Northland. NIWA Client Report: AKL2005-30. May 2005. 174pp.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Juvenile coastal fish presence-absence	National	Kaipara, Whangape, Hokinga, Manukau, Raglan, Aotea, Kawhia	FRST/ NIWA	Y		N	Occurrence	<p>Presence-absence - juvenile fish, seagrass. Density - juv. Fish, seagrass. Estuarine fish project of NZ harbours. Funded by FRST. Completed by NIWA. Team Leader Dr Mark Morrison. Sampled by beach seine using stratified and standardised methodology. Habitats included vegetated and bare substrata and mangrove</p> <p>1. Beach seine - catch per tow per site for Whangape to Aotea; need to add RAGLAN harbour 2. Seagrass - beam trawl catch, cores, beach seine data 3. Mangrove - environmental & catch data</p>	Morrison et al (unpublished) 25 harbours research including seagrass, juvenile fish and mangroves	No	Incomplete
Seagrass presence	National	Kaipara, Whangape, Hokinga, Manukau, Raglan, Aotea, Kawhia	NIWA/FRST	Y	Points	N	Occurrence	Positional data, seagrass density, cores, beam trawl methodology, blade height, fish abundance, invertebrate abundance, infauna composition. Consistent methodology across harbours.	Morrison et al.	No	Incomplete
Juvenile snapper proportions & nursery areas	West Coast Bioregion	Kaipara, Whangape, Hokinga, Manukau, Raglan, Aotea, Kawhia	NIWA/FRST	Y	Points	N	Occurrence	Otolith microchemistry work for snapper. Beam trawl methodology. Habitat type recorded. Otolith work done on commercially important species - mainly snapper. Consistent methodology across harbours.	Morrison et al.	No	Incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
GUR, JDO, TAR, SNA, SCH, LEA, TRE biomass	West Coast Bioregion	West Coast North Island	Mfish	Y	Points	Y	Spatial	<p>Research bottom trawl surveys for 1986-1996. Undertaken in 10-200m. Catch (kg/km²) main target species of GUR, JDO, TAR, SNA, SCH, LEA, TRE. Bottom and sea surface temp recorded. Biomass & CVs for 9 main commercial species given for FMA 8 & 9.</p> <p>Further research trawl done in 1999 for WCNI.</p> <p>Stratified by depth. Standardised trawling methods used.</p>	Morrison et al 2001. Review of west coast North Island Trawl survey time series 1986-96. NIWA Technical Report.	Y	Completed
Snapper nursery areas	WCNI Bioregion	WCNI	Mfish	N		N	Occurrence	Bottom trawl survey for sna nursery grounds in <10m nearshore coast habitat. Not estuaries. Stratified by season (winter/summer). 6xtransects. Otolith work done.	Horn. 1986. Dist and growth snapper in north Taranaki bight	Y	Completed
Southern Kaipara ED & Ōtamatea ED significant natural areas	ecological district	southern Kaipara & Ōtamatea ED	ARC/DoC	Y	Polygons	Y	Spatial	Vegetation type, habitat type, soil type, plant species lists, geology, land tenure, protection, lat & long. Landforms, bioclimatic zones.	Davis. 2002. Kaipara Ecological District: Ecological Character, threats and Management Needs. Final Report. 2002. Alison Davis, Aristos Consultants. Draft Two, June 2002. 184pp.	Y	Incomplete. Draft 2, Final Draft. 2002.
Sand mining biological monitoring - species presence-absence 1990	Local	Resource consent location	Mt Rex Shipping Ltd & ARC	Y	Points	N	Occurrence	Species list, species abundances, species length, no GPS data, shellfish	Grace, R.V. 1990. Kaipara Harbour Sand Extraction. Alternative Site Investigations. Report for Mt Rex Shipping Ltd. June 1990.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Sand mining biological monitoring - species presence-absence 1991	Local	Resource consent location	Mt Rex Shipping Ltd & ARC	Y	Points	N	Occurrence	Species list, species abundances, species length, no GPS data, shellfish	Grace, R.V. 1991. Biological Site Investigation of Pouto Sand Extraction Site, Kaipara Harbour. Report to Mt Rex Shipping Ltd. May 1991.	N	Completed
Sand mining biological monitoring - species presence-absence 1995	Local	Resource consent location	Mt Rex Shipping Ltd, Winstone Agg. & ARC	Y	Points	N	Occurrence	Benthic fauna info, no GPS data (may be able to get it from Author/Owner). water depth, species list, qualitative sampling only (no set size of area sampled -used dredge vacuum), shellfish size, abundance.	Grace, R.V. 1995. Kaipara Harbour Sand Extraction. Fitzgerald Bank Site Investigation. Report for Winstone Aggregates Ltd and Mt Rex Shipping Ltd. November 1995.	N	Completed
Sand mining biological monitoring - species presence-absence 2000	Kaipara	Kaipara	Mt Rex Shipping Ltd, Winstone Aggregates. & ARC	Y	Points	N	Occurrence	Species list, abundance, no positional data	Grace, R.V. 2000. Kaipara Harbour Sand Extraction. Fitzgerald Bank Biological Monitoring. Report to Winstone Aggregates Ltd and Mt Rex Shipping Ltd. August 2000. 17 pp	N	Completed
Scallop abundance & distribution 2006/07	Kaipara	Kaipara	Mfish	Y	Points	Y	Spatial/ Occurrence	Lat & long of tows; port & starboard dredge used; scallops counted & length measured; bycatch; seafloor type recorded. Recreational dredge used; first study of its kind. Divers don't dive for scallops on Kaipara.	Walshe & Holdsworth. 2007. Monitoring of s186A closures Kaipara Harbour scallop survey	Y	Completed
Scallop abundance & distribution 2009/10	Kaipara	Kaipara	Mfish	Y	Points	N	Spatial/ Occurrence	Incomplete. No data or report received. Ready for release Sept 2010.	Kelly, S. 2010. Monitoring of s186A closures Kaipara Harbour scallop survey	N	Incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Macro-algae presence-absence	National	National	N. Shears/DoC	Y	Points	N	Occurrence	Macroalgal species presence/absence in bioregion are: Raglan, Gannet Rock, New Plymouth. subtidal reef sites; replicate sites within location; summer survey; 1m2 quadrat sample of biological assemblages at 4 depth strata (0-2, 4-6, 7-9, 10-12m); macroalgal abundance, size, %cover quantified/1m2; Abundance macroinverts (>1cm counted/1m2.	Shears et al 2007. Evaluation of NZ's Marine Classification Schemes	Y	Completed
Land Environments New Zealand - Level 1	Regional, National	National	MfE	Y	Raster	Y	Spatial	Identifies land envts most vulnerable to biodiversity loss. Used to calculate area of unprotected indigenous cover (LCDB2 used) & other analyses.	Leathwick et al 2003. Walkeretal2005. NZ's remaining indigenous cover: recent changes & biodiversity protection needs. Landcare Research Report. 81p.	Y	Completed
Land Environments New Zealand - Level 2	Regional, National	National	MfE	Y	Raster	Y	Spatial	Identifies land envts most vulnerable to biodiversity loss. Used to calculate area of unprotected indigenous cover (LCDB2 used) & other analyses.	Leathwick et al 2003. Walkeretal2005. NZ's remaining indigenous cover: recent changes & biodiversity protection needs. Landcare Research Report. 81p.	Y	Completed
Land Environments New Zealand - Level 3	Regional, National	National	MfE	Y	Raster	Y	Spatial	Identifies land envts most vulnerable to biodiversity loss. Used to calculate area of unprotected indigenous cover (LCDB2 used) & other analyses.	Leathwick et al 2003. Walkeretal2005. NZ's remaining indigenous cover: recent changes & biodiversity protection needs. Landcare Research Report. 81p.	Y	Completed
Land Environments New Zealand - Level 4	Regional, National	National	MfE	Y	Raster	Y	Spatial	Identifies land envts most vulnerable to biodiversity loss. Used to calculate area of unprotected indigenous cover (LCDB2 used) & other analyses.	Leathwick et al 2003.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Threatened Environments	National	Kaipara	MfE	Y	Polygon	Y	Spatial	Threatened Environment Classes using LENZ Level VI and LCDB2 data. National Priority 1 Environments created. Lowland environments around Kaipara harbour most threatened to loss of biodiversity as has <10% biodiversity.	Walkeretal2005. NZ's remaining indigenous cover: recent changes & biodiversity protection needs. Landcare Research Report. 81p.	Y	Completed
Macrofauna species & sediment grain size Biomarine AMA site	Local	Biomarine AMA site & adjacent areas	Biomarine	Y	Points	Y	Occurrence	Datasets include: GPS positional data of sample sites for water sampling sites & sediment sampling sites Macroinfauna species presence/absence on 1 and 0.5mm mesh size Diversity indices for each transect. Chla samples Sediment image analysis	Giles & Vopel. 2008. Baseline monitoring of Aquaculture Management Area D in the south Kaipara Harbour. NIWA Client Report. 48p.	Y	Completed
Ōtamatea ED significant natural areas	Ecological District	Ōtamatea ED (northland only)	DoC	Y	Polygons	Y	Spatial	GPS positional data for sample sites. Protection status. Species list presence/absence for ED. Fauna & flora species lists.	Lux & Beadel. 2006	Y	Completed
Tutamoe ED significant natural areas	ecological district	Tutamoe ED	DoC	Y	Polygons	Y	Spatial	Attribute information includes: ecosystem type (forest, duneland, shrubland, estuarine, freshwater wetland, other), composition of canopy plants, relative abundance of canopy plant species (>50% = abundant; 2-50% cover = common; 5-20% = frequent; >5% = occasional)	Miller & Holland. 2008.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
								<p>Ecological significance was provided as Level 1 or Level 2. Criteria associated with these levels are based on representativeness, rarity, special features, diversity & pattern, habitat structure & characteristics important for maintenance of ecosystems (e.g. buffer, linkage/corridor, size & shape).</p> <p>Other databases include: SSBI, DoC, Northland Conservancy Threatened Plants Database, DoC Bioweb Threatened Plant & Herptofauna database, NIWA freshwater fish database, geopreservation & soil inventories.</p>			
Whangarei ED significant natural areas	Ecological District	Whangarei ED	DoC	Y	Polygons	Y	Spatial	Attribute information includes: ecosystem type (forest, duneland, shrubland, estuarine, freshwater wetland, other), composition of canopy plants, relative abundance of canopy plant species (>50% = abundant; 2-50% cover = common; 5-20% = frequent; >5% = occasional)	Manning 2001; Conning 2001.	Y	Completed
Whangaruru ED significant natural areas	Ecological District	Whangaruru ED	DoC	Y	Polygons	Y	Spatial	Attribute information includes: ecosystem type (forest, duneland, shrubland, estuarine, freshwater wetland, other), composition of canopy plants, relative abundance of canopy plant species (>50% = abundant; 2-50% cover = common; 5-20% = frequent; >5% = occasional)	Conning 2001; Brook 1996	Y	Incomplete - no report written; ED surveyed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Waipu ED significant natural areas	Ecological District	Waipu ED	DoC	Y	Polygons	Y	Spatial	Attribute information includes: ecosystem type (forest, duneland, shrubland, estuarine, freshwater wetland, other), composition of canopy plants, relative abundance of canopy plant species (>50% = abundant; 2-50% cover = common; 5-20% = frequent; >5% = occasional)	Conning 2001; Wildland Consultants 2006;	Y	Completed
Rodney ED significant natural areas (sna)	Ecological District	Rodney ED	RDC	Y	Polygons, Points	Y	Spatial	Significant natural areas survey information on flora & fauna; provides attribute information re habitat type, site significance or category under RDC DP 2000; protection status; land tenure;	Available info includes Mitchell 1992; Ayres et al 1992/93; Wilton 1995; Bellingham 2008; D:GIS/Ecological Districts/RodneyEDSNA2 & GIS/RDC Data/sna data/sna shape.	Y	Completed
Northland NZ lakes macrophytes	Regional	Northland					Occurrence	Presence, depth ranges, estimated abundance of submergent, emergent & free-floating aquatic species. 26 Northland lakes. Presence of exotic species.	Tanner et al 1986. Observations on aquatic macrophytes in 26 northern NZ Lakes. NZ J Botany. 24:539-51		Completed
Kaipara, Hokianga AMA benthic habitat	Bioregion	Kaipara, Hokianga	NRC	Y	Points	Y	Occurrence	Methods: DUV, random 0.25msq quadrats per AMA	Haggitt & Mead (2005)	Y	Completed
Main (Parent Material) Rock Group	Regional	Akld, Whangarei, Kaitaia	GNS	Y	Polygons, Points	Y	Spatial	Attributes in database include: stratigraphy, sequency, rock class, rock group, sub-rock, main rock http://www.gns.cri.nz/research/qmap/aboutqmap.html	GNS Whangarei QMAP 1:250 000 maps	Y	Some incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Soil Type	Catchment	Kaipara catchment	LRI	Y	Polygons, Points	Y	Spatial	Attributes includes soil type, soil series, NZ soil classification category. Soil types catchment-wide. D:/GIS/Geology. http://www.gns.cri.nz/research/qmap/aboutqmap.html		Y	Completed
Geopreservation Sites of Significance	Auckland	National	GSNZ	N	Polygons, Points	Y	Spatial/ Occurrence	Data entered into database (EXCEL). Sites digitised. Some sites missing. Expert (B Hayward) opinion regarding missing values. 14 categories: landforms, earth deformation features, caves & karst, geothermal fields & features, quaternary volcanoes, igneous geology, sedimentary geology, fossil, metamorphic sites, mineral, structural, geologically related historic, north island soils. Assessment of importance (scale of international, national, regional) and assessment of vulnerability (1-5 classification): highly vulnerable to complete destruction to site already destroyed (not necessarily by human activity).	Kenny & Hayward. 1996. Inventory & Maps of important geological sites and landforms in the AKLD region & Kermadec Islands	N (Waikato Library)	Completed
	North Island		GSNZ	N	Polygons, Points	Y	Spatial/ Occurrence		Arand et al 1993. Inventory of NZ soil sites of international, national and regional importance. Part 2 - north island & northern offshore islands.	N (Waikato Library)	Completed
	Northland		GSNZ	N	Polygons, Points	Y	Spatial/ Occurrence		Kenny & Hayward. 1993. Inventory of important geological sites & landforms in the Northland Region	N (Waikato Library)	Completed
	Northland		GSNZ	N	Polygons, Points	Y	Spatial/ Occurrence		Kenny & Hayward. 1996. Inventory and Maps of important geological sites & landforms in the Northland Region	N (Waikato Library)	Completed
	Auckland		GSNZ	N	Polygons, Points	Y	Spatial/ Occurrence		Kenny & Hayward. 1993. Inventory of important geological sites & landforms in the Auckland Region	N (Waikato Library)	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Oceanic & Coastal Sediments	National	National	NIWA	N		N	Occurrence	Digitising of NZOI oceanic & coastal series sediment charts. (M. Kemp & A Goh). A new substrate type map has been created by digitising these charts and combining with 1989 regional chart. The result does not have consistent resolution across region	NZOI (NZ Oceanographic Institute) Oceanic & Coastal Sediments Map	n	Unknown
Bathymetry	National	Kaipara	DoC	Y	Lines, raster	Y	Spatial	Bathymetry data at 0,2,5,10, 30, 50 >50m intervals	Bathymetry	Y	Completed
Kaipara ED significant natural areas (northland)	Kaipara ED	Kaipara ED (northland only)	DoC	Y	Polygons	Y	Spatial	Attribute info includes: habitat type or ecosystem (forest, estuarine, duneland, shrubland, other); ecological significance (level 1 or level 2); sna name; geology type	Smale et al. 2009. Natural Areas of Kaipara ED (Northland Conservancy). Report prepared by Landcare Research NZ and the University of Waikato for DoC.	Y	Completed
Crown Forest	National	Kaipara catchment, Northland	CFRT	Y	Polygons	Y	Spatial	The data identify the location and extent of lands managed as a state/crown forest which is plantation forest.	GIS Layer. Crown Forest Rental Trust.	Y	Complete
Topographic Maps - Kaipara Catchment											
o07 - Aranga	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
r09 - Warkworth	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
r10 - Whangaparaoa	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
p06 - Mangakahia	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
p07 - Dargaville	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
p08 - Ruawai	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
p09 - Rototua	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
q06 - Hukerenui	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
q07 - Whangarei	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
q08 - Maungaturoto	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
q09 - Kaipara	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
q10 - Helensville	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
q11 - Muriwai	Kaipara	Catchment	LINZ	Y	rasters	Y	Spatial	GIS layers for all Kaipara catchment. Hardcopy also.	GIS Layer. NZ Topographic maps 1:50 000. Land Info NZ.	Y	Completed
Coastal Mud_Kaipara	National	Kaipara Harbour	LINZ	Y	Polygons	Y	Spatial	Coastal mud layer only for intertidal areas. Clipped to Kaipara harbour and bioregion	GIS Layer. NZ Topo maps. 1:50 000. Coastal Topo.		

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Coastal Sand_Kaipara	National	Kaipara Harbour	LINZ	Y	Polygons	Y	Spatial	Coastal sand layer only for intertidal areas. Clipped to Kaipara harbour and bioregion	GIS Layer. NZ Topo maps. 1:50 000. Coastal Topo.		
Coastal Swamp_Kaipara	National	Kaipara Harbour	LINZ	Y	Polygons	Y	Spatial	Coastal swamp layer only for intertidal areas. Clipped to Kaipara harbour and bioregion	GIS Layer. NZ Topo maps. 1:50 000. Coastal Topo.		
Coastal Mangrove_Kaipara	National	Kaipara Harbour	LINZ	Y	Polygons	Y	Spatial	Coastal mangrove layer only for intertidal areas. Clipped to Kaipara harbour and bioregion	GIS Layer. NZ Topo maps. 1:50 000. Coastal Topo.		
Threatened Plants	National	National	DoC	N		N	Occurrence	<p>BioWeb is a database system administered by the Department of Conservation that holds data about New Zealand's natural and historic heritage that is of importance to the Department of Conservation. In addition to Weeds, Pestlink, Threatened Plants, Monitoring and Conservation Management, six sub-projects are included in BioWeb:</p> <ul style="list-style-type: none"> Birds Fish Fungi and bacteria Herpetofauna Invertebrates Mammals Archaeology 	DoC Bioweb	N	Incomplete
Nature Heritage	National	National	DoC	Y		N		Spatial data that is available as of Aug 2008, for describing Natural Heritage:	Natural Heritage Management System	N	

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
								*DoC Conservation Estate (Spatial layer showing area administered by DoC & land of interest to the DoC, with legal descriptions *LCDB2 *LENZ *Threatened Envts (a table that is based on LENZ level 4 classes that indicates the threat category of each class based on indigenous cover remaining & percentage protected)			Complete
Argentine Ant	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Linepithema humile. Presence/Absence data. Expert opinion used from DoC & regional councils. Modelled data also.	Natural Heritage Management System	N	Incomplete
Banana PassionFruit	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Passiflora tripartita. Presence/Absence data. Expert opinion used from DoC & regional councils.	Natural Heritage Management System	N	Incomplete
Boneseed	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Chrysanthemoides monilifera subsp. Monilifera. Throughout conservancy area of Northland and Akld (except Warworth Area). Modelled distribution data too	Natural Heritage Management System	N	Incomplete
Buddleia	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Buddleja davidii. Presence/Absence data based on quantitative and qualitative data, expert opinion. Bioweb data used also to model areas.	Natural Heritage Management System	N	Incomplete
Chilean Rubbah	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Gunnera tinctoria. Presence/Absence data. Expert opinion, qualitative data used to model extent by DoC.	Natural Heritage Management System	N	Incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Common Wasp	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Vespula vulgaris</i> . Presence/Absence data. Presence data based on expert opinion and qualitative data. Absence data based on expert opinion & modelled.	Natural Heritage Management System	N	Incomplete
Fallow Deer	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Dama dama dama</i> . Presence/Absence data. Absence based on expert opinion, qualitative data and modelled. Under sustained management in the Warworth Area. Presence data based on expert opinion and qualitative data.	Natural Heritage Management System	N	Incomplete
Feral Cat	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Felis catus</i> . Presence/Absence data. Absence based on expert opinion, qualitative data and modelled. Under sustained management in the Warworth Area. Presence data based on expert opinion and qualitative data.	Natural Heritage Management System	N	Incomplete
Feral Goat	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Capra hircus</i> . Presence/Absence data 2007. Qualitative data, expert opinion, best guess used.	Natural Heritage Management System	N	Incomplete
Feral Pig	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Sus scrofa</i> . Presence/Absence data 2007. Based on qualitative, expert opinion and modelled.	Natural Heritage Management System	N	Incomplete
Ferret	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Mustela furo</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Hare	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Lepus europaeus occidentalis</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Hedgehog	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Erinaceus europaeus occidentalis. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Japanese Honeysuckle	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Lonicera japonica. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Mouse	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Mus musculus. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Norway Rat	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Rattus norvegicus. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Pampas Grass	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Cortaderia jubata/selloana. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Possum	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Trichosurus vulpecula. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Rabbit	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Oryctolagus cuniculus cuniculus. Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Red Deer	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Cervus elaphus scoticus</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Ship Rat	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Rattus rattus</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Stoat	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Mustela erminea</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Wandering Jew	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Tradescantia fluminensis</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Weasel	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Mustela nivalis vulgaris</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Wild Broom	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Cytisus scoparius</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete
Wild Ginger	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	<i>Hedychium gardnerianum</i> . Presence/Absence 2007. Based on expert opinion, qualitative data and modelled using environmental variables.	Natural Heritage Management System	N	Incomplete

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Wild Gorse	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Ulex europaeus. Presence/Absence 2007. Based on expert opinion, qualitative data and modeled using environmental variables.	Natural Heritage Management System	N	Incomplete
Sediment grain size - sand study	Kaipara tidal inlet	Kaipara tidal inlet only	ARC	Y	Points	Y	Occurrence	Sample site locations (GPS), numbers, grain size statistics: Gravel, Sand, Mud, Carbonate, Mean grain size, Depth, Lat/long. Created layer from raw data found in report	Hume et al 2001. Kaipara Sand Study. Component 2B. Sediment mapping in the entrance of Kaipara Harbour. NIWA Client Report ARC00250/1. Sept 2001. 65p.	Y	Completed
Auckland Region NZeem	Regional	Auckland	ARC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Auckland Region erisonrisk	Regional	Auckland	ARC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Awaroa River erosion risk (awar-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Awaroa River nzeem (awar-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Kaira Creek erosion risk (Kair-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Kaira Creek nzeem (Kair-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Kaira Creek adjacent to harbour (Kairhb-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Kaira Creek adjacent to harbour (Kairhb-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Matakohe River erosion risk (mata-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Matakohe River nzeem (mata-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Matakohe Township erosion risk (mathb-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Matakohe Township nzeem (mathb-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Batley-Ngaupiko Pt erosion risk (ngahb-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Batley-Ngaupiko Pt nzeem (ngahb-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
no-erisk	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
no-nzeem	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Ōtamatea River erosion risk (otamhb-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Ōtamatea River nzeem (otamhb-nzeem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Kaiwaka erosion risk (kaiw-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Kaiwaka nzeem (kaiw-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Pahi erosion risk (pahi-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Pahi nzeem (pahi-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Paparoa erosion risk (papa-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Paparoa nzeem (papar-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Topuni erosion risk (topu-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Topuni nzeem (topu-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Wairoa river erosion risk (wairo-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Wairoa river nzeem (wairo-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Wairua river erosion risk (wairu-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Wairua river nzeem (wairu-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Whakapirau Ck & Bay erosion risk (whknb-ersk)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Whakapirau Ck & Bay nzeem (whknb-nzem)	Regional	Kaipara catchment	NRC	Y	Raster	Y	Spatial	Calculation of erosion rates per region	NZEEM. Landcare Research.	Y	Completed
Elevation	Kaipara catchment	Kaipara catchment	RDC	Y	Polylines	Y	Spatial	Contours for north island. Clipped for Kaipara catchment.		Y	
Sea Surface Temperature (SST)	National	National	MfE	Y	Raster	Y	Spatial	Underlying layer for MEC. Resolution is XX.	Leathwick et al. XXXX.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Kumeu/Huapai WWTP macro-invertebrate	Local	Kumeu-Huapai	RDC	N		N	Occurrence	Species List, Site Photos, Riparian Vegetation Data, Macro-invertebrate data, fish fauna data, terrestrial vegetation, aerial photos, stream classification data	Kingett Mitchell Ltd. 2005. Kumeu/Huapai WWTP Sites Ecological Assessment	Y	Completed & Report produced
Kumeu/Huapai WWTP freshwater fish	Local	Kumeu-Huapai	RDC	N		N	Occurrence	Species List, Site Photos, Riparian Vegetation Data, Macro-invertebrate data, fish fauna data, terrestrial vegetation, aerial photos, stream classification data	Kingett Mitchell Ltd. 2005. Kumeu/Huapai WWTP Sites Ecological Assessment	Y	Completed & Report produced
Kumeu/Huapai WWTP stream classification	Local	Kumeu-Huapai	RDC	N		N	Occurrence	Species List, Site Photos, Riparian Vegetation Data, Macro-invertebrate data, fish fauna data, terrestrial vegetation, aerial photos, stream classification data	Kingett Mitchell Ltd. 2005. Kumeu/Huapai WWTP Sites Ecological Assessment	Y	Completed & Report produced
Rivers	Catchment	Kaipara catchment	LINZ	Y	Polygon	Y	Spatial				
Lakes	Catchment	Kaipara catchment	LINZ	Y	Polygon	Y	Spatial				
Coastline	National	National	LINZ	Y	Line	Y	Spatial				
Ecological district boundaries	National	North Island	DoC	Y	Polygon	Y	Spatial		Brook. 1996.		
Landcover	National	Kaipara catchment	MfE/ DoC	Y	Polygon	Y	Spatial	Landcover database II (2000). Classified into vegetation type. Imagery done again 2006/07. Release 2008.			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Kaipara 10m depth zone	Harbour	Kaipara Harbour	ARC	Y	Polygon	Y	Spatial	10m depth zone for the Kaipara harbour. Incorporates depths greater than 10m.			
Freshwater Fish Presence	National	Kaipara catchment	NIWA	Y	Point	Y	Spatial	Presence data only. Mostly data within catchment boundaries, a few just outside. Info retrieved from the NIWA Freshwater Fish Database. Require login & password. Can interrogate database depending on certain parameters. Includes a query layer.			
Marine environment classification - 5 class	National	National	MfE	Y	Raster	Y	Spatial	Classification at the 5 class level.	Snelder et al. (2007) Development of a ecologic marine classification in the NZ region.		
Marine environment classification - 10 class	National	National	MfE	Y	Raster	Y	Spatial	Classification at the 10 class level.	Snelder et al. (2007) Development of a ecologic marine classification in the NZ region.		
Marine environment classification -20 class	National	National	MfE	Y	Raster	Y	Spatial	Classification at the 20class level.	Snelder et al. (2007) Development of a ecologic marine classification in the NZ region.		
Marine environment classification - 40 class	National	National	MfE	Y	Raster	Y	Spatial	Classification at the 40 class level. D:/GIS/MEC/MEC/Shapefiles	Snelder et al. (2007) Development of a ecologic marine classification in the NZ region.		
Marine environment classification depth bands	National	National	MfE	Y	Polygon	Y	Spatial	Ranges are 0-9m, 10-19m, 20-49m, 50-99m, 100-199m, 200-299m, 300-499m, 500-999m, 1000-1999m, 2000-2999m, 3000-4999m, 5000-9999m, 10,000m. D:/GIS/MEC			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Marine environment classification sea surface temperature annual amplitude	National	National	MfE	Y	Polygon	Y	Spatial	D:/GIS/MEC			
Marine environment classification winter sea surface temperature	National	National	MfE	Y	Polygon	Y	Spatial	D:/GIS/MEC			
Kaipara Catchment April 09	Kaipara catchment	Kaipara Catchment	AUT	Y	Polygon	Y	Spatial	Using subcatchments and REC data sources to delineate catchment of Kaipara. D:/GIS/Catchment features			
Freshwater input	National	National	MfE	Y	Raster	Y	Spatial	D:/GIS/EEZ Env Vars/envr_vars/extra			
Sea surface temperature (SST) gradient	National	National	MfE	Y	Raster	Y	Spatial	D:/GIS/EEZ Env Vars/envr_vars/extra			
Rugosity	Kaipara catchment	Kaipara catchment	AUT	Y	Raster	Y	Spatial	D:/GIS/EEZ Env Vars/envr_vars/extra			
Soil drainage - 25m resolution	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). Drainage classes used: very poor, poor, imperfect, moderate, good (=well). D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil drainage - 100m resolution	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). Drainage classes used: very poor, poor, imperfect, moderate, good (=well). D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Soil particle size - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). Derived by grouping soil units mapped in the NZLRI by their parent material. Descriptions from soil survey reports, compiled with field knowledge, were used to estimate physical attributes for each parent material class. Classes include: silt and clay, sand, gravel, coarse to very coarse gravel, boulders to massive. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil particle size - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). Derived by grouping soil units mapped in the NZLRI by their parent material. Descriptions from soil survey reports, compiled with field knowledge, were used to estimate physical attributes for each parent material class. Classes include: silt and clay, sand, gravel, coarse to very coarse gravel, boulders to massive. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil induration - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Classes include: non-indurated, very weakly indurated, weakly indurated, strongly indurated, very strongly. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Soil induration - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Classes include: non-indurated, very weakly indurated, weakly indurated, strongly indurated, very strongly. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil acid soluble phosphorus - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Classes include: very low, low, moderate, high, very high. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil acid soluble phosphorus - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Classes include: very low, low, moderate, high, very high. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil age - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Classes include: younger (recent or raw soils), older. Based on their membership in the NZ Soil classification. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil age - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Classes include: younger (recent or raw soils), older. Based on their membership in the NZ Soil classification. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Soil exchangeable calicum - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Classes include: low, moderate, high, very high (mg/100 g) D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil exchangeable calicum - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Classes include: low, moderate, high, very high (mg/100 g) D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil chemical limitations for plant growth - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Classes include: Low, moderate, high - based on factors tht lead to the accumulation of chemicals that limit plant growth. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Soil chemical limitations for plant growth - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Classes include: Low, moderate, high - based on factors tht lead to the accumulation of chemicals that limit plant growth. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Annual water deficit - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Comparison of estimates of evaporation with monthly rainfall estimates. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Annual water deficit - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Comparison of estimates of evaporation with monthly rainfall estimates. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Monthly water balance ratio - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Based on a water balance model using monthly estimates of mean daily temperature, mean daily solar radiation, and mean rainfall. This data layer is the annual average of the monthly ratios of rainfall to potential evaporation calculated using the method of Priestly and Taylor. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Monthly water balance ratio - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Based on a water balance model using monthly estimates of mean daily temperature, mean daily solar radiation, and mean rainfall. This data layer is the annual average of the monthly ratios of rainfall to potential evaporation calculated using the method of Priestly and Taylor. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
October vapour pressure deficit - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Taken in October (kPa) when westerly winds are generally most persistent, resulting in strong geographic variation in vapour pressure deficits across NZ. Using humidity and temperature data collected up until 1980. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
October vapour pressure deficit - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Taken in October (kPa) when westerly winds are generally most persistent, resulting in strong geographic variation in vapour pressure deficits across NZ. Using humidity and temperature data collected up until 1980. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Winter (june) solar radiation - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Winter (june) solar radiation - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Mean annual solar radiation - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Mean annual solar radiation - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Mean annual temperature - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Mean annual temperature - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Slope layer - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Created from a 25m digital elevation model (DEM) fitted to 20m digital contour data derived from NZ's topographic 260 maps. D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Slope layer - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Created from a 25m digital elevation model (DEM) fitted to 20m digital contour data derived from NZ's topographic 260 maps. D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Minimum temperature - 25m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 25m resolution. Taken from the coldest month of winter (july). D:/GIS/LENZ_25m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Minimum temperature - 100m	National	National	MfE/ Landcare Research	Y	Raster	Y	Spatial	Underlying datalayer for the development of the Land Environments NZ (LENZ). 100m resolution. Taken from the coldest month of winter (july). D:/GIS/LENZ_100m	Leathwick et al. 2002. Land environments of New Zealand: a technical guide. Ministry for the Environment, 244p.	Y	Completed
Kaipara catchment main rivers and streams	Kaipara catchment	Kaipara Catchment	AUT	Y	Line	Y	Spatial	Info used from REC and LINZ to identify main rivers and streams feeding into the harbour. D:/GIS/Rivers			
Coastal Rock_Kaipara	Kaipara catchment	Kaipara Catchment	LINZ	Y	Polygon	Y	Spatial	Coastal rock habitat. For intertidal areas. D:/GIS/Coast			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Potential Vegetation 500AD	Regional	Kaipara catchment	CFRT	Y	Polygon	Y	Spatial	Received from CFRT ArcFlax CD. A reconstruction method of predicting NZ's indigenous forest ecosystem pattern. Statistical tools were used for both the interpolation of point climate data and the analysis of spatial patterns to predict high resolution environmental data to reconstruct.Vegetation types. D:/GIS/Predicted Vegetation 500AD	Leathwick. 2001. NZ's potential forest pattern as predicted from current species-environment relationships. NZ J Bot 39: 447-464.	N	Completed
River Environment Classificaion Northland	Regional	Northland	Mfe	Y	Line	Y	Spatial	Underlying data layers attribute information provided with classification, such as, climate, distance to sea, catchment area, landcover, valley landform, source of flow, geology, order in network, and class levels. D:/GIS/Rivers	Snelder et al. (2004). New Zealand River Environment Classification User Guide. NIWA and MfE. 161p.	Y	Completed
Rivers Environment Classification Auckland	Regional	Auckland	MfE	Y	Line	Y	Spatial	Underlying data layers attribute information provided with classification, such as, climate, distance to sea, catchment area, landcover, valley landform, source of flow, geology, order in network, and class levels. D:/GIS/Rivers	Snelder et al. (2004). New Zealand River Environment Classification User Guide. NIWA and MfE. 161p.	Y	Completed
Rodney significant natural areas	Local	Rodney & Ōtamatea (Southern only) ED	RDC	Y	Polygons	Y	Spatial	Rodney District significant natural areas. Site name, site significance (high, moderate-high, moderate, outstanding, not significant, not ranked, potential).			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Rodney District significant natural area fauna data	Local	Rodney & Ōtamatea (Southern only) ED	RDC	Y	Points	Y	Occurrence	Info on survey date, vege type, protection status, landowner, bioclimatic zone, landform, naturalness, soil type, hillslope position, altitude, slope, fauna description, stock grazing presence/absence, vege community, pest presence/absence, succession, regeneration, fencing, management needs. D:/GIS/RDC Data/SNA Data/fauna_data.xls			
Rodney District significant natural area flora data	Local	Rodney & Ōtamatea (Southern only) ED	RDC	Y	Points	Y	Occurrence	Info on survey date, vege type, protection status, landowner, bioclimatic zone, landform, naturalness, soil type, hillslope position, altitude, slope, fauna description, stock grazing presence/absence, vege community, pest presence/absence, succession, regeneration, fencing, management needs. D:/GIS/RDC Data/SNA Data/fauna_data.xls			
Kaipara District Council Aerials 2008	Local	Kaipara catchment	NRC/KDC	Y	Raster	Y	Spatial	Aerial photography. D:/GIS/NRC/RasterData/Aerial_Geodatabase			
Whangarei DC aerials 2008	Local	Kaipara catchment	NRC/WDC	Y	Raster	Y	Spatial	Aerial photography. D:/GIS/NRC/RasterData/Aerial_Geodatabase			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Far North DC Aerials 2008	Local	Kaipara Catchment	NRC/ FNDC	Y	Raster	Y	Spatial	Aerial photography. D:/GIS/NRC/RasterData/Aerial_Geodatabase			
Rodney DC Aerials	Local	Southern Kaipara catchment	RDC/ ARC	Y	Raster	Y	Spatial	Aerial photography. D:/GIS/ARC_Kaipara/Kaipara & D:/GIS/NRC/RasterData/Aerial_Geodatabase			
Contours	Kaipara Catchment	Kaipara catchment	LINZ	Y	Lines	Y	Spatial	Contour information for catchment. D:/GIS/Catchment features			
North Island Land Resource Inventory	National	North Island	Landcare Research, MAF	Y	Polygon	Y	Spatial	LRI. Soil information. D:/GIS/lir/land resource inventory. More updated LRI in CLUES model.			
Mine	National	National	LINZ/GNS	Y	Point and polygon	Y	Spatial	D:/GIS/nztm and /GIS/GNS			
Geo bore	National	National	LINZ	Y	Point	Y	Spatial	D:/GIS/nztm			
Gas val	National	National	LINZ	Y	Point	Y	Spatial	D:/GIS/nztm			
Flare	North Island	North Island	LINZ	Y	Point	Y	Spatial	D:/GIS/nztm			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Cave	National	National	LINZ	Y	Point	Y	Spatial	D:/GIS/nztm			
Faults Whangarei	Regional	Northland	GNS	Y	Lines	Y	Spatial	QMAP series for Whangarei. Received July 2008. D:/GIS/GNS/QMAPWhangarei			
Faults Auckland	Regional	Auckland	GNS	Y	Lines	Y	Spatial	QMAP series for Auckland Received July 2008. D:/GIS/GNS/QMAPAuckland			
Faults Kaitaia	Regional	Kaitaia/Far North	GNS	Y	Lines	Y	Spatial	QMAP series for Kaitaia. Received July 2008. D:/GIS/GNS/QMAPKaitaia			
Folds Whangarei	Regional	Northland	GNS	Y	Lines	Y	Spatial	QMAP series for Whangarei. Received July 2008. D:/GIS/GNS/QMAPWhangarei			
Folds Auckland	Regional	Auckland	GNS	Y	Lines	Y	Spatial	QMAP series for Auckland Received July 2008. D:/GIS/GNS/QMAPAuckland			
Folds Kaitaia	Regional	Kaitaia/Far North	GNS	Y	Lines	Y	Spatial	QMAP series for Kaitaia. Received July 2008. D:/GIS/GNS/QMAPKaitaia			
Dikes Whangarei	Regional	Northland	GNS	Y	Polygons	Y	Spatial	QMAP series for Whangarei. Received July 2008. D:/GIS/GNS/QMAPWhangarei			
Dikes Auckland	Regional	Auckland	GNS	Y	Polygons	Y	Spatial	QMAP series for Auckland Received July 2008. D:/GIS/GNS/QMAPAuckland			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Dikes Kaitaia	Regional	Kaitaia/Far North	GNS	Y	Polygons	Y	Spatial	QMAP series for Kaitaia. Received July 2008. D:GIS/GNS/QMAPKaitaia			
Landslide Whangarei	Regional	Northland	GNS	Y	Polygons	Y	Spatial	QMAP series for Whangarei. Received July 2008. D:GIS/GNS/QMAPWhangarei			
Landslide Auckland	Regional	Northland	GNS	Y	Polygons	Y	Spatial	QMAP series for Auckland. Received July 2008. D:GIS/GNS/QMAPAuckland.			
Veins - Whangarei	Regional	Northland	GNS	Y	Lines	Y	Spatial	QMAP series for Whangarei. Received July 2008. D:GIS/GNS/QMAPWhangarei			
Veins - Auckland	Regional	Auckland	GNS	Y	Lines	Y	Spatial	QMAP series for Auckland. Received July 2008. D:GIS/GNS/QMAPAuckland.			
Kakarai Flats - Biomarine Oyster Farm aerial photo 2006	Local	Southern Kaipara harbour	Biomarine	Y	Raster	Y	Spatial	Aerial Photo of proposed oyster farming site (Biomarine). D:GIS/Seagrass/Kaipara subtidal seagrass.jpg			
Kakarai Flats - Biomarine Oyster Farm aerial photo 2007	Local	Southern Kaipara harbour	Biomarine	Y	Raster	Y	Spatial	Aerial Photo of proposed oyster farming site (Biomarine). D:GIS/Seagrass/Kaipara subtidal seagrass.jpg			
Southern Kaipara Lidar aerial photography	Regional	Southern Kaipara catchment	ARC	Y	Raster	Y	Spatial	Stored on AUT Terabyte. Received from ARC. However, southern part of Taporapora across to Kakarai Flats and Tauhoa River missing.			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Southern Kaipara Aerial Photography - ALGGIS	Regional	Southern Kaipara catchment & harbour	ARC	Y	Raster	Y	Spatial	Downloaded from ArcGIS web server: maps.auckland.govt.nz			
Rodney DC Lidar aeriels Taporapora	Local	southern Kaipara	RDC	Y	Raster	Y	Spatial	B:/Leane Makey/Aerials			
Grountruthed saltmarsh northern Kaipara Hbr	Regional	northern Kaipara Catchment	AUT	Y	Polygon	Y	Spatial	Digitised saltmarsh using aeriels, LINZ topographic maps and Kaipara SNA survey data. D:/GIS/Coast.Kaipara			
Pouto Peninsula coastline changes	Local	Pouto Peninsula	Jackson and Burridge	Y	Line	Y	Spatial	Digitised coastline changes from report. B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Map 22.		
Lagoon	National	National	LINZ	Y	Polygon	Y	Spatial	D:/GIS/nztm			
Rodney wetland project	Local	Rodney District	RDC/ ARC	Y	Polygon	Y	Spatial	Defines wetlands in the District: general wetland, raupo, estuarine, pond, lake. D:/GIS/Catchment features/wetlands			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Pied Oystercatcher roosting_winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Pied Oystercatcher roosting_summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Variable Oystercatcher roosting_winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Variable Oystercatcher roosting_summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Pied Stilt roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Pied Stilt roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Black Stilt roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Stilt smu roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
NZ Dotterel roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
NZ Dotterel roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Banded Dotterel roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Banded Dotterel roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Wrybill roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Wrybill roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Spur-winged plover roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Spur-winged plover roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Turnstone roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Turnstone roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Lesser Knot roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Lesser Knot roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Bar-tailed Godwit roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Bar-tailed Godwit roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Black backed gull roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Red billed Gull roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Black billed Gull roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Caspian Tern roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Caspian Tern roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
White fronted Tern roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
White fronted Tern roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Fairy Tern roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Fairy Tern roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairatahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Black Shag roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Pied Shag roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
White faced shag (?) roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Cattle Egret roosting winter	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island, Port Albert, Oneriri, Ruawai, Okaro Creek	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Pacific Golden Plover roosting summer	Kaipara harbour	Kaipara harbour	OSNZ/F&B	Y	Polygon, Points	Y	Spatial	Bird abundance for 2001 across all monitored sites of Kaipara: Glorit, Green/Parkhurst, Haranui, Hedley, Hoteo River, Jordans, Lemon Tree Bay, Mairetahi, Makarau to Glorit, McLean Farm, Ngamotu, Oyster Point, Pahi/Whakapirua, Papakanui Spit, Pararaha Point, Rat Island, Ruawai, Taingahae Kellys Bay, Tanoa, Taporapora North, Taporapora South, Tauhoa, Tinopai, Waioneke School, Walker Island.	A Riegen (OSNZ) unpublished data 1993-2000 shorebirds, migratory waders. Heather & Robertson 1996. Fieldguide to birds of NZ waders, shorebirds. Sagar 1999 Wader studies in NZ. Bellingham (in draft) Ramsar Nomination Kaipara Harbour. October 2007.		Completed
Yellowbelly flounder normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Yellowbelly flounder full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Yellowbelly flounder unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Yellowbelly flounder not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Sand flounder normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Sand flounder full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Sand flounder unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Sand flounder not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Grey Mullet normal region	National	Northland	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Grey Mullet full region	National	Northland	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Grey Mullet not known to exist region	National	Northland	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Greenback flounder normal region	National	Northland	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Greenback flounder full region	National	Northland	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Greenback flounder known not to exist	National	Northland	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Snapper normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Snapper full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Snapper not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			

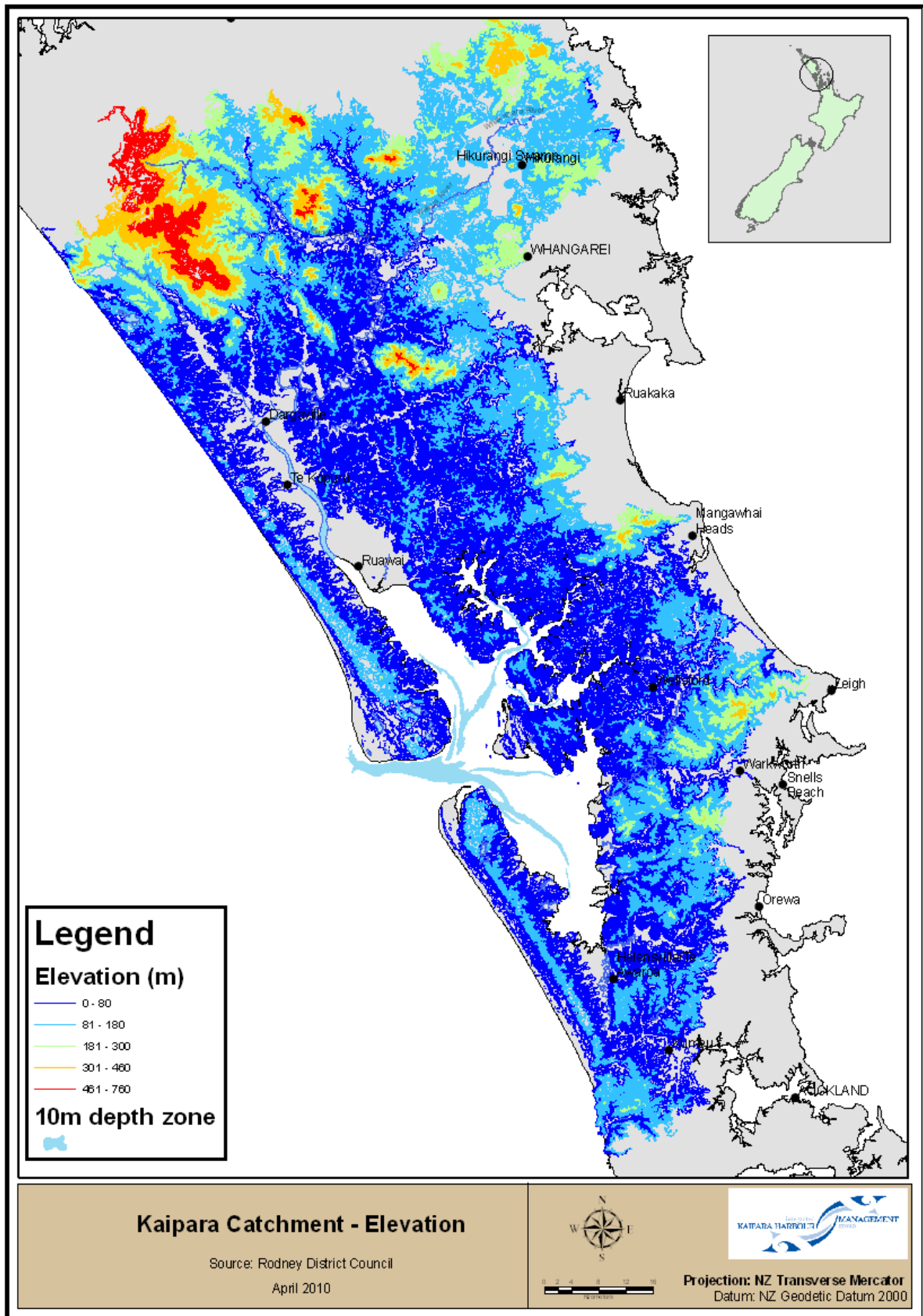
Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Snapper unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Toheroa normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Toheroa full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Toheroa normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
School Shark normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
School Shark full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
School Shark unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
School Shark not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Rig normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Rig full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			

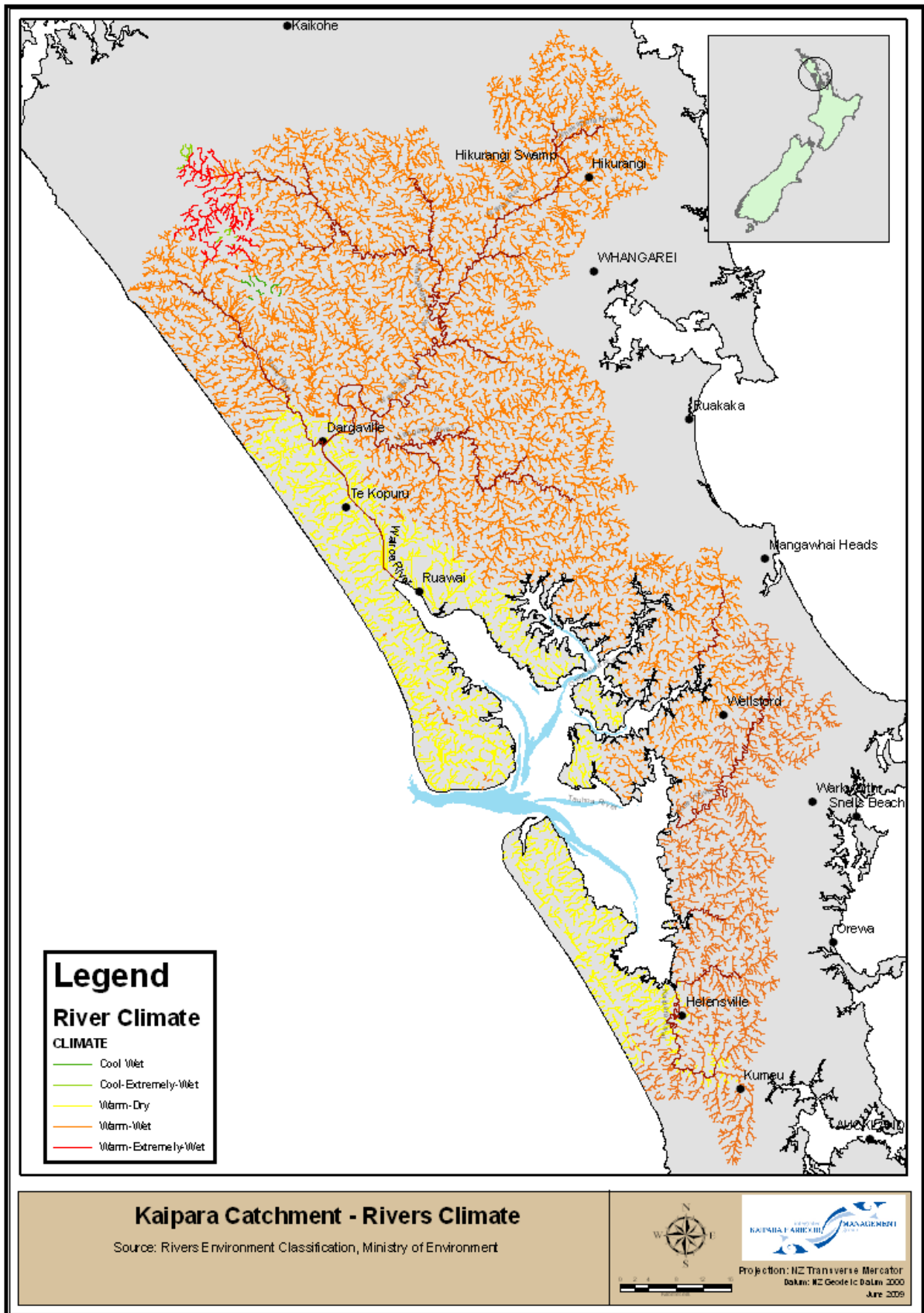
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Rig not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Rig unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
NZ sole normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
NZ sole full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
NZ sole not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Lemon sole normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Lemon sole full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Lemon sole not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Lemon sole unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Tarahiki normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			

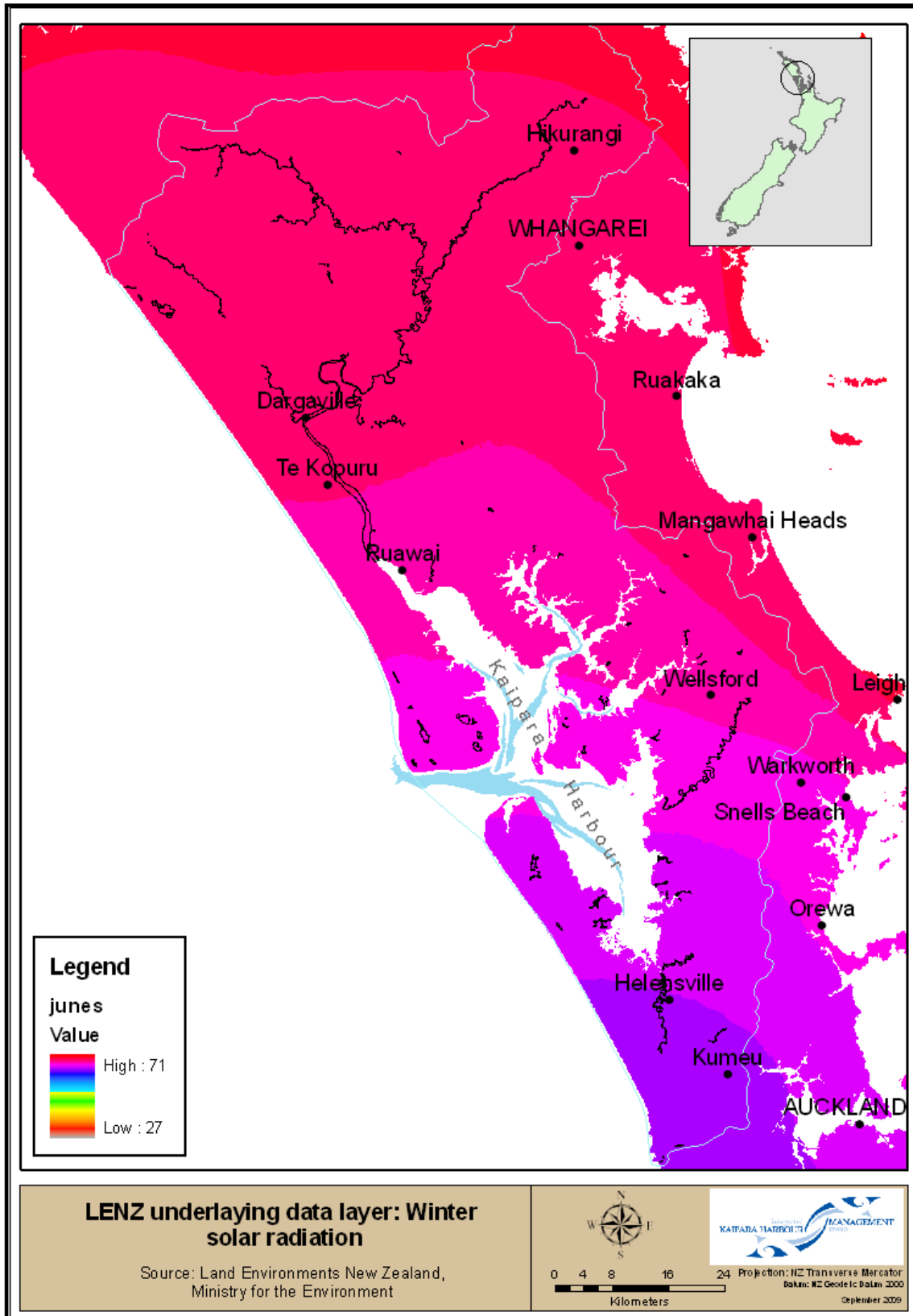
Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Tarahiki full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Tarahiki unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Tarahiki not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Spiny dogfish normal region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Spiny dogfish full region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Spiny dogfish not known to exist	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Spiny dogfish unknown region	National	National	Mfish	Y	Polygon	Y	Spatial	D:/GIS/Fisheries/Mfish Kaipara Data			
Waters of National Importance (WONI) - Rivers	National	Kaipara	DoC	Y	Polygon	Y	Spatial	Spatial conservation prioritisation analysis using Zonation. Attribute information relating to river subcatchments of Kaipara. Identifies highest ranked catchments that protect 70% of river environment types, & most significant popns of threatened species & previously listed wetlands & lakes of international importance. Was integrated with streams and lakes.	Leathwick & Julian. 2008. Updated conservation rankings for New Zealand's rivers and streams. Prepared for DoC. 44 p.	Y	Completed

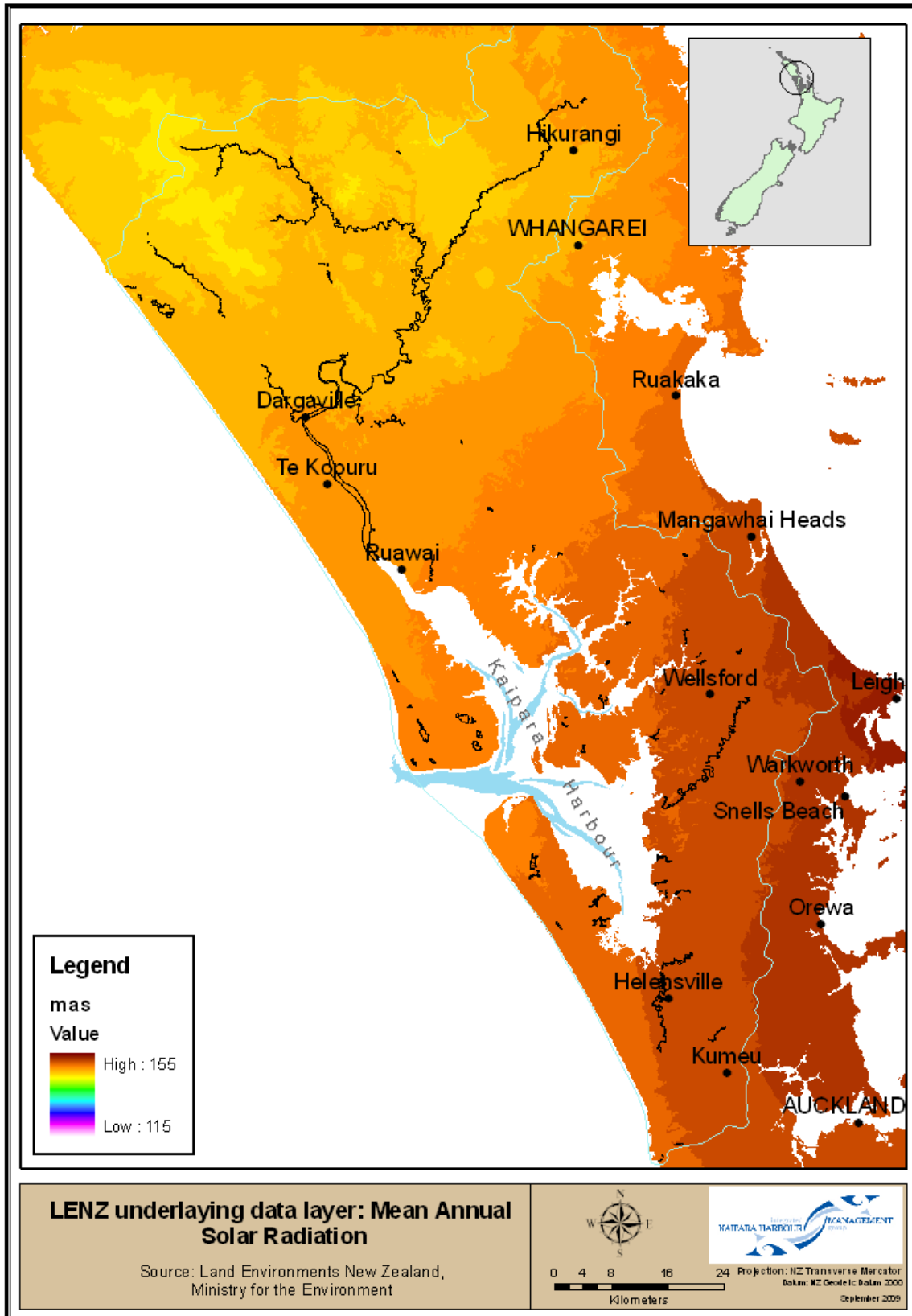
Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Waters of National Importance (WONI) - Wetlands	National	Kaipara	DoC	Y	Polygon	Y	Spatial	Spatial conservation prioritisation analysis using Zonation. Attribute information relating to inland wetlands of Kaipara. Doesn't include estuarine wetlands. Progressing this gap. Established a Ecosystem Integrity Index for wetlands. Other underlying datasources are freshwater fish and macroinvertebrates.	Ausseil et al. 2008. Wetland ecosystems of national importance for biodiversity: criteria, methods and candidate list of nationally important inland wetlands. Landcare Research. Prepared for DoC. 171p.	Y	Completed
Waters of National Importance (WONI) - Lakes	National	Kaipara	DoC	Y	Polygon	Y	Spatial	Spatial conservation prioritisation analysis using Zonation. Attribute information relating to river subcatchments of Kaipara. Identifies highest ranked catchments that protect 70% of lake, rivers and streams environment types, & most significant popns of threatened species & previously listed wetlands & lakes of international importance.	Leathwick & Julian. 2008. Updated conservation rankings for New Zealand's rivers and streams. Prepared for DoC. 44 p.	Y	Completed
Catchment Land Use Environment Sustainability (CLUES) Model	Regional, Catchment	Northland-Auckland	MAF and MfE	Y	Polygon, Lines, Raster	Y	Spatial	GIS Decision Support Tool. CLUES model received from NIWA (Sandy Elliott Hamilton & Annette Davis Auckland). Polygon layers for landuse classification, subcatchments, landcover database; lines for streams; world imagery raster; nitrogen leach risk raster. Socio-economic data includes FTE, GDP per sub-catchment units. Nutrient data includes N, P, Sediment concentrations, loads and yields. Also E. coli concentrations.	Woods et al. 2006. The CLUES Project. Predicting the effects of Landuse on Water Quality. Stage II. Prepared for MAF. 113 p.	Y	Completed
									Semandeni-Davis, A., Shankar, U., & Elliott, S. 2009. The CLUES Project: Tutorial Manual for CLUES2.0.6. Prepared for MAF. 146p.	Y	Completed

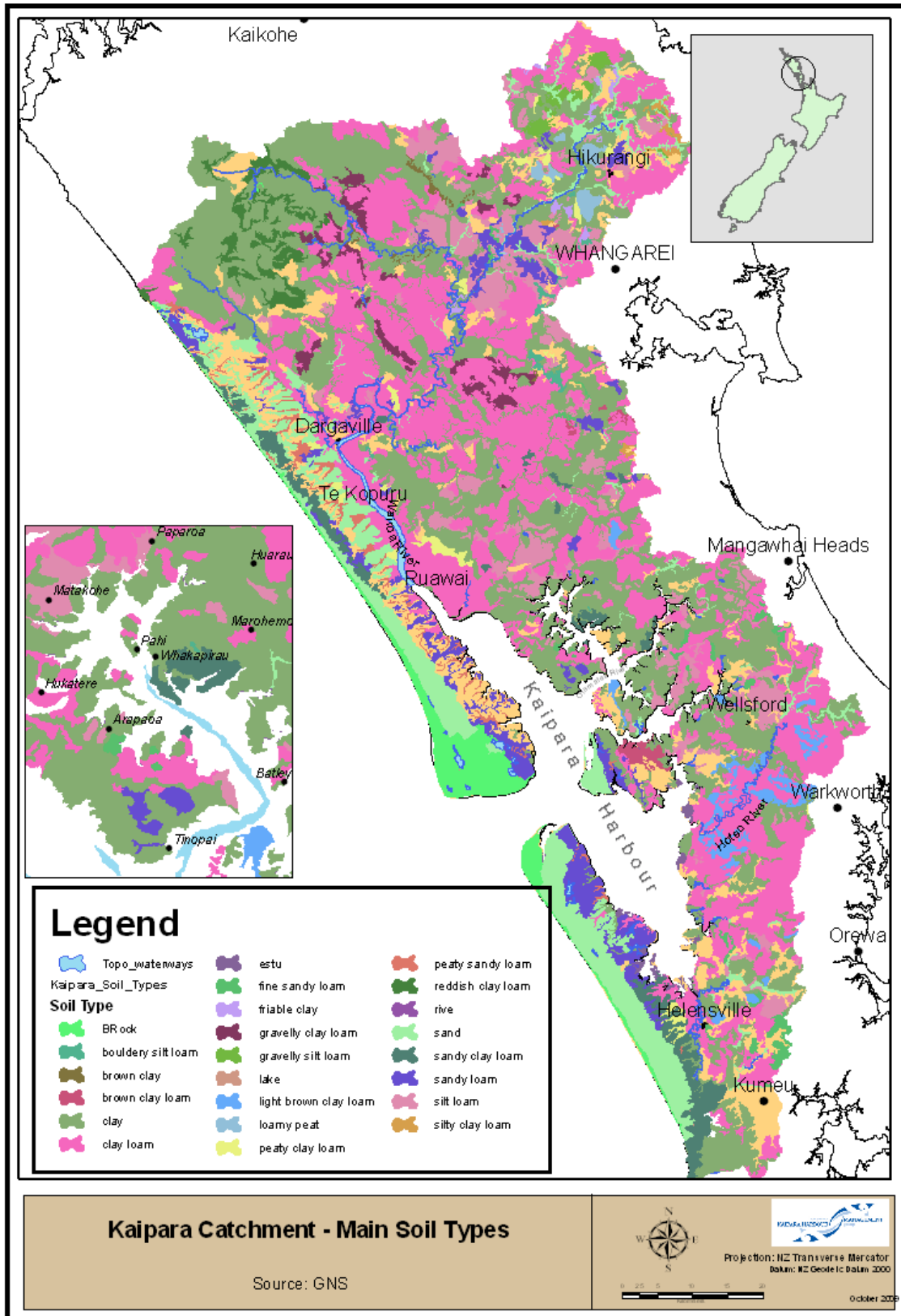
Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
ARC Biosecurity Data	Regional	Auckland	ARC	N	Points	N	Occurrence	ARC Biosecurity digital data is fairly extensive but currently not in GIS format or a user-friendly format. Weed data available at: <ul style="list-style-type: none"> • Total Control Pest Plant Sites • Biological Control Sites • ARC Parkland (e.g. Atiu Creek, Te Rau Puriri) • Containment Pest Plant Sites 		N	Ongoing
Te Uri o Hau Oyster Reserve Density & Distribution	Harbour	northern Kaipara	Mfish	Y	Points	Y	Spatial/Occurrence	Distribution and relative degree of cover of oysters in 5 of 6 Te Uri o Hau oyster reserves. Mapped using aerial survey methodology. Attribute data includes: Rank of Oyster Cover (1-5), lat & long, species, habitat, ranking of overall oyster size ranking (small, med, large)	Kelly, S. 2009. Kaipara Harbour Oyster Reserves. Final Research Report for Ministry of Fisheries project OYS2008/02, March 2009. 32p.	Y	Completed
								Occurrence data: oyster density within 1/9m2 quadrat; oyster cover per 1m intervals along 25m transect; oyster presence.			

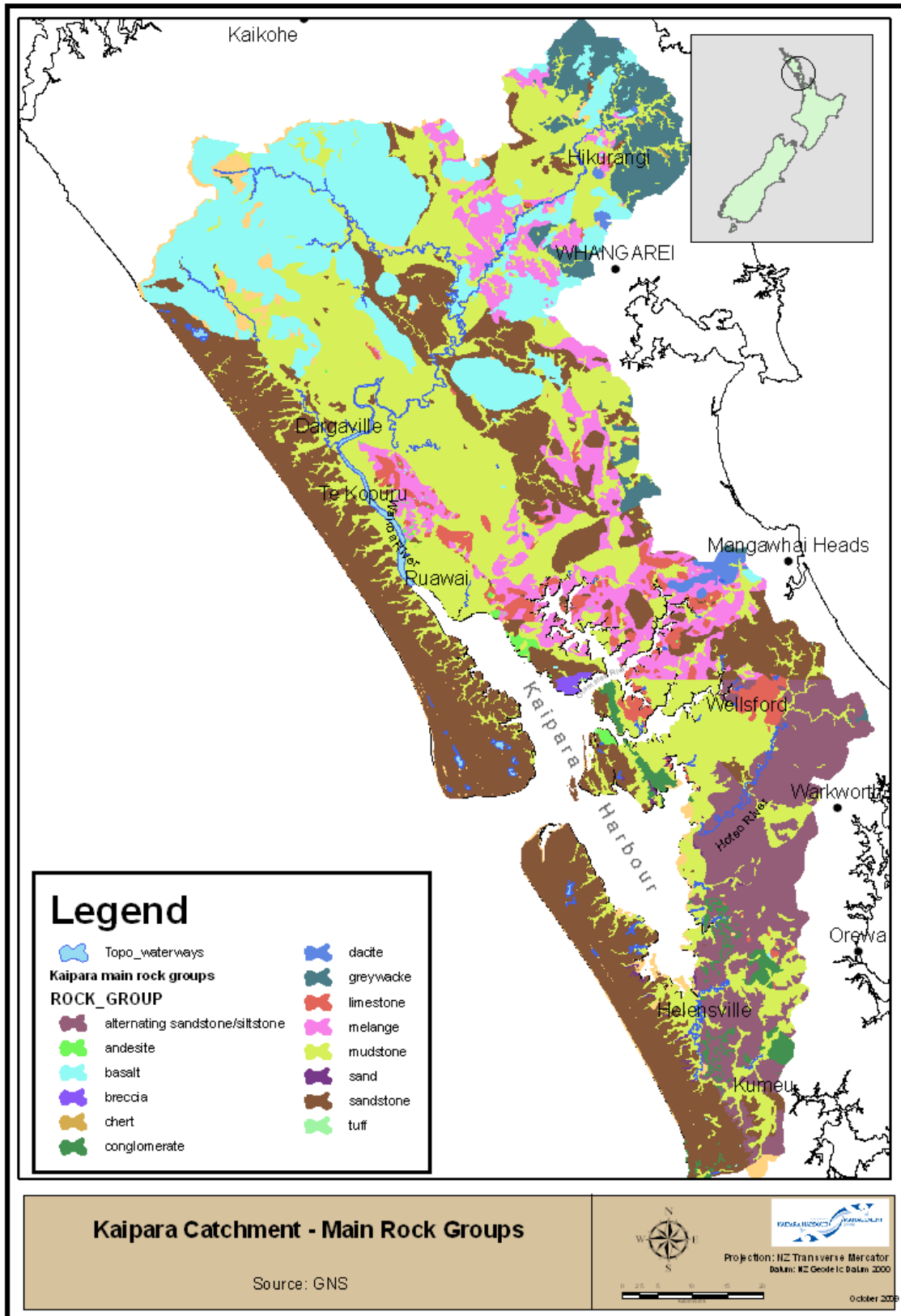


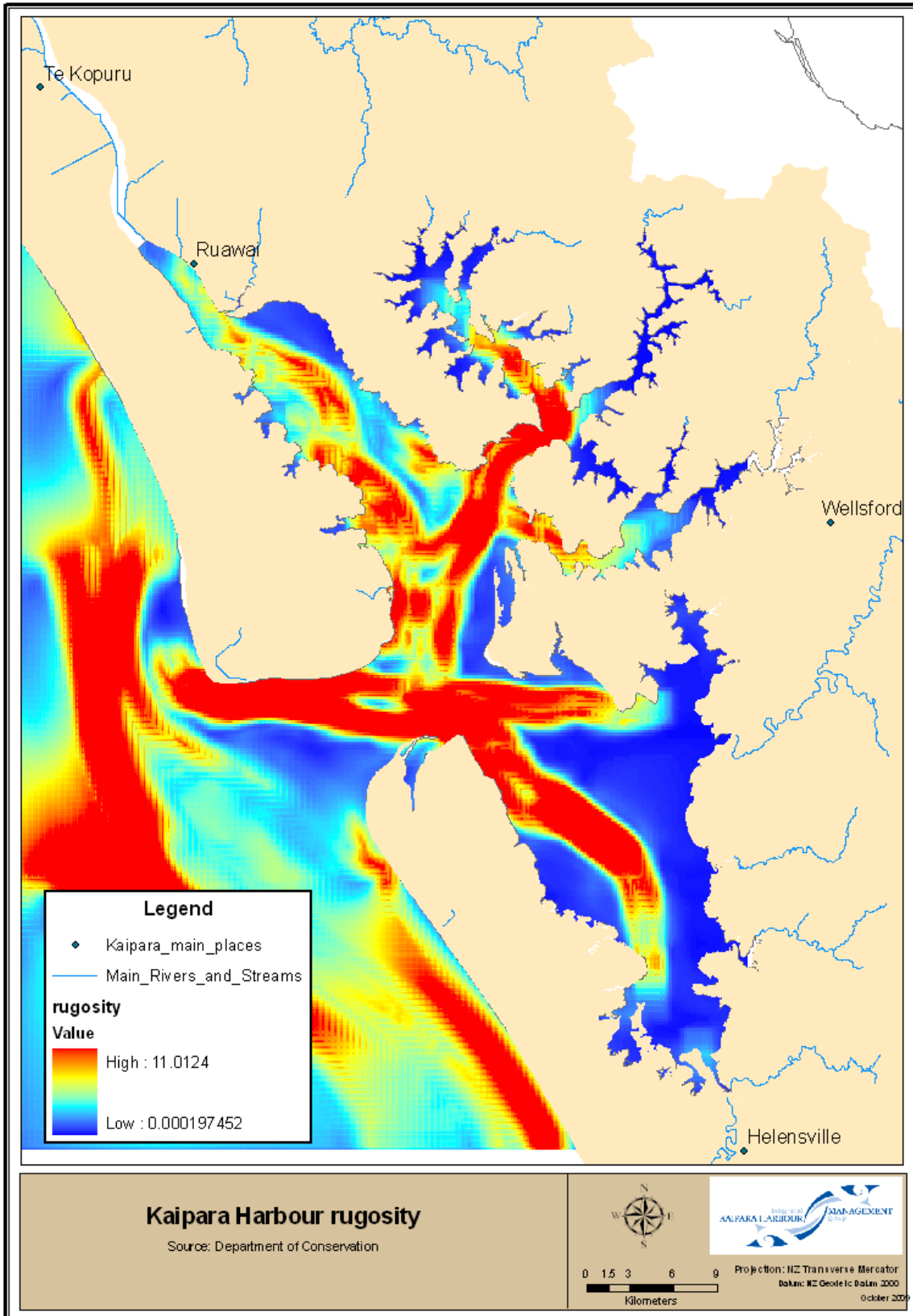


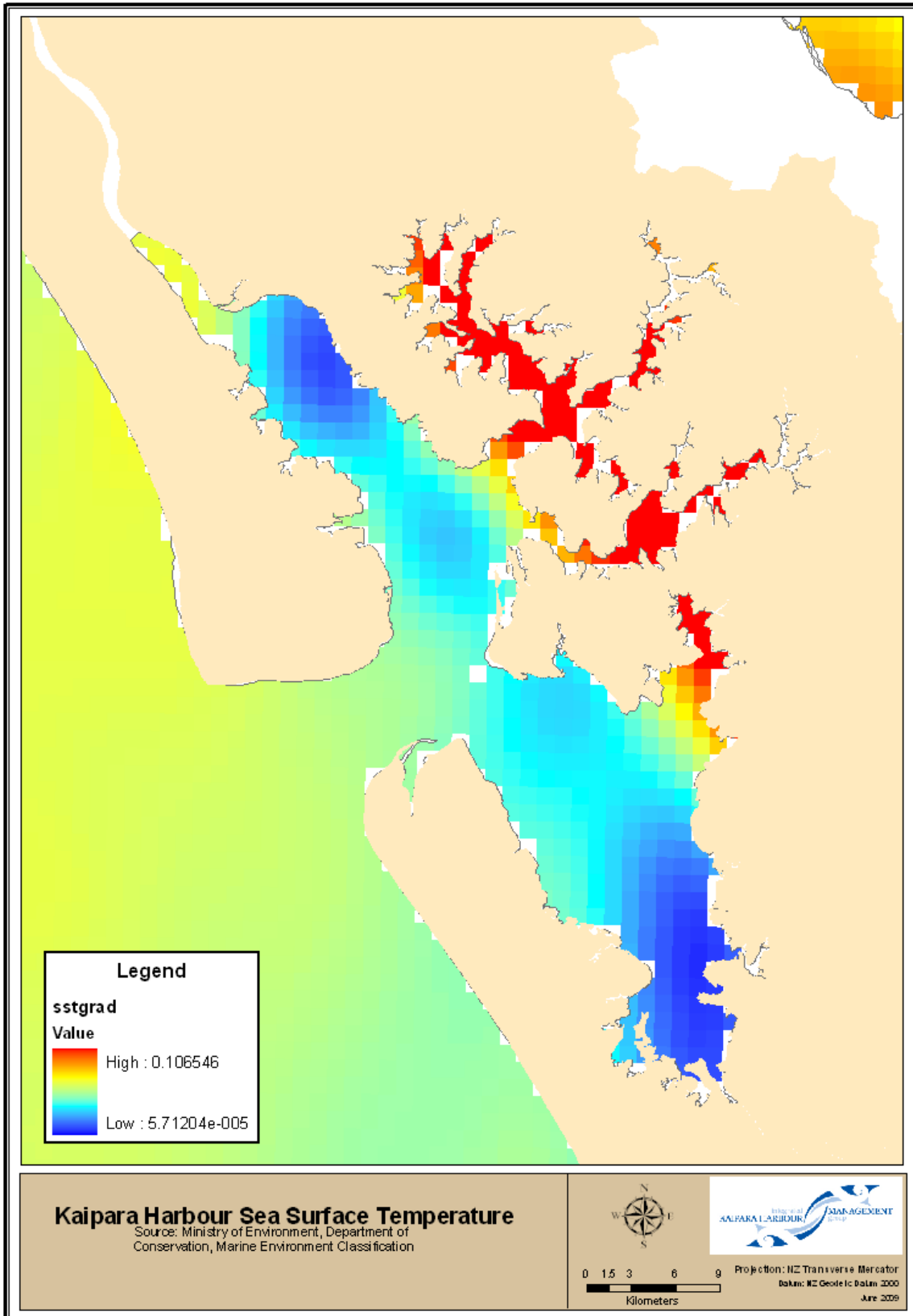


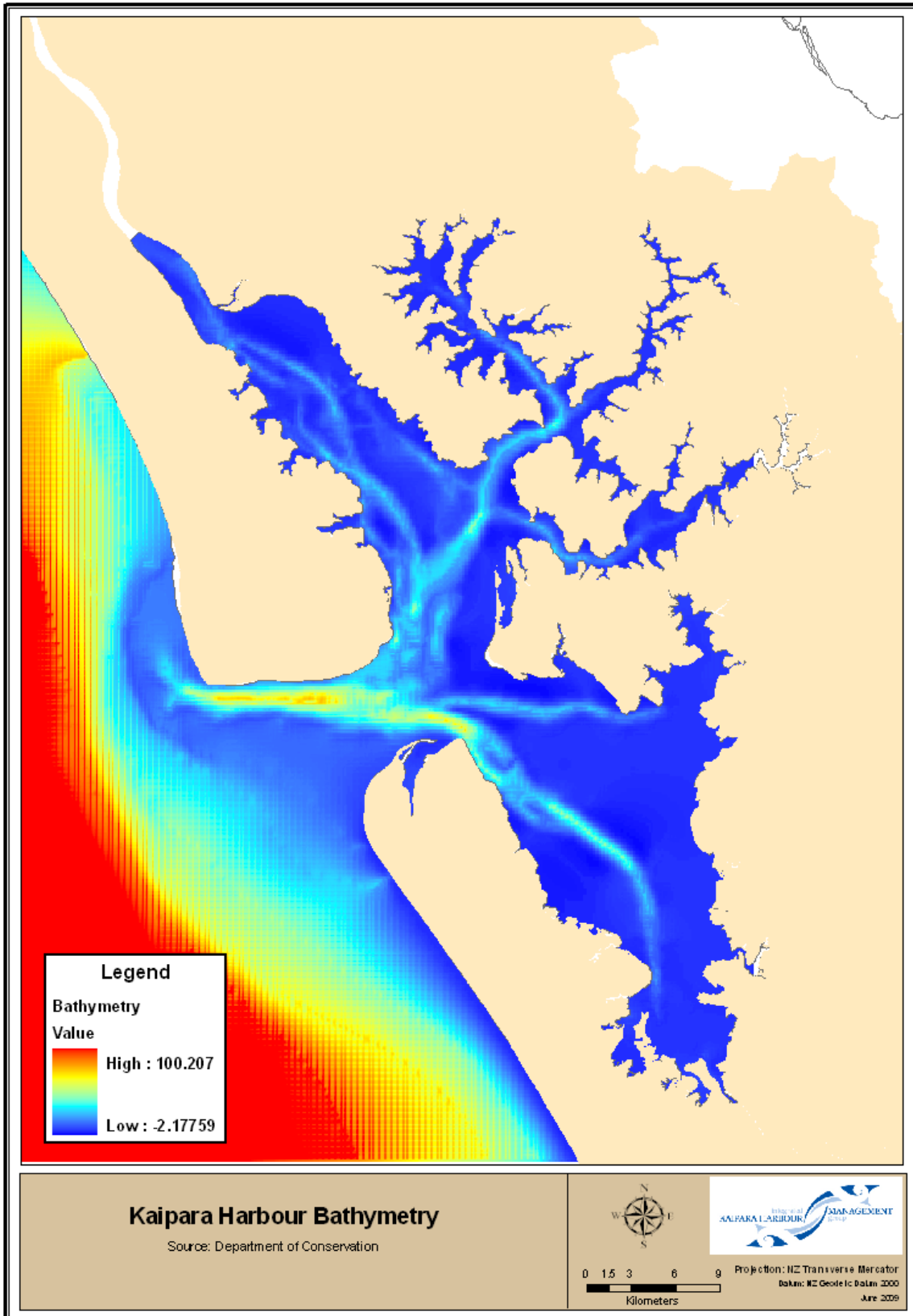


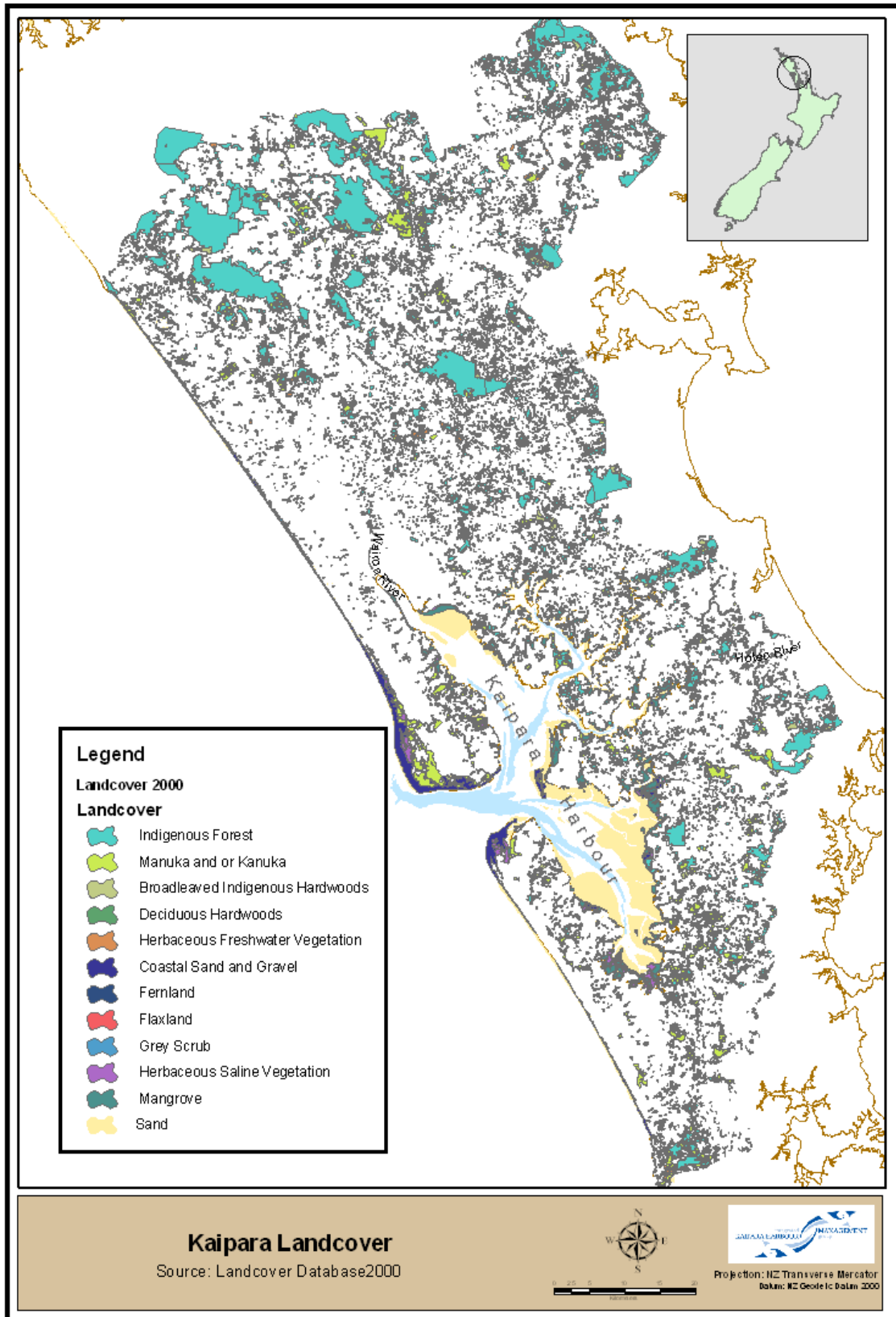


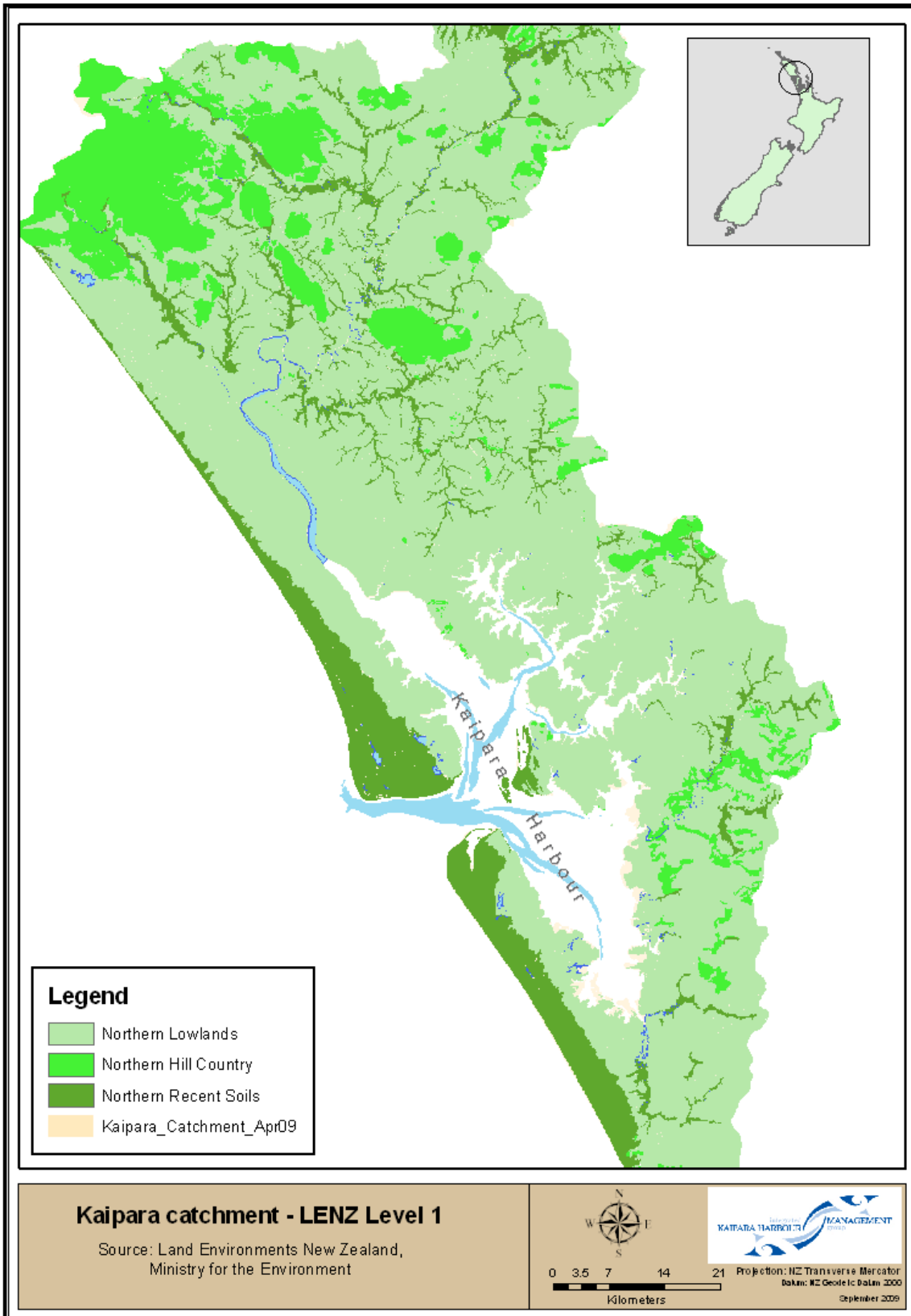


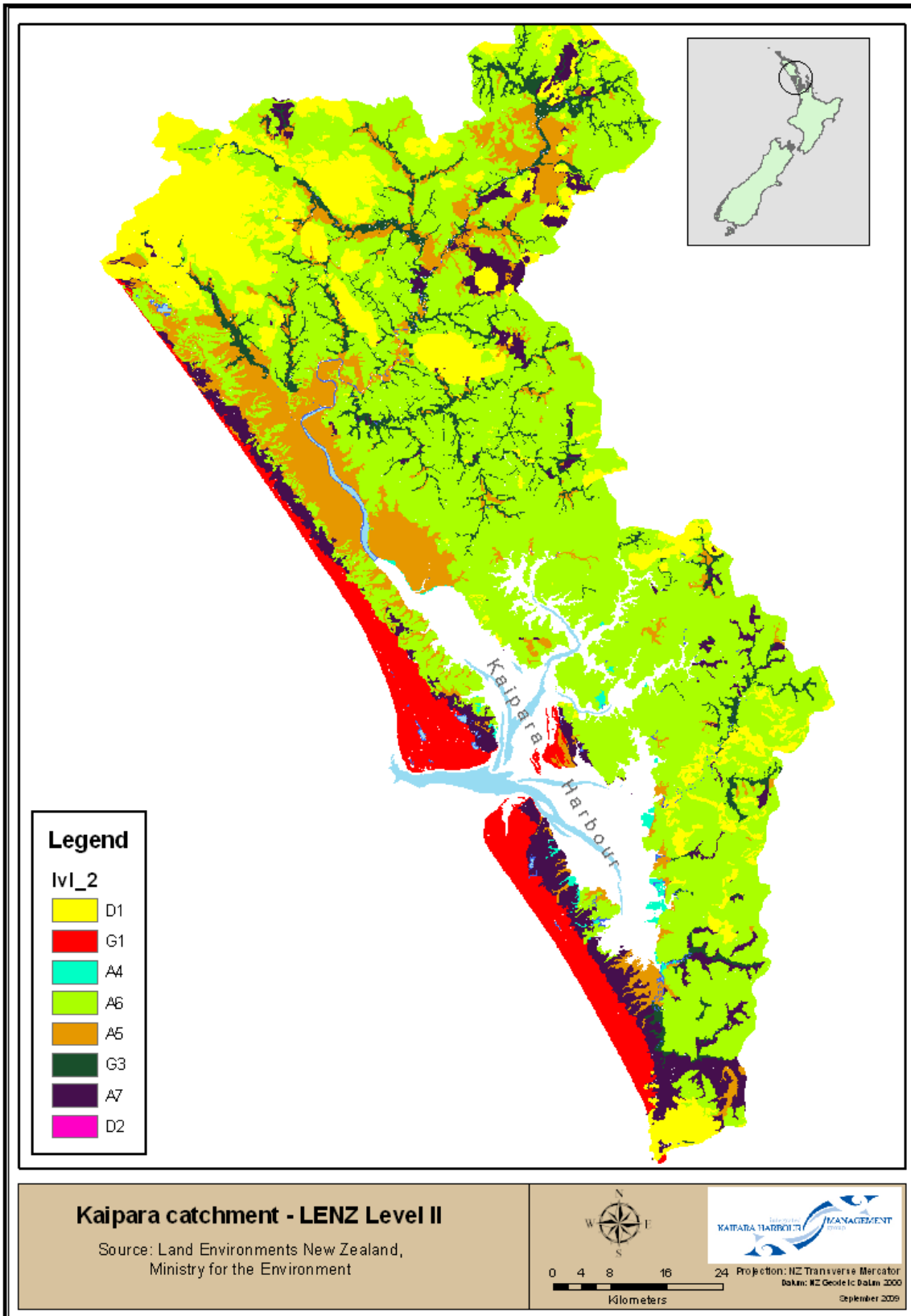


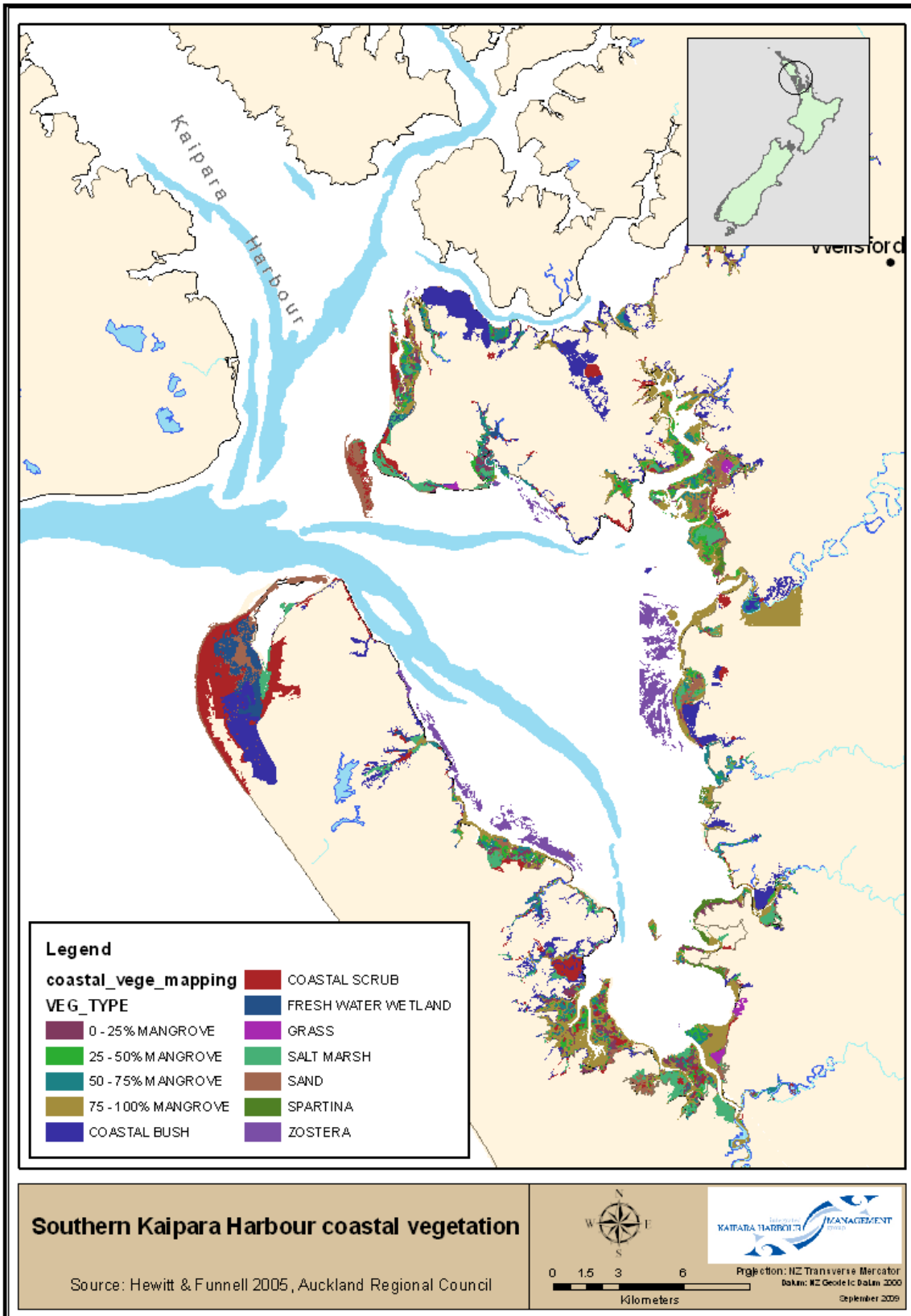


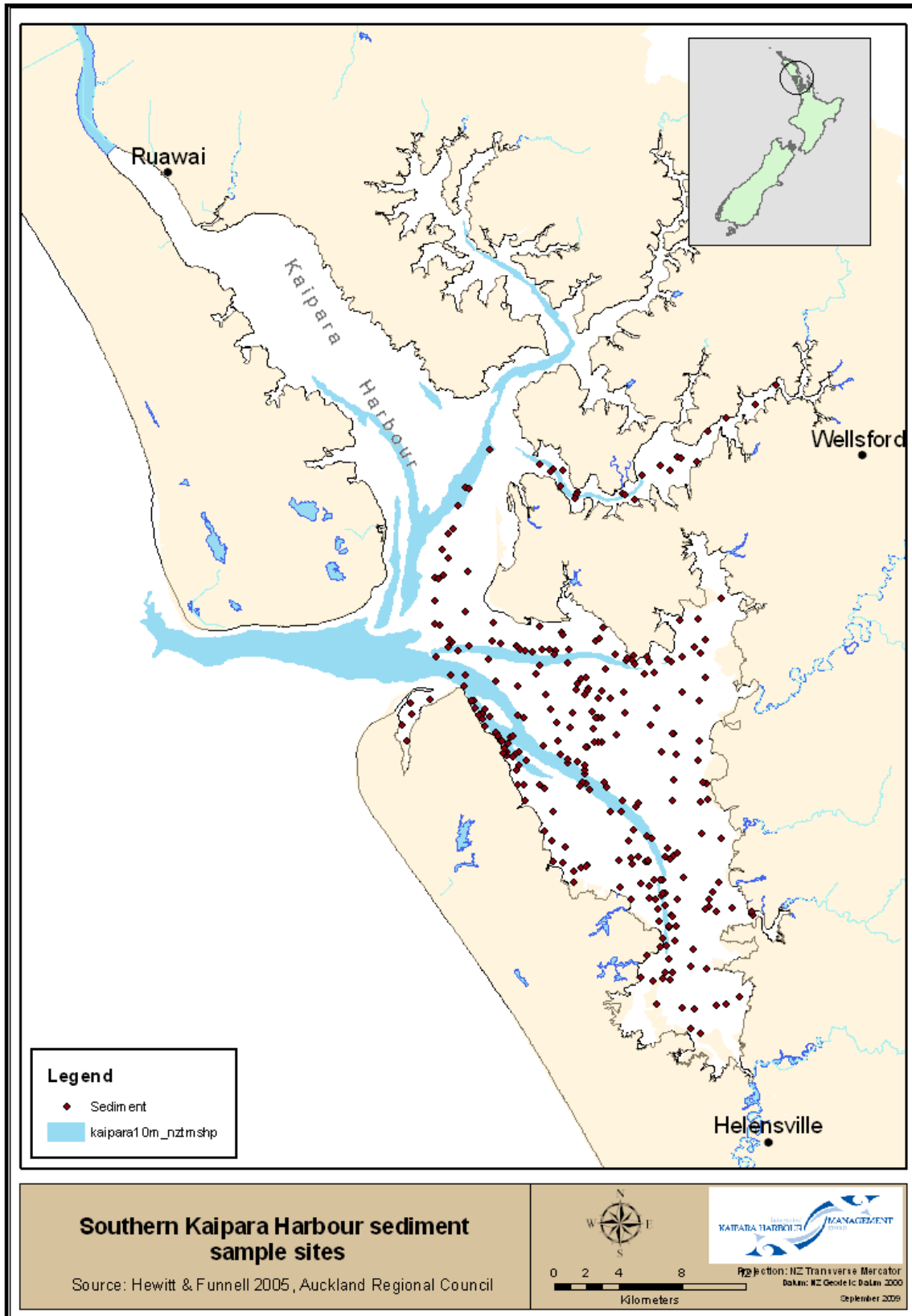


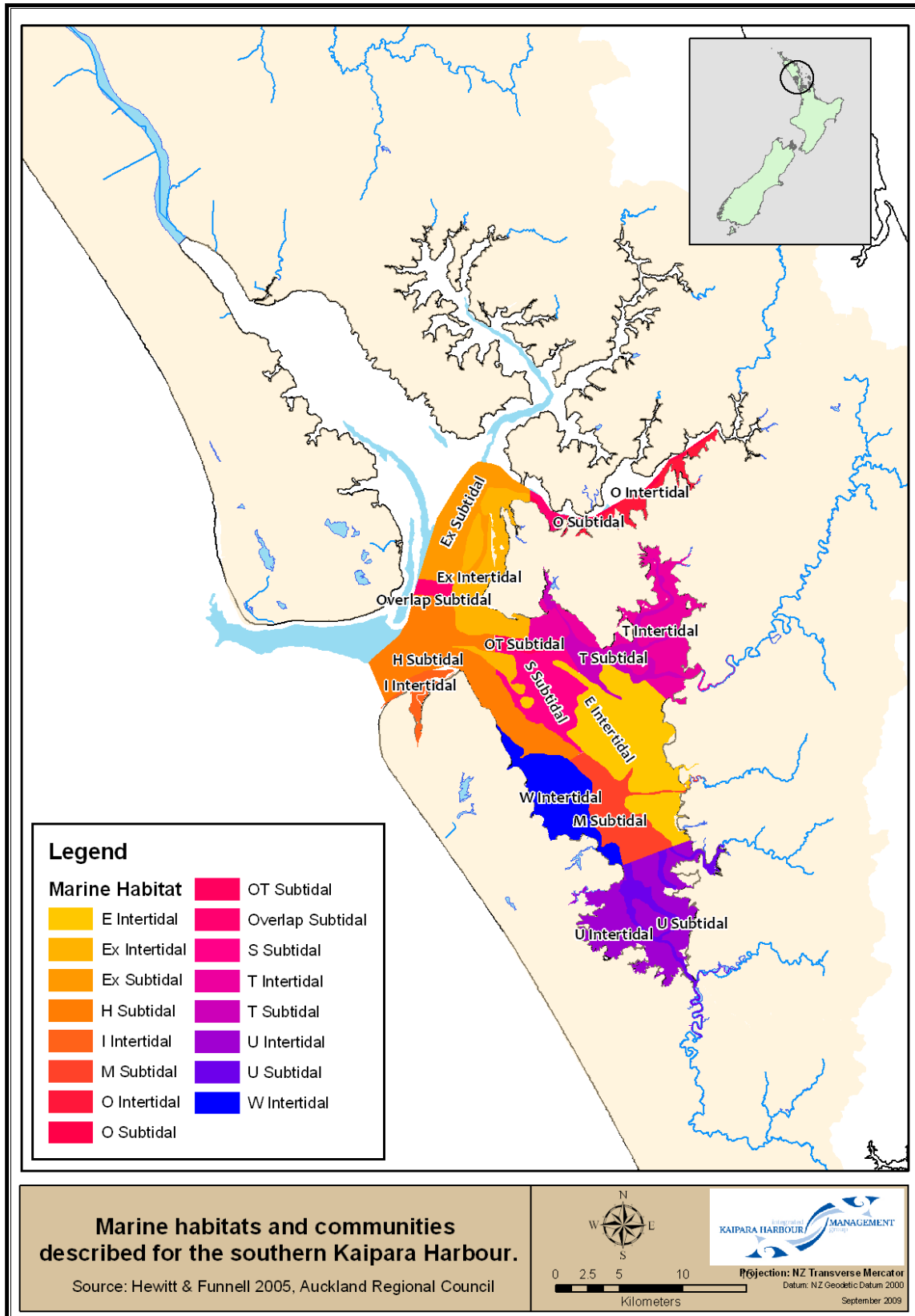


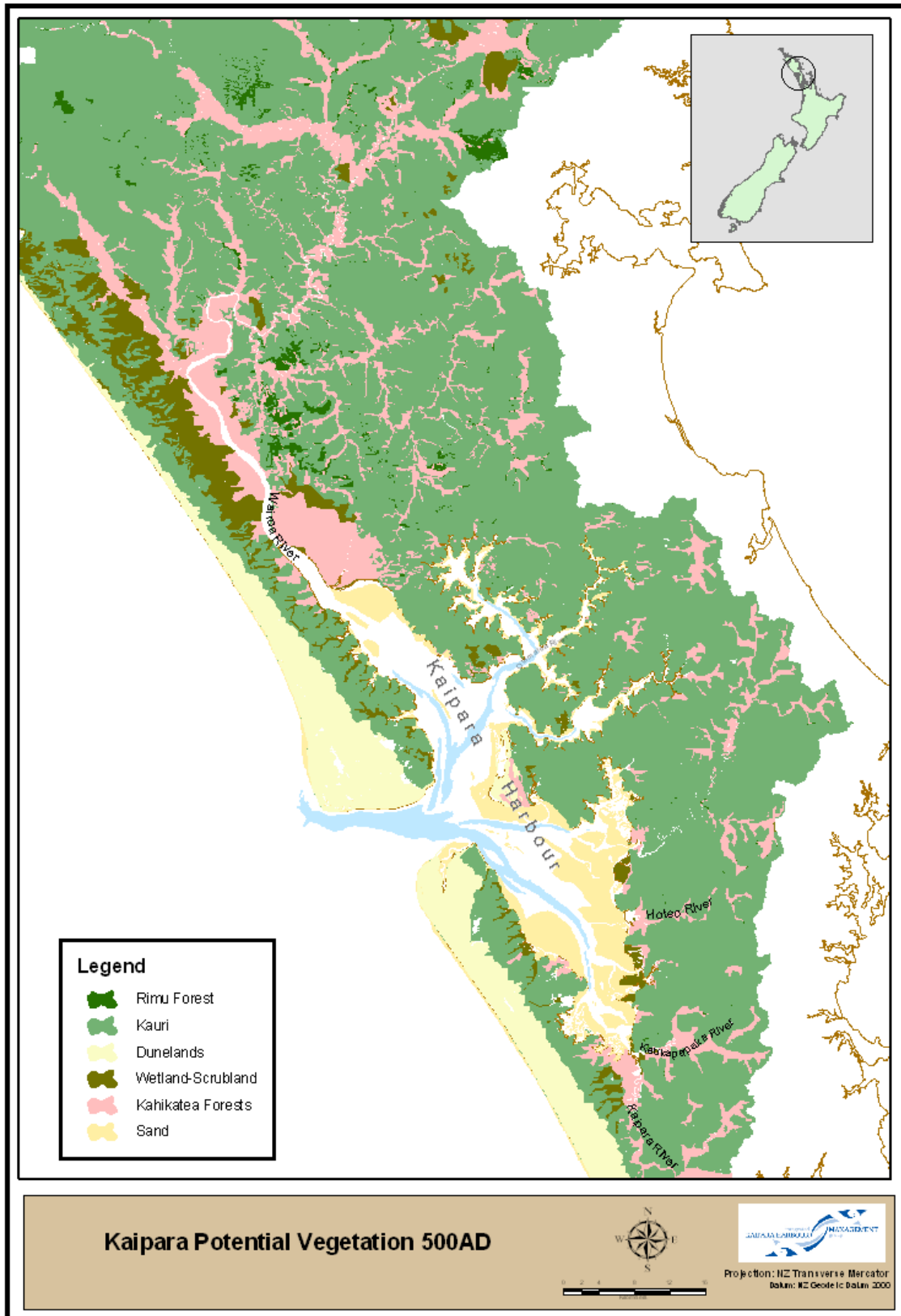


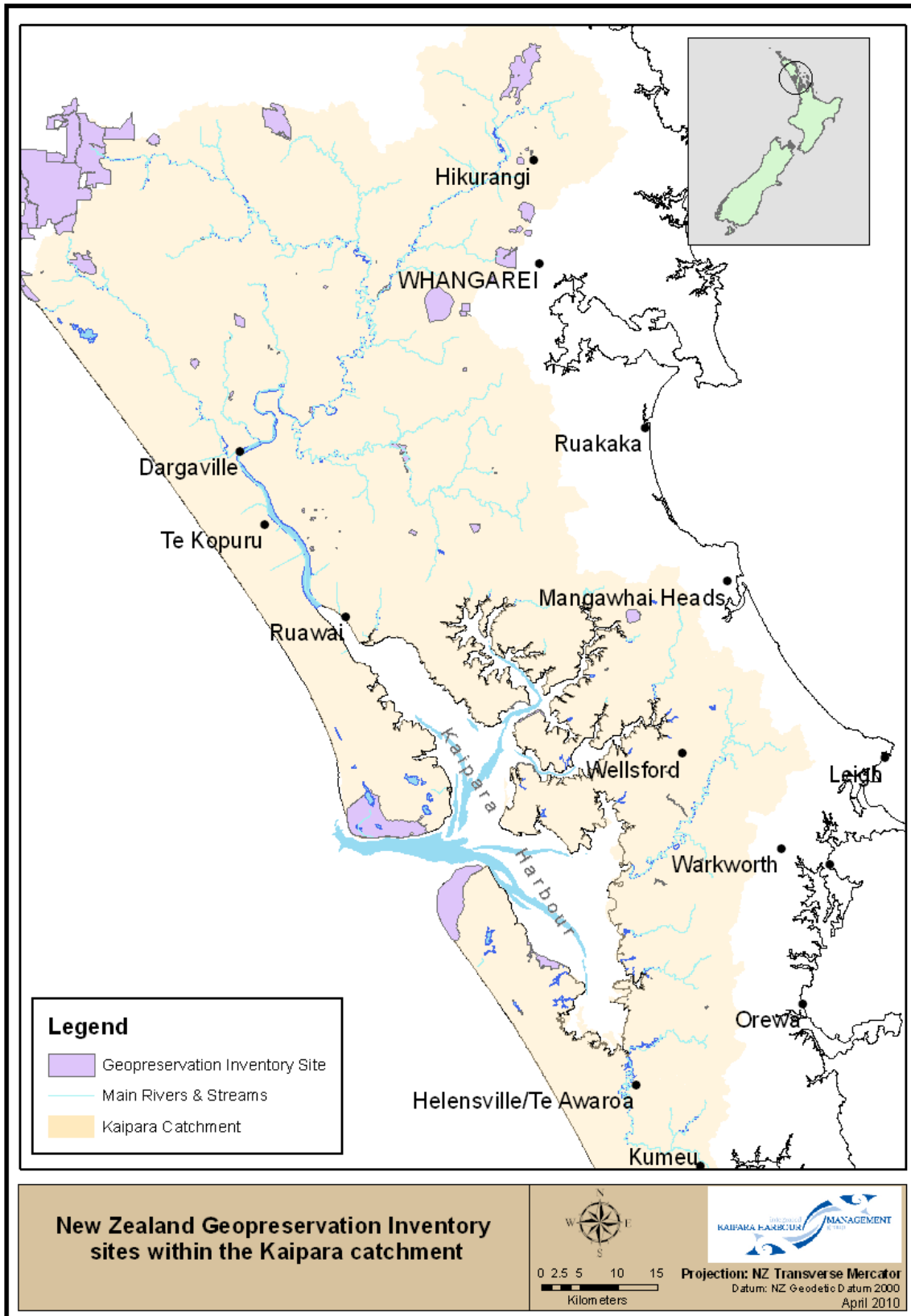


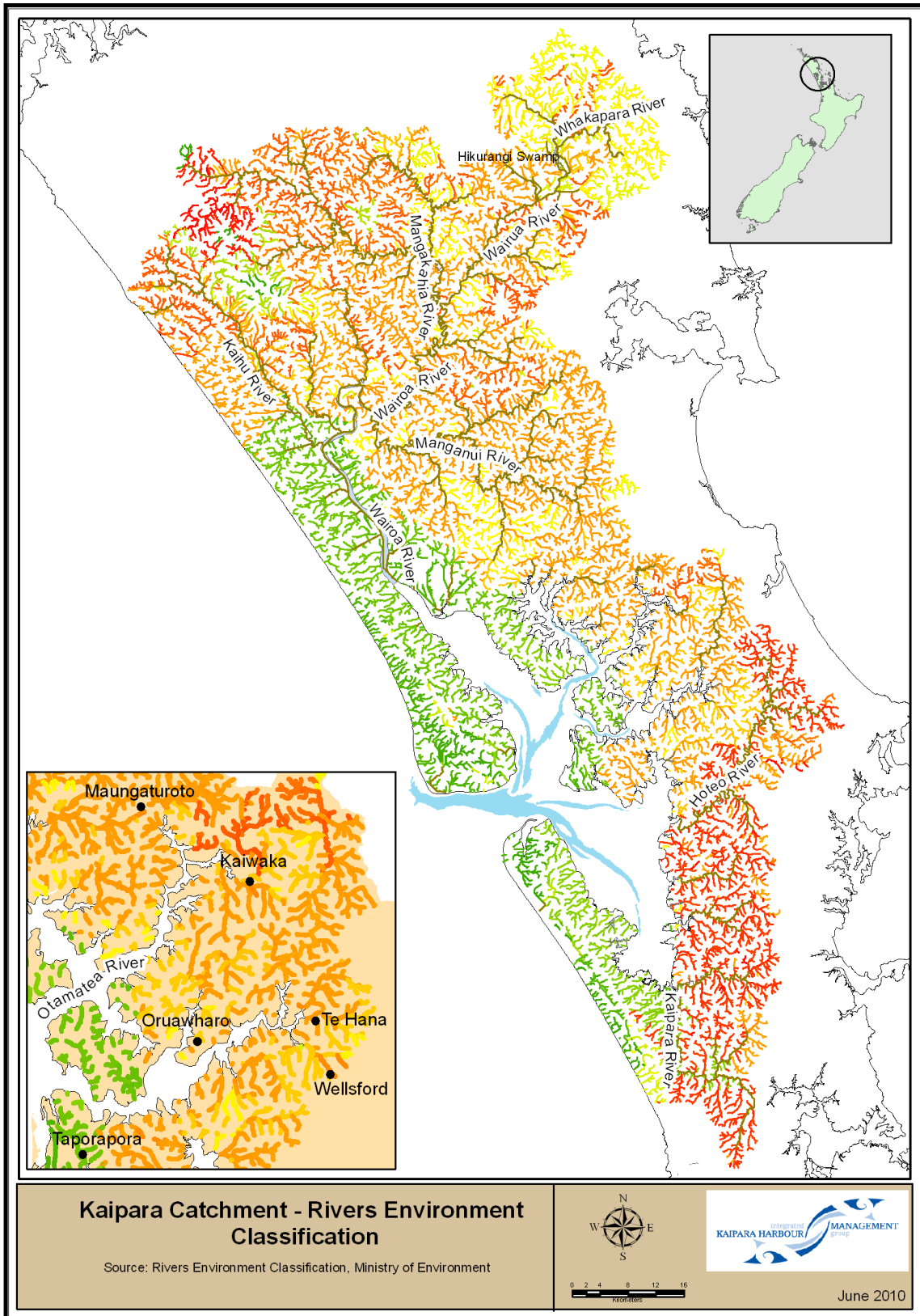


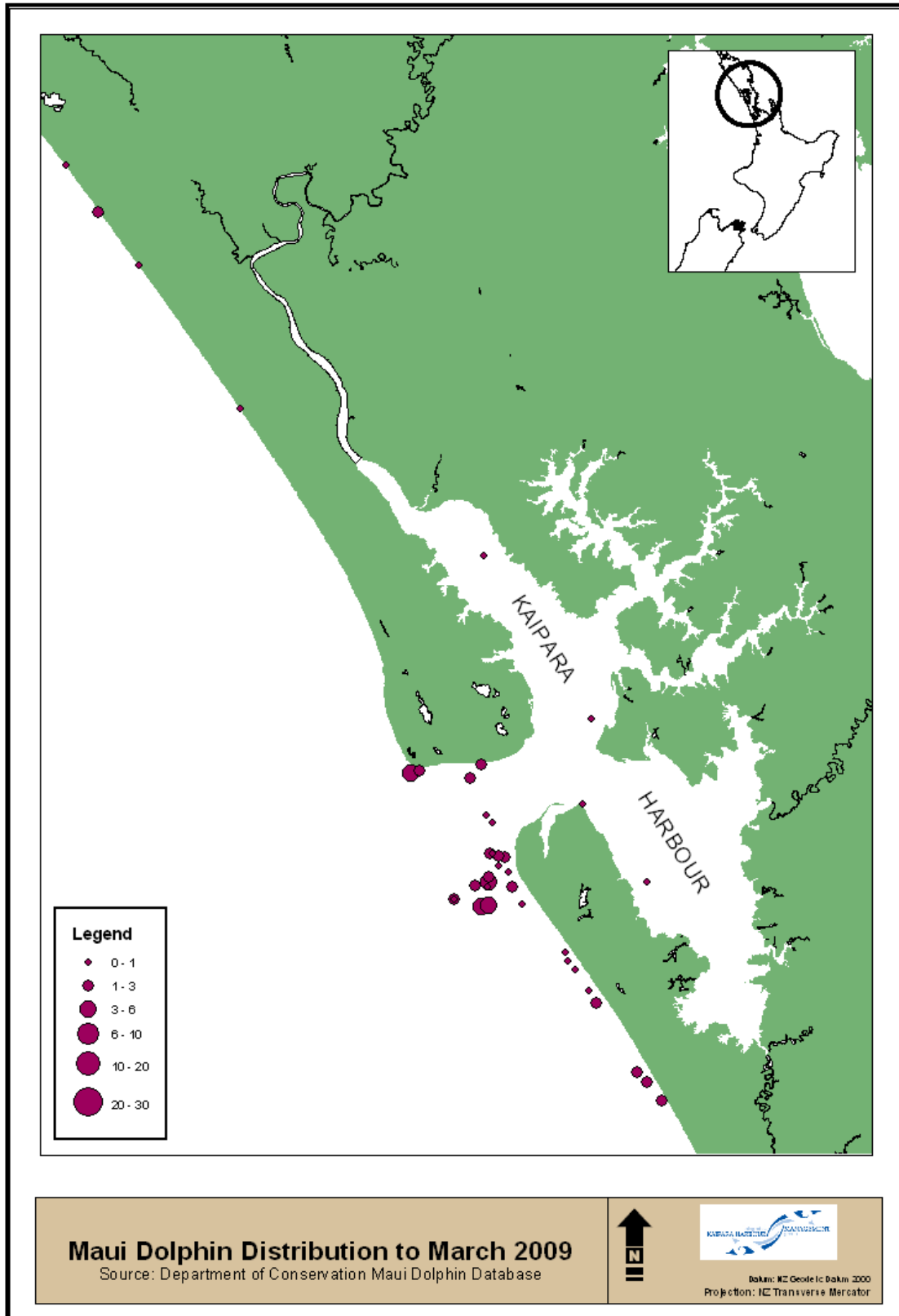


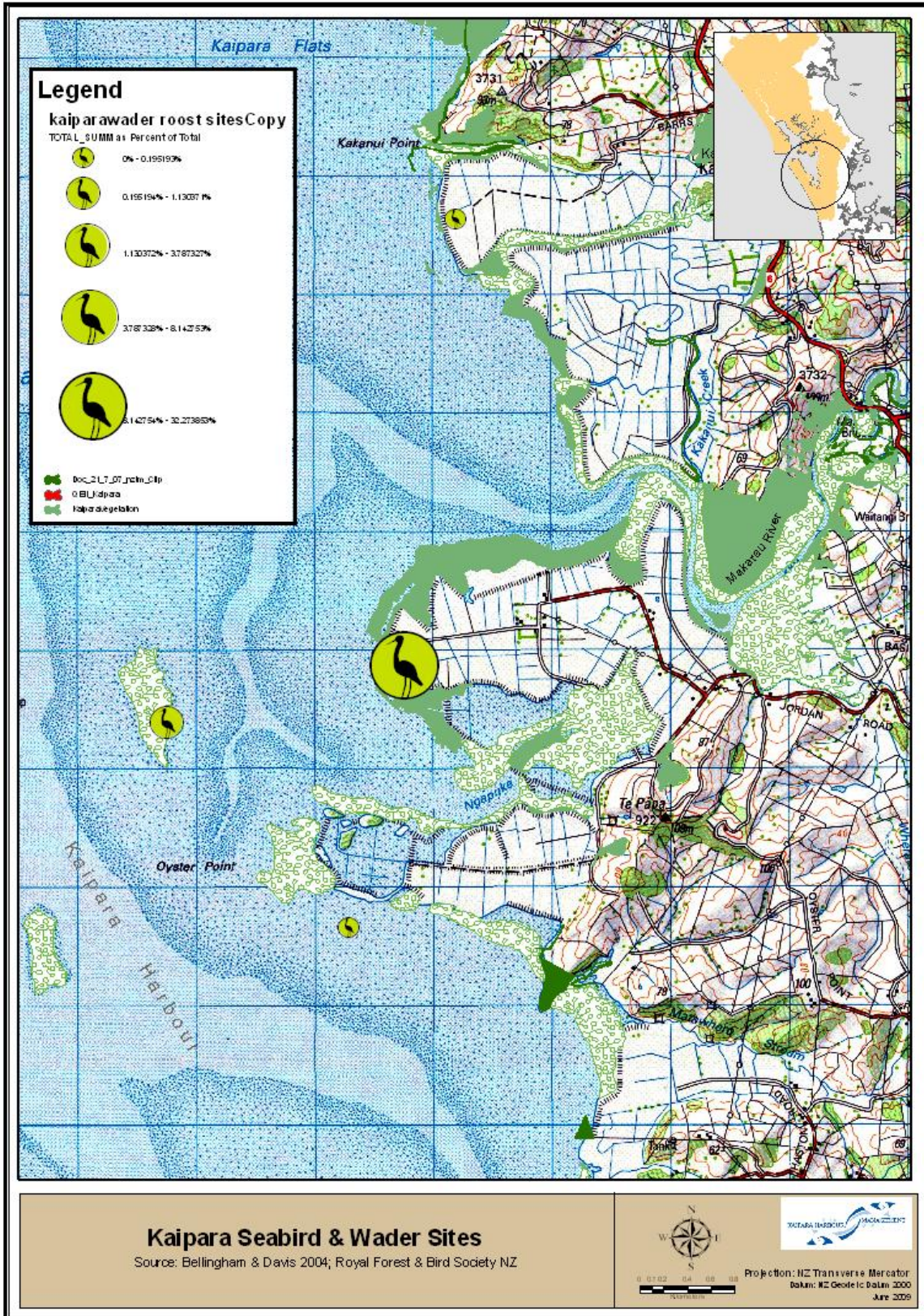


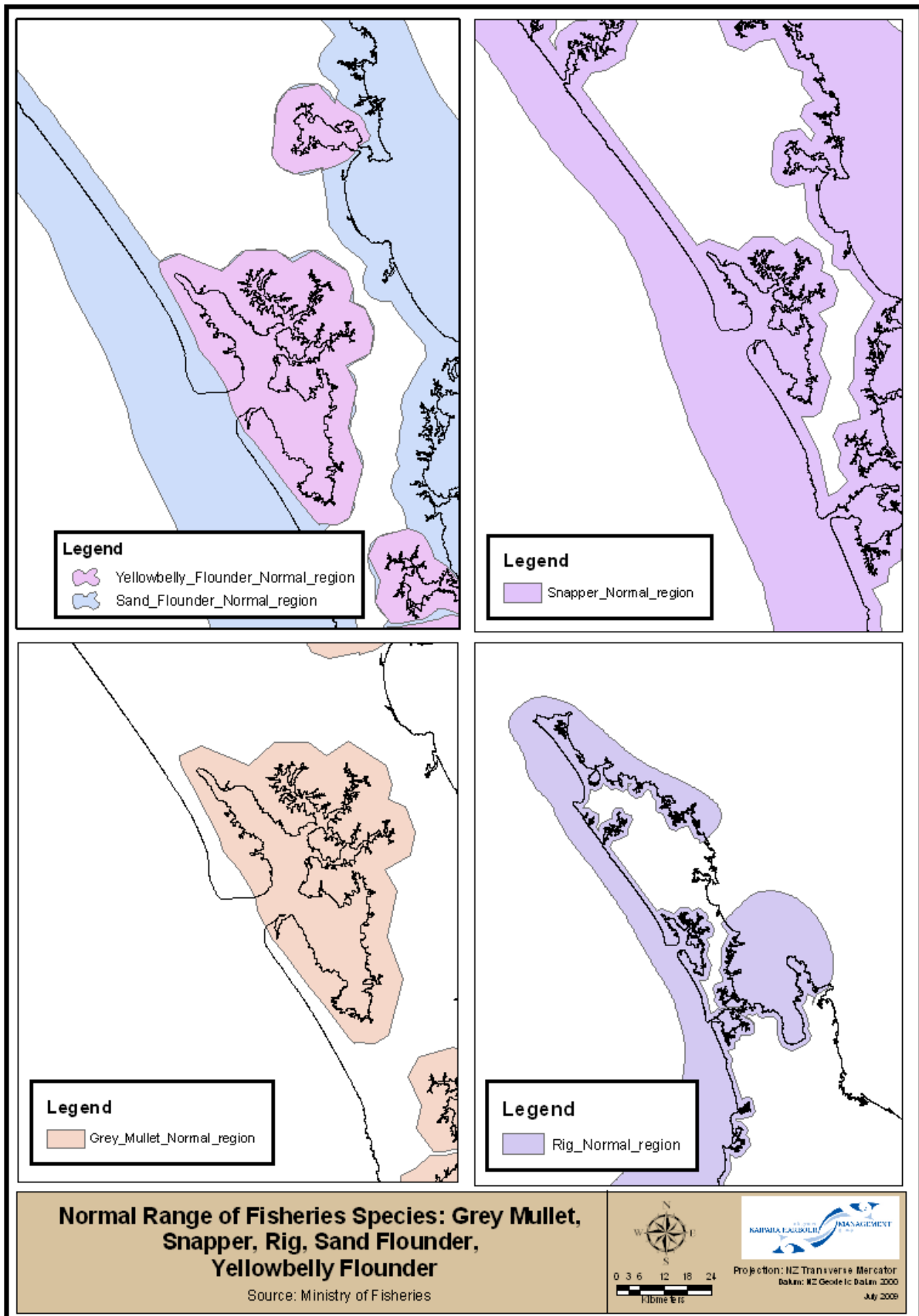


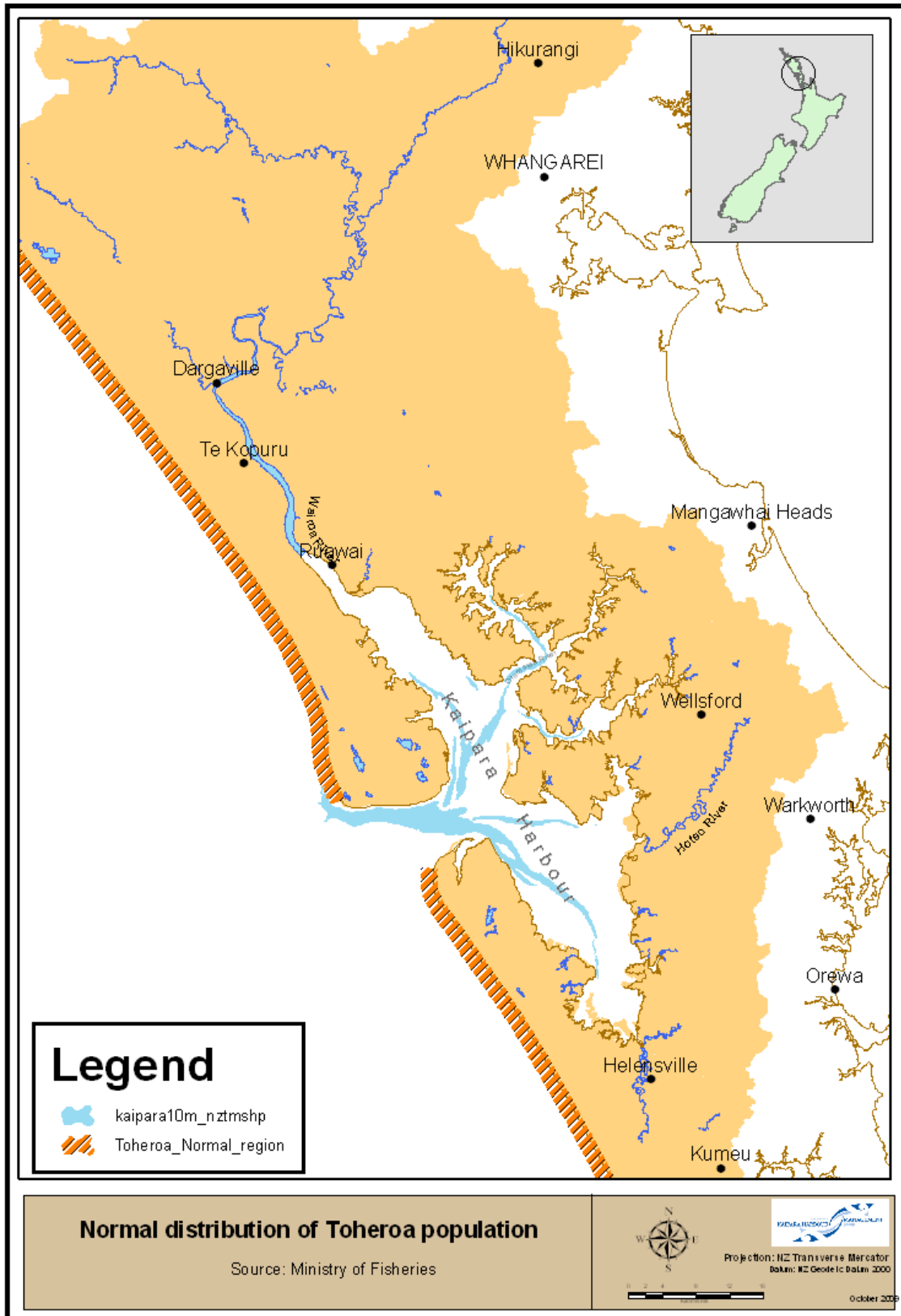


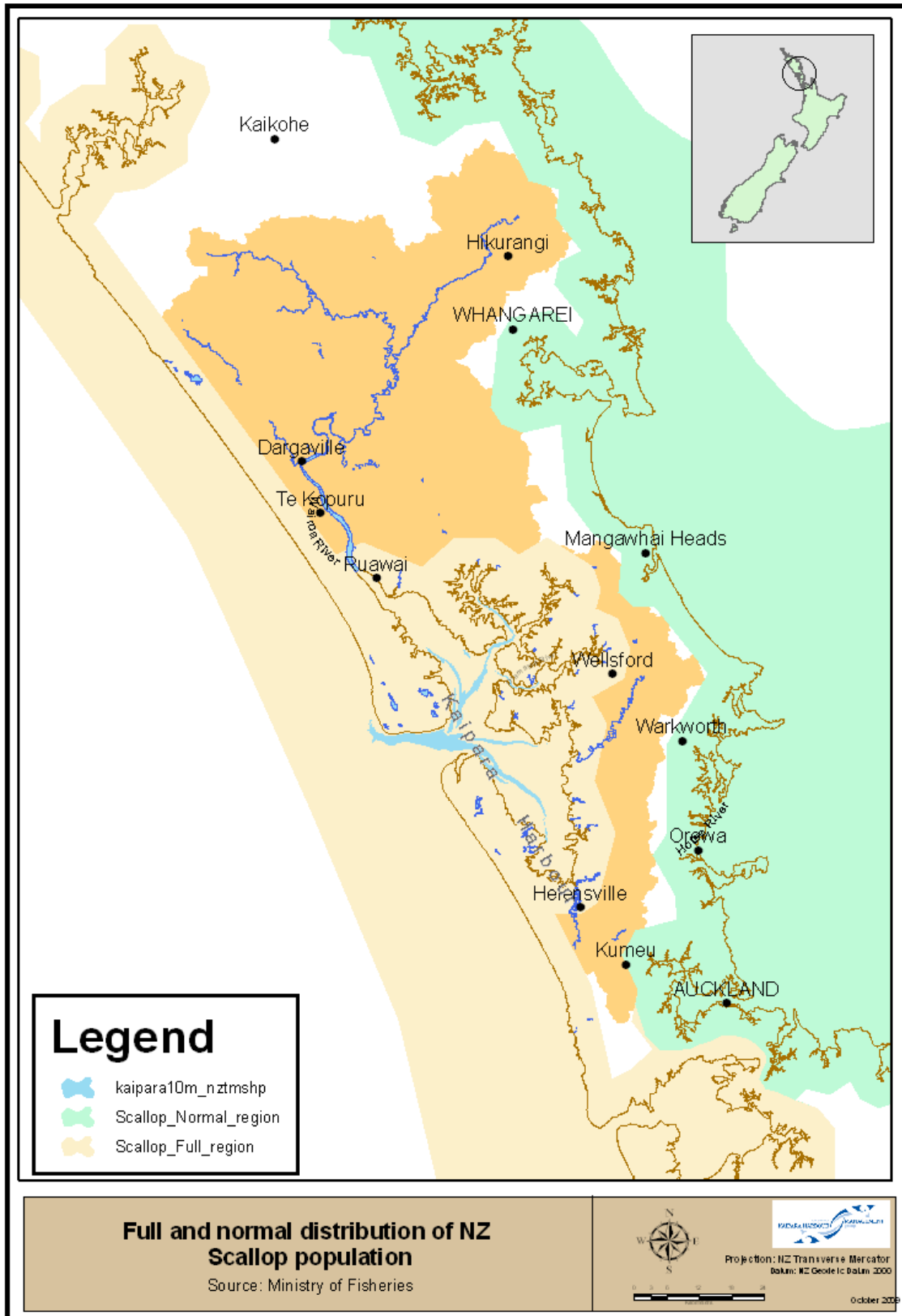


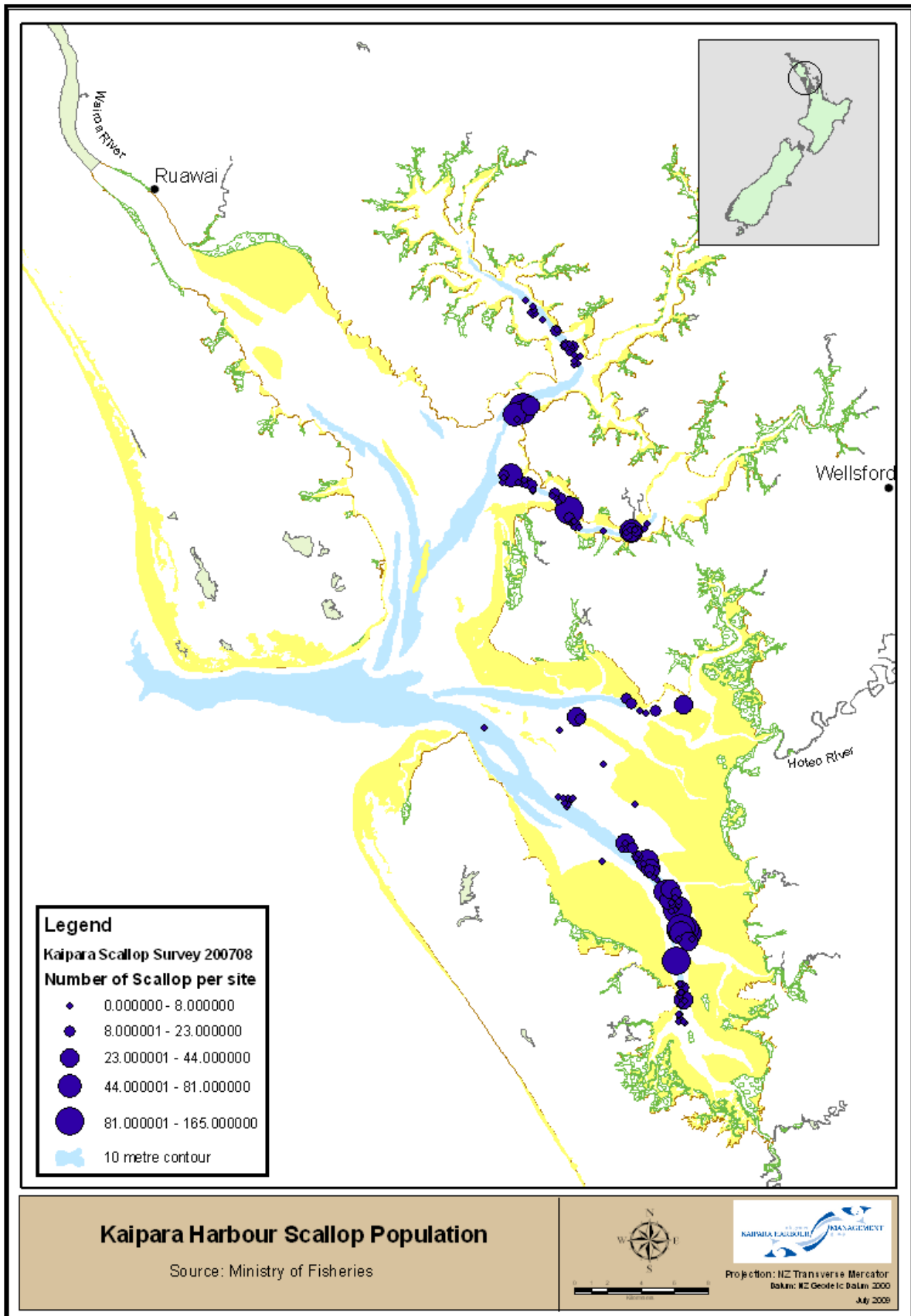


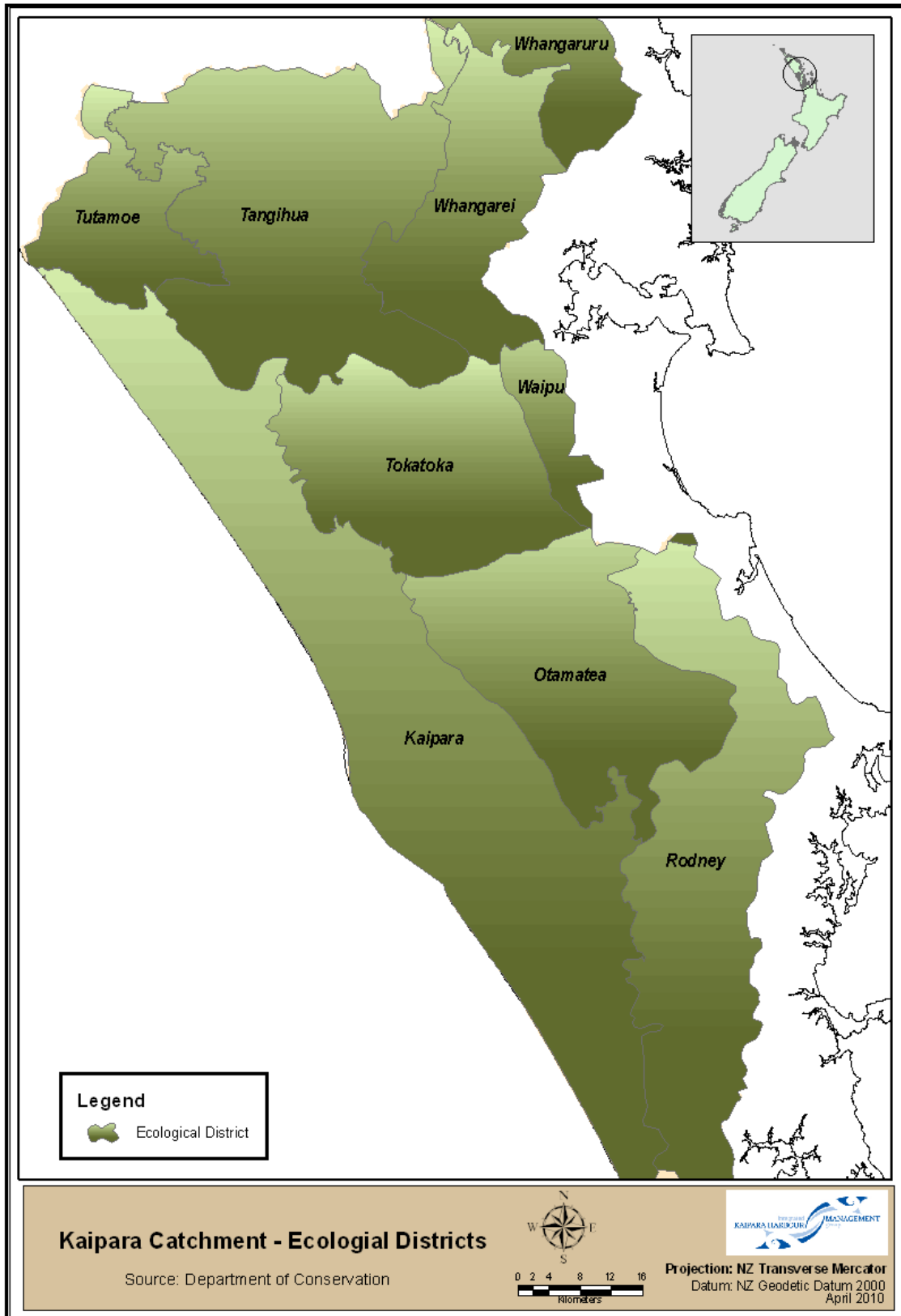


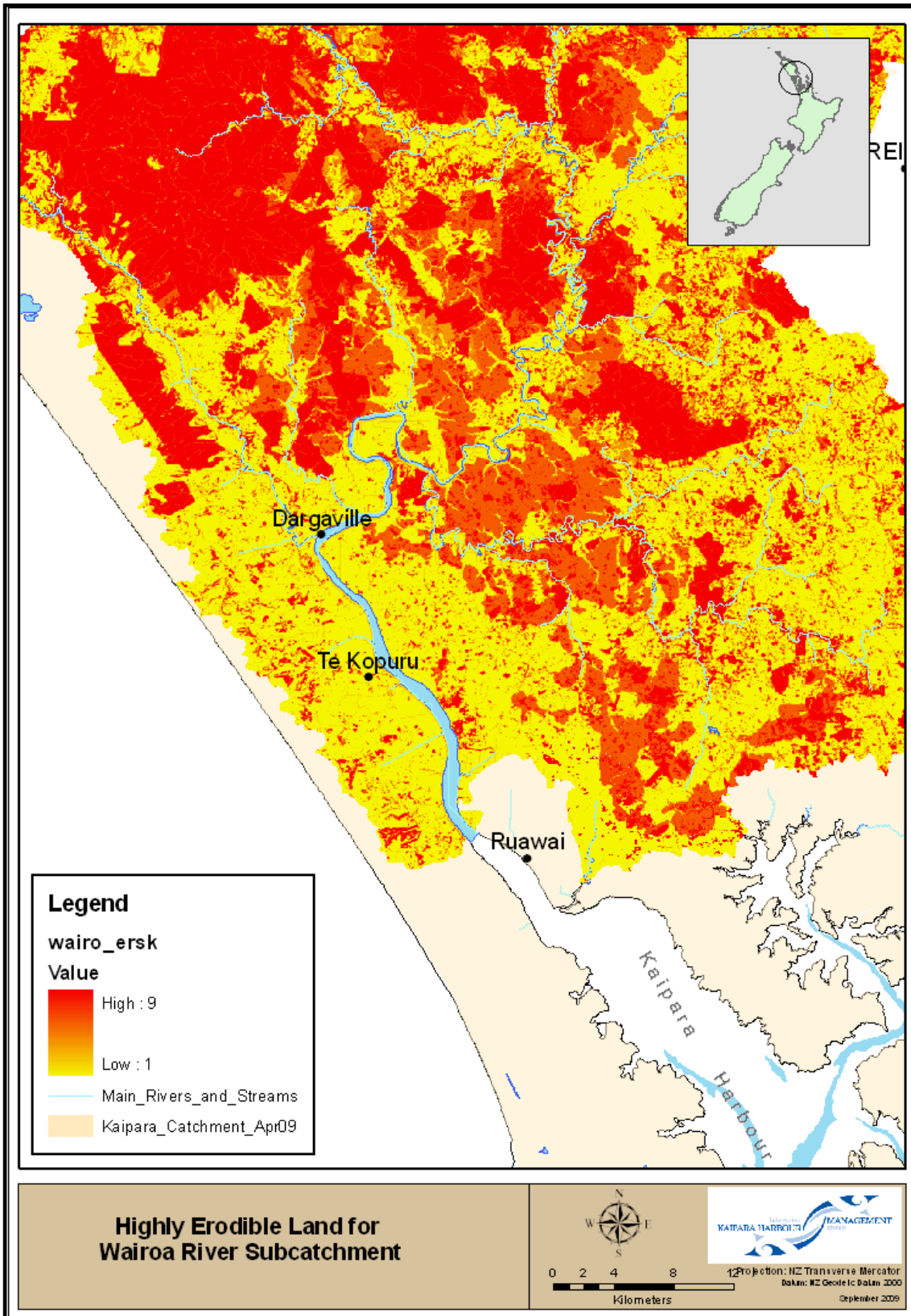


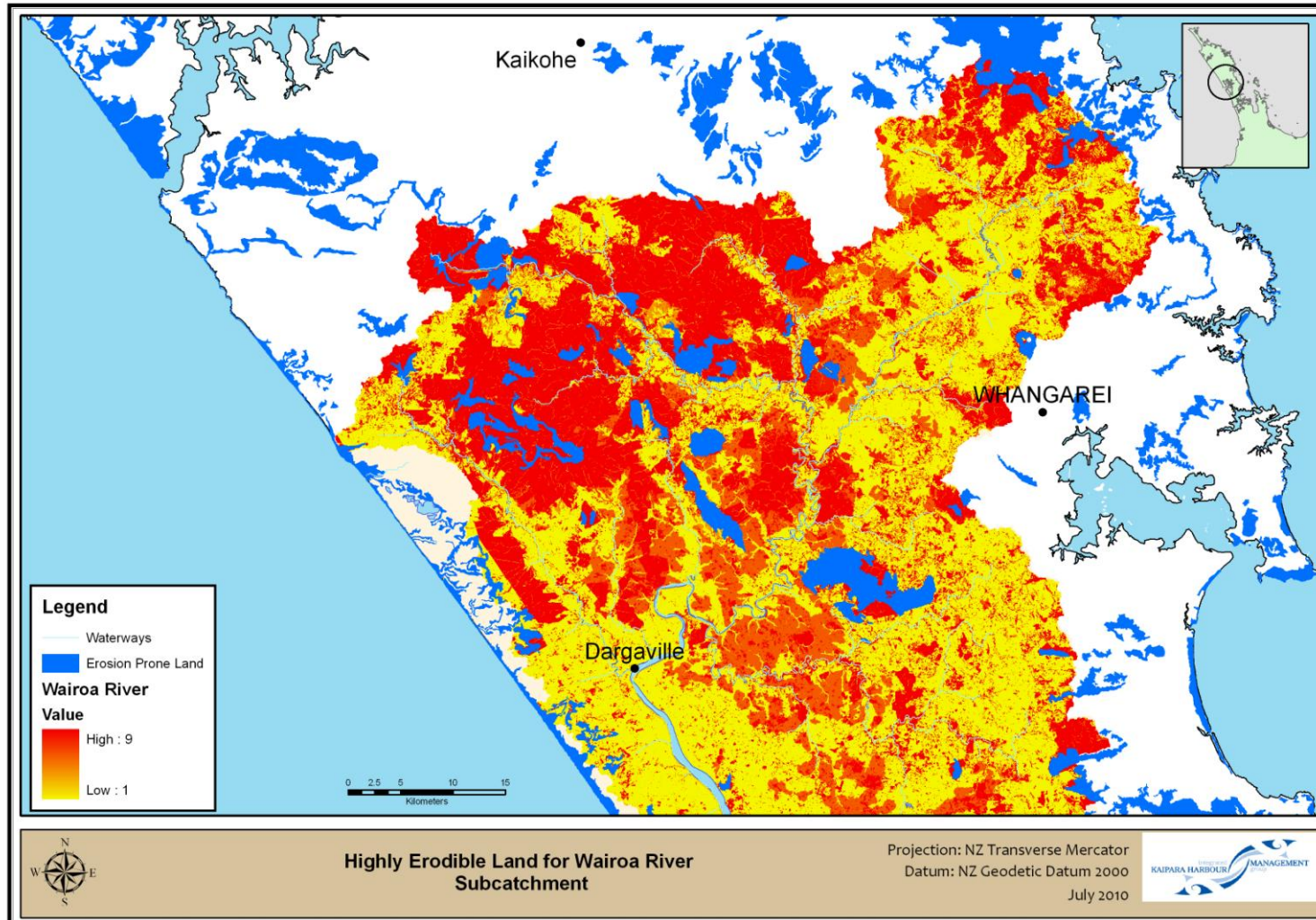


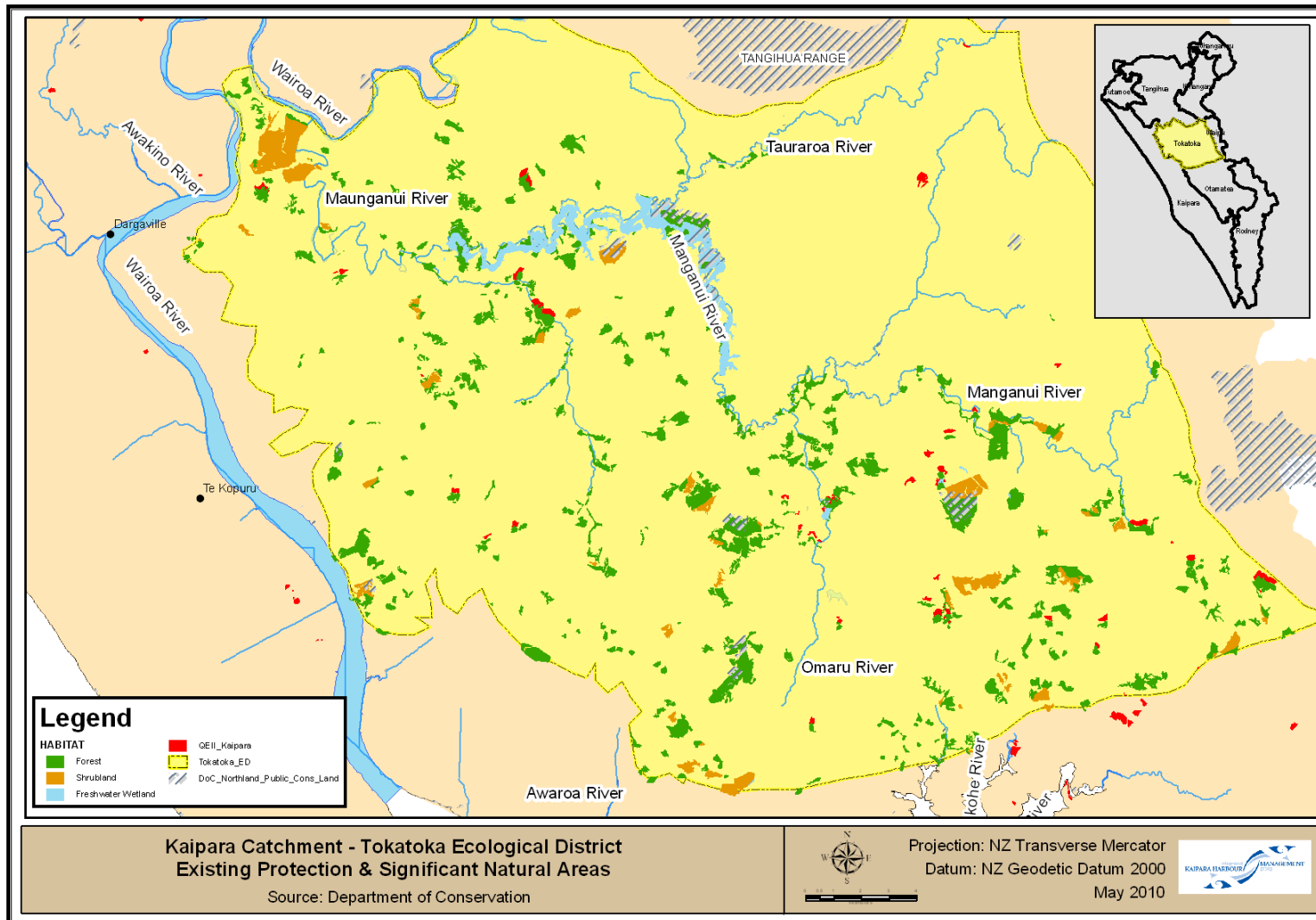


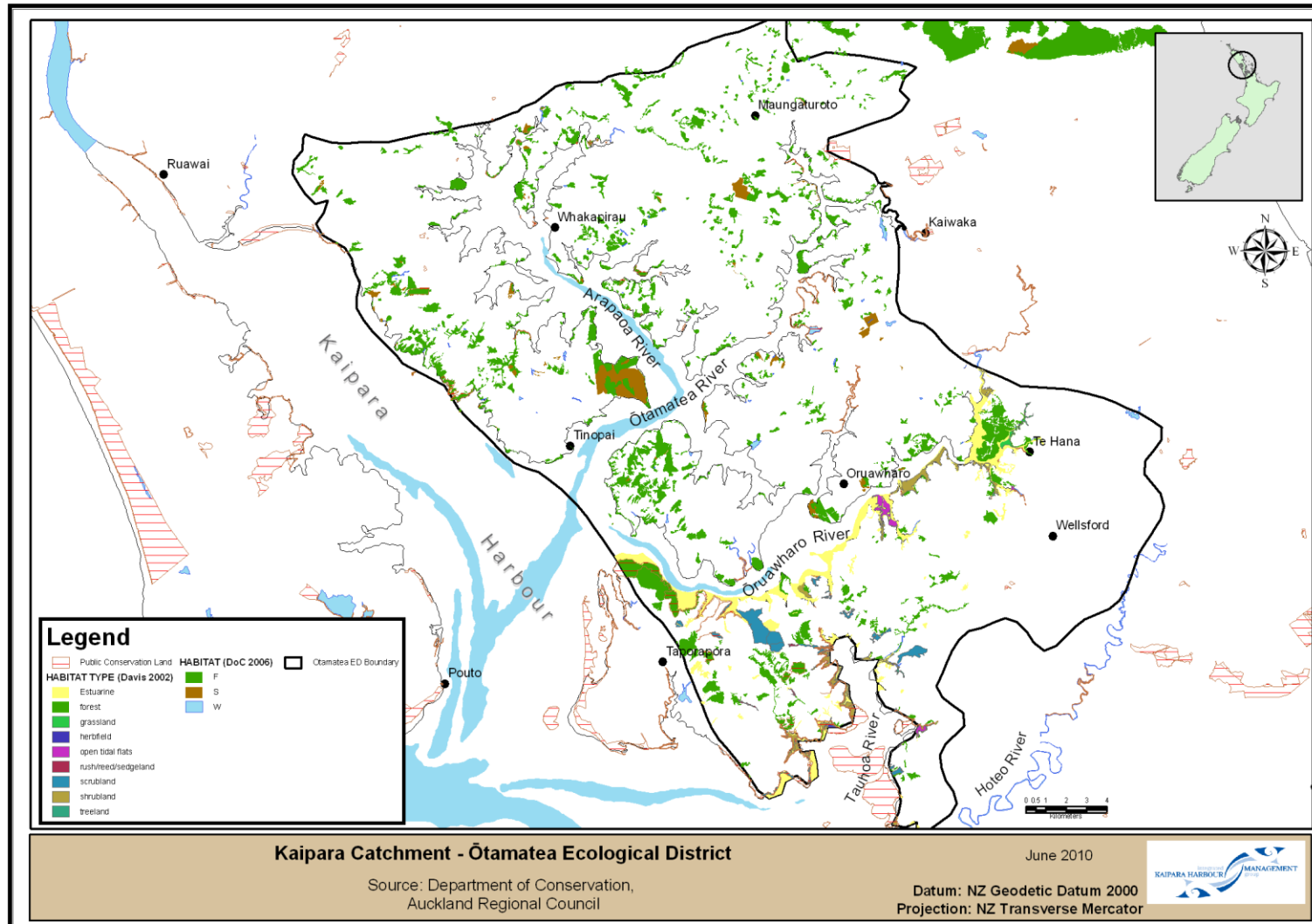


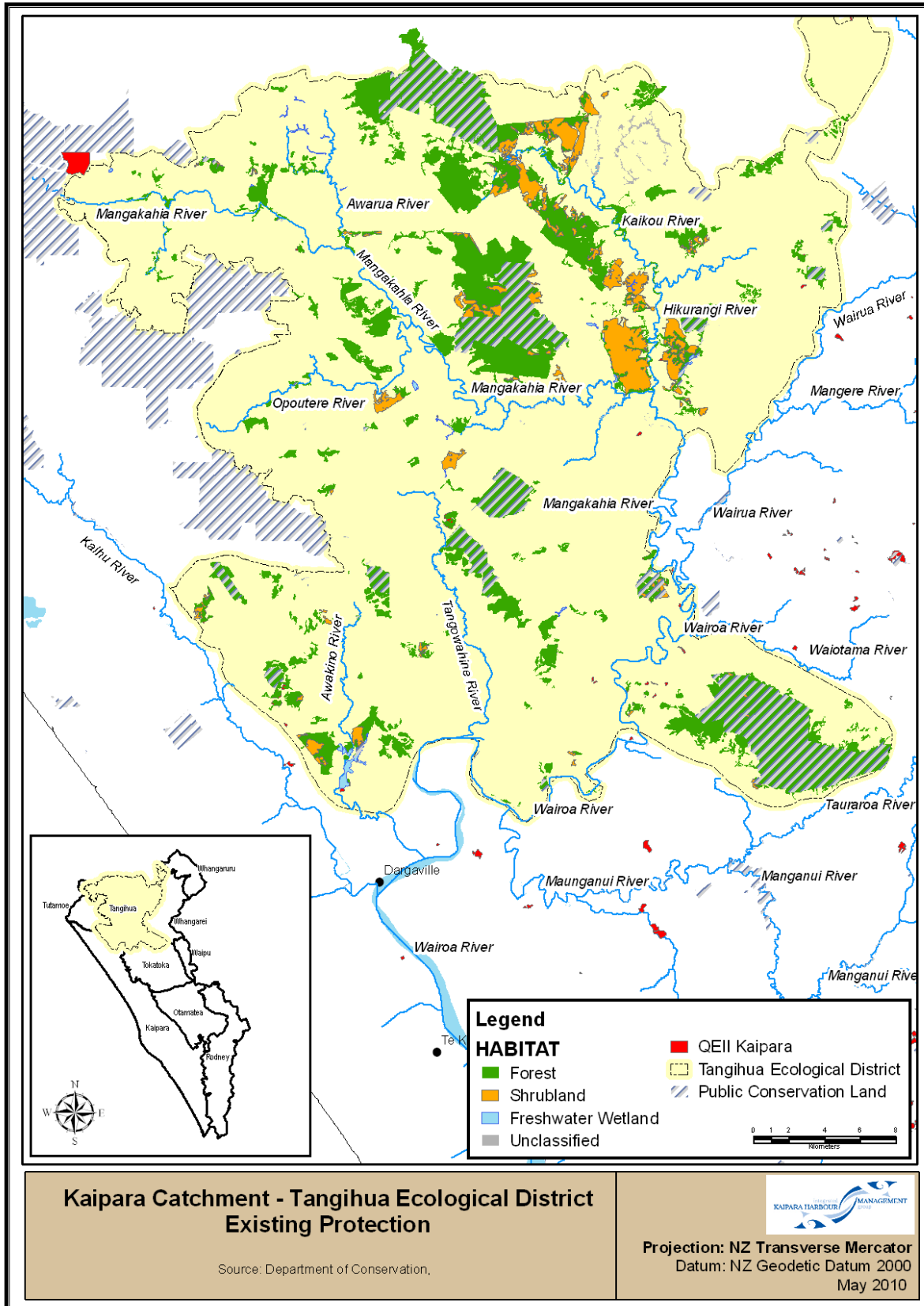


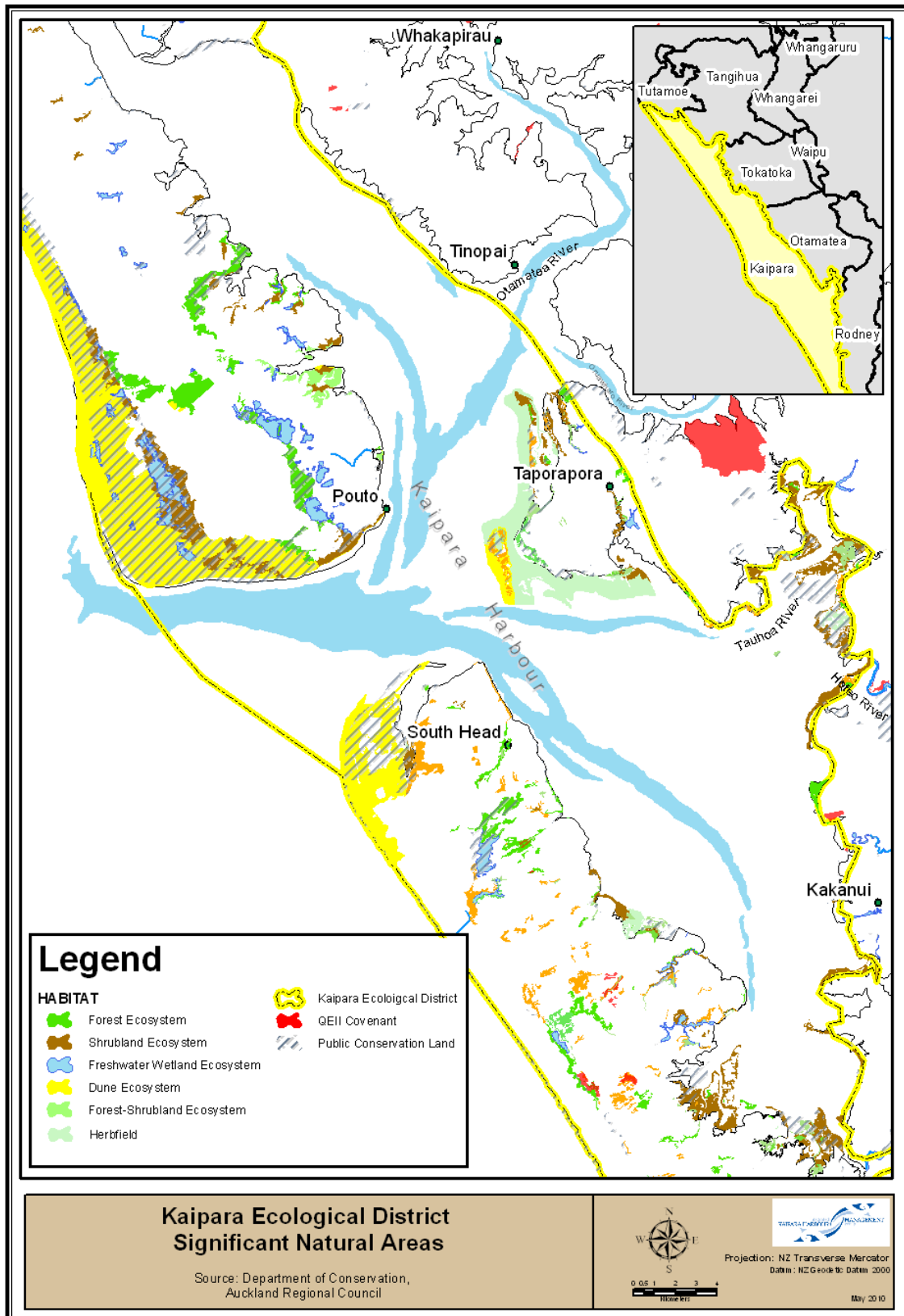


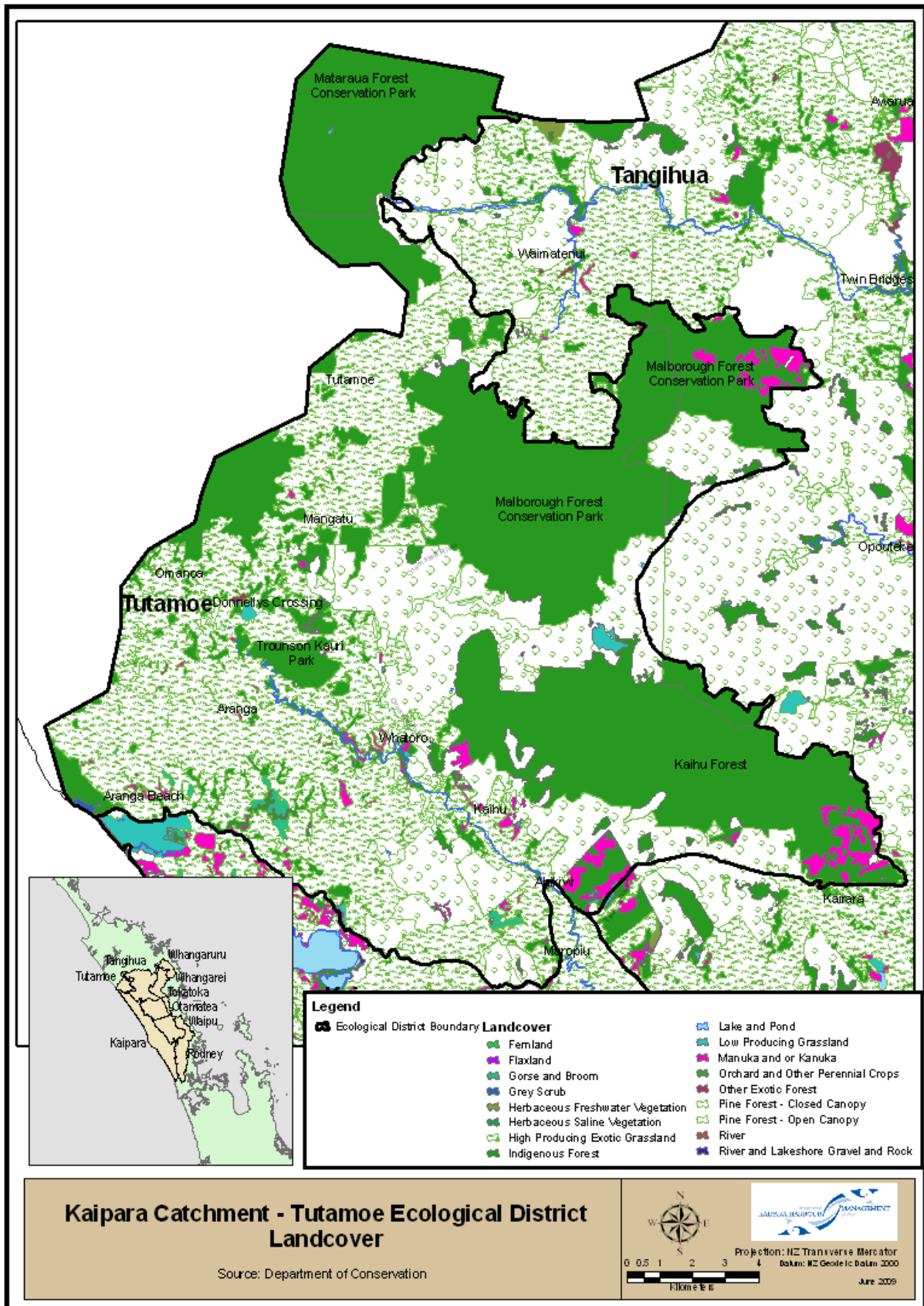


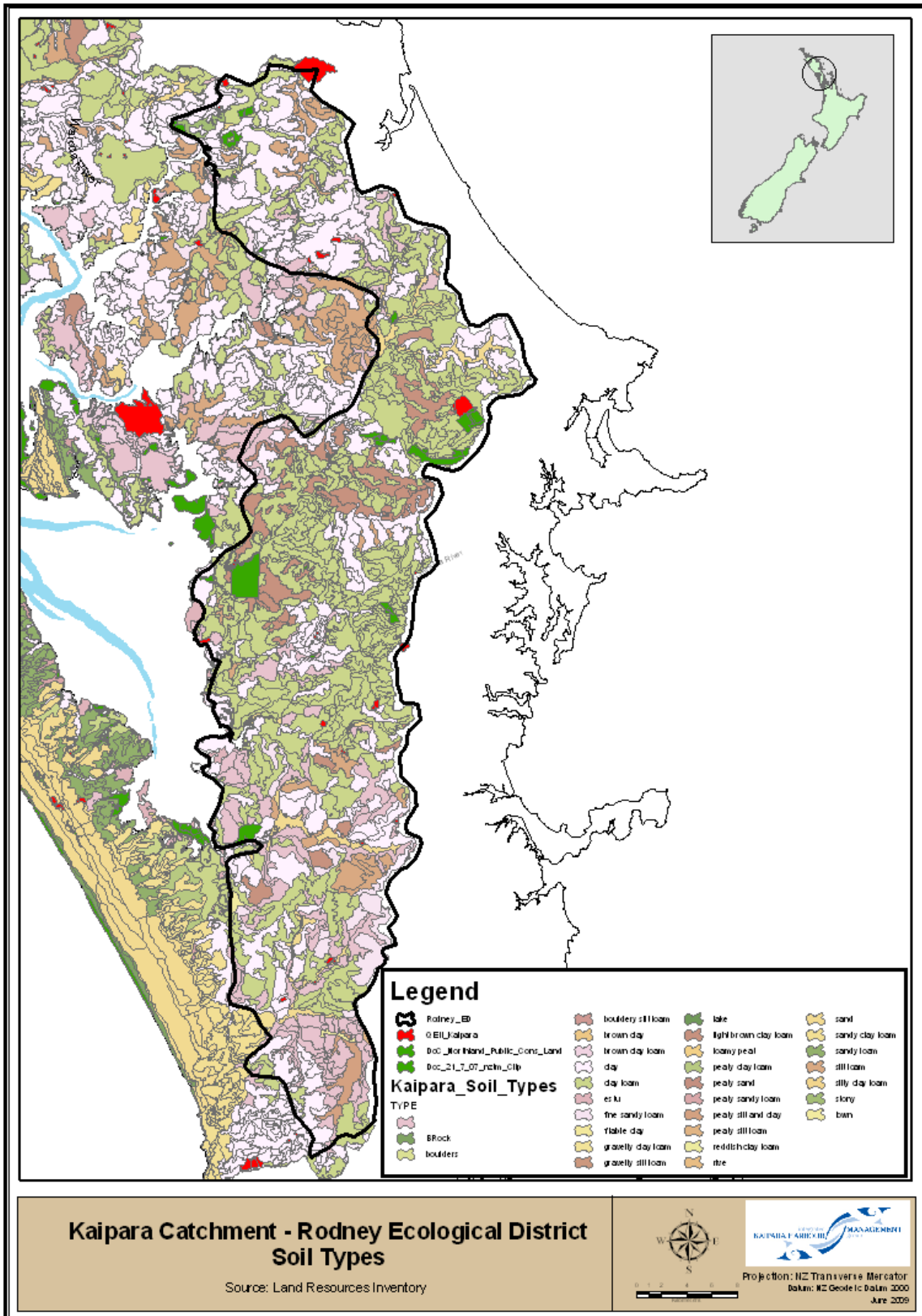


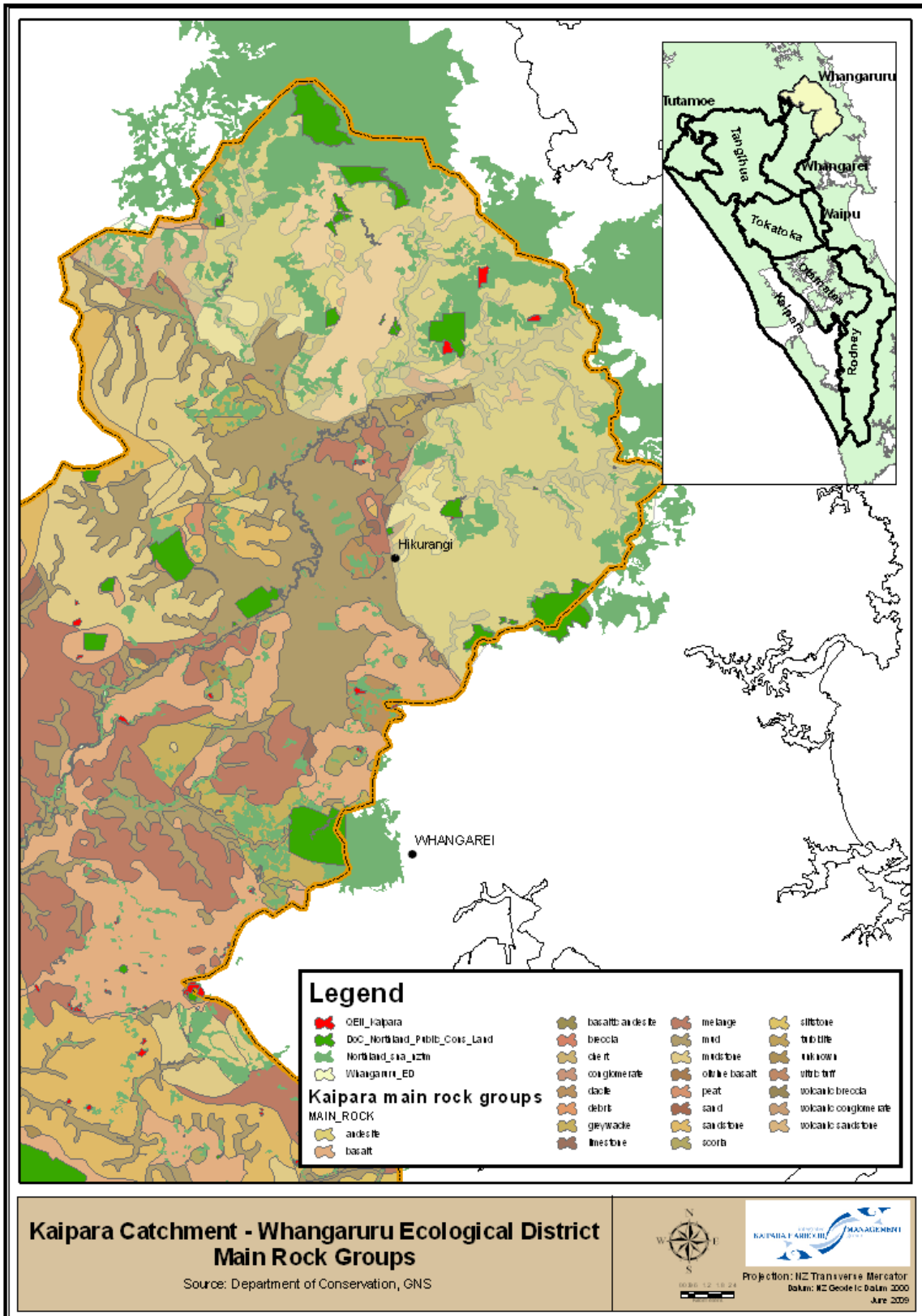


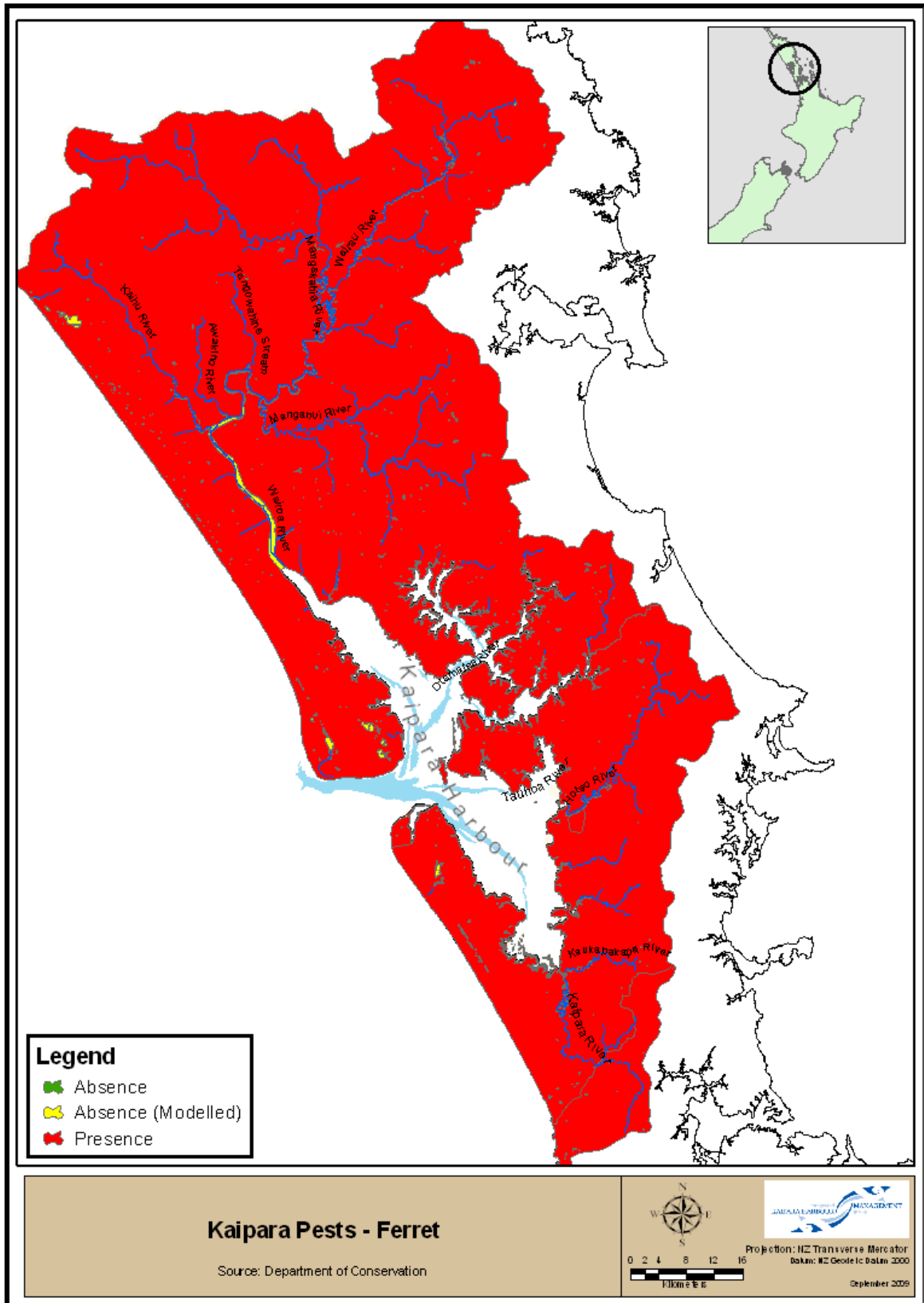


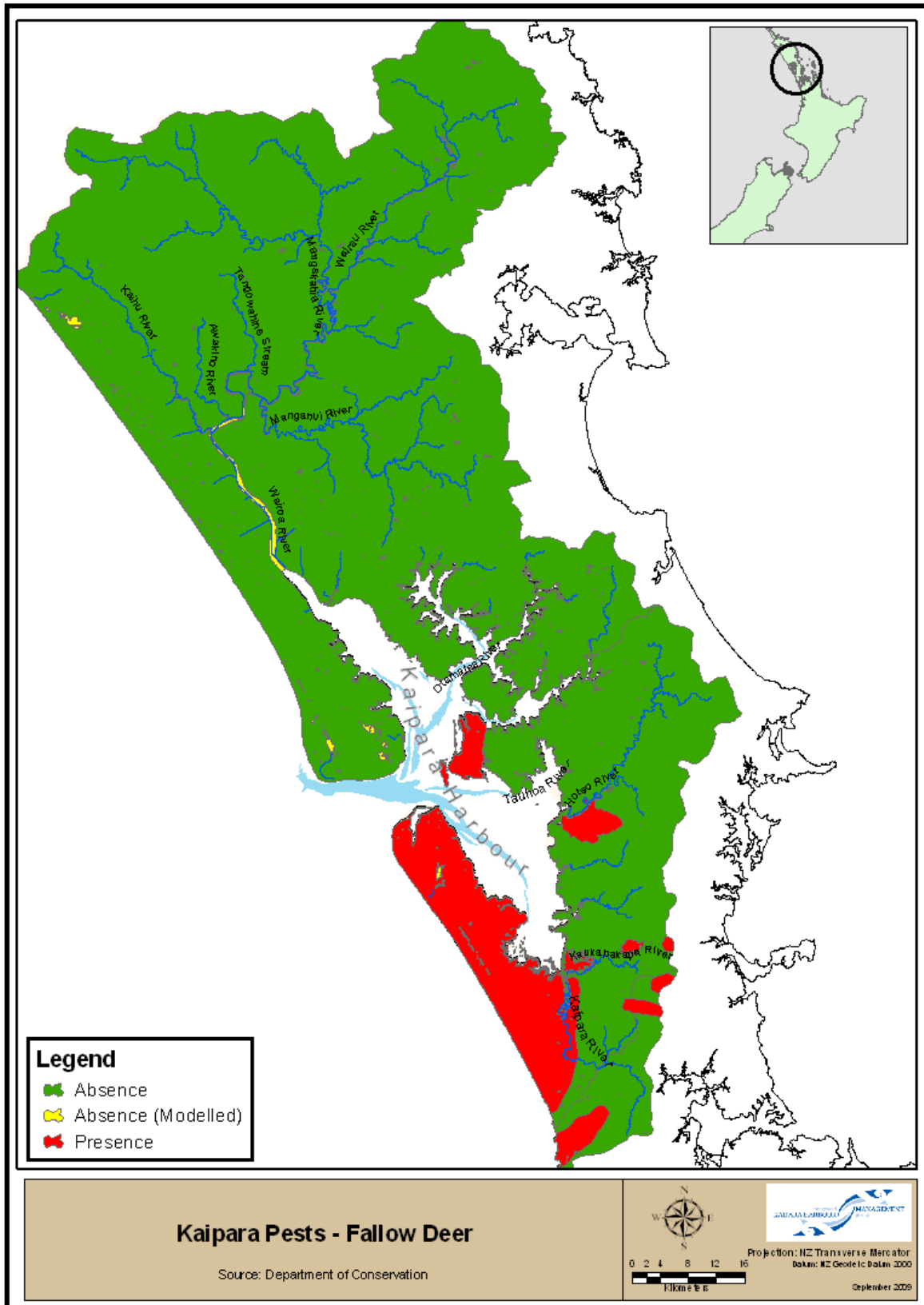


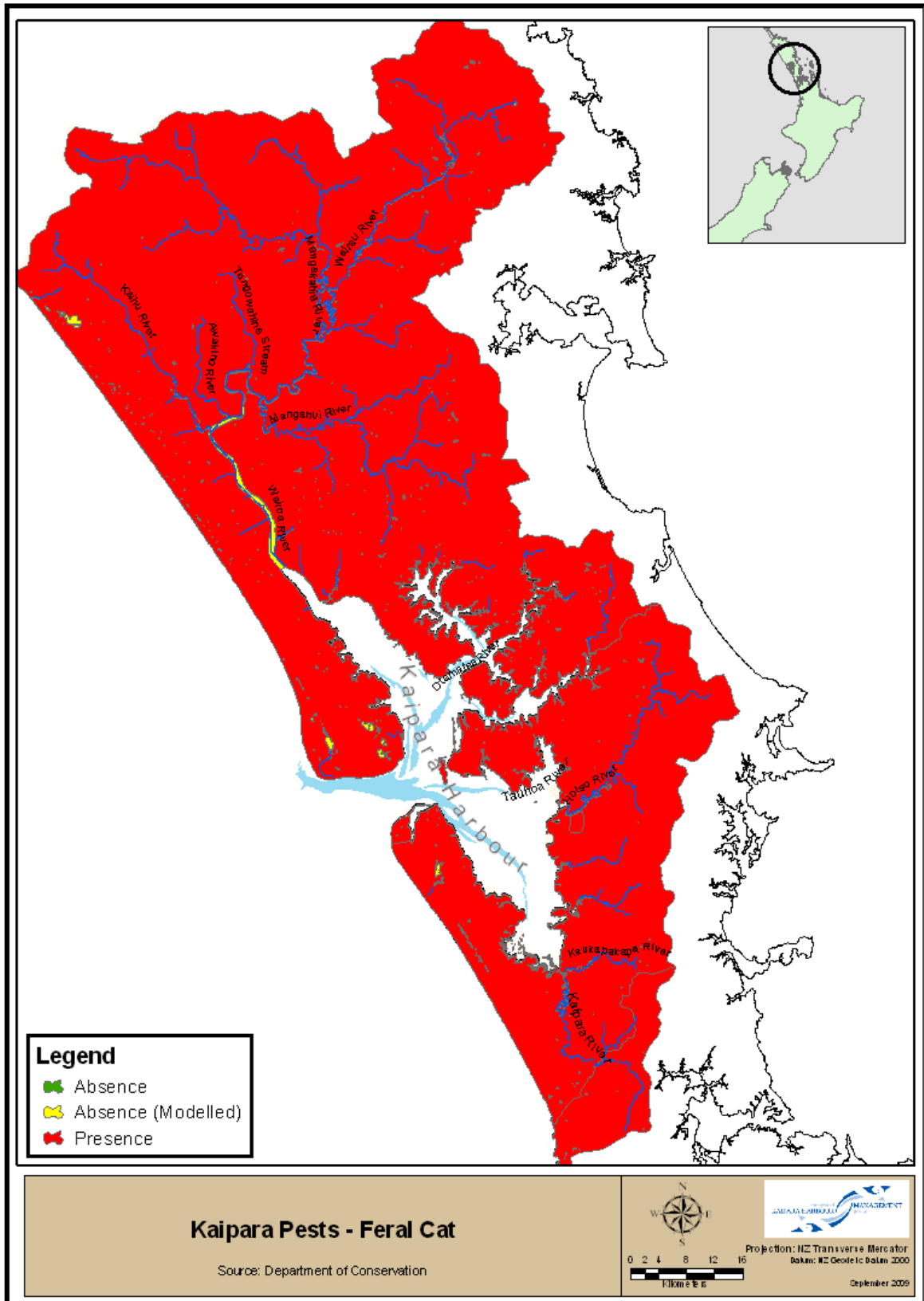


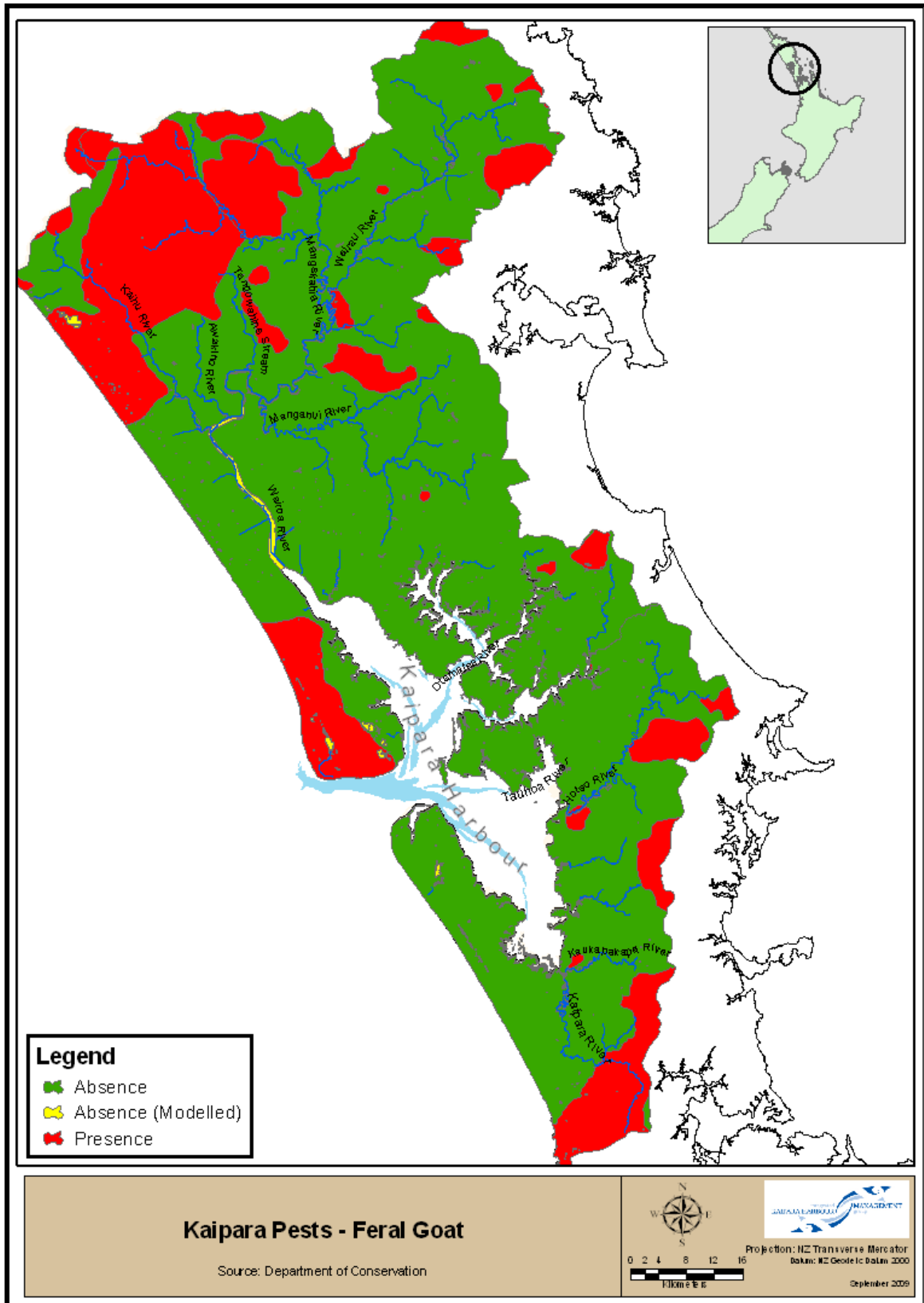


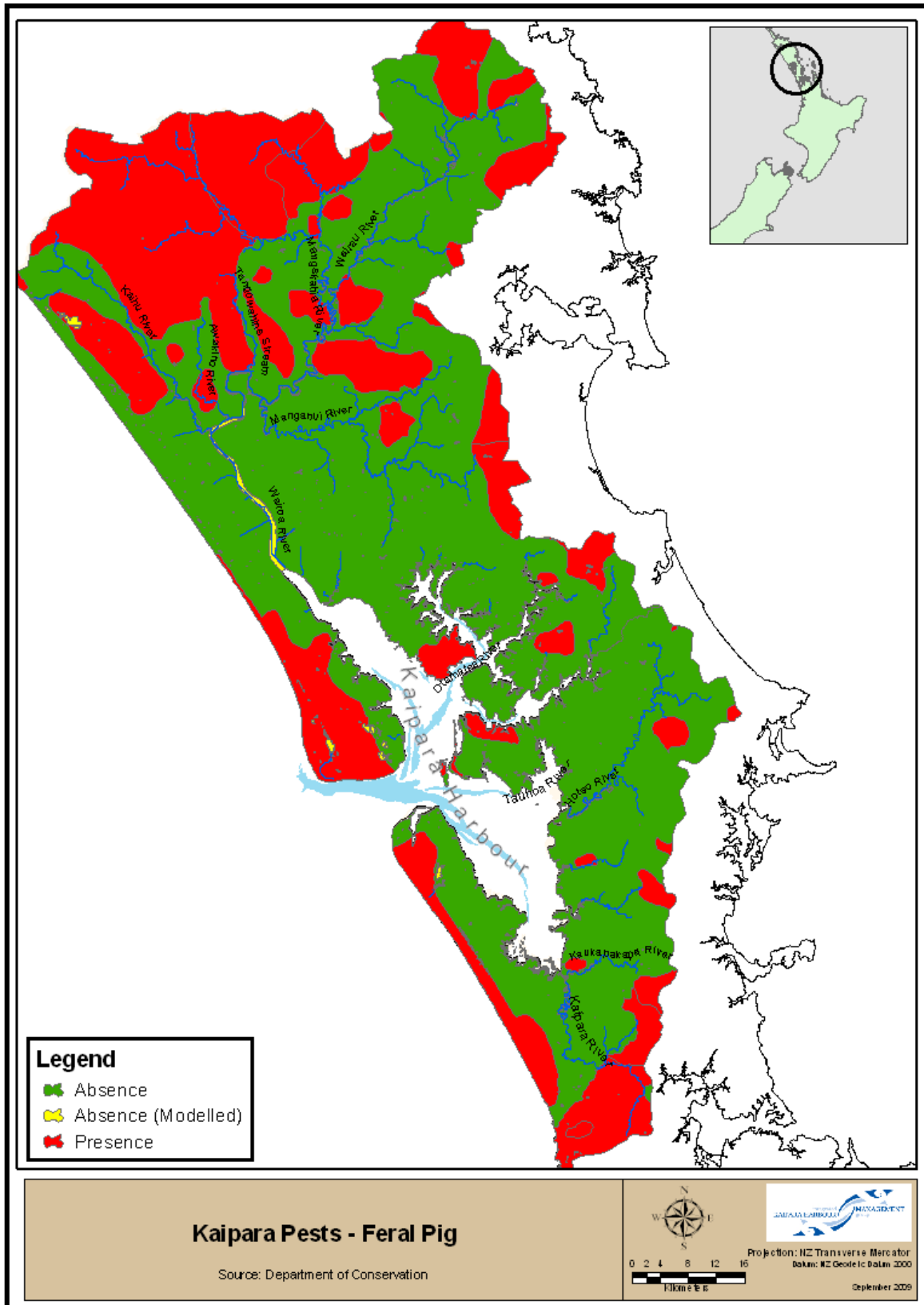


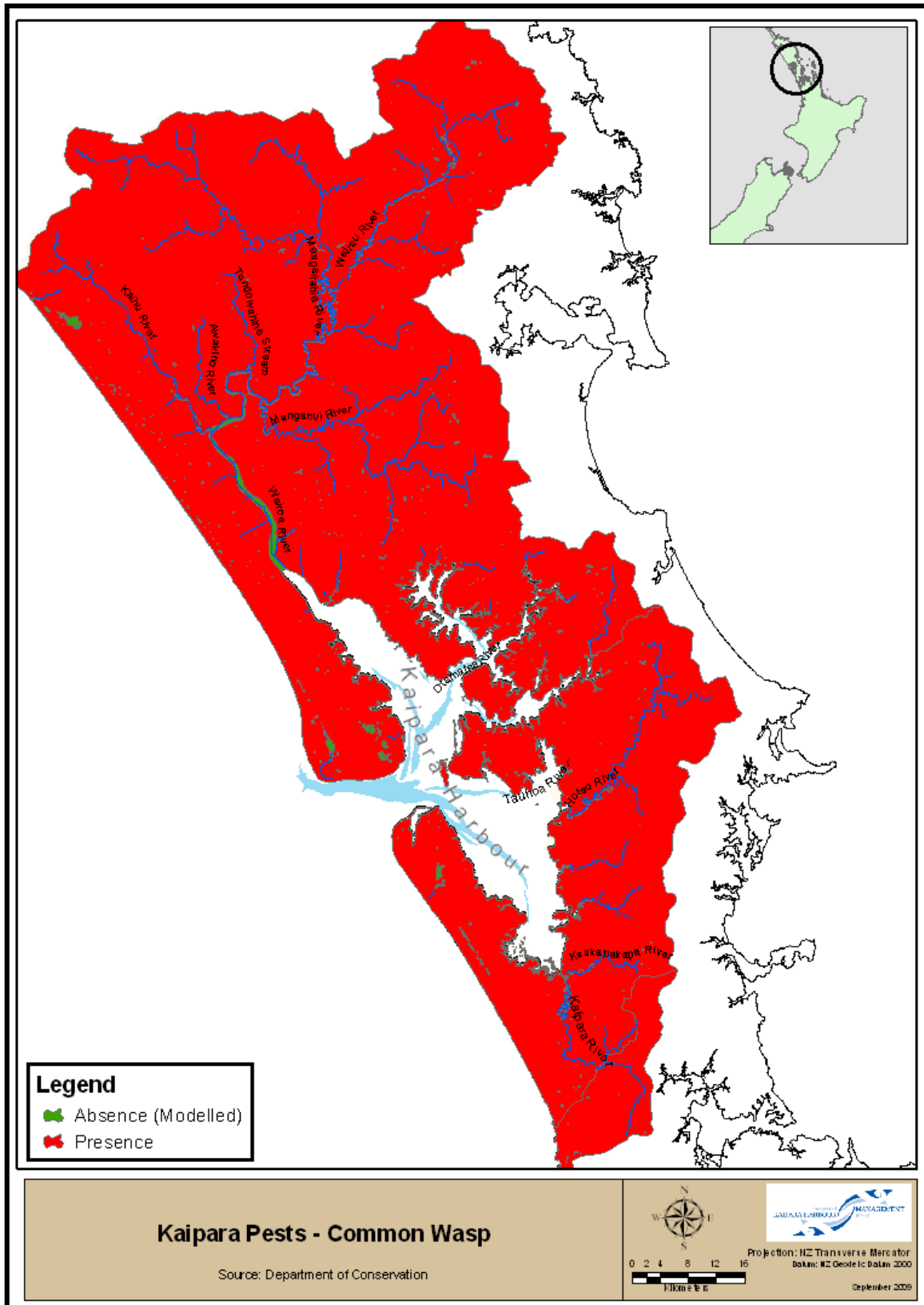


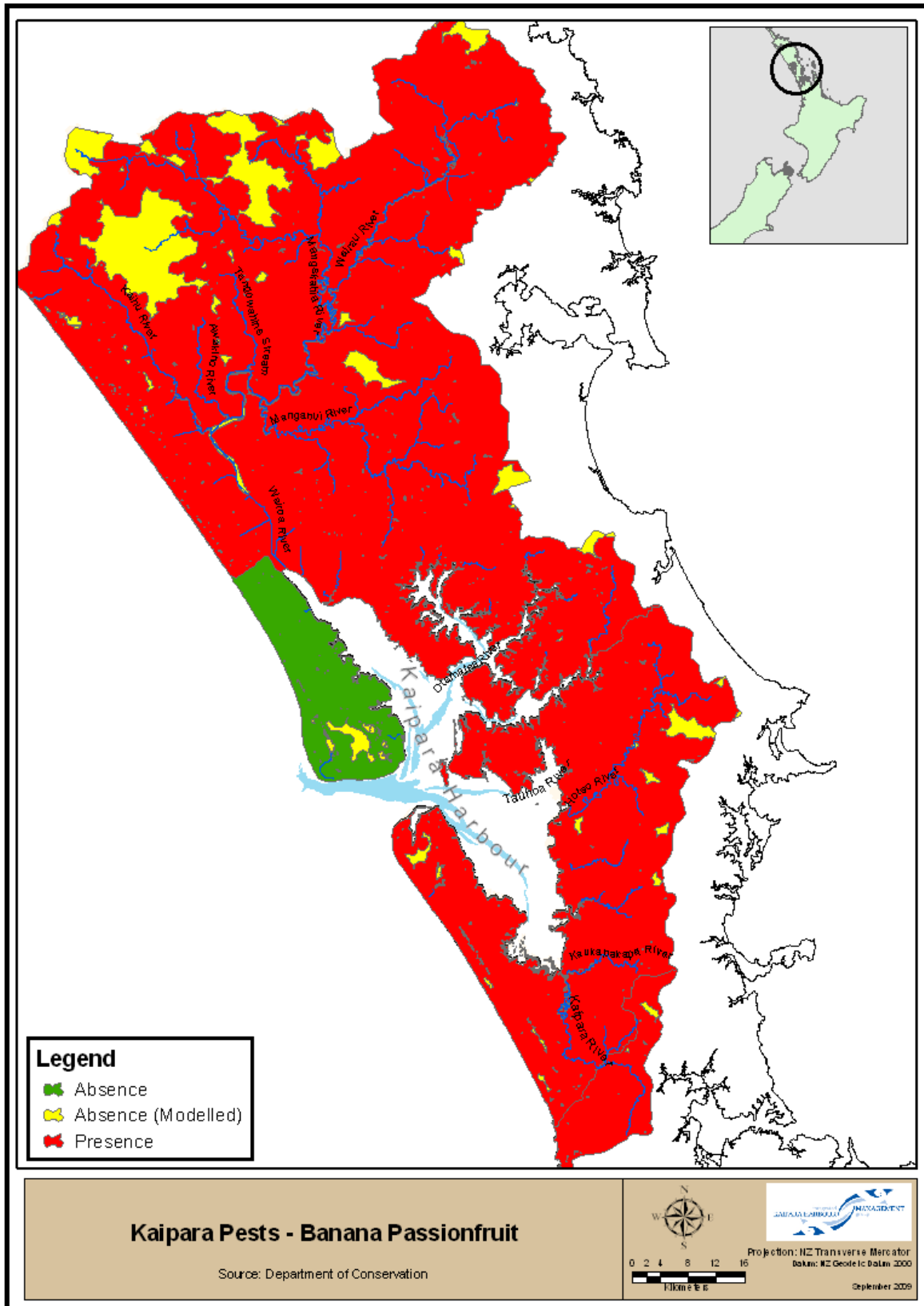


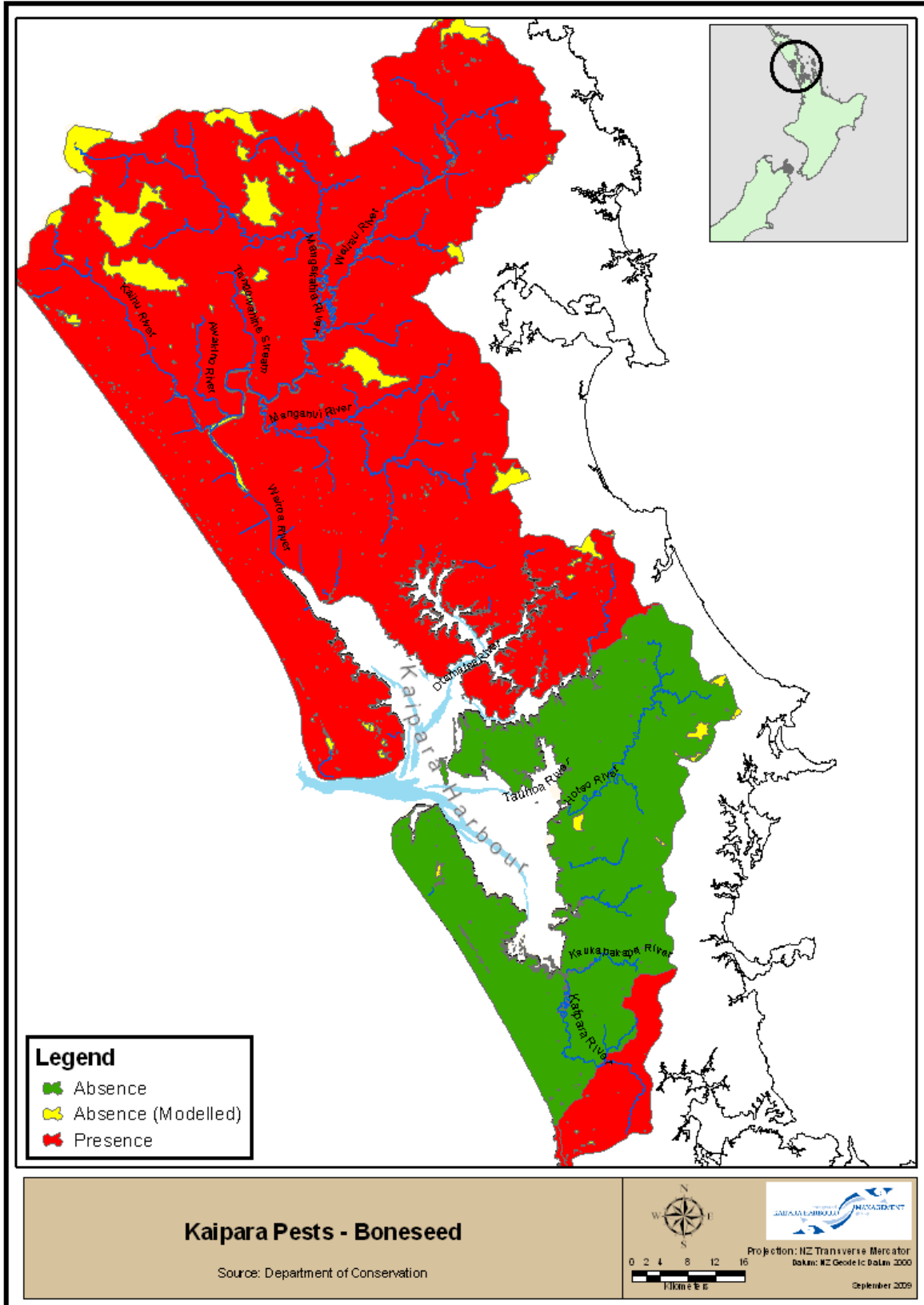


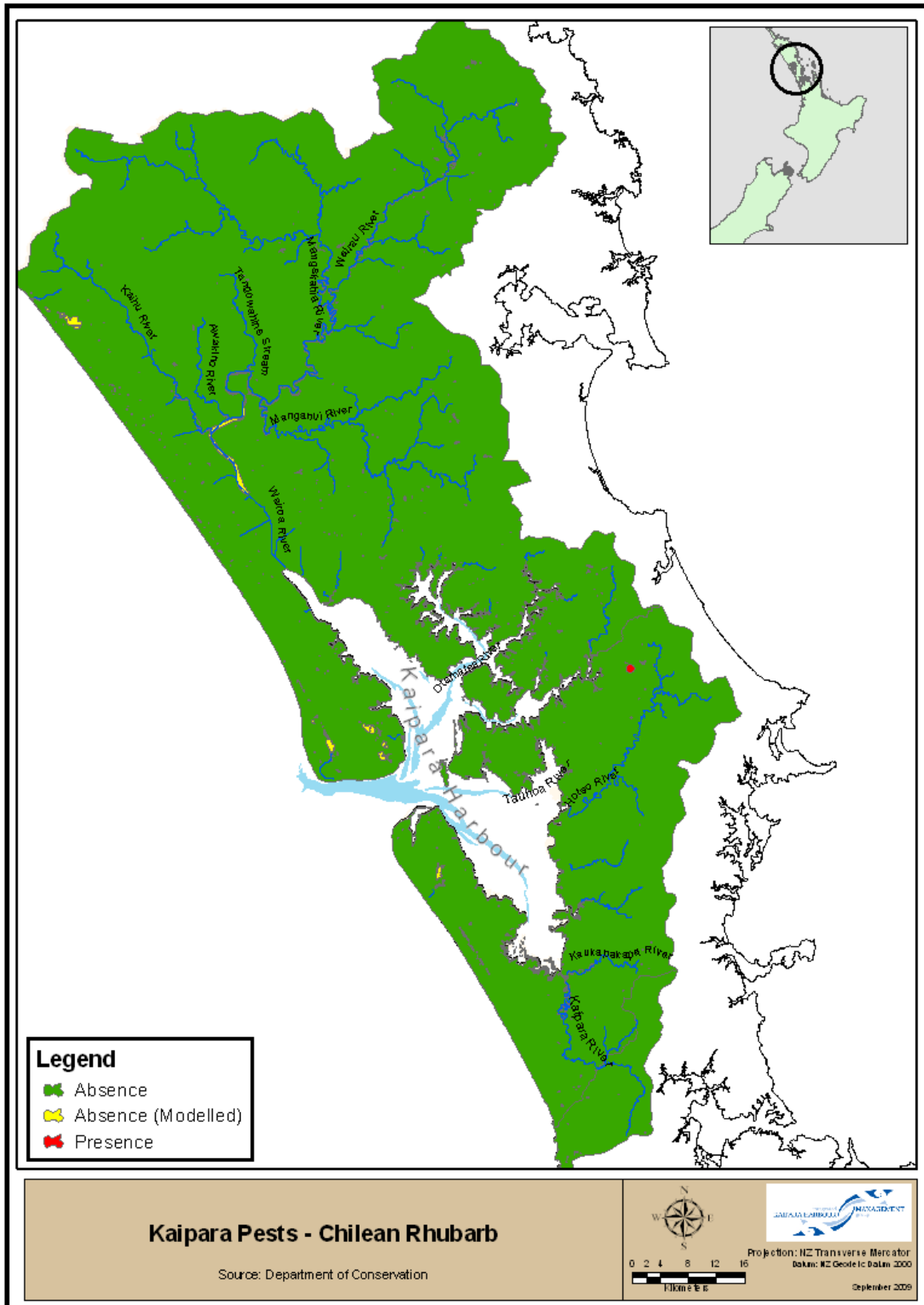


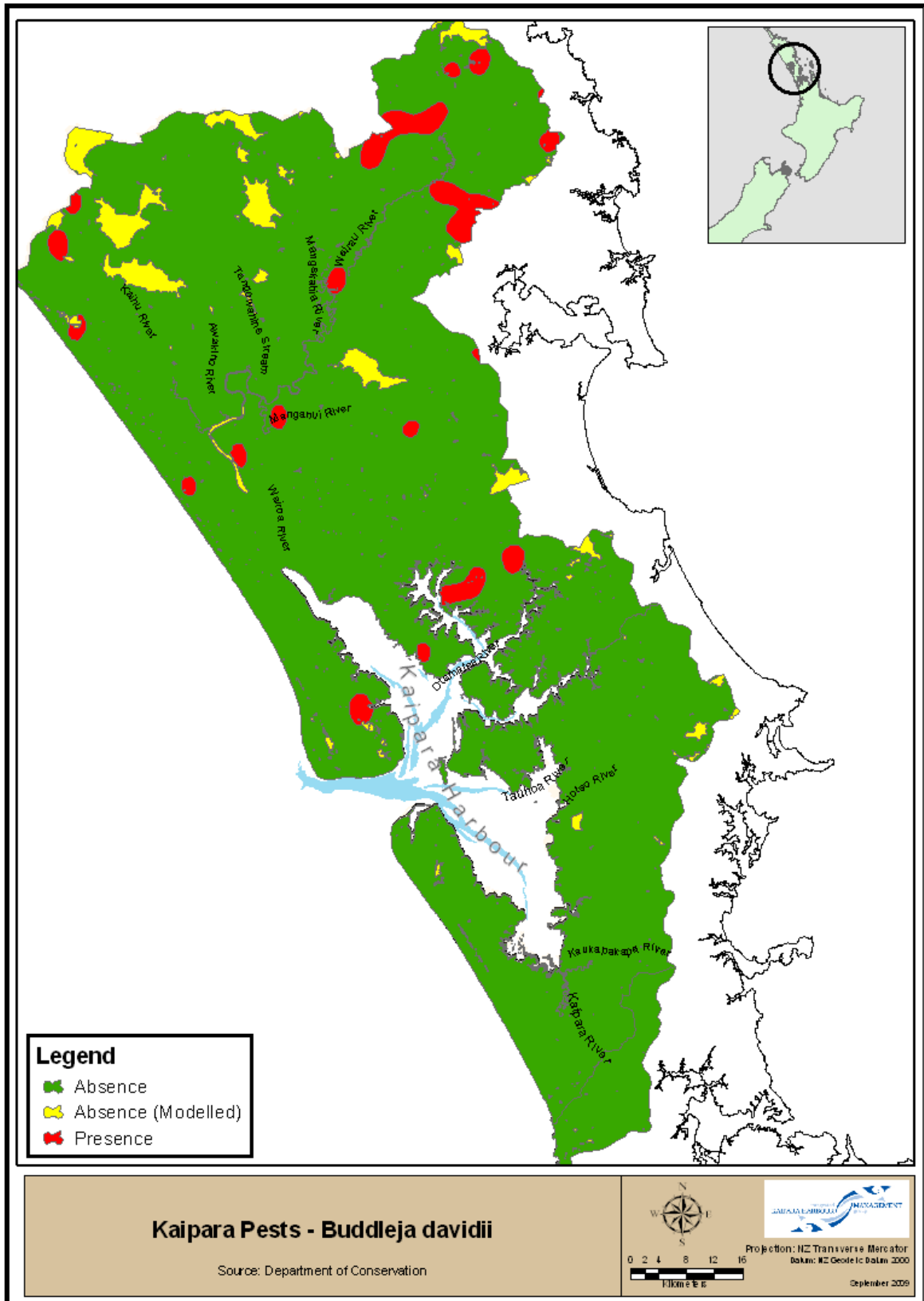


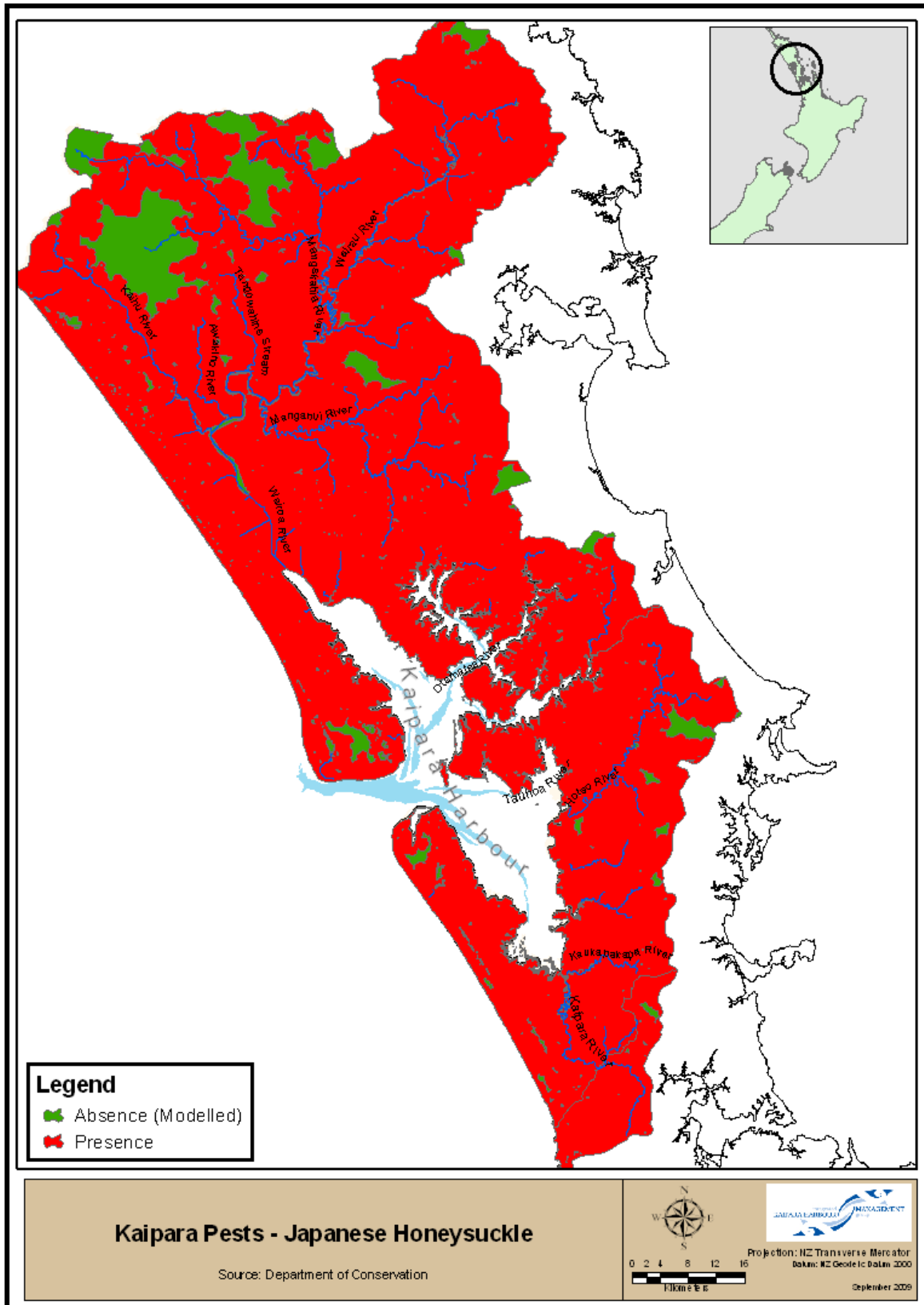


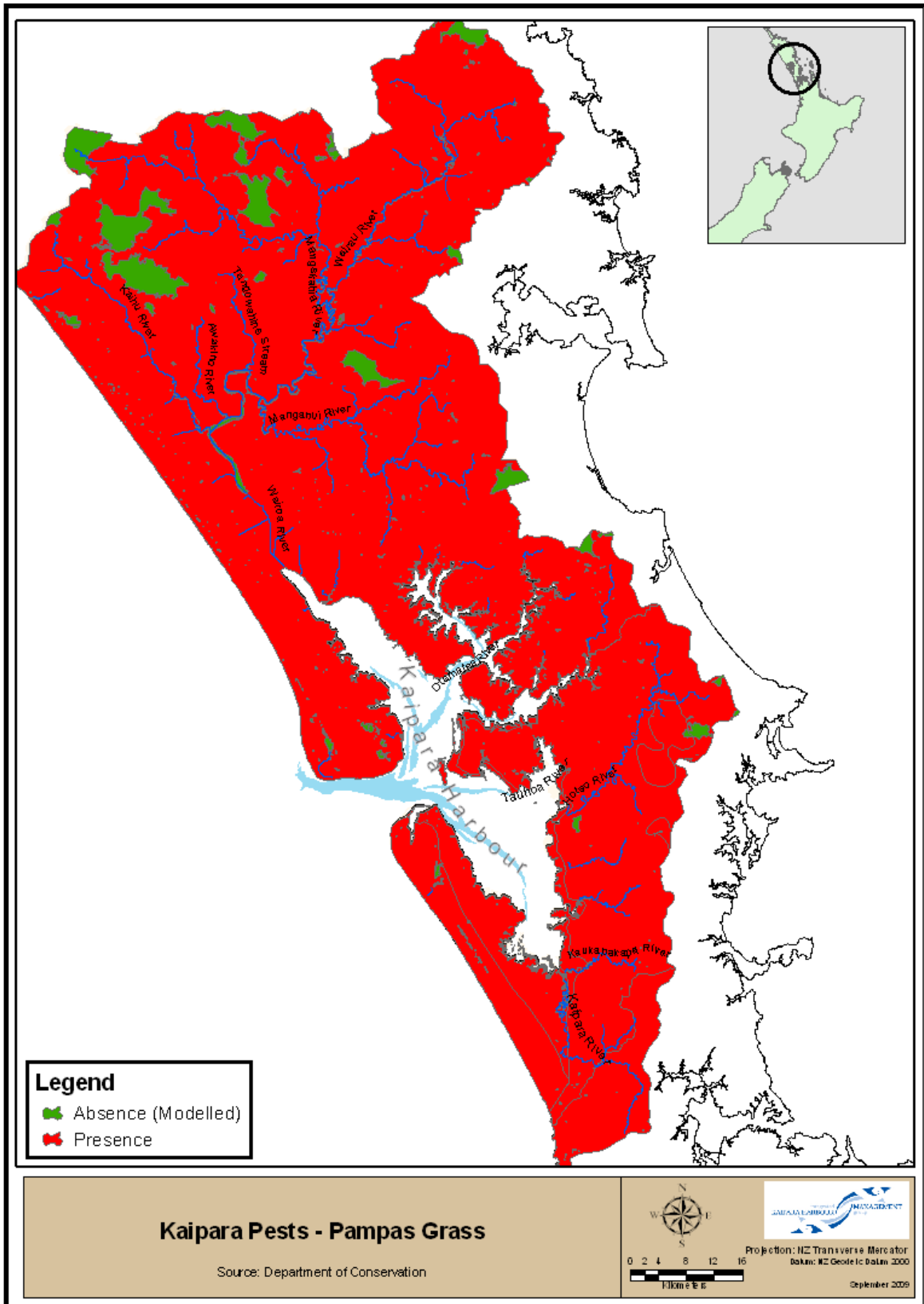


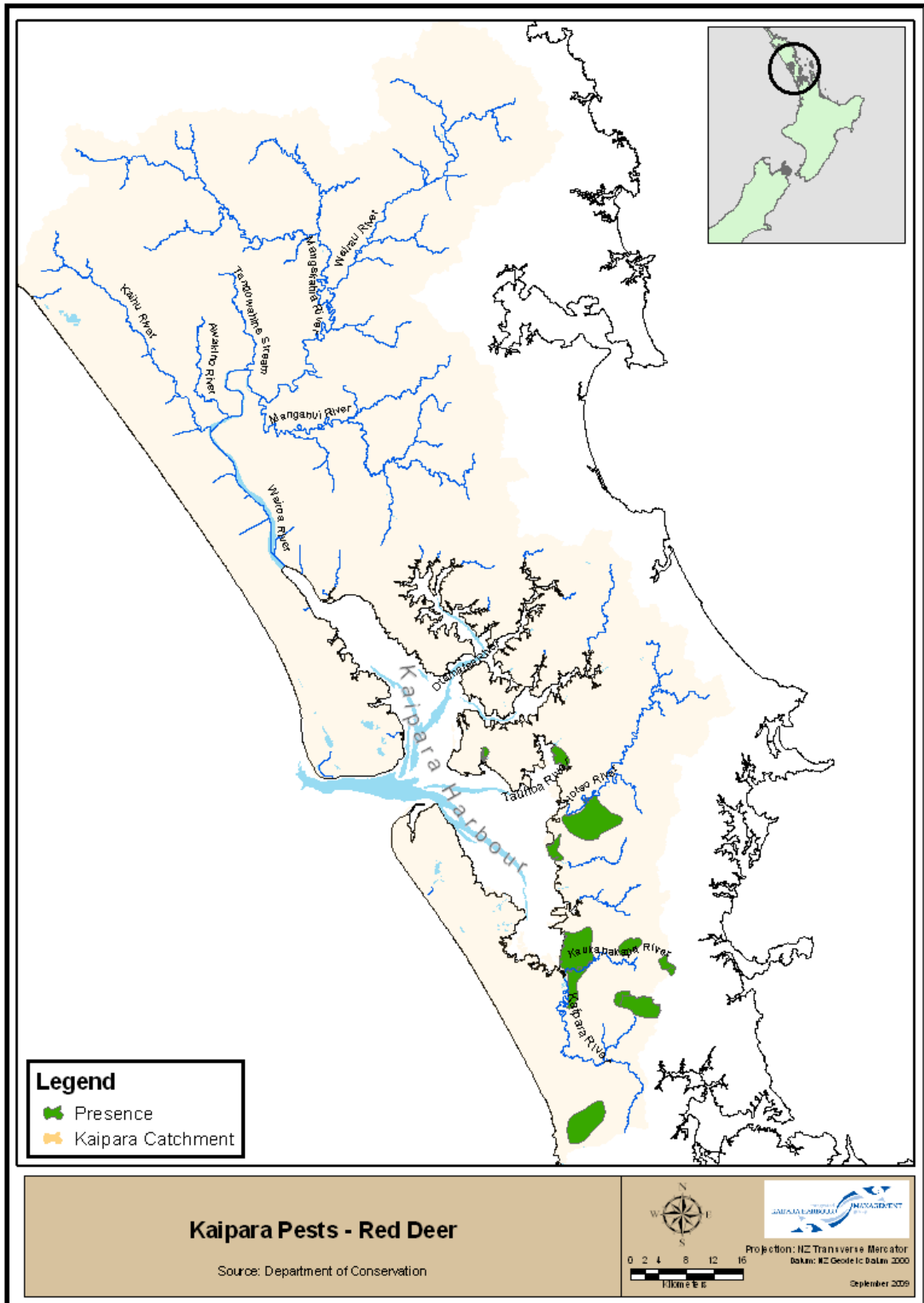


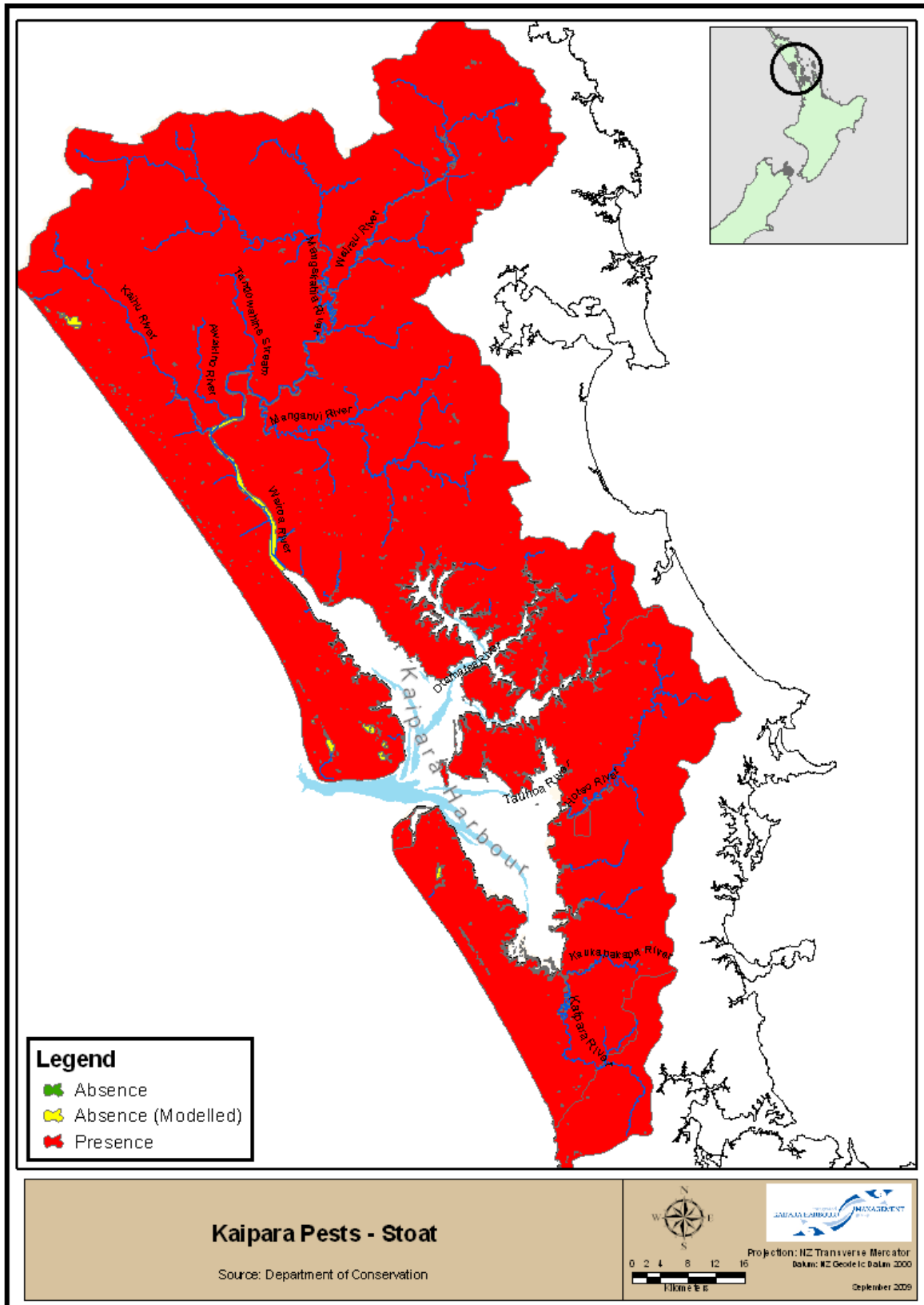


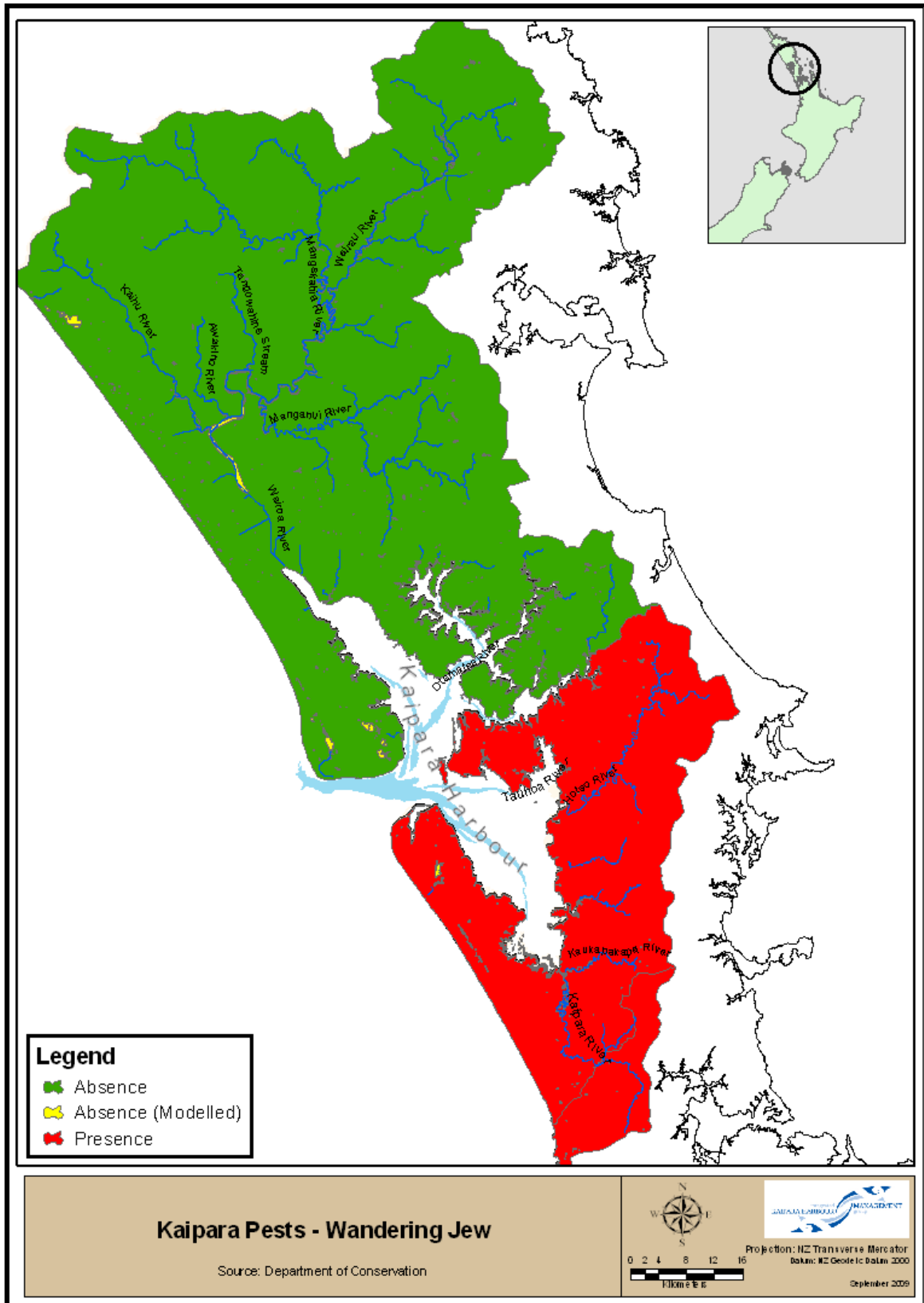


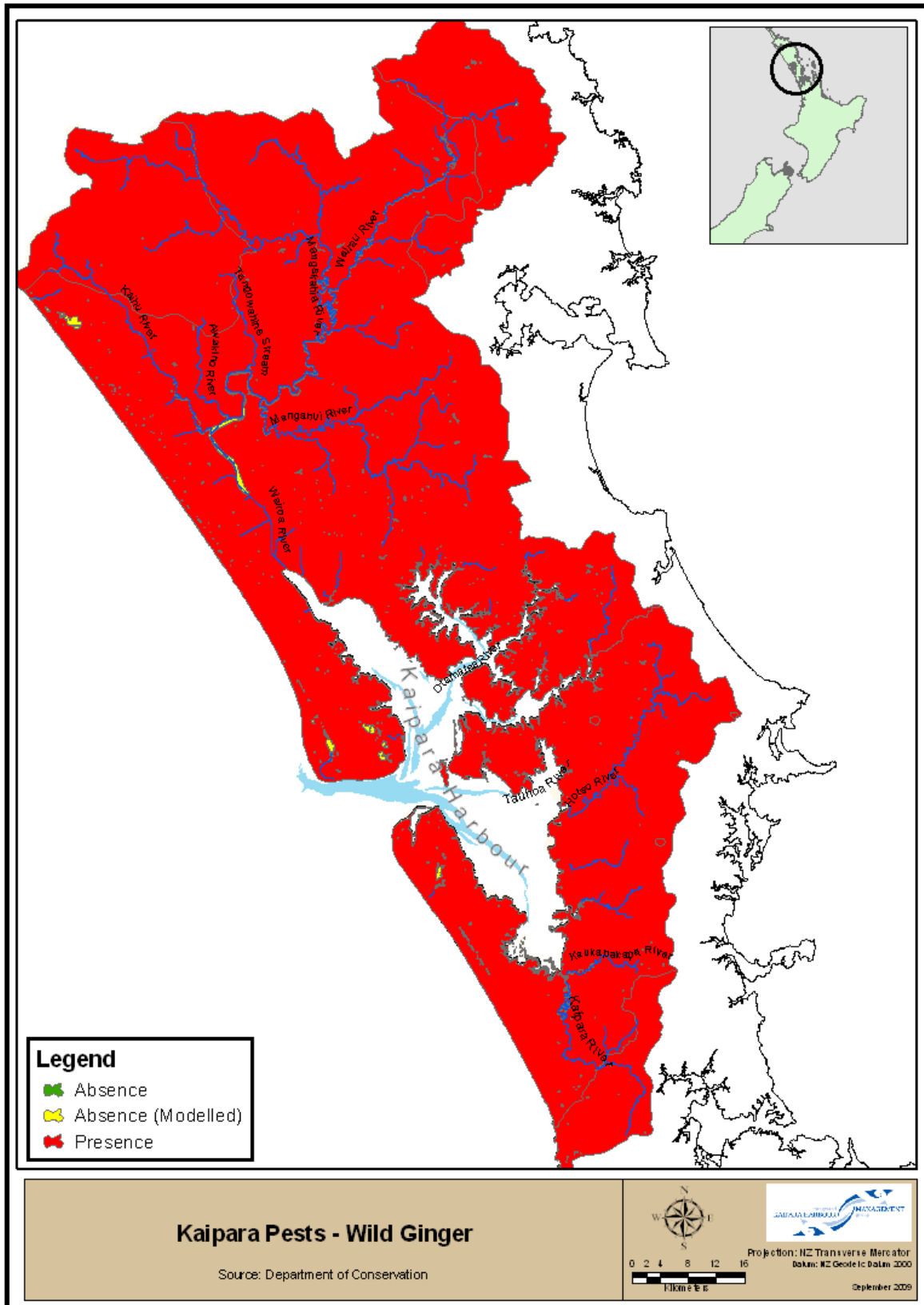


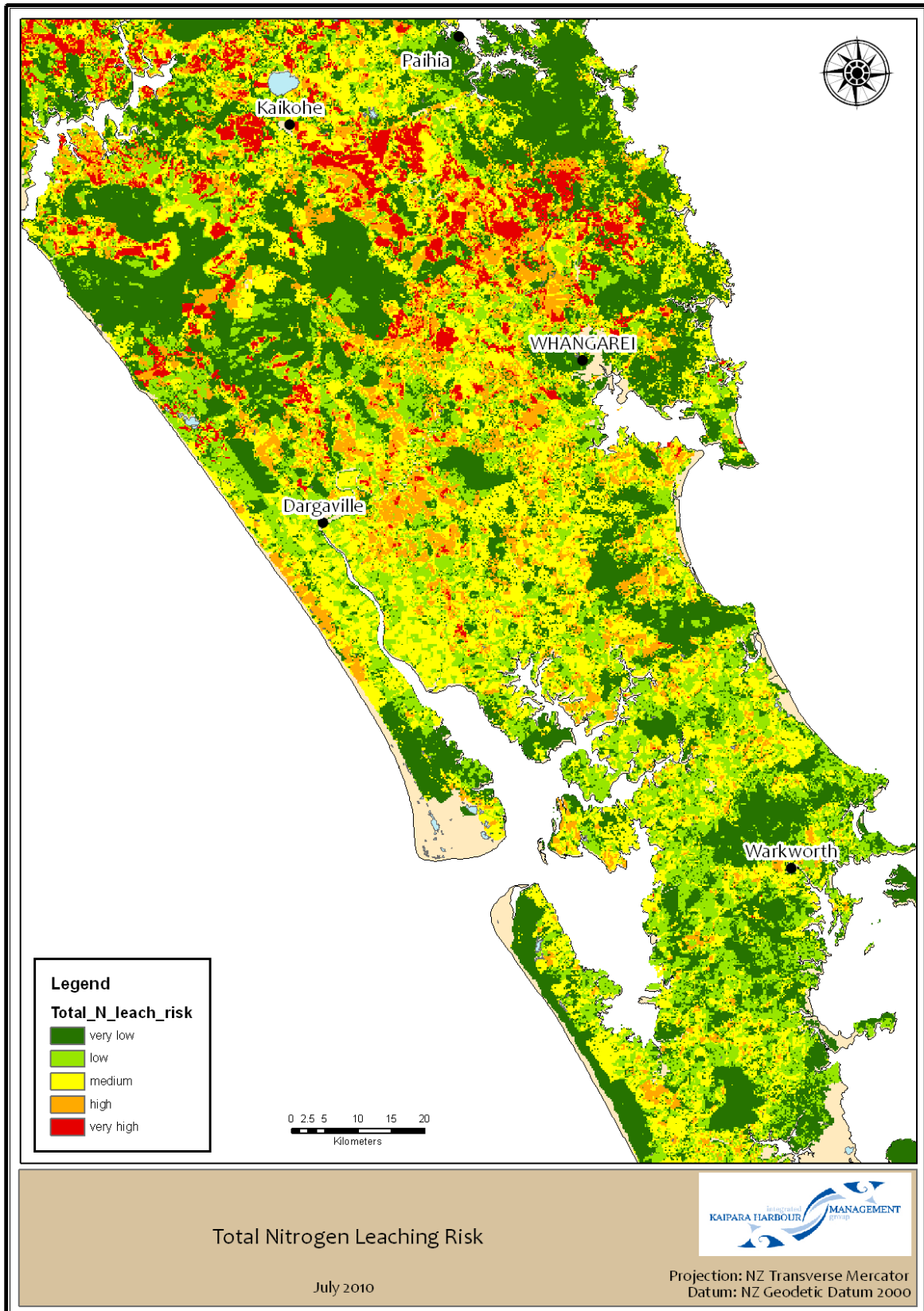


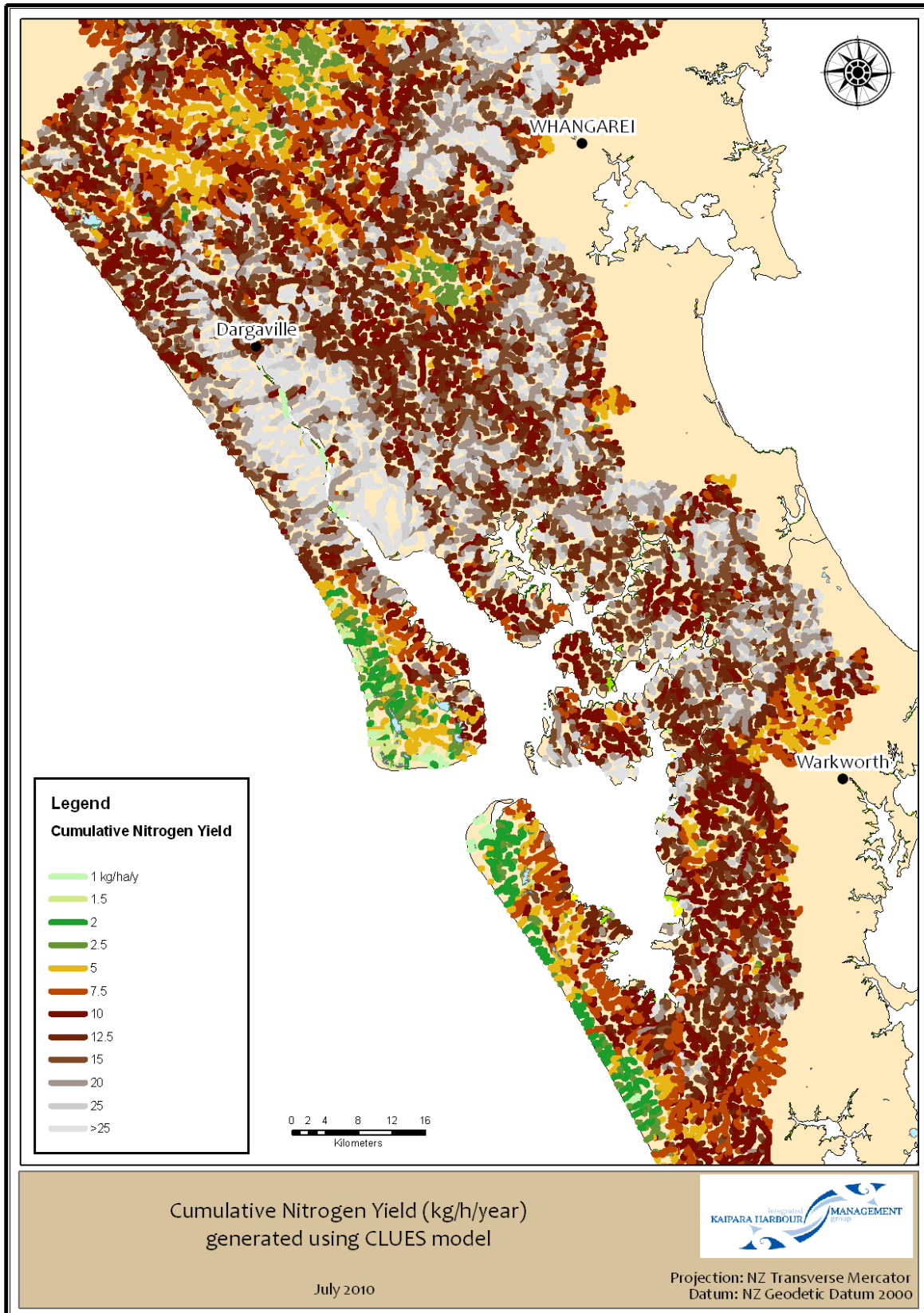


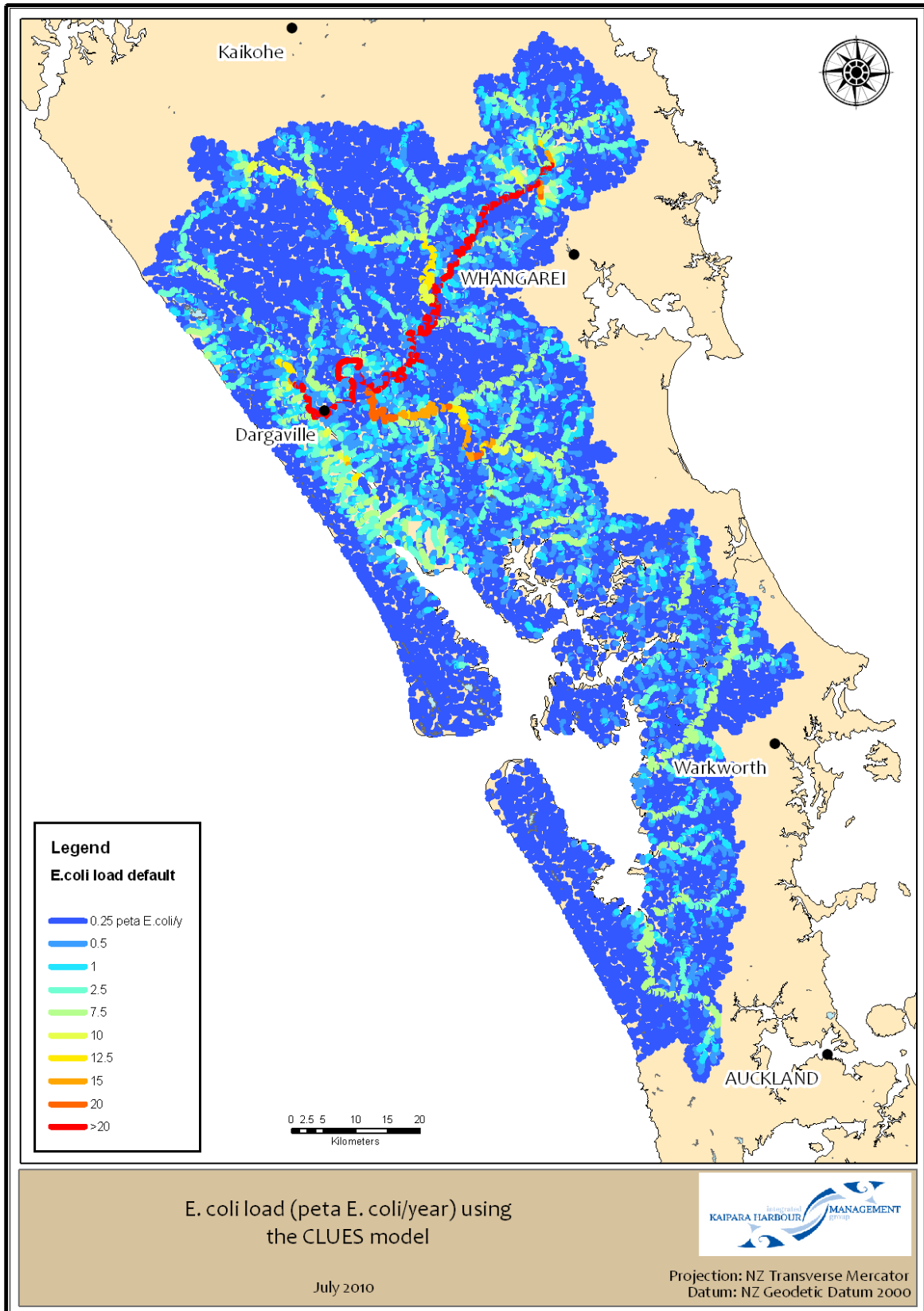


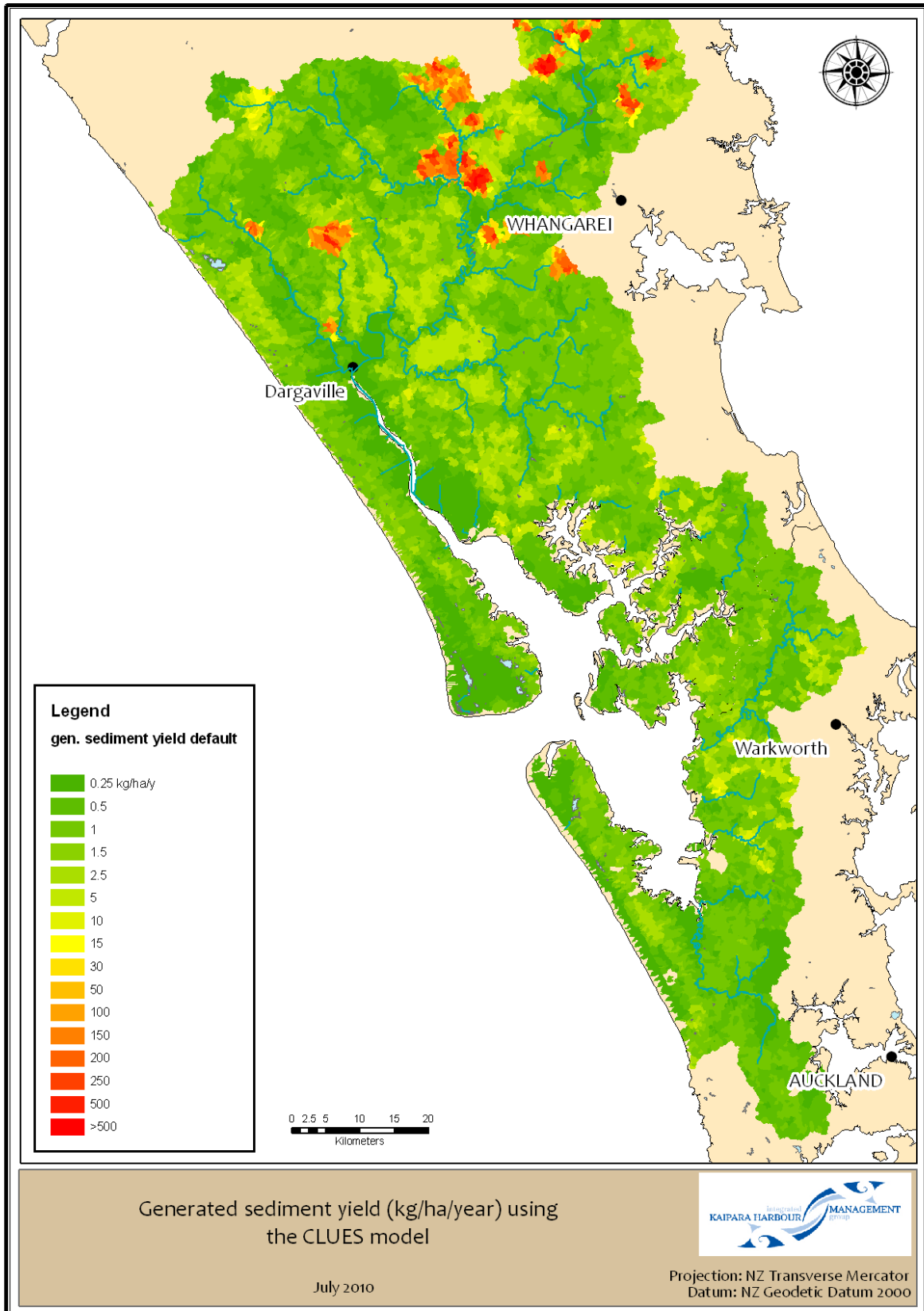


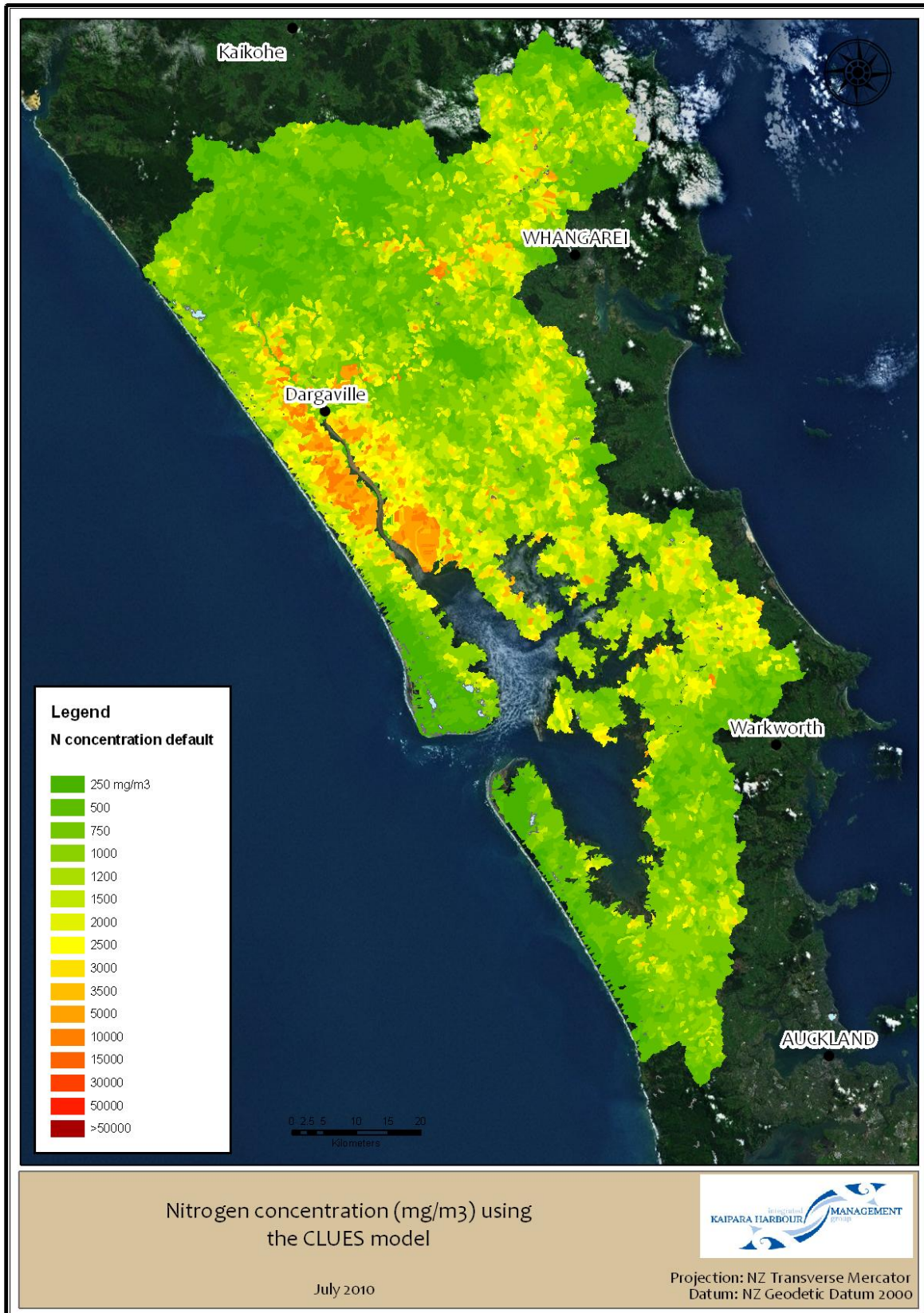


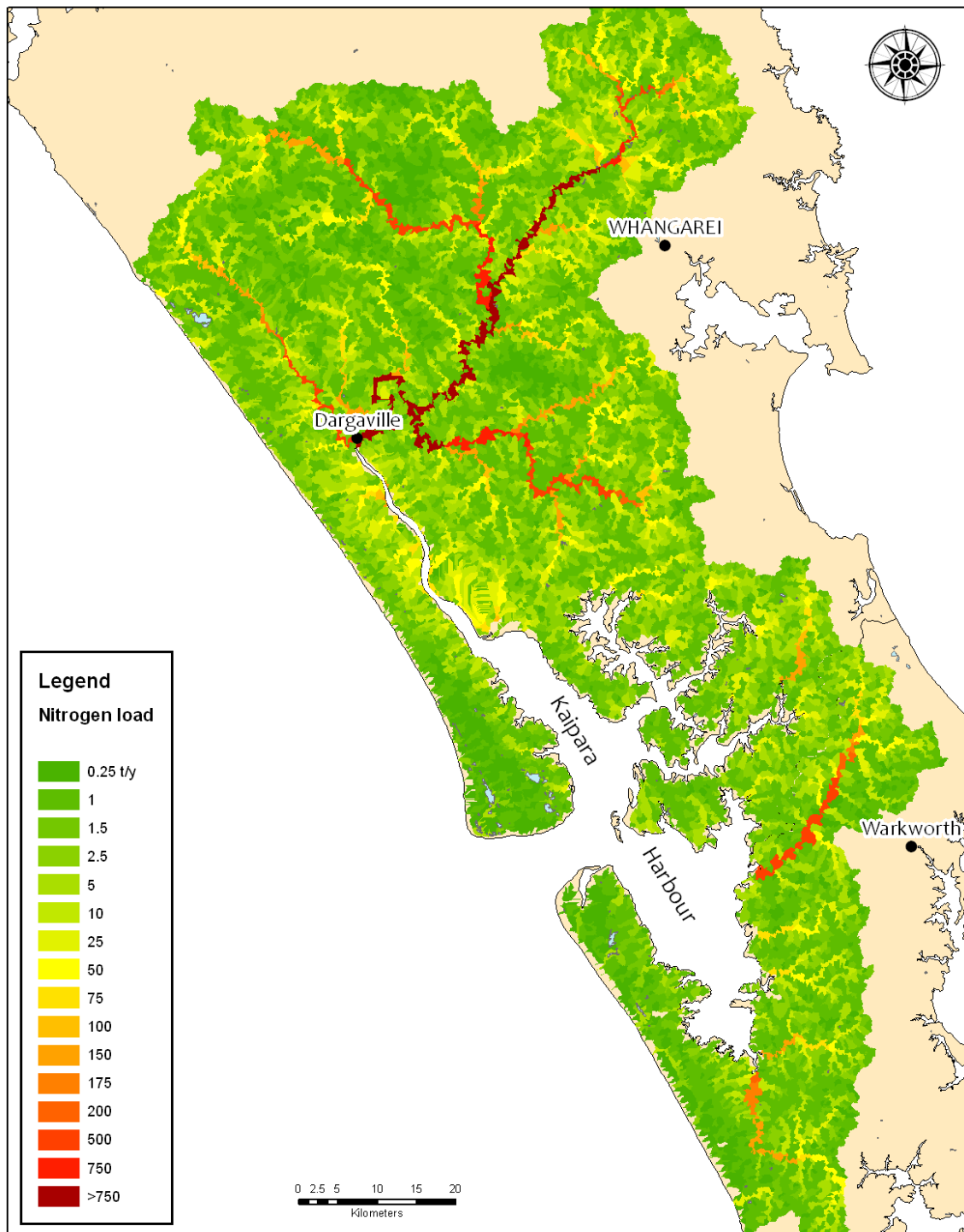










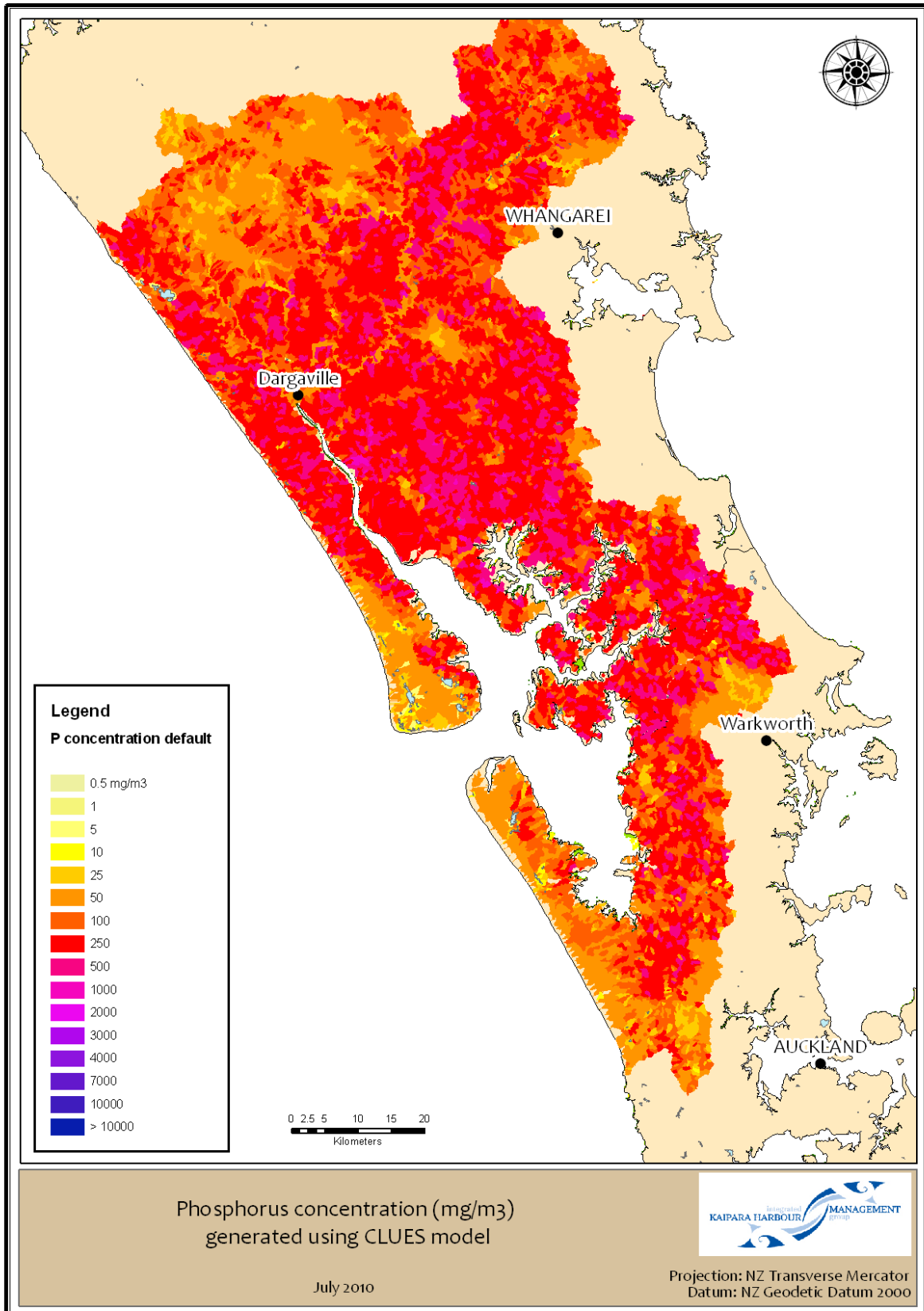


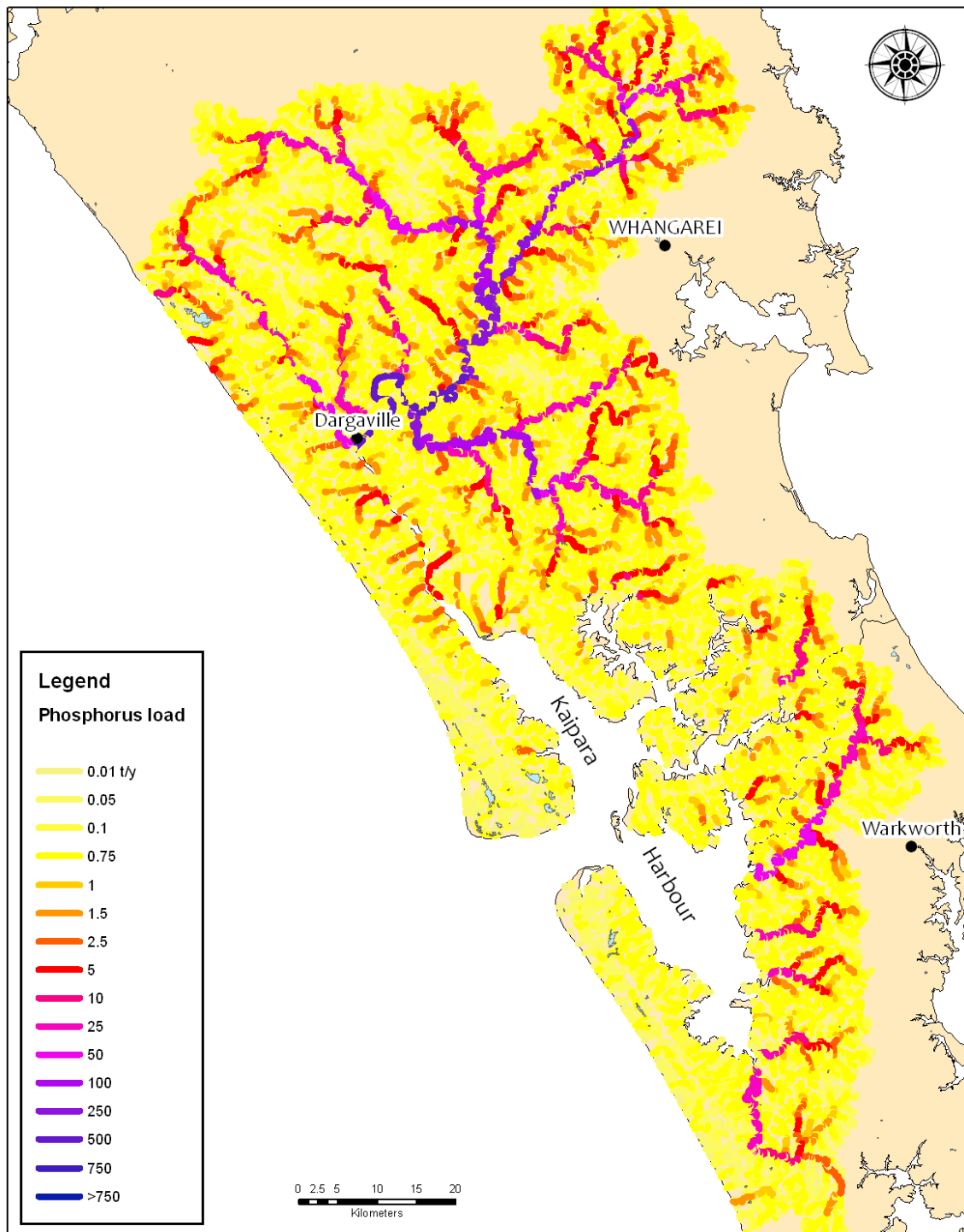
Nitrogen load (tonnes/year)
generated using CLUES model

July 2010



Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000



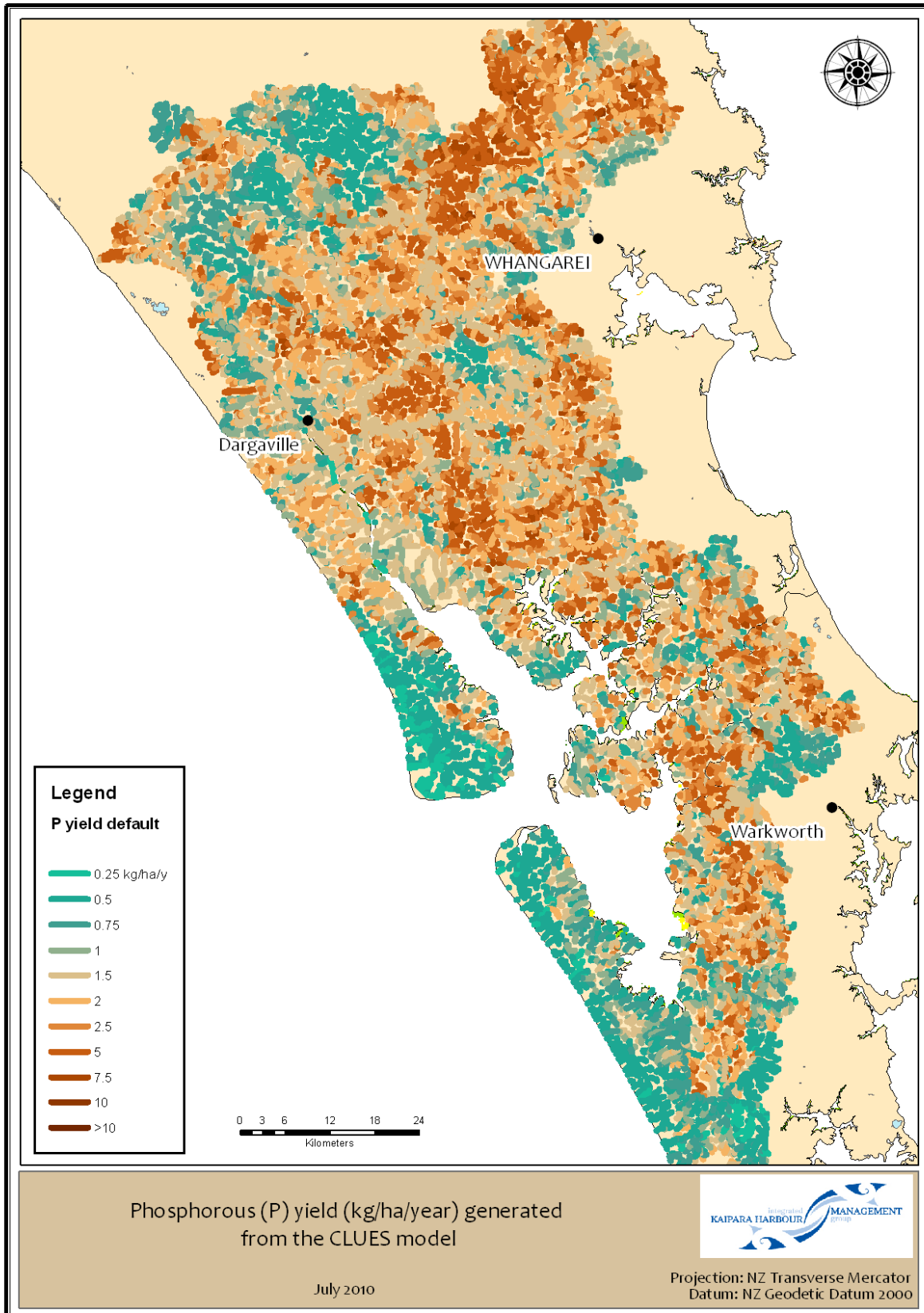


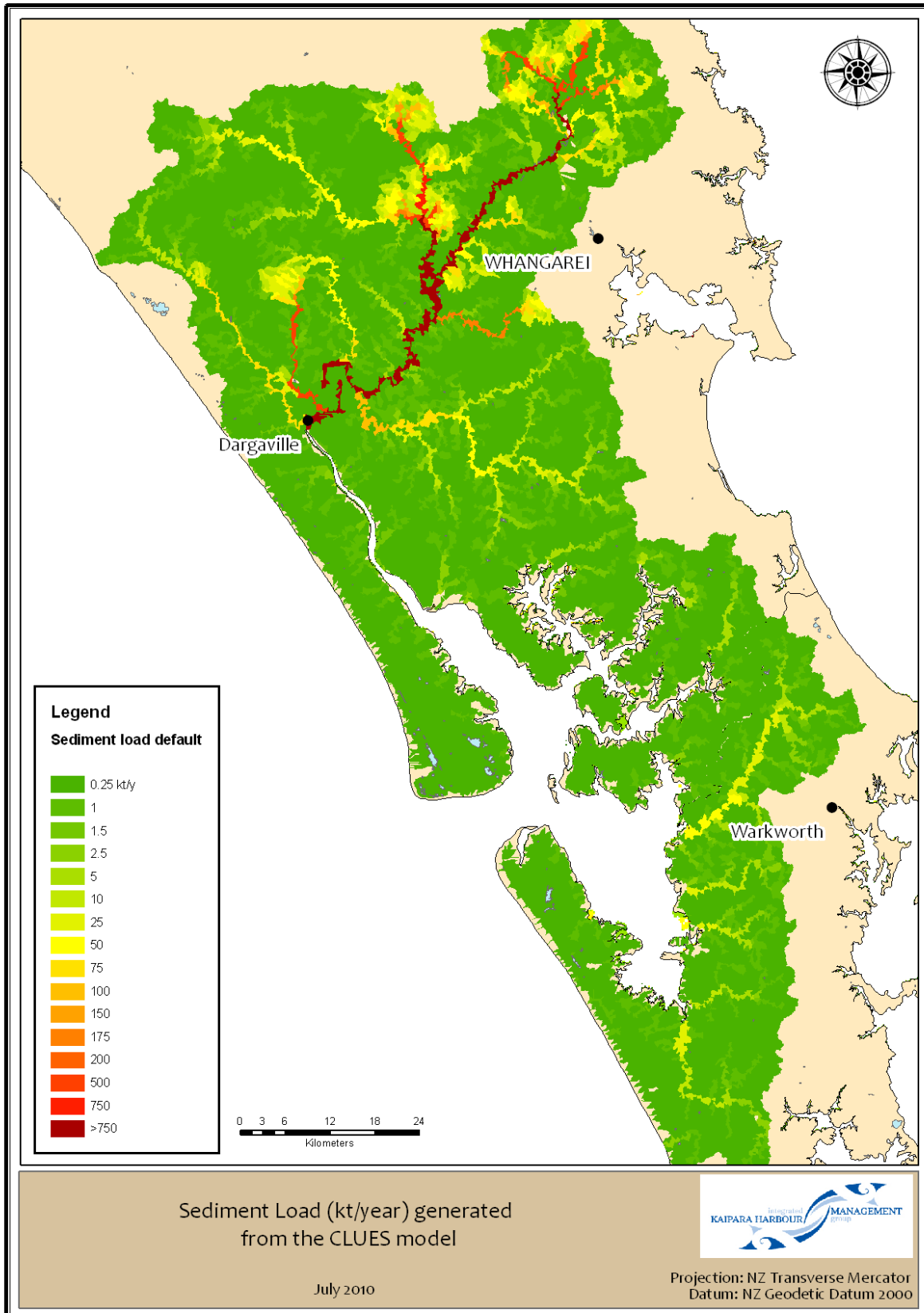
Phosphorus load (tonnes/year)
generated using CLUES model

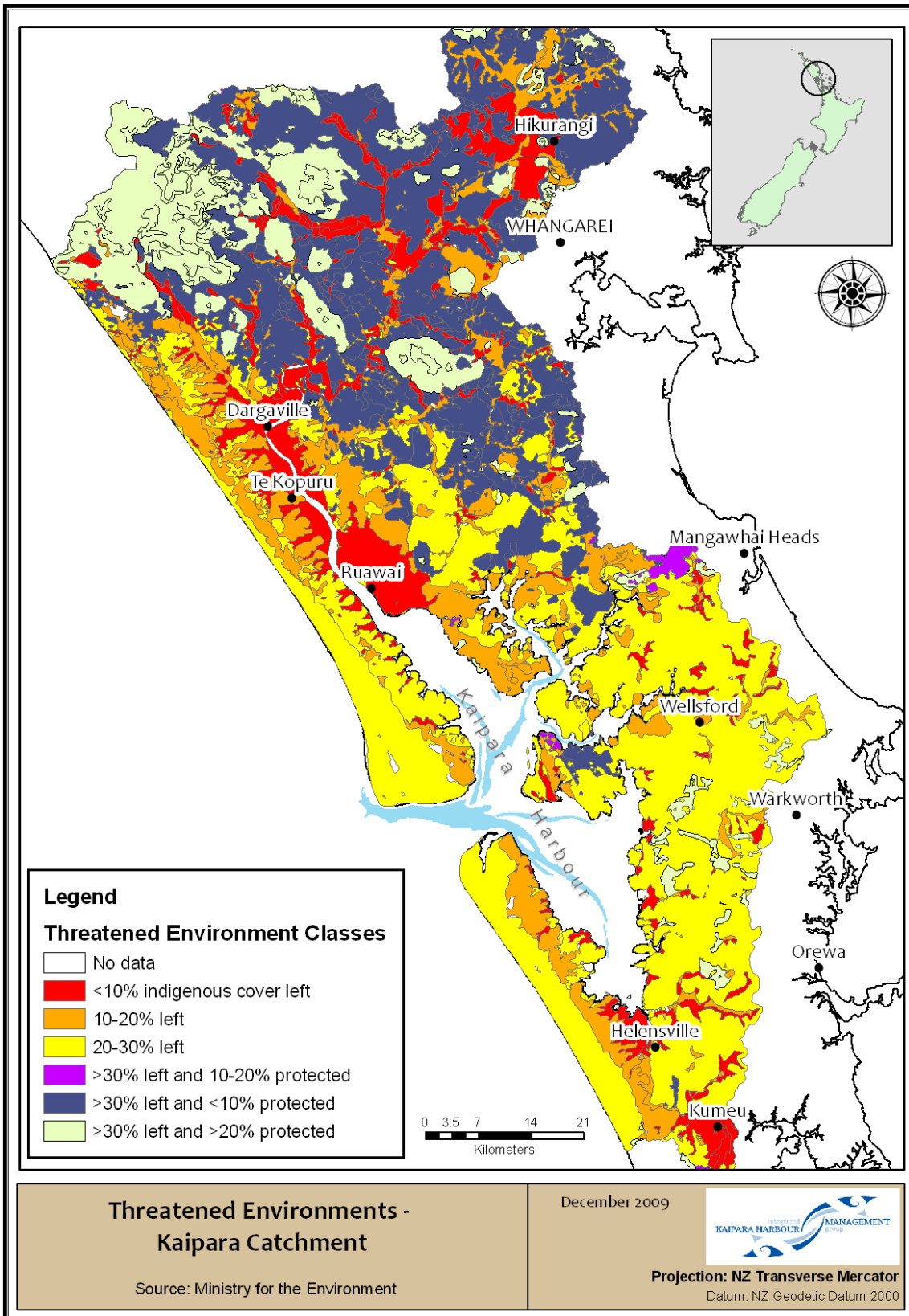
July 2010

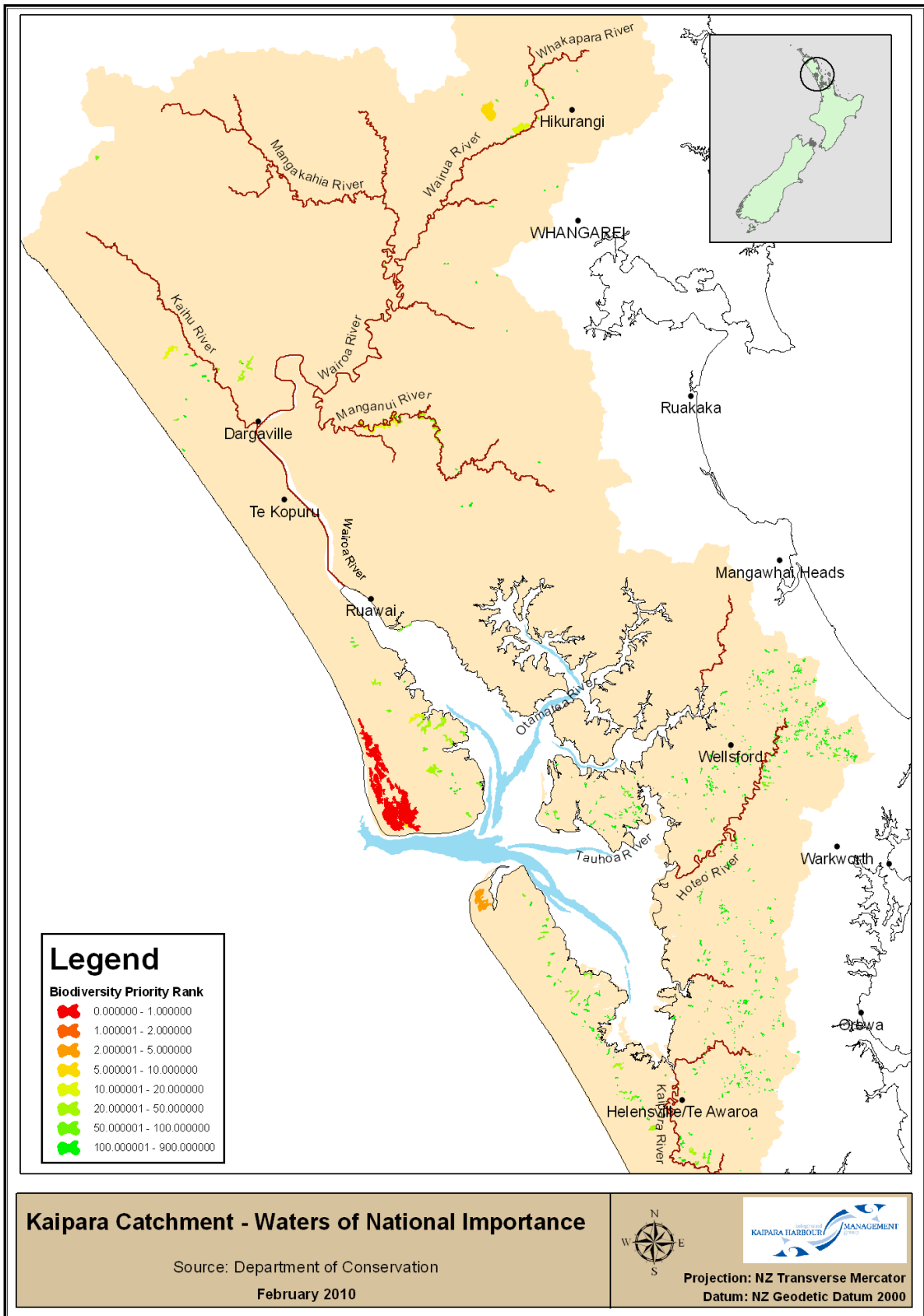


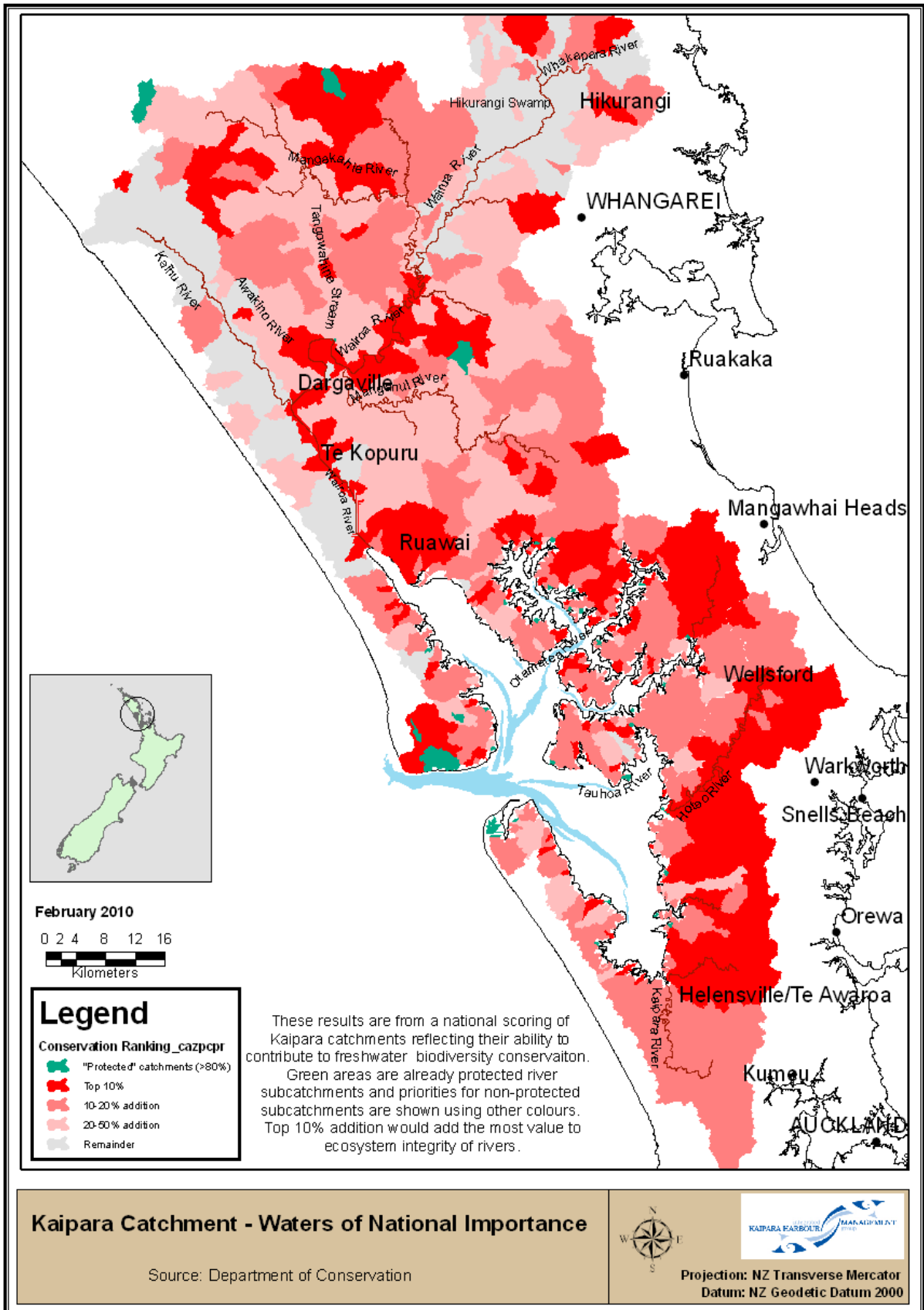
Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000

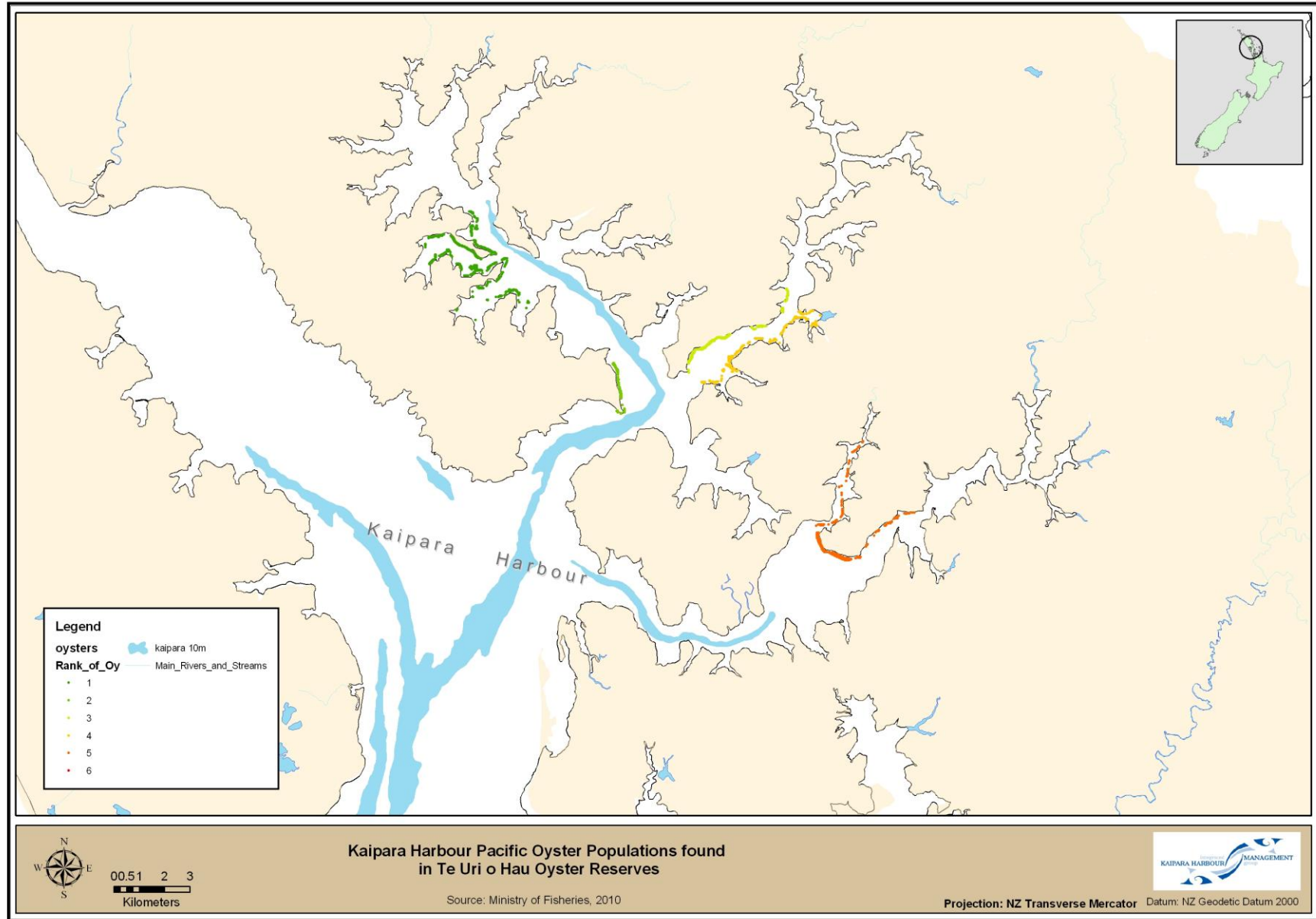


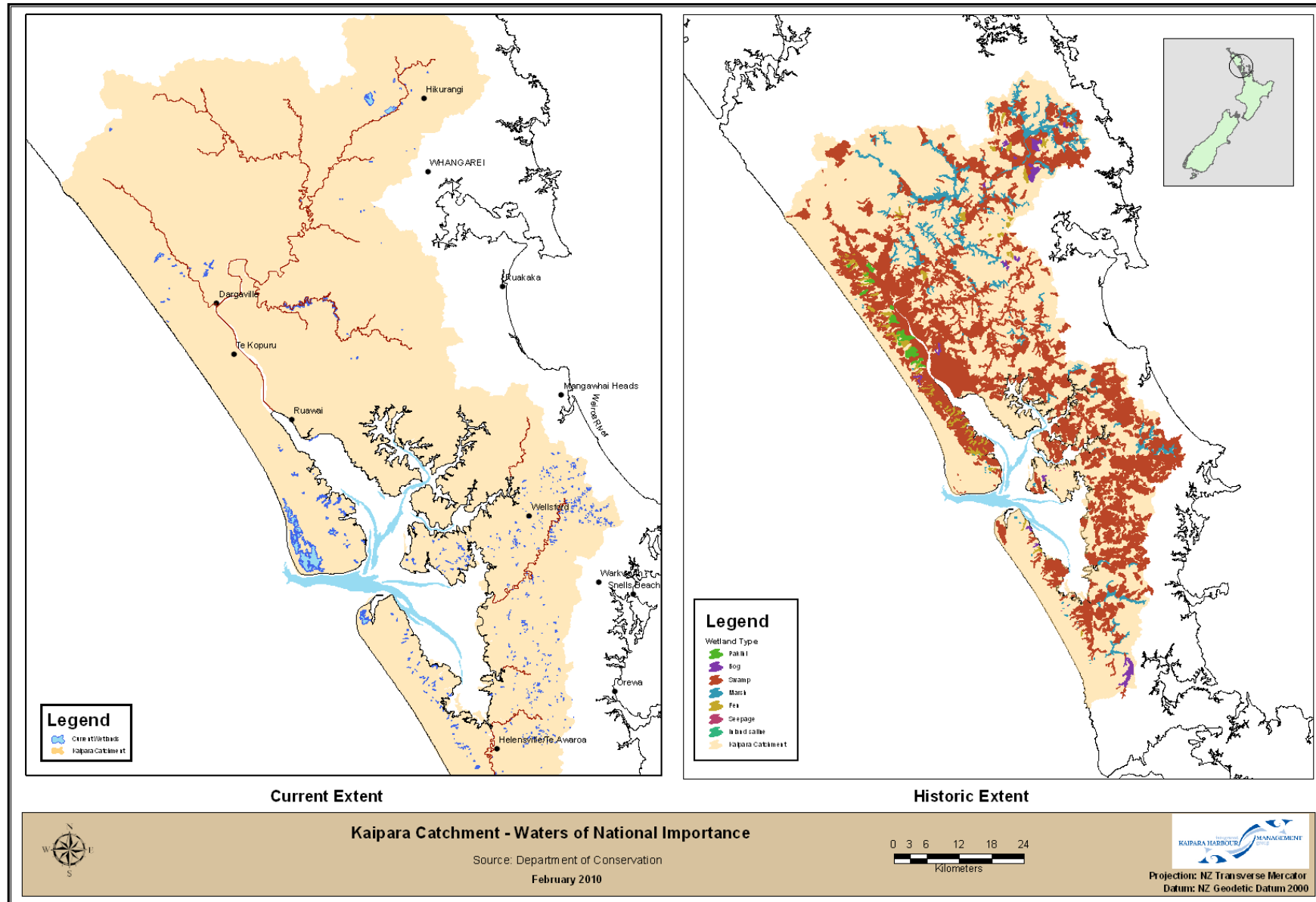












MĀTAURANGA MĀORI DATA

Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Coastal Resource Inventory Northland - Cultural Values	Regional	Northland	DoC	N	Polygons	Y	Spatial	Map digitised.	Shaw and Maingay. 1990. CRI. First Order Survey. Northland Conservancy	N	Completed
Coastal Resource Inventory Auckland - Cultural Values	Regional	Auckland	DoC	N	Polygons	Y	Spatial	Map digitised.	Fahy, Irving & John. 1991. Coastal Resource Inventory. First Order Survey. Auckland Conservancy.	N	Completed
Cultural Heritage Inventory (CHI)	Local	Rodney District	RDC	Y	Points	Y	Spatial	Provided by RDC. Attributes include: site name, site number, NZAA number, CHI number, buildings, flax mills, timber mills, shipwreck, landings, aquaculture farms, midden, pa's, pits, terraces. D:GIS/RDC Data/Cultural Heritage Sites		Y	Completed
Pa sites	National	National	LINZ	Y	Points	Y	Spatial				
Pa sites	Local	Rodney District	RDC	Y	Points	Y	Spatial	Info within the CHI data source provided from RDC.			
Kaipara Beach Middens	National	Kaipara catchment	NZAA?	Y	Points	Y	Spatial	GIS Layer. Point data. 2006. D:/GIS/Archaeological Sites		N	Ongoing

Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Te Uri o Hau Cultural Heritage Index	Local	Kaipara Harbour & Catchment	Te Uri o Hau Settlement Trust	Y		Y	Occurrence	Historial Info recorded in Deed of Settlement Case Books, archaeological reports used to create a CHI for TUOH. Mapping exercise used to record this information then digitised.	Te Uri o Hau Cultural Heritage Index.	Y	Incomplete
Te Uri o Hau Rohe of Interest	Local	Local	TUOH, RDC, OTS	Y	Polygons	Y	Spatial	Te Uri o Hau rohe of Interest. Used in the Settlement with Crown under Treaty of Waitangi Act. What recognised under TUOH Claims Settlement Act 2002.			
Ngati Whatua Rohe of Interest	Local	Local	RDC, OTS	Y	Polygons	Y	Spatial	Ngati Whatua rohe of interest includes the entire harbour and catchment;			
Te Roroa Rohe of Interest	Local	Local	RDC, OTS	Y	Polygons	Y	Spatial	Te Roroa rohe of Interest. Used in the Settlement with Crown under Treaty of Waitangi Act and what established under Te Roroa Claims Settlement Act 2007.			
Paoa Rohe Area of Interest	Local	Local	RDC, OTS	Y	Polygons	Y	Spatial	Paoa rohe of interest includes the Kaipara			
Manuhiri Rohe Area of Interest	Local	Local	RDC, OTS	Y	Polygons	Y	Spatial	Manuhiri rohe includes the Kaipara catchment to the southeast			

Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Nga Whenua Rahui Kaipara	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Nga Whenua Rahui covenants. Includes owner and area. D:/GIS/Catchment Features/Protected Areas			
Te Uri o Hau land interests	Local	Kaipara Harbour & Catchment	TUOH, DoC	Y	Polygon	Y	Spatial	Cultural redress properties and settlement land. D:/GIS/Iwi			
South Kaipara Maori Block Land	Local	Rodney District	RDC	Y	Polygon	Y	Spatial	Maori block land. D:/GIS/Matauranga Maori			
Te Roroa settlement properties	Local	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	D:/GIS/Iwi/Te Roroa			
Kaipara archaeological sites august 06	National	Kaipara catchment	NZAA	Y	Points	Y	Spatial	All archaeological sites. Includes info on pa, pits, terraces, burial grounds, artefacts/find spot, Ditch, Drain. D:/GIS/Archaeological sites			
Marae	Regional	Kaipara catchment	AUT	Y	Points	Y	Spatial	Current (2009) location of kaipara marae.			
Okahukura place names	Local	Kaipara catchment	AUT	Y	Point	Y	Spatial	Map 4. B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Map 4.		

Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Pouto Peninsula Archaeological regions	Local	Pouto Peninsula	AUT	Y	Line	Y	Spatial	Map 29 - regions to describe archaeology of Pouto peninsula. B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Map 29.		
Ferrar's Pa sites Pouto Peninsula	Local	Pouto Peninsula	AUT	Y	Point	Y	Spatial	Map 28 & 29. B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Maps 28 and 29.		
NZAA Pa sites Pouto Peninsula	Local	Pouto Peninsula	AUT	Y	Point	Y	Spatial	B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Map 29.		
Pouto Peninsula traditional place names	Local	Pouto Peninsula	AUT	Y	Point	Y	Spatial	B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Map 3.		
Pouto Peninsula trails	Local	Pouto Peninsula	AUT	Y	Line	Y	Spatial	B:/Leane Makey/Cultural Landscapes	Jackson, Moira Annette and Vanessa Ngaire Keay Burridge. November 1996. GIS Map Supplement for Te Uri O Hau O Te Wahapu O Kaipara. Map 37.		

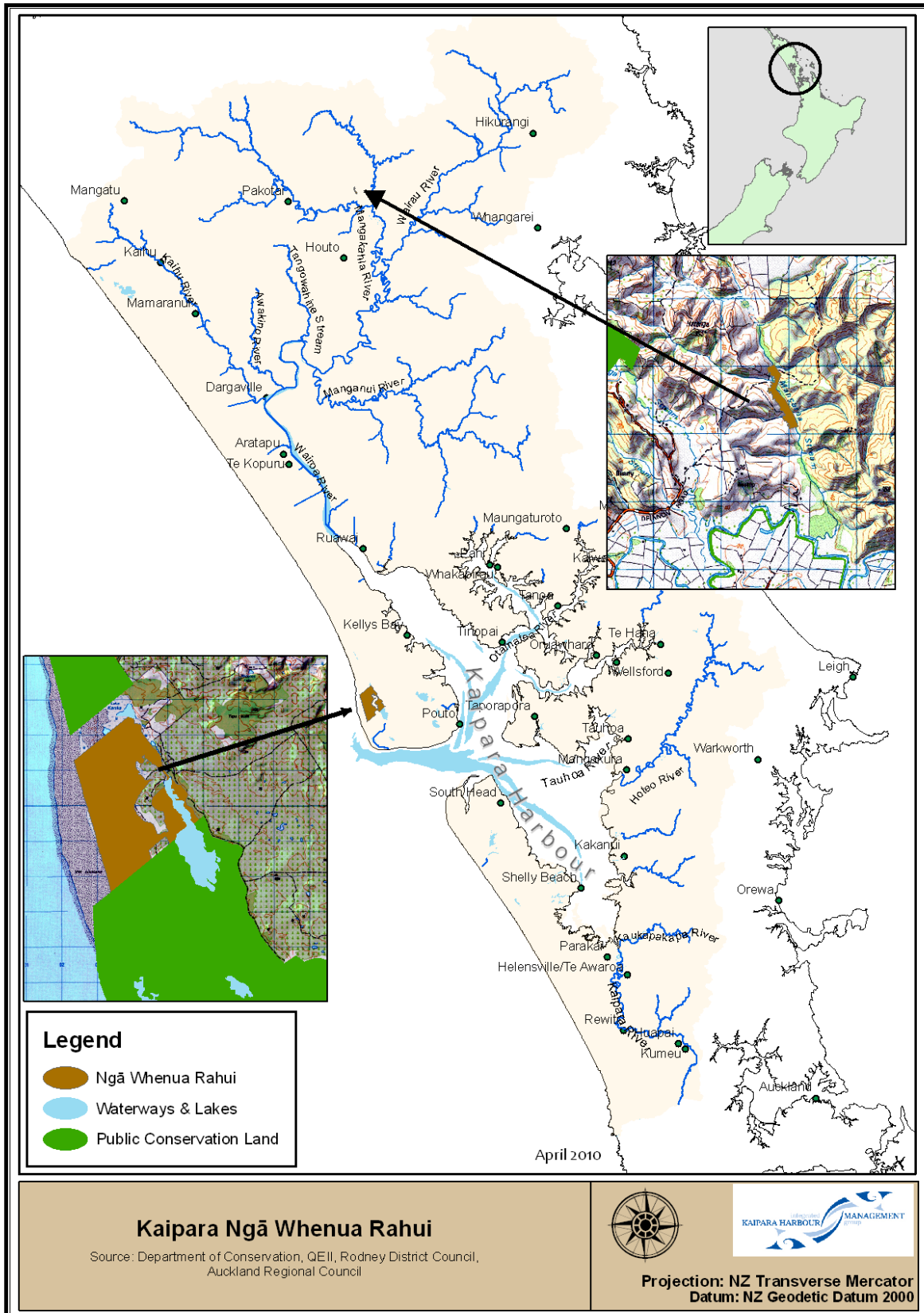
Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Kaipara and Tamaki Makaurau tracks	Regional	Northland	AUT	Y	Line	Y	Spatial	D:/GIS/Matauranga Maori	The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 5: Kaipara and Tamaki Makaurau tracks and portages. Based on a map prepared by Wynne Spring-Rice.		
Kaipara and Tamaki Makaurau portage trails	Regional	Northland	AUT	Y	Line	Y	Spatial	D:/GIS/Matauranga Maori	The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 5: Kaipara and Tamaki Makaurau tracks and portages. Based on a map prepared by Wynne Spring-Rice.		
TUOH and Ngati Whatua settlements	Regional	Northland	AUT	Y	Point	Y	Spatial	In Kaipara and Tamaki Makaurau 1840-1921. D:/GIS/Matauranga Maori	The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 8: Te Uri o Hau and Ngati Whatua settlements in Kaipara and Tamaki Makaurau, 1840-1921. Source document 05.		
Battle sites	Local	Kaipara catchment	AUT	Y	Polygon	Y	Spatial	Digitised from large TUOH cultural landscape map and TUOH CHI. D:/GIS/Matauranga Maori			

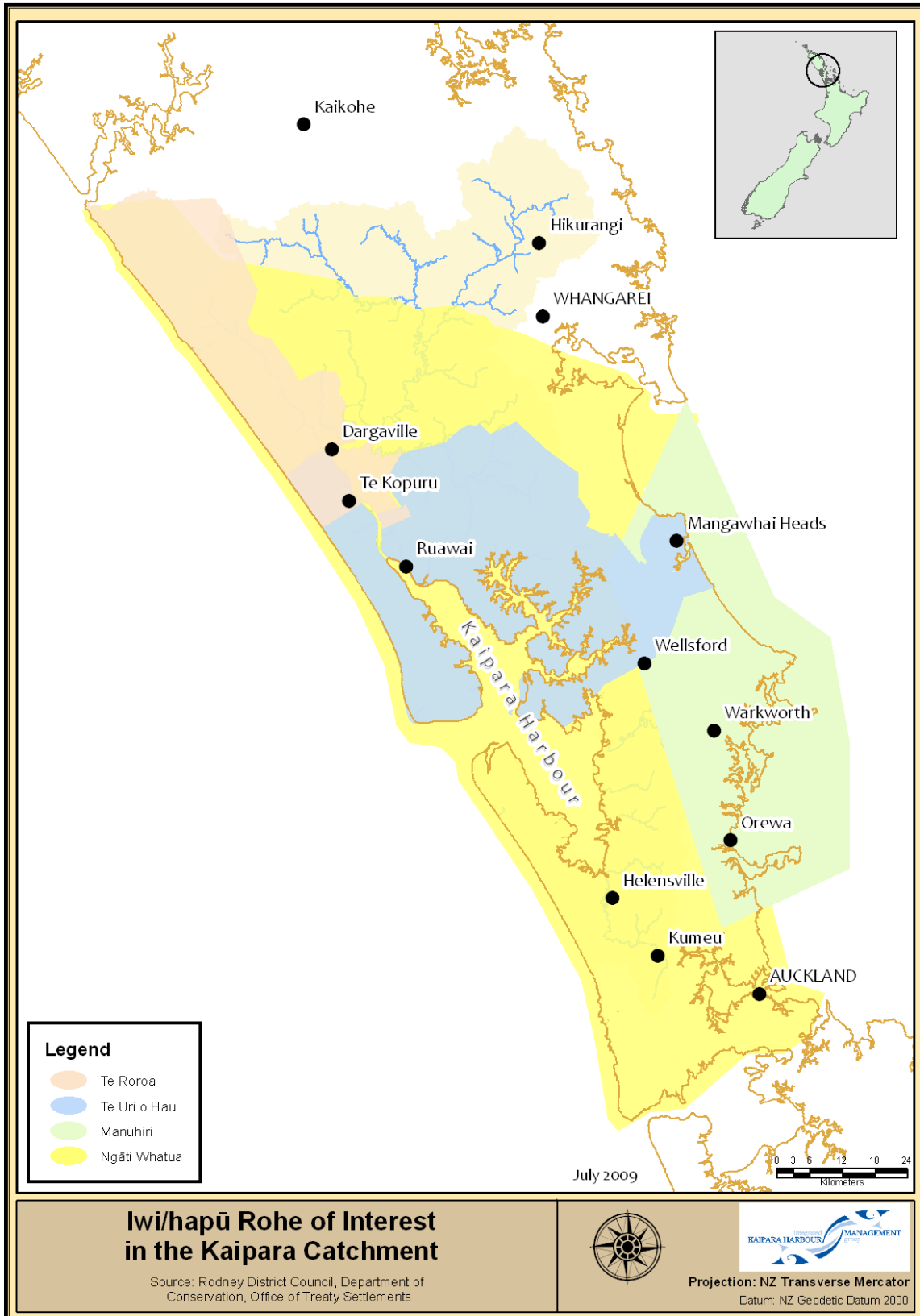
Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Kai sites	Local	Kaipara catchment	AUT	Y	Polygon	Y	Spatial	Digitised from large TUOH cultural landscape map and TUOH CHI. D:/GIS/Matauranga Maori			
Urupa	Local	Kaipara catchment	AUT	Y	Polygon	Y	Spatial	Digitised from large TUOH cultural landscape map and TUOH CHI. D:/GIS/Matauranga Maori			
Verbal or written records	Local	Kaipara catchment	AUT	Y	Polygon	Y	Spatial	Digitised from large TUOH cultural landscape map and TUOH CHI. D:/GIS/Matauranga Maori			
Wahi tapu sites	Local	Kaipara catchment	AUT	Y	Polygon	Y	Spatial	Digitised from large TUOH cultural landscape map and TUOH CHI. D:/GIS/Matauranga Maori			

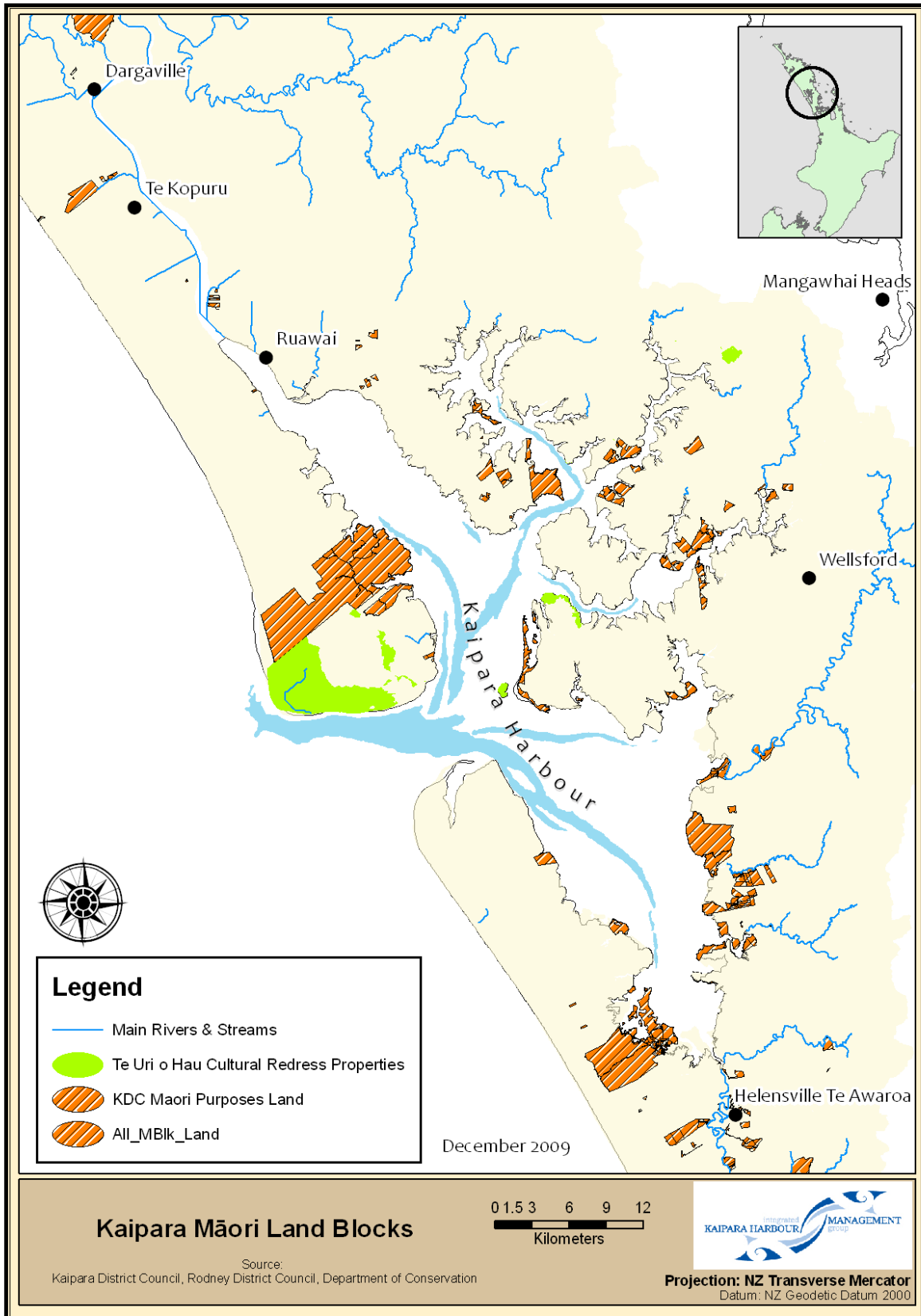
Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Forest cover 1880	Region	Northland	AUT	Y	Polygon	Y	Spatial	D:/GIS/Matauranga Maori	The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 10: The kauri trade. The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 10: The kauri trade. Source Malcom McKinnon, ed, Bateman New Zealand Historical Atlas: Ko Papatuanuku e Takoto Nei (Auckland: David Bateman and Department of Internal Affairs, 1997), pl 48, and Wayne Ryburn, Tall Spars, Steamers and Gum: A History of the Kaipara from Early European Settlement, 1854-1947 (Auckland: Kaipara Publications, 1999), pp 219-221.		

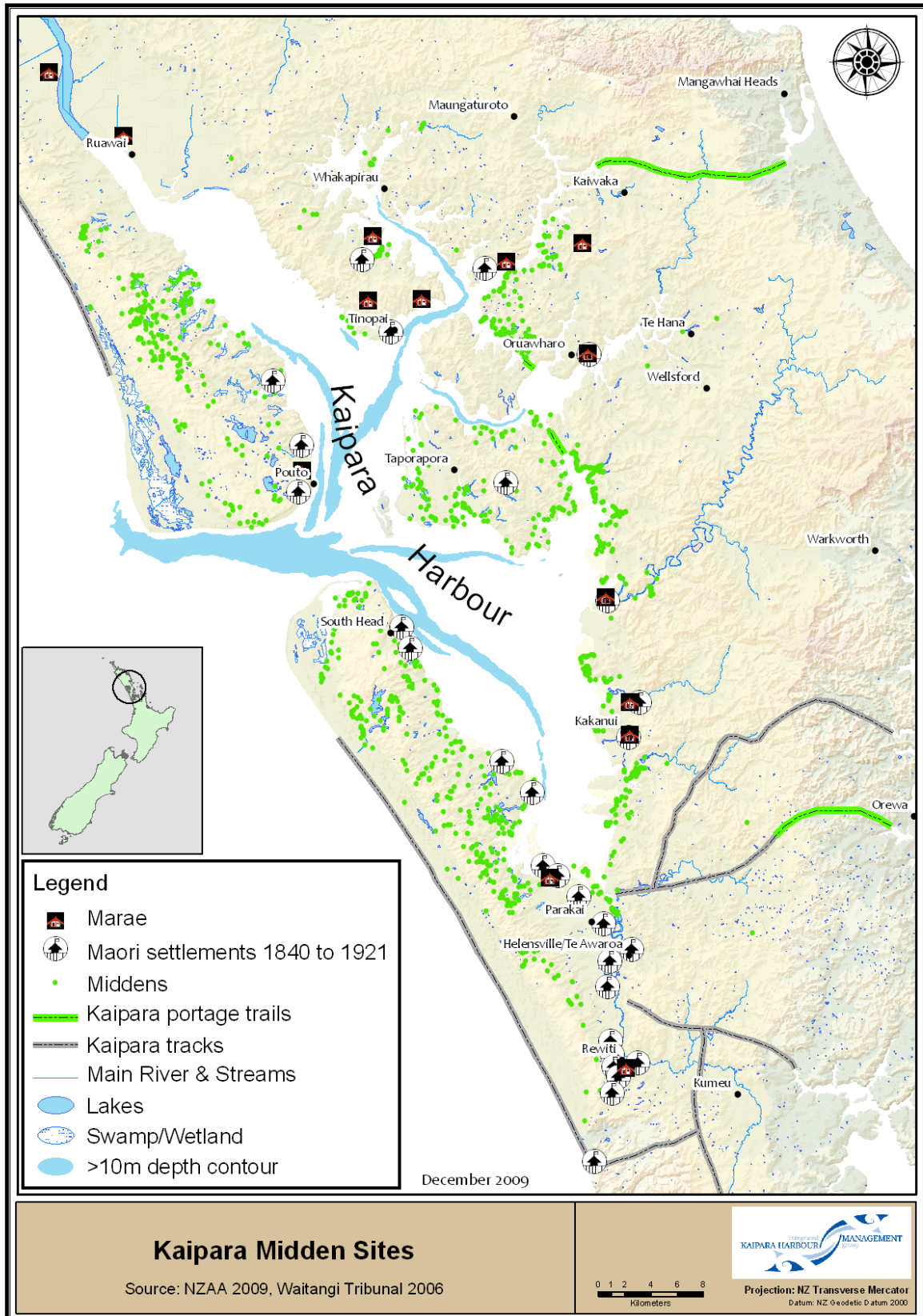
Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Kauri forest c. 1905	Region	Northland	AUT	Y	Polygon	Y	Spatial	D:/GIS/Matauranga Maori	The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz. Figure 10: The kauri trade. The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz. Figure 10: The kauri trade. Source Malcom McKinnon, ed, Bateman New Zealand Historical Atlas: Ko Papatuanuku e Takoto Nei (Auckland: David Bateman and Department of Internal Affairs, 1997), pl 48, and Wayne Ryburn, Tall Spars, Steamers and Gum: A History of the Kaipara from Early European Settlement, 1854-1947 (Auckland: Kaipara Publications, 1999), pp 219-221.		

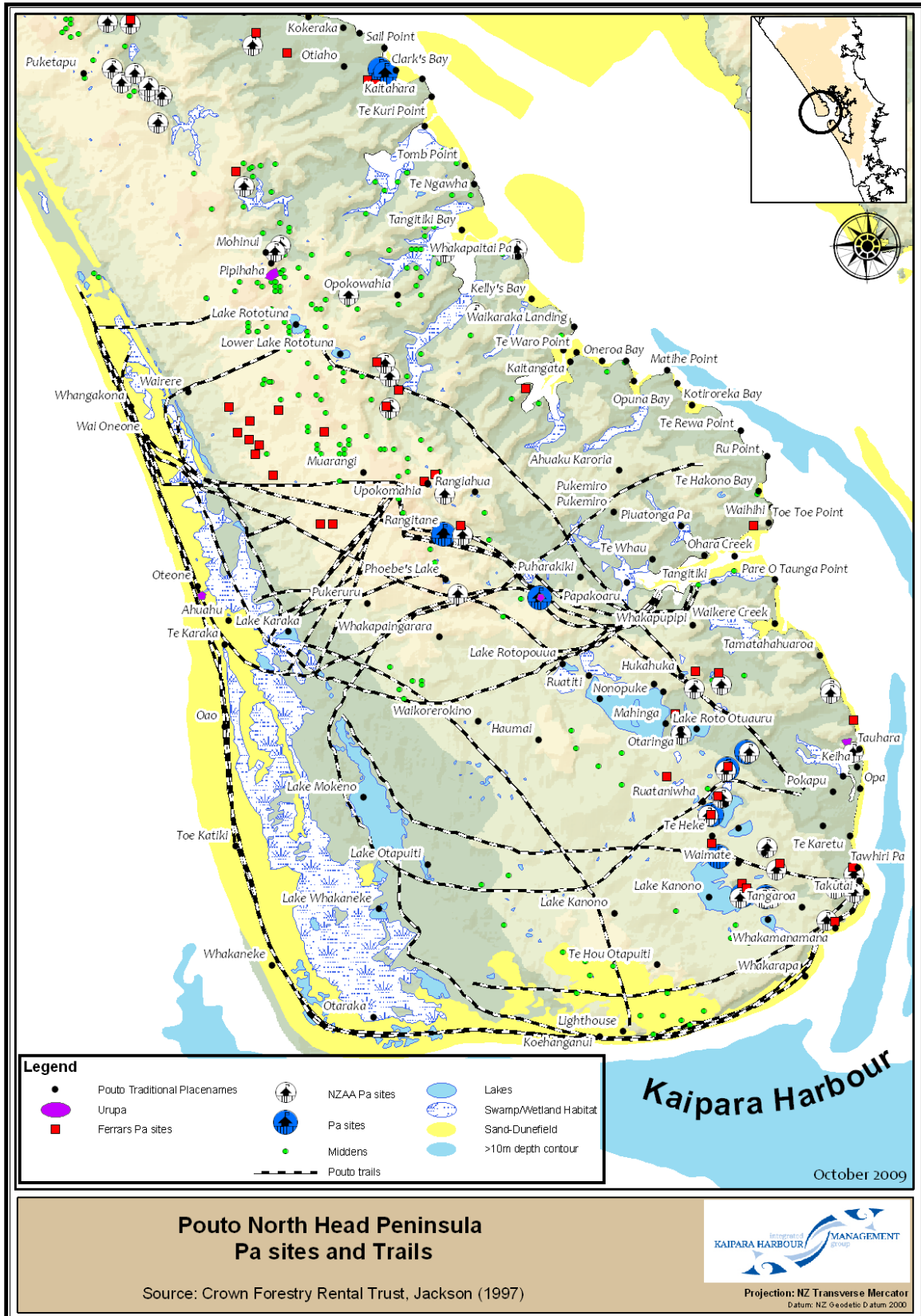
Dataset/Layer	Scale of Use	Extent	Owner/ Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E- copy	Status of Publication
Timber mills c. 1905	Region	Northland	AUT	Y	Point	Y	Spatial	D:/GIS/Matauranga Maori	The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 10: The kauri trade. The Kaipara Report. Chapter 2: The Land and People of Kaipara. Downloaded from www.waitangitribunal.govt.nz . Figure 10: The kauri trade. Source Malcom McKinnon, ed, Bateman New Zealand Historical Atlas: Ko Papatuanuku e Takoto Nei (Auckland: David Bateman and Department of Internal Affairs, 1997), pl 48, and Wayne Ryburn, Tall Spars, Steamers and Gum: A History of the Kaipara from Early European Settlement, 1854-1947 (Auckland: Kaipara Publications, 1999), pp 219-221.		

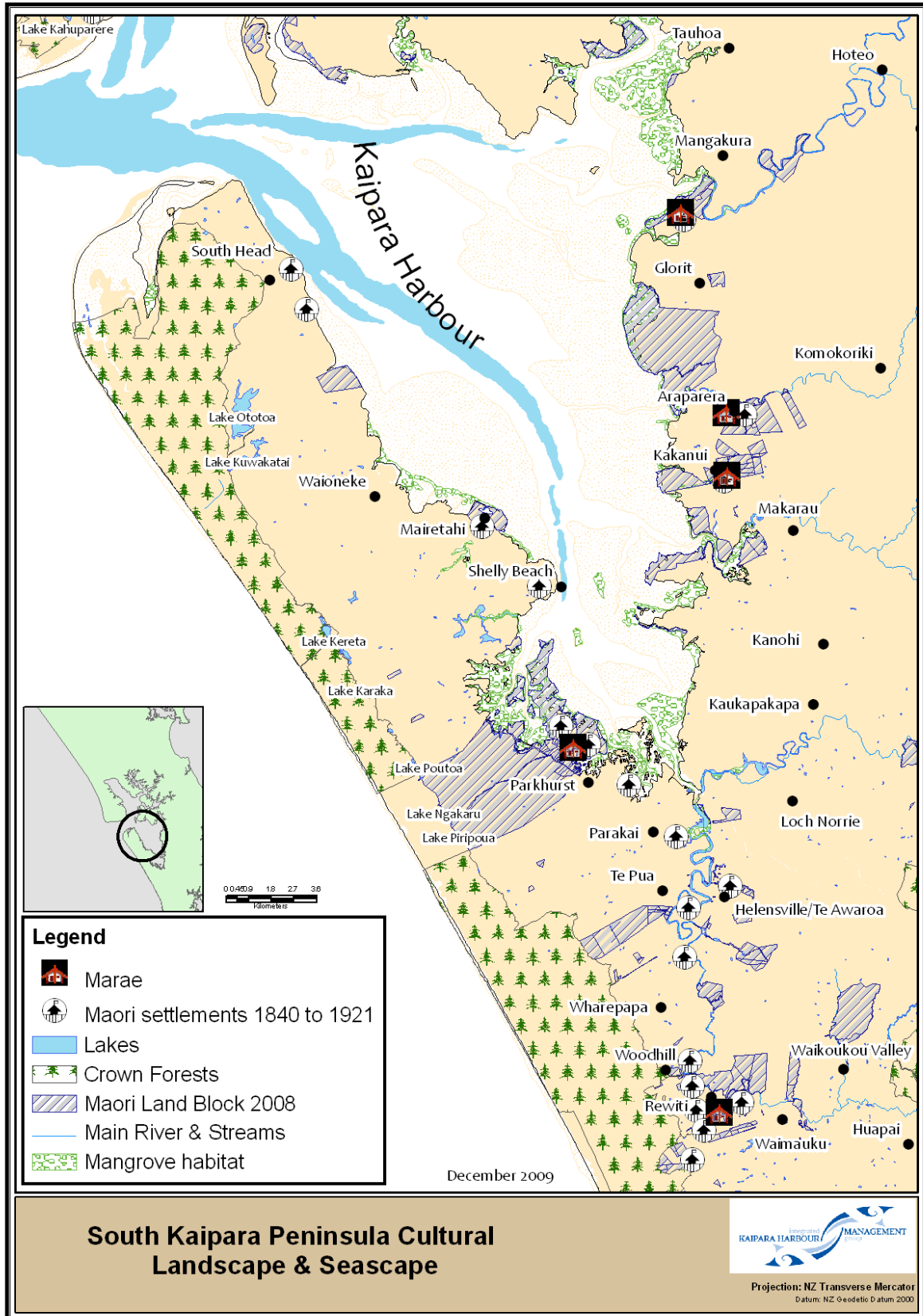


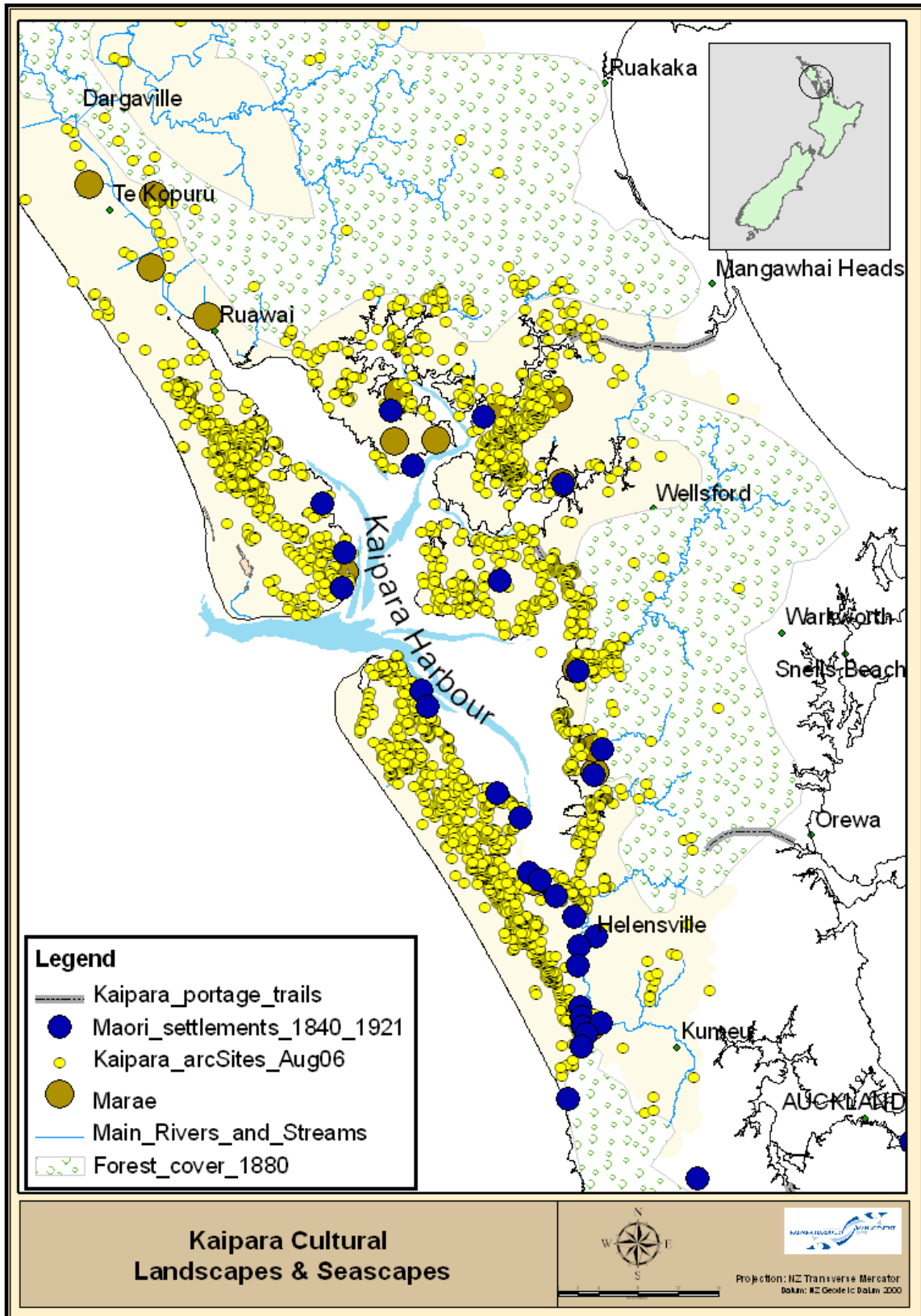












SOCIO-ECONOMIC DATA

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
South Head Landcare Restoration Sites	Local	South head	South head Landcare	N		N	Occurrence	Fencing, vegetation type, pests. Operate on South Head restoring riparian vegetation.			
Wai care Auckland stream sites	Regional	southern Kaipara catchment	ARC	N		N	Occurrence	Sarah Stead Environmental Education Coordinator Rodney District Council 50 Centreway Road Private Bag 500 Orewa Ph: (0800) 426 5169 DDI: (09) 4273386 FAX: (09) 4260219 Email: sarah.stead@rodney.govt.nz	Waicare		
DoC Public conservation land	National	Kaipara catchment	DoC	Y	Polygon	Y	Spatial	Conservation land. D:/GIS/Catchment Features/Protected Areas. Received 2007. Downloaded recent files from Koordinates June 2010.			
Regional Parkland	Regional	southern Kaipara catchment	ARC	Y	Polygon	Y	Spatial	Area of regional parks. D:/GIS/Arc_Kaipara/Shapefiles			
QEII Covenants	Regional	Kaipara catchment	QEII Trust	Y	Polygons	Y	Spatial	Data includes QEII covenant number, date of creation into QEII registry. Reminder notices from QEII regarding new verisons of database.			
Community Pest Control Areas	Regional	northern Kaipara catchment	NRC	Y	Polygons	Y	Spatial	Community Pest Control Areas located at Oneriri, Petley Road, Te Kuri, Takahoa Bay, Maungaraho Rock	NRC		

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
								Location of community pest control areas which have been established by a community-NRC agreement to control pests, weeds and other restoration strategies (e.g. fencing).			
Marine ecoregions	National	National	DoC/ Mfish	Y	Polygons, lines	Y	Spatial	Marine ecoregions for MPA network dvlpmt			
RDC Covenants/Bushlots	Local	Rodney District	RDC	Y	Polygons	Y	Spatial	RDC Covenants or bushlots - bush, wetland, riparian margin types			
Consented Discharge to Land	Regional	Northland	NRC	Y	Points	Y	Spatial	Resource consent for discharge to land			
Consented Discharge to Water	Regional	Northland	NRC	Y	Points	Y	Spatial	Resource consent location for discharge to water			
Farm Dairy Effluent	Regional	Northland	NRC	Y	Points	Y	Spatial	Farm Dairy Effluent loations. Area description and other pertinent information. D:/GIS/VectorData/FinalShapes.			
NRC Environmental Fencing Fund	Regional	Northland	NRC	Y	Points	Y	Spatial	Location of NRC Environmental Fencing Fund projects in the Kaipara. Received May 2009.			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Resource Consents to land & water Kaipara River	Local	Kaipara River	ARC	Y	Points	Y	Spatial	Attributes include location on river, type of discharge (e.g. farm, industrial etc). Contact was Rachael Anderson ARC.			
Resource Consents to land & water - southern Kaipara subcatchments	Local	Kaipara River	ARC	Y	Points	Y	Spatial	Attribute information includes: catchment name, sewage mgmt area, activity type (e.g. sewage discharge, coastal structure, stream work), stock numbers.			
Kumeu-Kaipara River catchment plan	Local	Kumeu-Kaipara River	RDC	Y	Polygons, points	N	Spatial	Maps	OPUS. 2007. Kumeu Kaipara River Catchment Mgmt Plan	Y	Completed & Report produced
Lake Ototoa water quality	Local	Lake Ototoa	ARC	N		N	Occurrence	Water quality since 1988 (4-6 samples/yr). ongoing sampling. in-lake monitoring instruments (T & DO). weather station data	ARC 2006. Lake Ototoa Limnological assessment recent conditions & trends	Y	Completed
ARC Water Quality monitoring sites	Regional	southern Kaipara	ARC	N	Points	N	Occurrence	Locations for monitoring include: Hoteo River, Kumeu River, Kaipara River, Kaukapakapa River, Araimu River. Monitoring for rainfall, flow, water quality. Map reference Q10:497905. LT monitoring since June 1986 Water quality for one site in Hoteo & Kumeu rivers. Also other auckland rivers/streams.	ARC 2003. Annual Report - baseline water quality survey of the Auckland region, Jan-Dec 2002. ARC Technical Publication 207. Produced by Wilcock, R. J. and Martin, M. L. (NIWA,Hamilton). Scarsbrook. 2007. River water quality. State & Trends in the Auckland Region..	Y	Completed

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
								Summarise data between 1995-2005 Parameters include: DO, pH, SS, TURB, Temp, COND, Flow rate, Landuse, NH4, NO3-NO2, Faecal Coliforms			
ARC lake monitoring sites	Regional	Southern Kaipara catchment	ARC	Y	Point	N	Spatial/Occurrence	D:/GIS/ARC_Kaipara. Lat/Long acquired from reports.			
ARC saline monitoring sites	Regional	southern Kaipara catchment	ARC	Y	Point	N	Occurrence	Shelly Beach marine monitoring site. Lat & long data acquired. Shapefile (point) created.			
NRC water quality monitoring sites	Regional	Northern Kaipara catchment	NRC	Y	Point	N	Occurrence	Lat & Long data acquired. Shapefile (Point) created to display monitoring sites for: tidal, flow, groundwater, water quality, rainfall.	Raw data analysed and presented in SoE reporting 2007. www.nrc.govt.nz		
NRC bathing & shellfish gathering monitoring sites	Regional	Northern Kaipara catchment	NRC	Y	Point	N	Occurrence	Lat & Long data acquired. Shapefile (Point) created to display monitoring sites for: saline bathing, shellfish gathering	Raw data analysed and presented in SoE reporting 2007. www.nrc.govt.nz		
Monitored Consented Discharges Sites (MCO)	Regional	Northland	NRC	Y	Points	N	Spatial/Occurrence	Water quality & compliance monitored resource consented sites; Description of water discharge type, status, area, and other pertinent information. D:/GIS/NRC/VectorData/FinalShapes			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Monitored Hydrometric non-consented sites (MNC)	Regional	Northland	NRC	Y	Points	N	Spatial/Occurrence	Water quality & compliance monitored at non-consented sites. Details on sampling sites, type of sample, other pertinent information. D:/GIS/NRC/VectorData/FinalShapes			
SIT coastal sampling	Regional	Northern Kaipara catchment	NRC	Y	Point	N	Spatial/Occurrence	Details on sampling sites given. D:/GIS/VectorData/FinalShapes. Lat/Long acquired.			
SIT water sampling	Regional	Northern Kaipara catchment	NRC	Y	Point	N	Spatial/Occurrence	Details on sampling sites give. D:/GIS/VectorData/FinalShapes. Lat/Long acquired.			
NRC beach profile sites	Regional	Kaipara north head	NRC	Y	Point	N	Occurrence	Lat/Long acquired. No raw data acquired.			
QMA Flatfish	National	National	Mfish	Y	Polygons	Y	Spatial	Quota Management Area (QMA) for Flatfish in New Zealand			
QMA Snapper	National	National	Mfish	Y	Polygons	Y	Spatial	Quota Management Area (QMA) for Snapper in New Zealand			
QMA Scallop	National	National	Mfish	Y	Polygons	Y	Spatial	Quota Management Area (QMA) for Scallop in New Zealand			

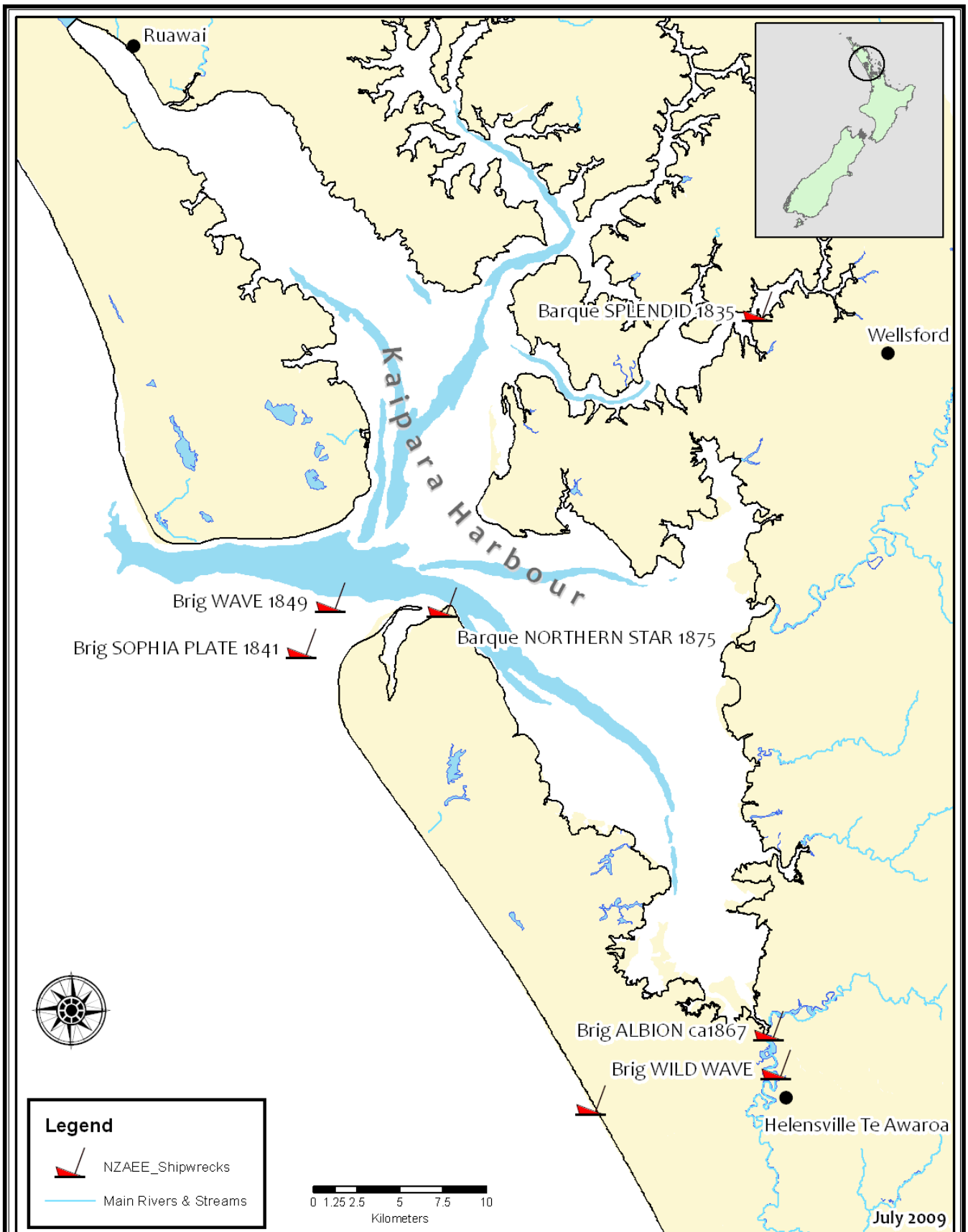
Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
QMA Grey Mullet	National	National	Mfish	Y	Polygons	Y	Spatial	Quota Management Area (QMA) for Grey Mullet in New Zealand			
QMA Rig	National	National	Mfish	Y	Polygons	Y	Spatial	Quota Management Area (QMA) for Rig in New Zealand			
Fisheries Management Areas (FMA)	National	National	Mfish	Y	Polygons	Y	Spatial	Fisheries Management Areas (FMA) in New Zealand			
Temporary Closure Scallop region	National	Kaipara	Mfish	Y	Polygons	Y	Spatial	Temporary closures for Kaipara harbour.			
Commercial Trawl Prohibition	National	West Coast	Mfish	Y	Polygons	Y	Spatial	Commercial fishing trawl prohibition area for entire Kaipara, entrance and just outside entrance			
Amateur Set Net Ban West Coast North Island	National	National	Mfish	Y	Polygons	Y	Spatial	Recreational & customary set net ban for west coast north island			
Commercial Set Net Prohibition	National	National	Mfish	Y	Polygons	Y	Spatial	Commercial fishing set net ban along west coast and into & through Kaipara entrance			
Territorial Land Authority Boundaries	National	National	NRC, ARC, DoC, LINZ	Y	Polygons, Lines	Y	Spatial	Territorial Land Authority (TLA) boundaries: Rodney, Kaipara, Northland RC, Auckland RC			
Roads	National	National	LINZ	Y	Lines	Y	Spatial	Road lines present in the Kaipara catchment			
Drains	National	National	LINZ	Y	Lines	Y	Spatial	Drains present in the Kaipara catchment			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Embankments	National	National	LINZ	Y	Lines	Y	Spatial	Embankments present in the Kaipara catchment			
Railway Tract	National	National	LINZ	Y	Lines	Y	Spatial	Railway tracks present in the Kaipara catchment			
Gas Pipeline	National	National	LINZ	Y	Lines	Y	Spatial	Gas pipeline present in the Kaipara catchment			
Powerline	National	National	LINZ	Y	Lines	Y	Spatial	Overhead power lines present in the Kaipara catchment			
Power Pylon	National	National	LINZ	Y	Points	Y	Spatial	Power pylons present in the Kaipara catchment			
Quarry	National	National	LINZ	Y	Polygons	Y	Spatial	Quarry present in the Kaipara catchment			
Te Uri o Hau Oyster reserves 300m buffer region	Local	Northern Kaipara	Mfish	Y	Polygon, Points	Y	Spatial	Te Uri o Hau oyster reserves, returned under settlement. D:/GIS/Fisheries/Mfish Kaipara Data		N	Ongoing
Recreational fishing density	Regional	Kaipara, west coast	Mfish	Y	Polygon	Y	Spatial	Density (per km ²) of recreational fishing vessels. D:/GIS/Fisheries			
Public Conservation Covenants	Regional	Northland	DoC	Y	Polygon	Y	Spatial	Conservation covenants across crown owned land, local and regional councils':/GIS/DoC Northland shapefiles			
Crest Energy proposed resource consent area	Local	Kaipara harbour entrance	AUT	Y	Polygon	Y	Spatial	D:/GIS/CREST			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
EEZ boundary	National	National	Mfish	Y	Lines	Y	Spatial	D:/GIS/NZ 12 mile limit/Coastline&Isobaths			
NZ 12 nautical mile	National	North Island	RDC, DoC	Y	Lines	Y	Spatial	D:/GIS/NZ 12 mile limit			
NZ Deprivation Index 2001	Catchment	Kaipara	NZ Statistics, CFRT	Y	Polygons	Y	Spatial	Index uses census data: income, employment status, support, qualifications, owned home, living space, communication, transport. D:/GIS/Census Data/Mesh Block Data 2001 Kaipara		N	Completed
NZ Deprivation Index 2006	Catchment	Kaipara	NZ Statistics	Y	Polygons	Y	Spatial	Joined raw data to NZDep Index 2001. D:/GIS/Census Data/Mesh Block 2001_06_Kaipara Index uses census data from 2006: income, employment status, support, qualifications, owned home, living space, communication, transport.	Salmond et al 2008. NZ Dep Index 2006 Index of Deprivation User Manual	Y	Completed
Kaipara townships	National	Kaipara catchment	LINZ	Y	Point	Y	Spatial	Townships of catchment. D:/GIS/Catchment Features directory			
Boat ramp	National	National	LINZ	Y	Line	Y	Spatial	D:/GIS/nztm			
Wharf	National	National	LINZ	Y	Line	Y	Spatial	D:/GIS/nztm			
Roads	National	National	LINZ	Y	Line	Y	Spatial	D:/GIS/nztm			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
RDC District Plan Listed Significant Natural Areas	Local	Southern Kaipara catchment	RDC	Y	Polygon	Y	Spatial	D:/GIS/RDC Data/DP 2000 Significant Natural Areas			
Main Places & Townships	National	National	LINZ	Y	Point	Y	Spatial	Major cities of New Zealand. D:/GIS/778040 GIS Applications			
RDC Property Parcels	Local	Southern Kaipara catchment	RDC	Y	Polygon	Y	Spatial	Property parcels with information regarding parcel size, zoning, ownership. D:/GIS/RDC Data/Cadastral			
Kaipara District Plan	Local	Kaipara District	KDC	Y	Polygon, line, point	Y	Spatial	Categorizes landuse type. Are MapInfo files so need importing and changing to ArcMap. D:/GIS/KDC/Mdrive/District_Plan			
Southern Kaipara coast stock grazing areas	Local	Southern Kaipara coastline	RDC/ ARC	Y	Polygon	Y	Spatial/ Occurrence	Stock presence, stock impact, stock fenced, site name, vegetation type, grazing percentage. D:/GIS/Seabirds	Bellingham & Davis. 2008. Stock grazing impacts on estuarine vegetation in the southern Kaipara Harbour. April 2008. 32p.	Y	Completed
Sites of natural significance	Regional	Southern Kaipara catchment	ARC	Y	Polygon	Y	Spatial	Sites of natural significance identified under regional plans and policy:/GIS/Arc_Kaipara/Shapefiles			
NZAAE shipwrecks	Kaipara region	Kaipara region	LINZ	Y	Point	Y	Spatial	Sourced from RDC CHI (Cultural Heritage Inventory) D:/GIS/Archaeological sites			

Dataset/Layer	Scale of Use	Extent	Owner/Custodian	GIS Compatibility	Geometry	Raw Data	Database Type	Description, Databases & Relationships	Reference	E-copy	Status of Publication
Maritime sites	Kaipara harbour	Kaipara harbour	LINZ	Y	Point	Y	Spatial	Sourced from RDC CHI (Cultural Heritage Inventory) D:/GIS/Archaeological sites			

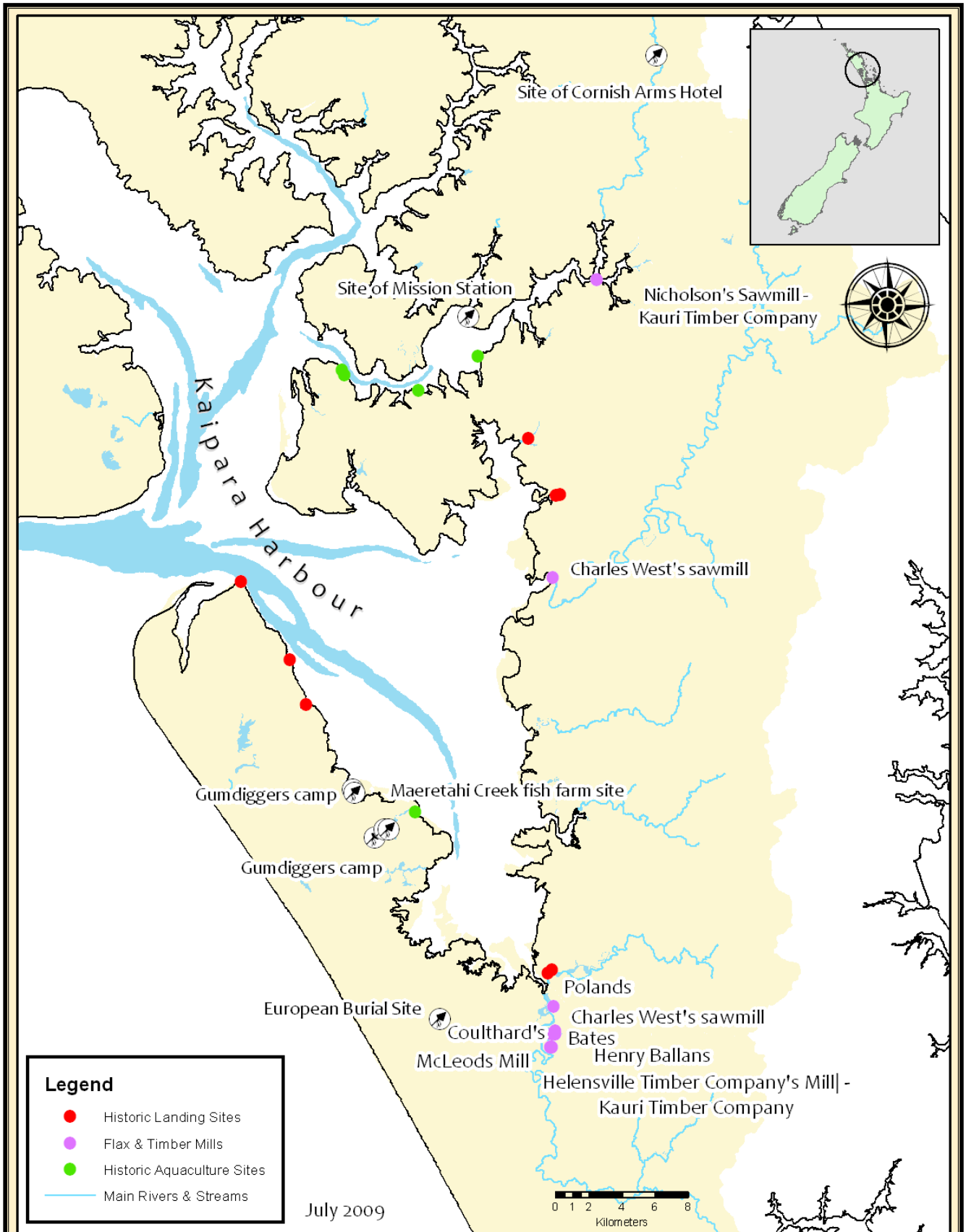


Known Kaipara Shipwrecks

Source: LINZ



Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000

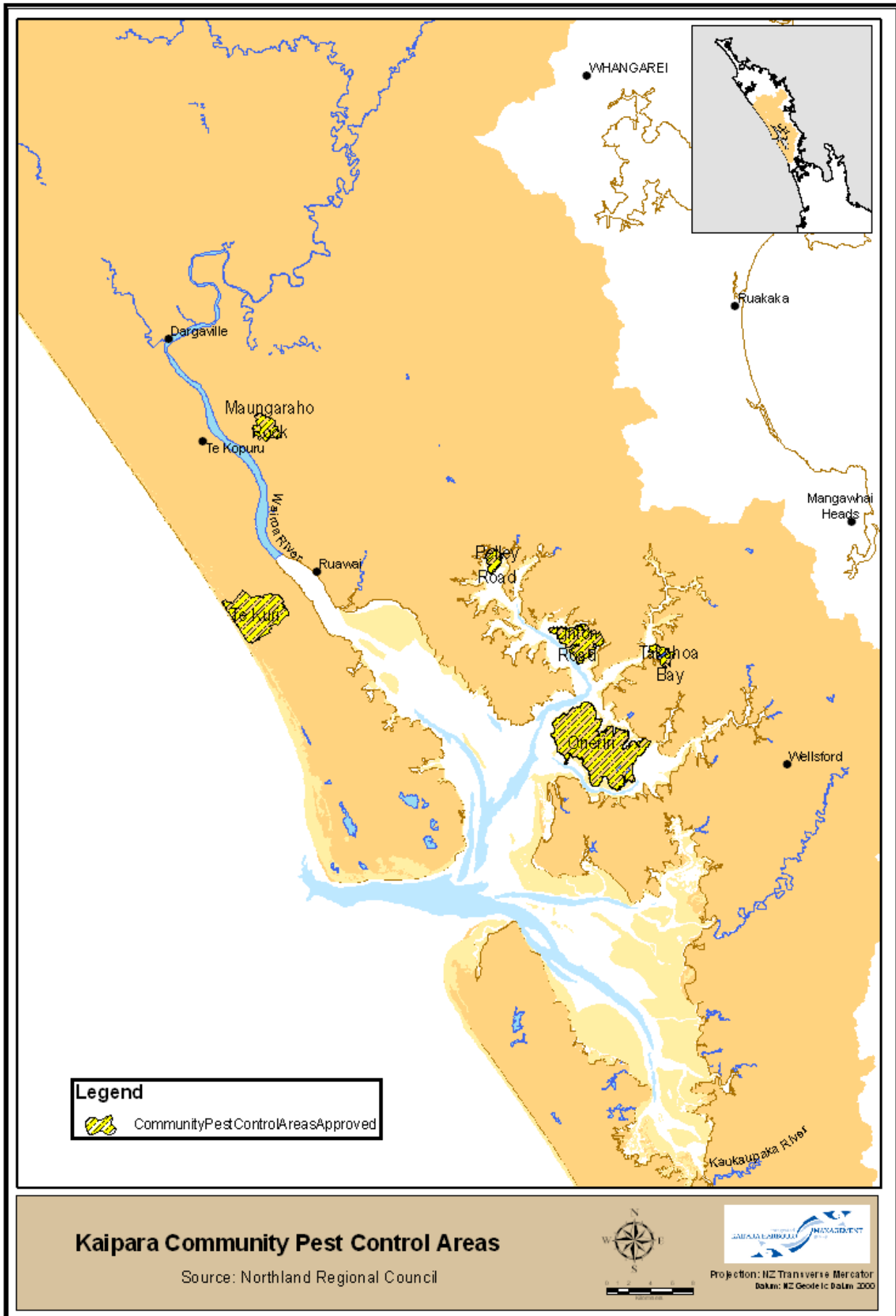


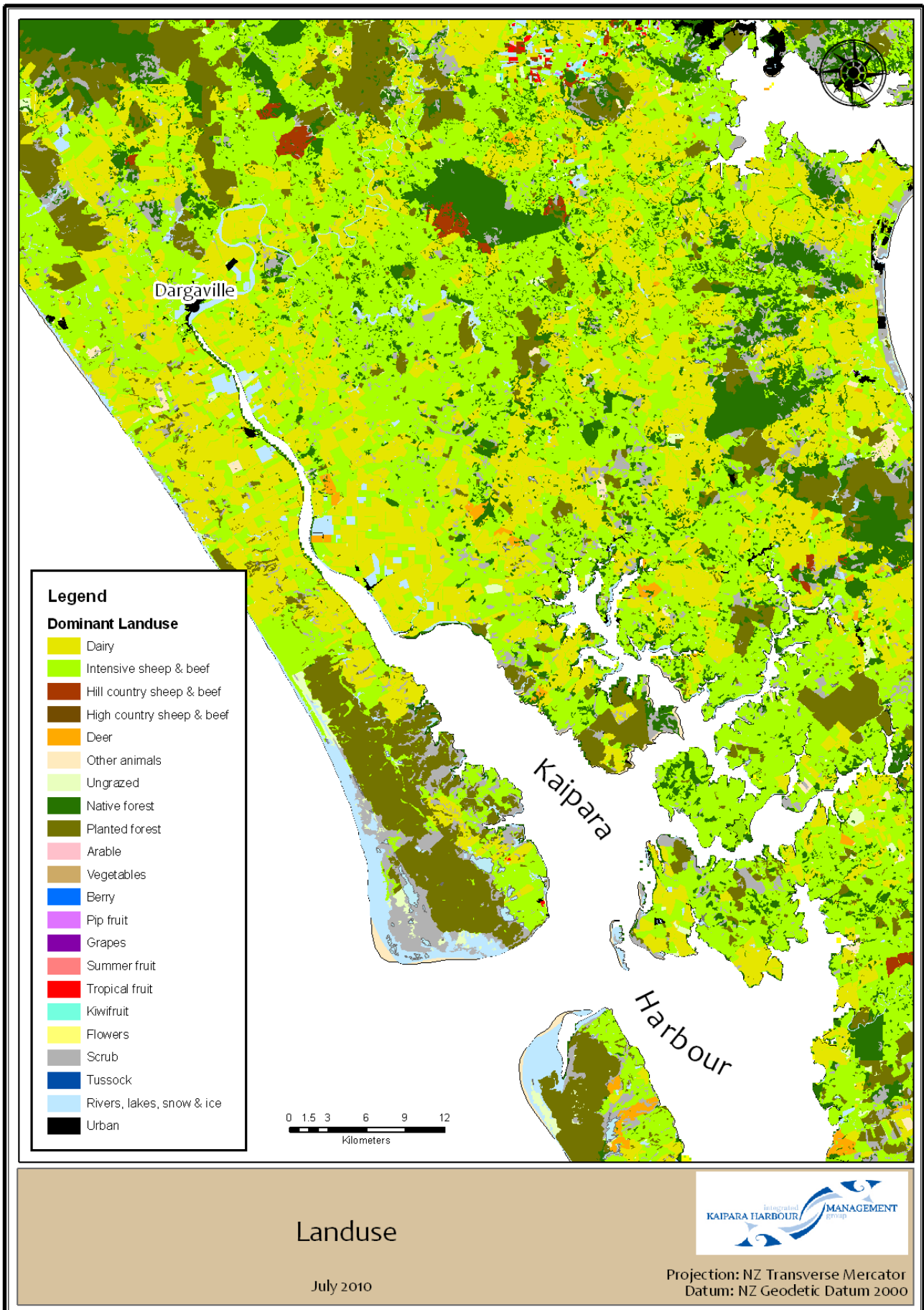
Examples of Kaipara Historic Sites

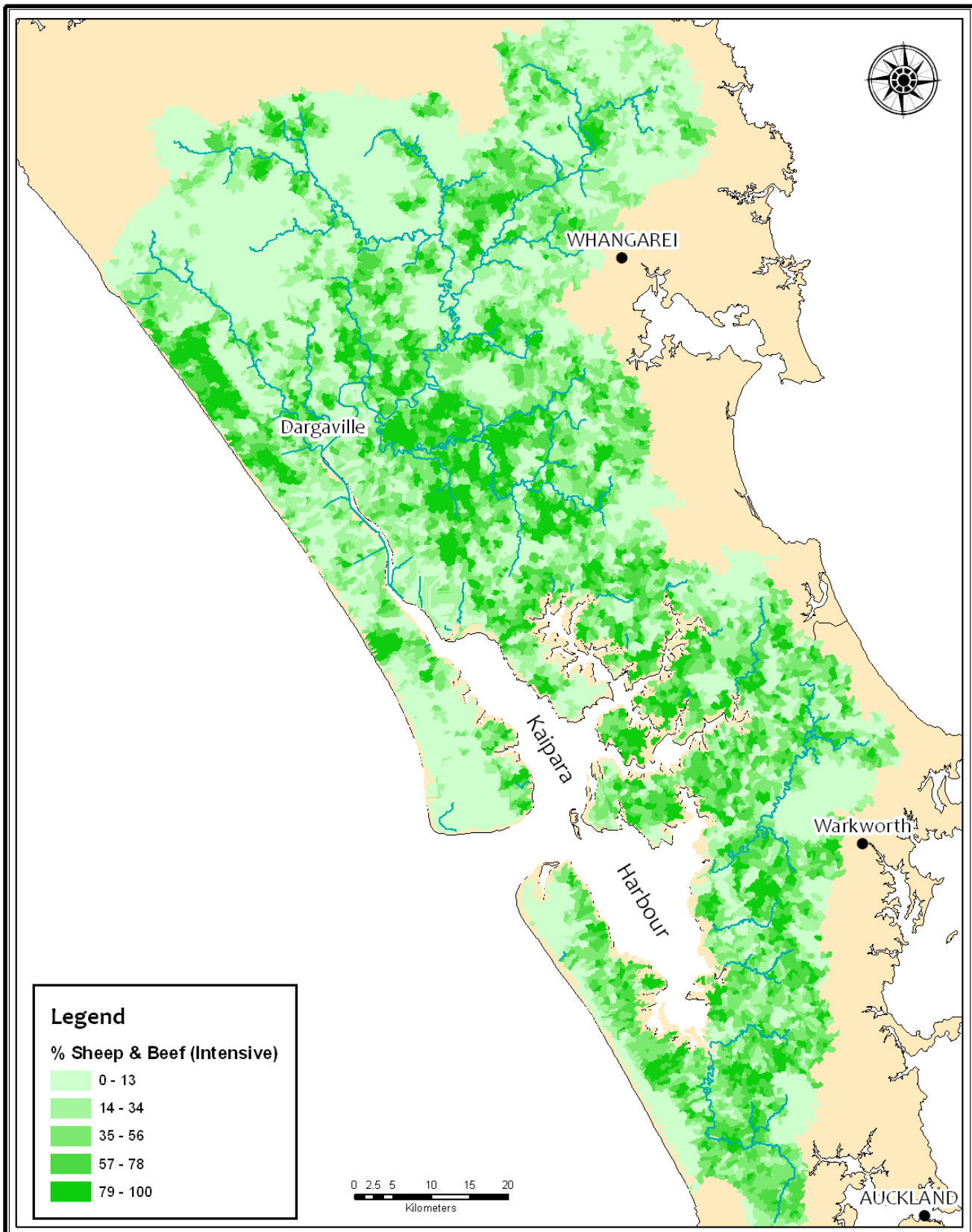
Source: LINZ



Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000





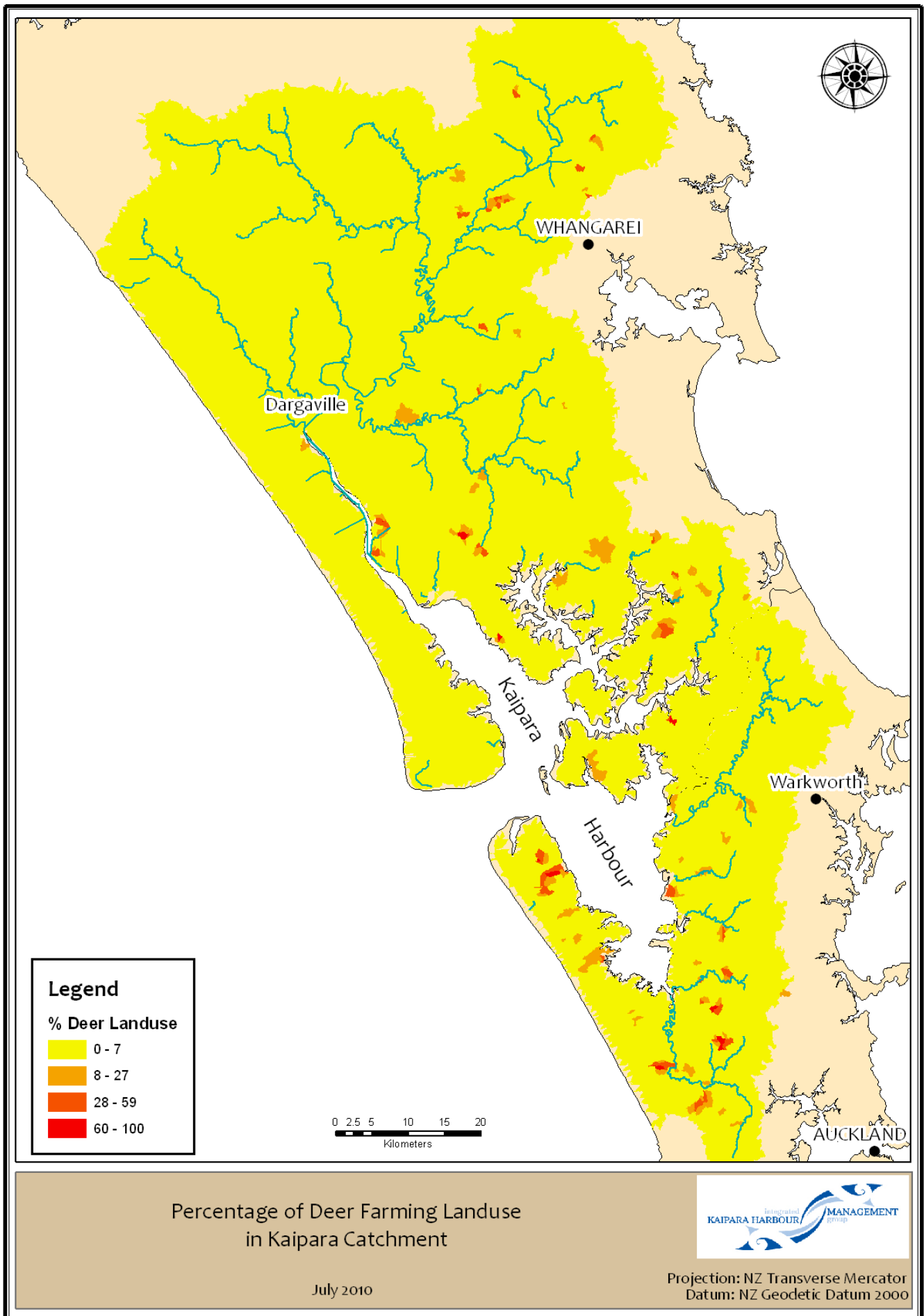


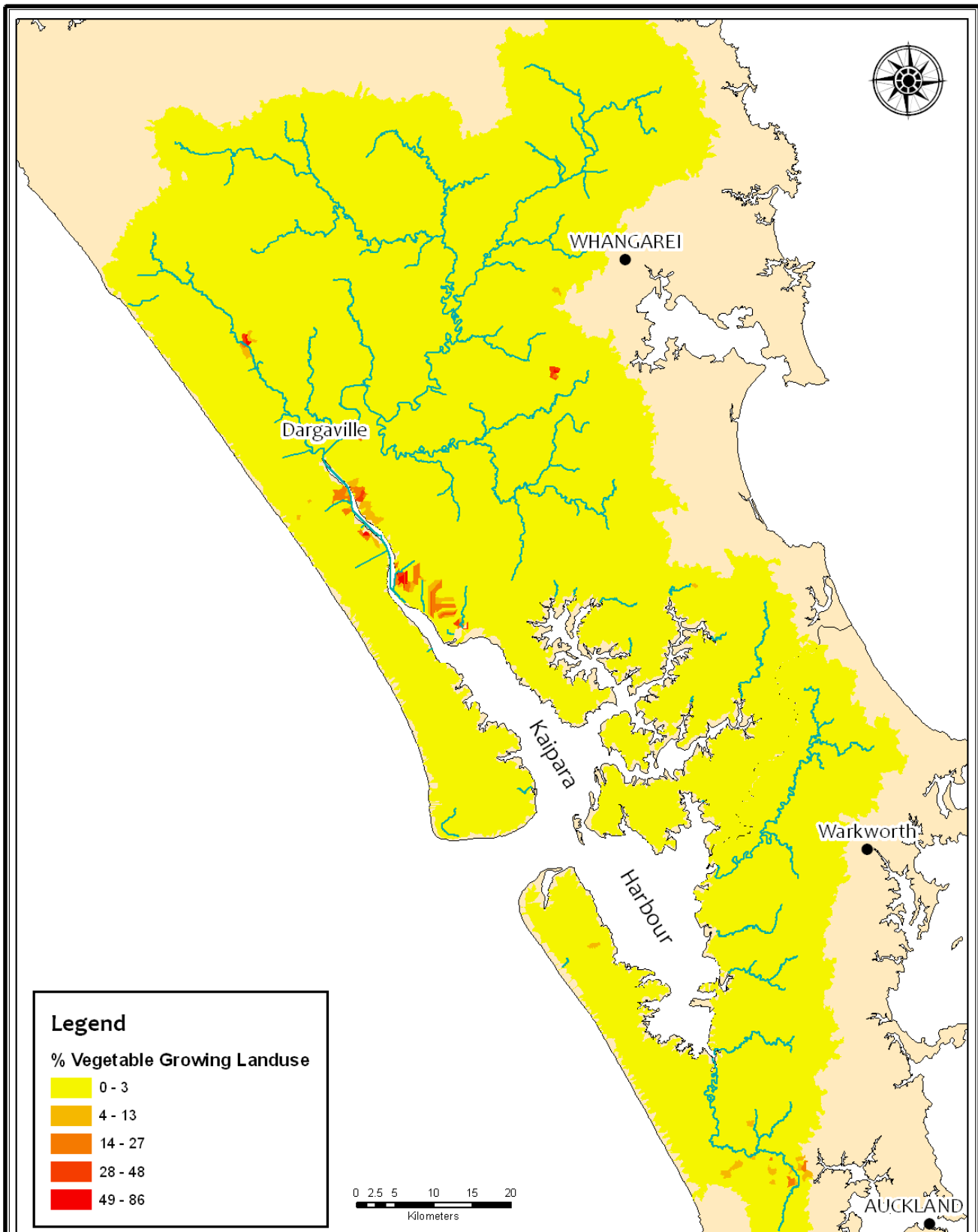
Percentage of Intensive Sheep and Beef Farming
in Kaipara Catchment

July 2010



Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000



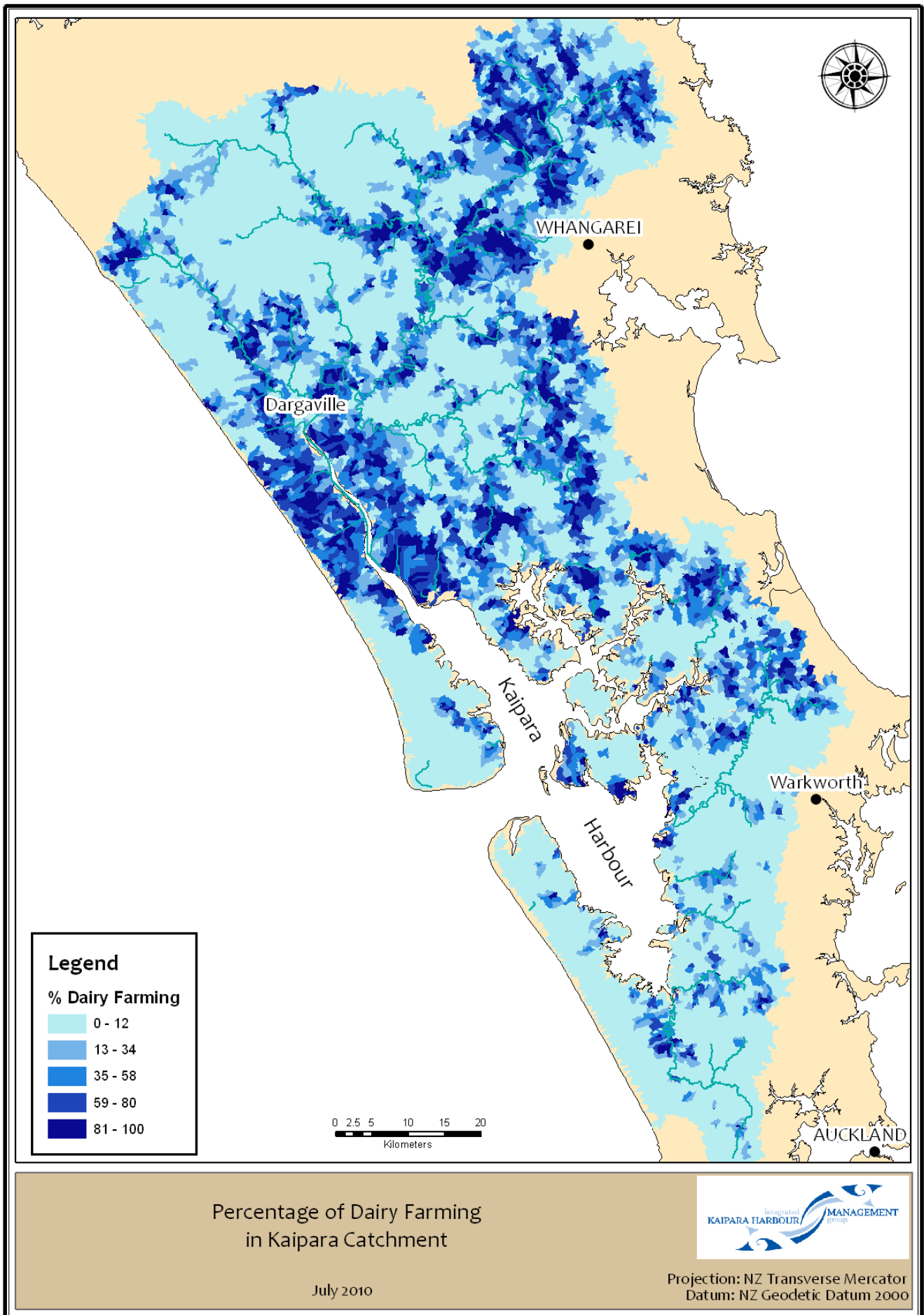


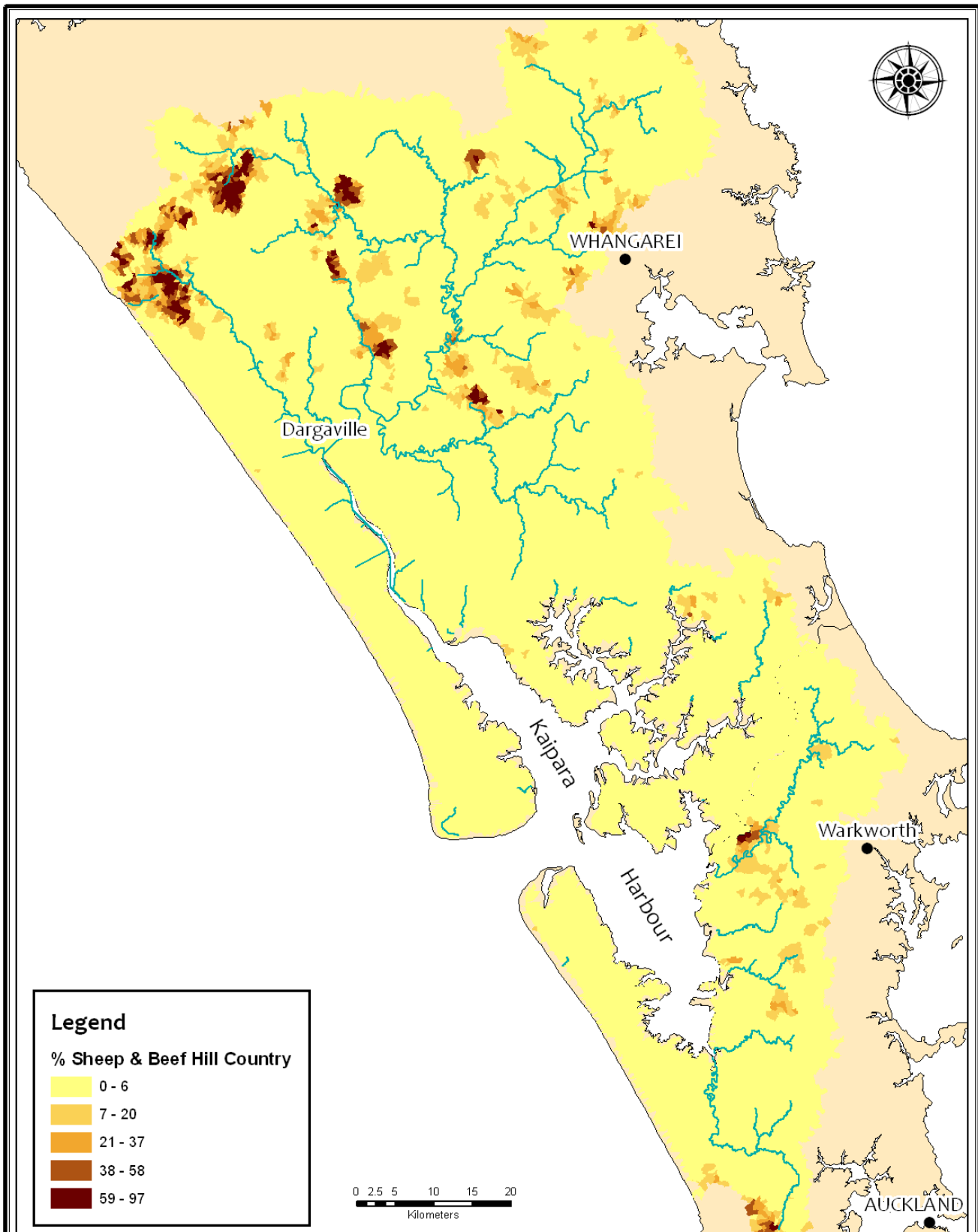
Percentage of Vegetable Growing Landuse
in Kaipara Catchment

July 2010



Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000



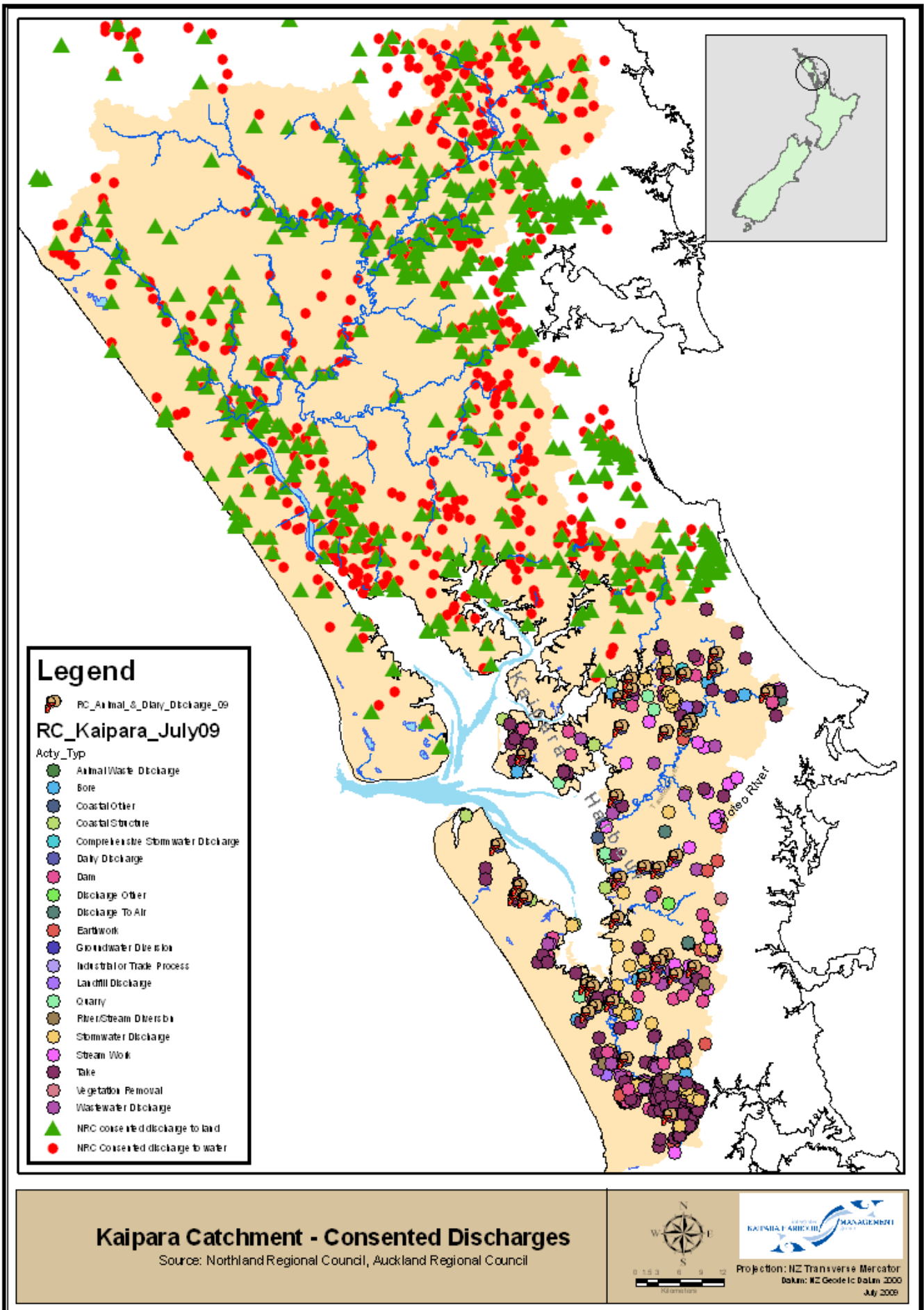


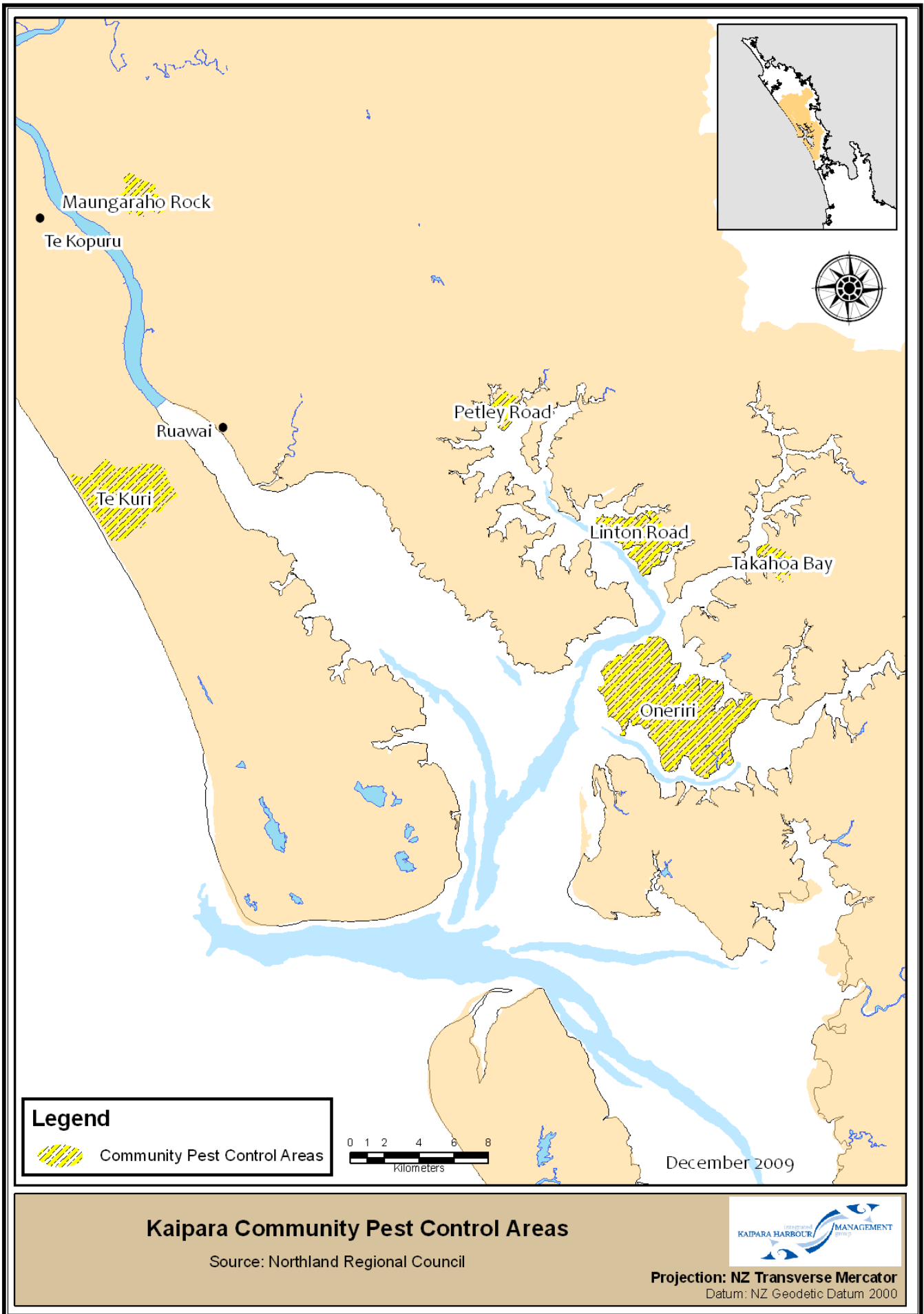
Percentage of Sheep and Beef Farming on Hill Country
in Kaipara Catchment



July 2010

Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000



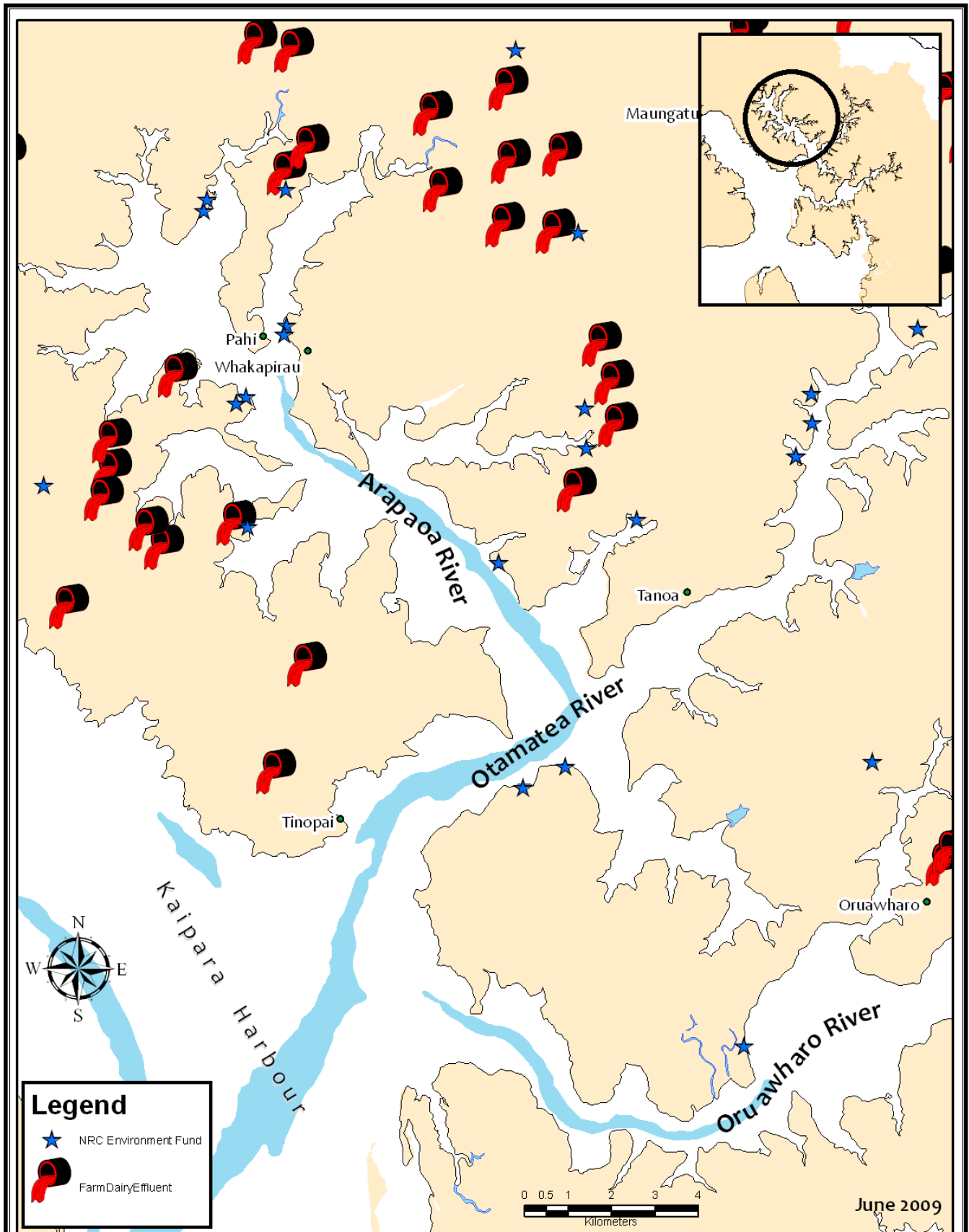


Kaipara Community Pest Control Areas

Source: Northland Regional Council



Projection: NZ Transverse Mercator
Datum: NZ Geodetic Datum 2000

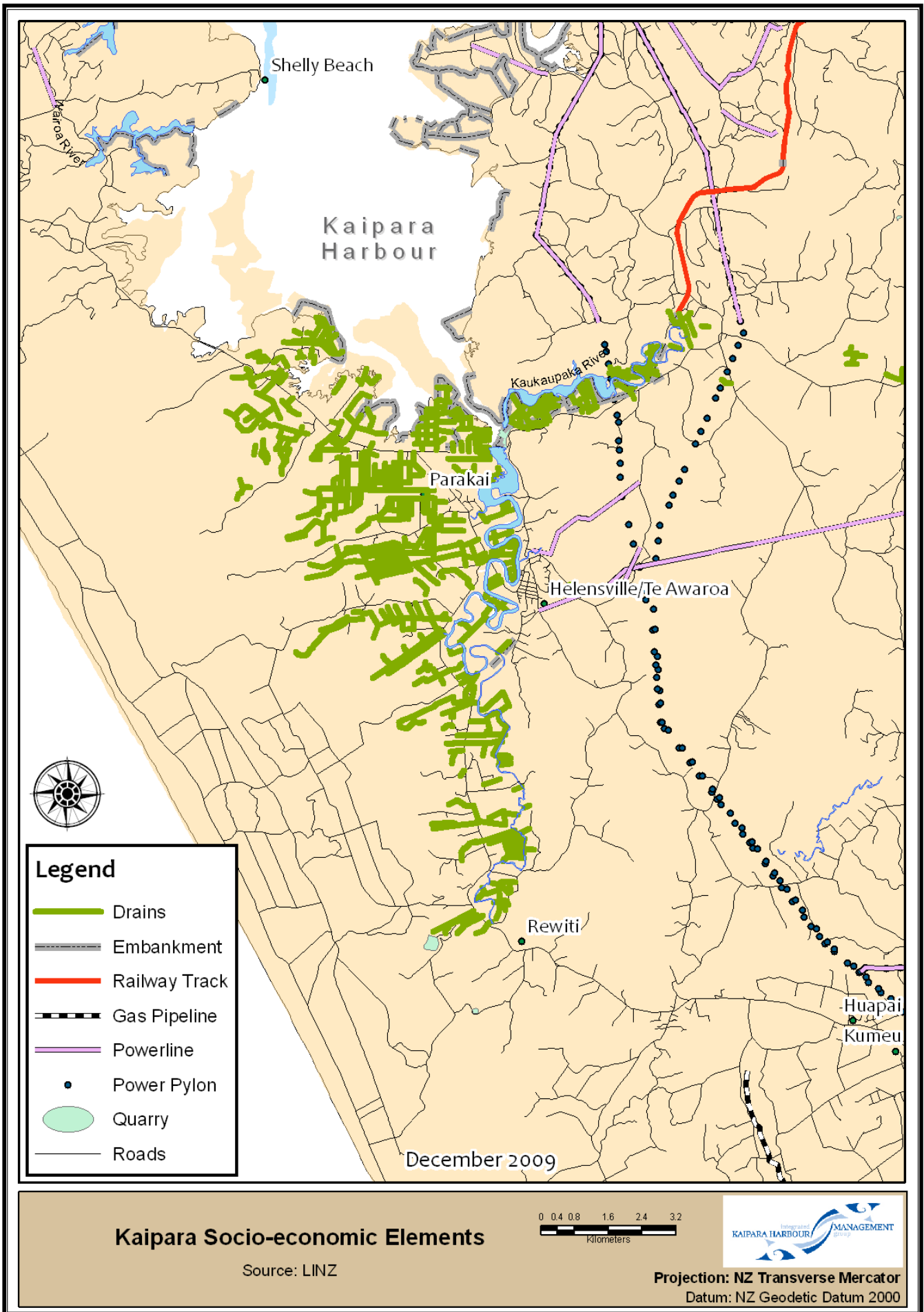


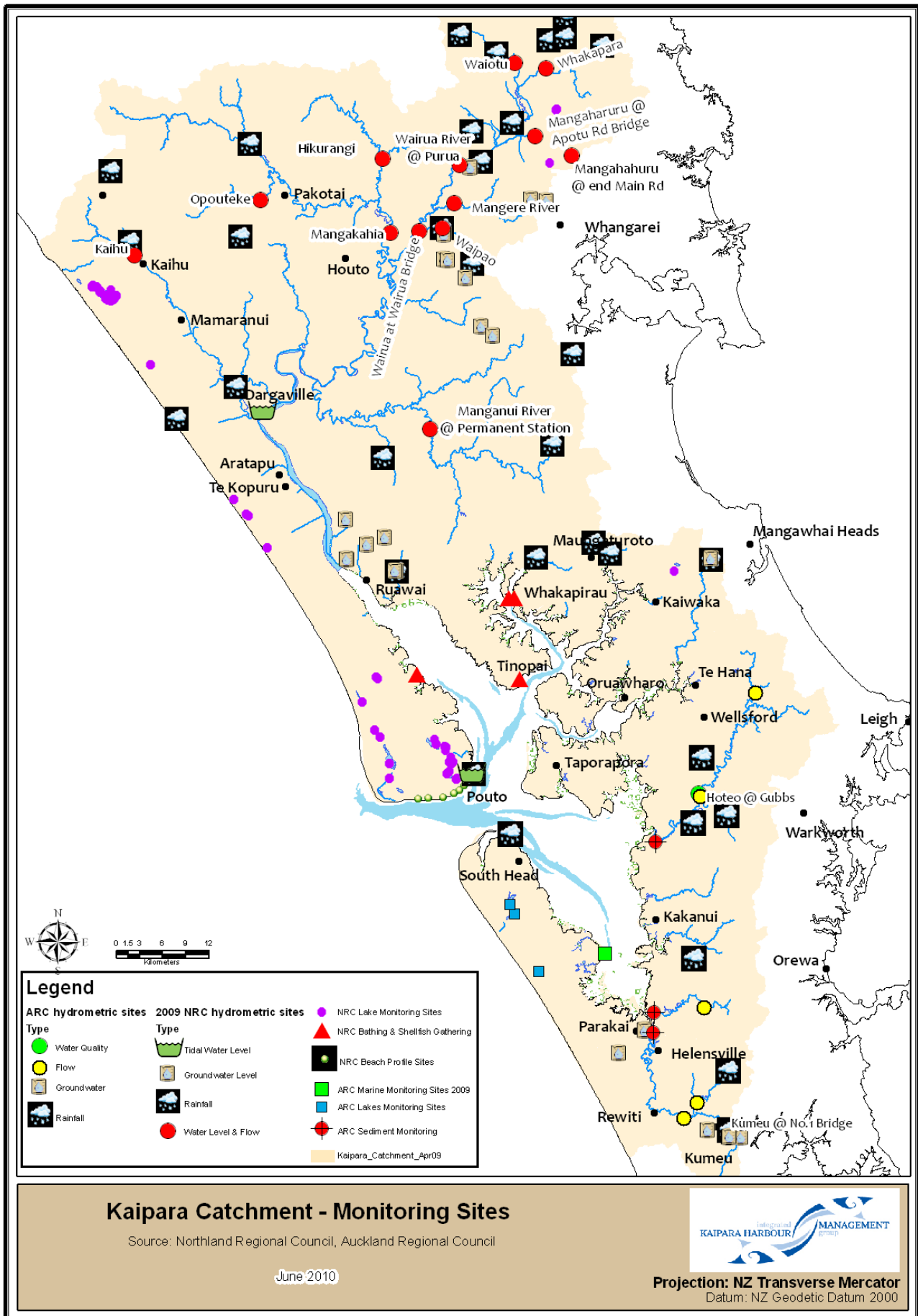
Kaipara Catchment - Location of Dairy Farm Discharge & NRC Environmental Fencing Fund

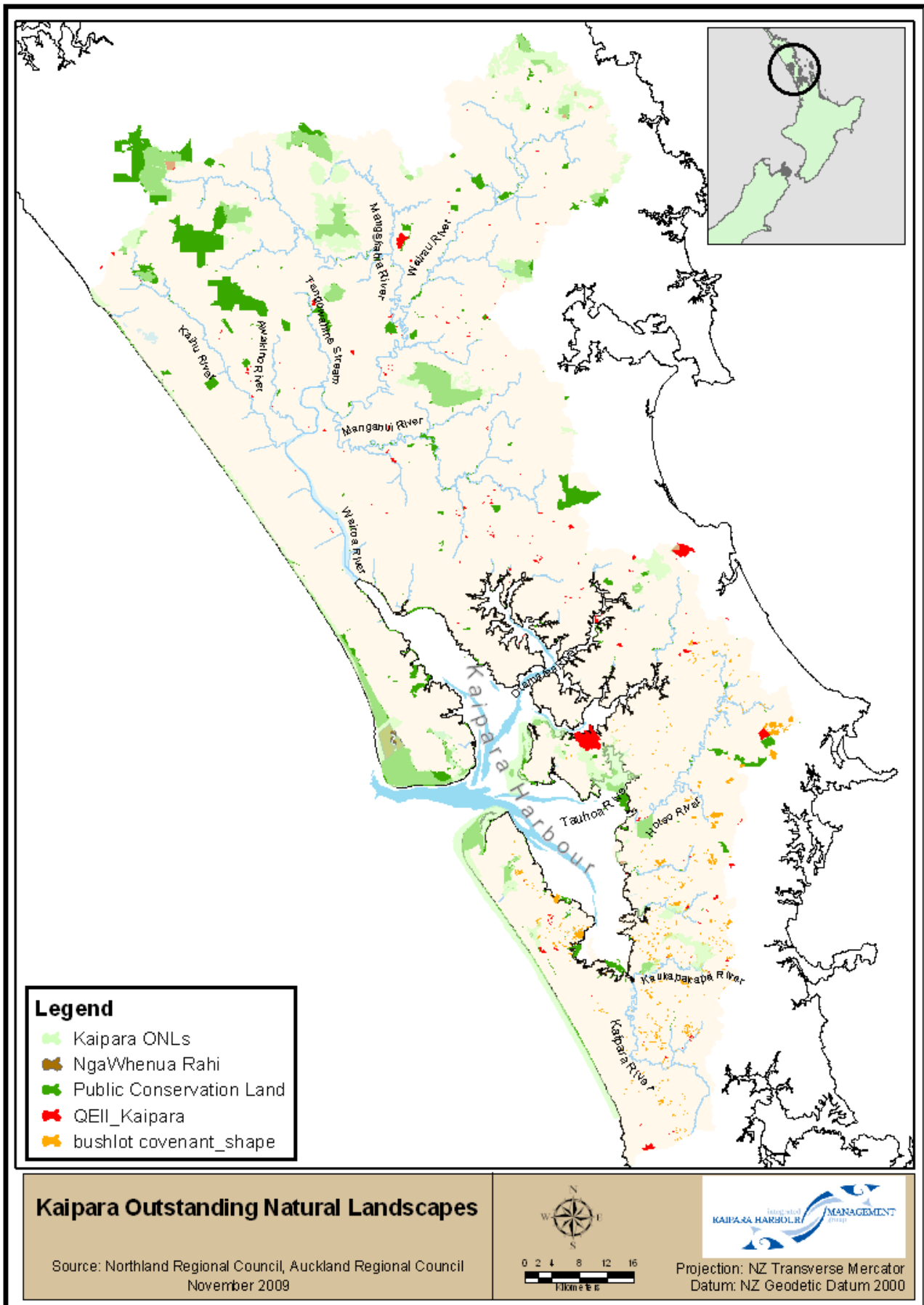
Source: Northland Regional Council

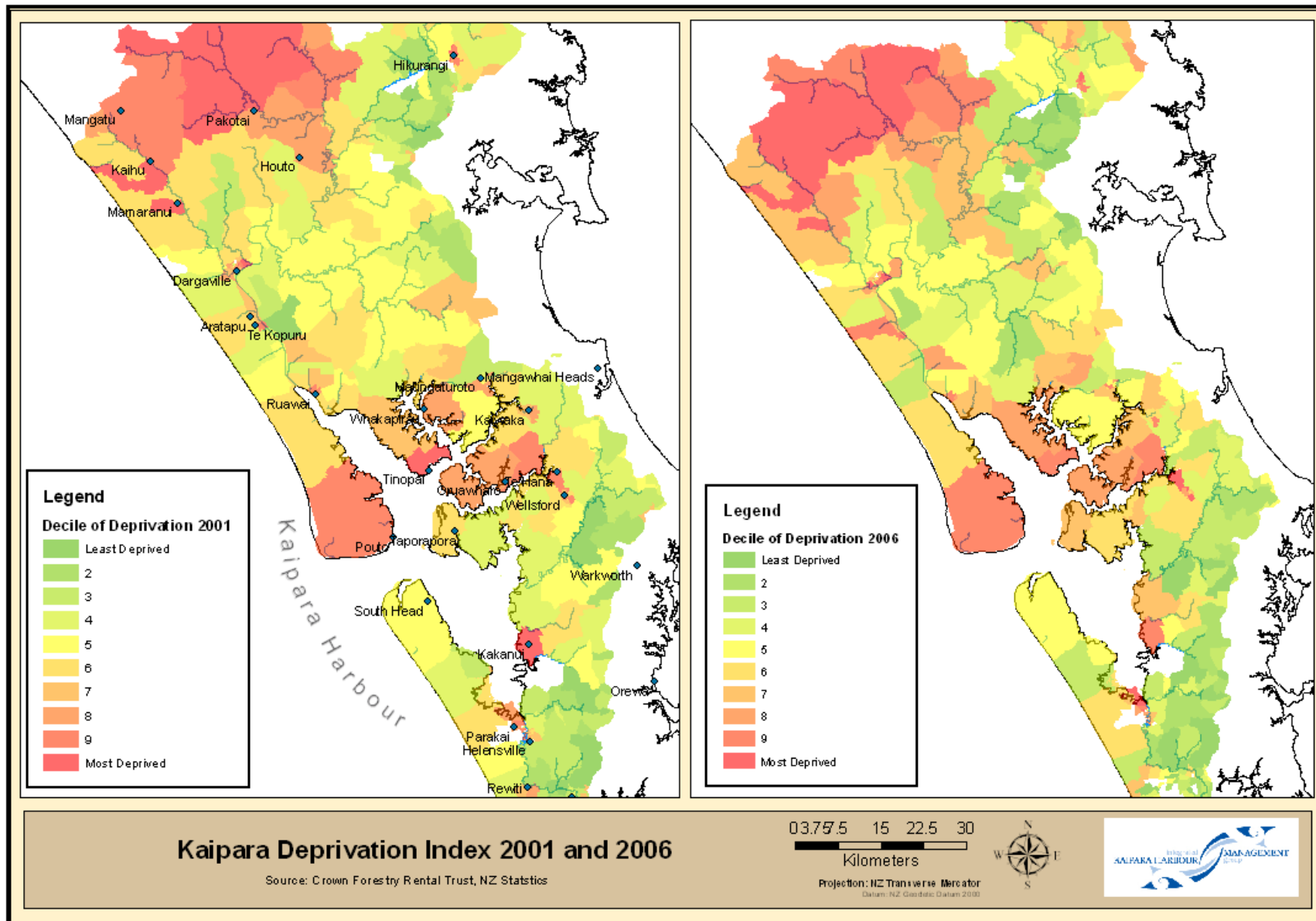


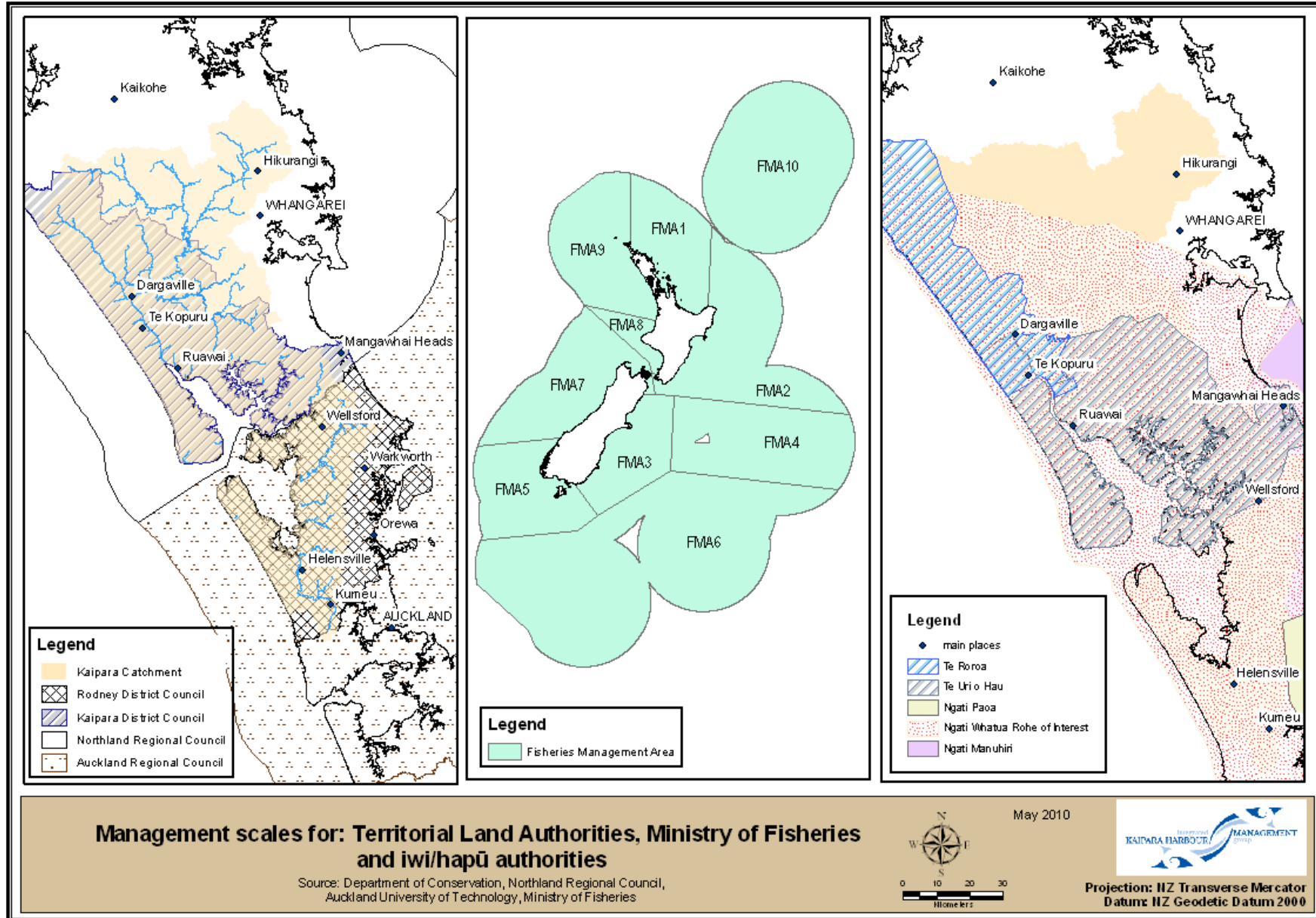
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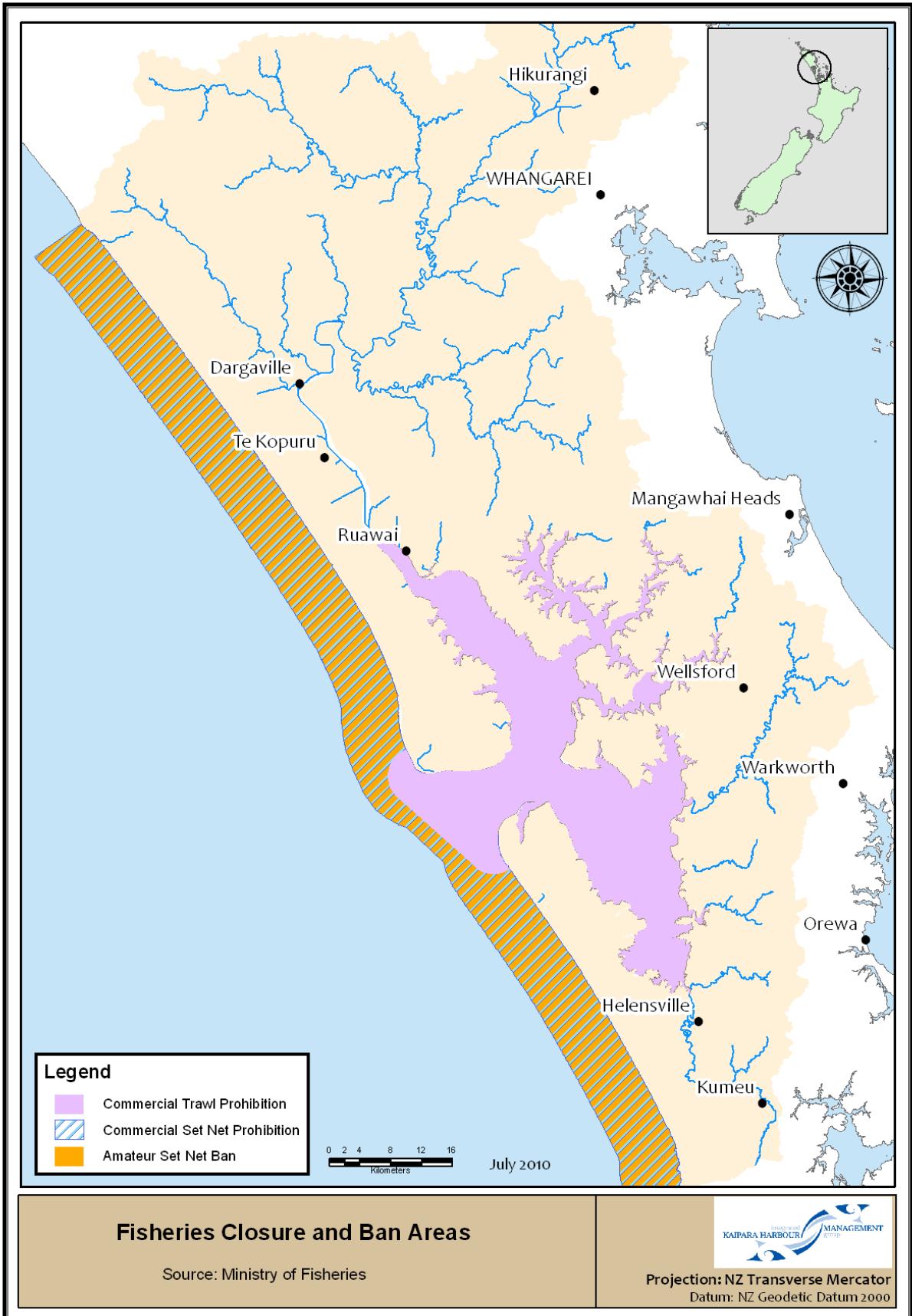


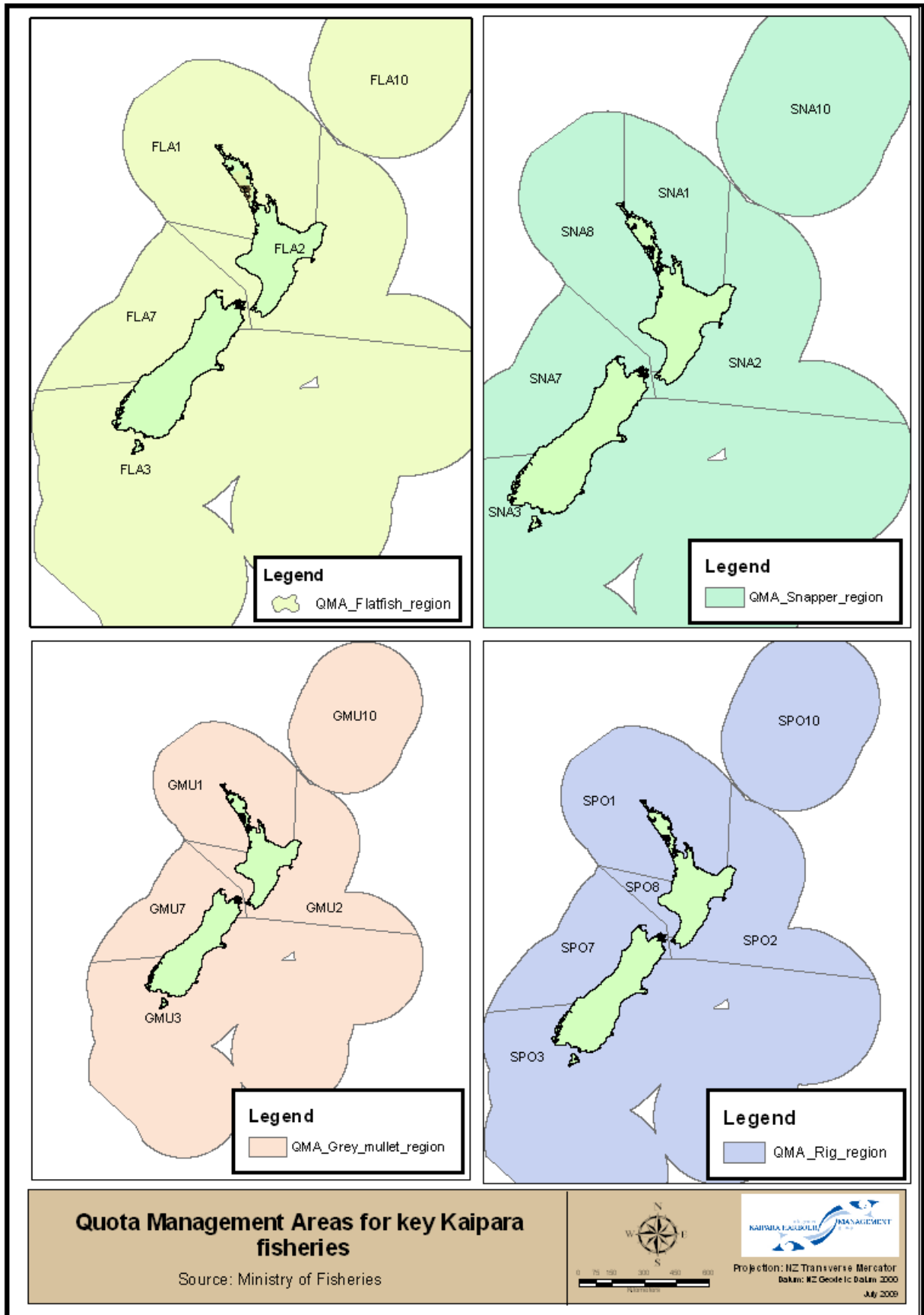


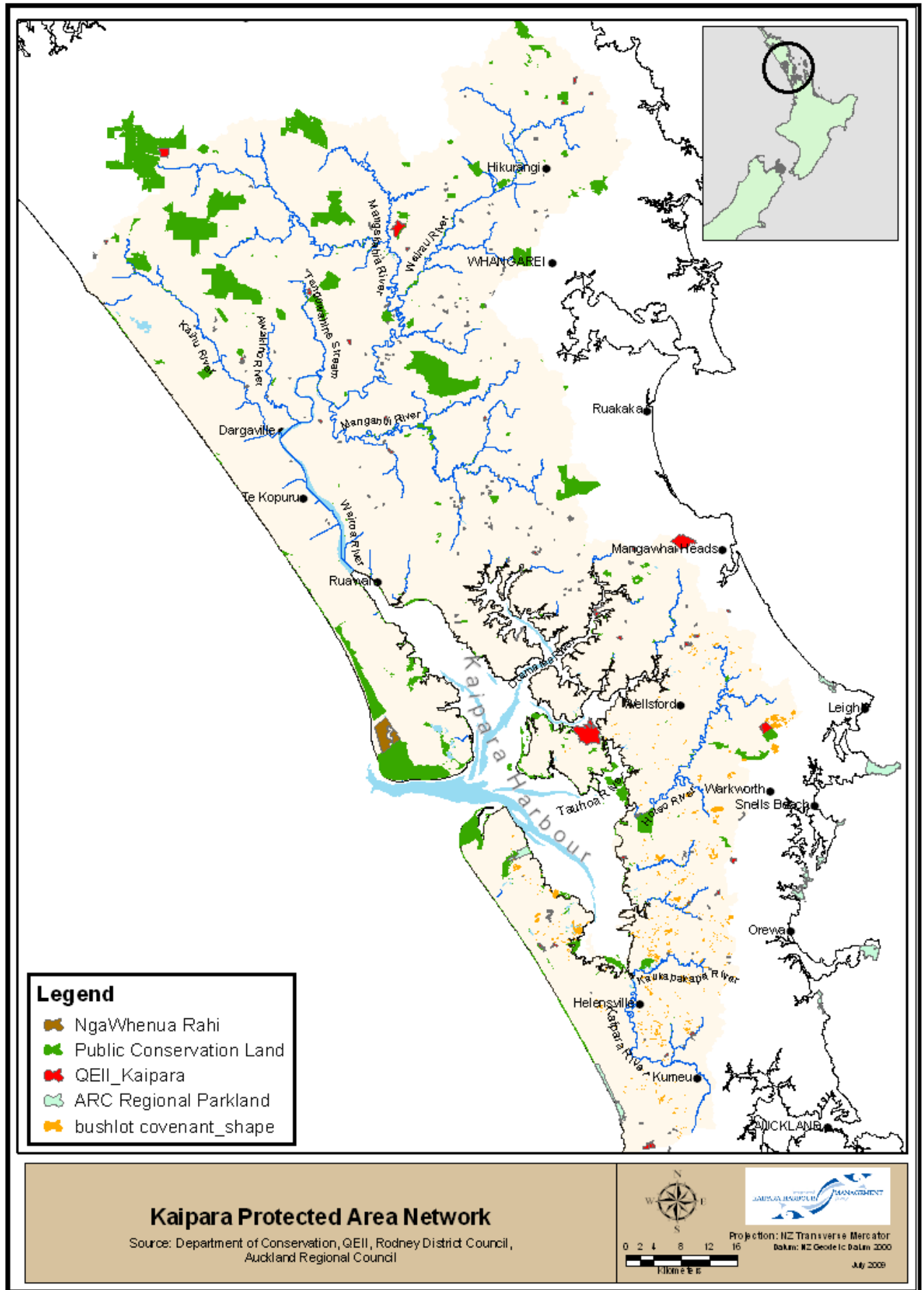


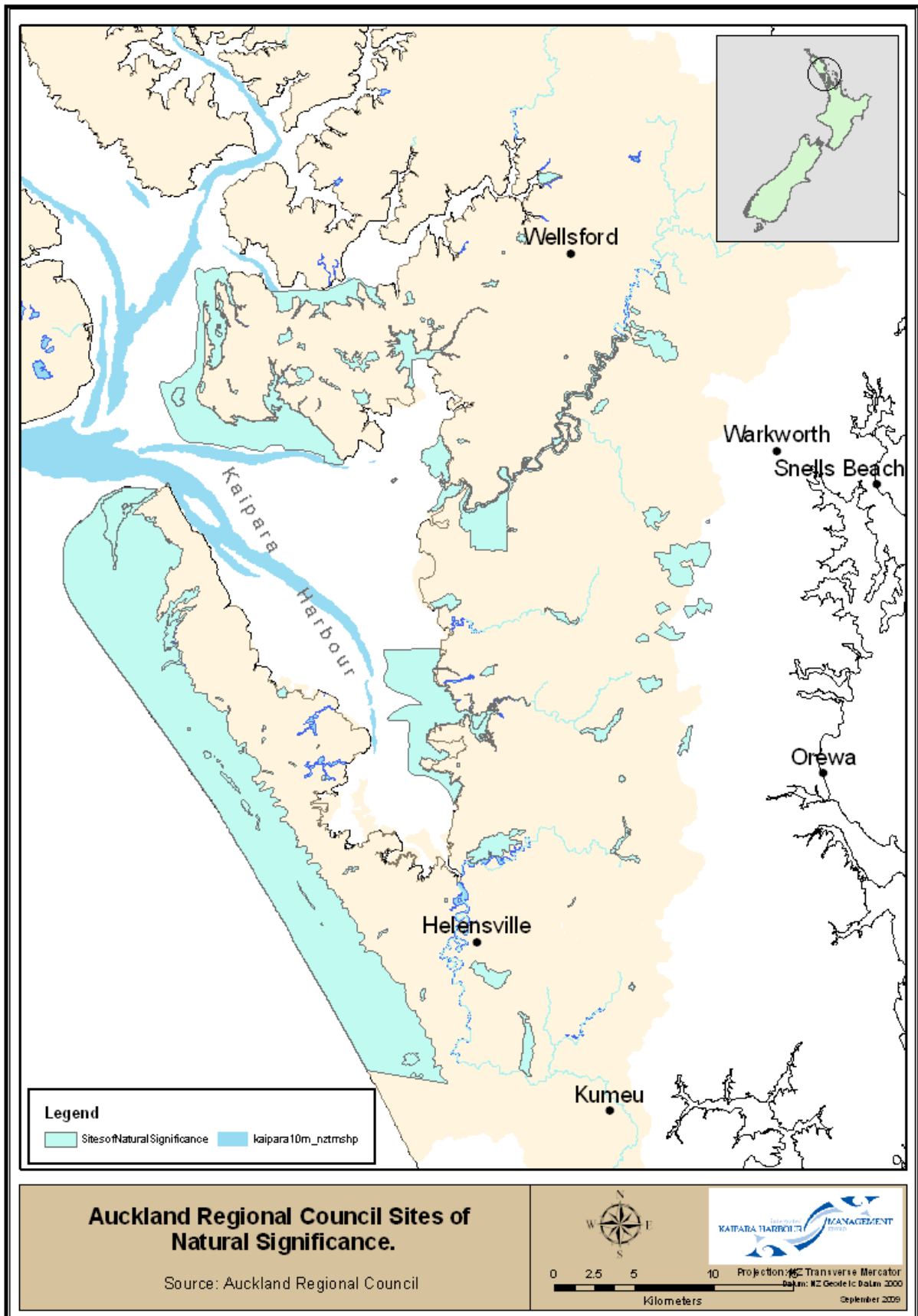


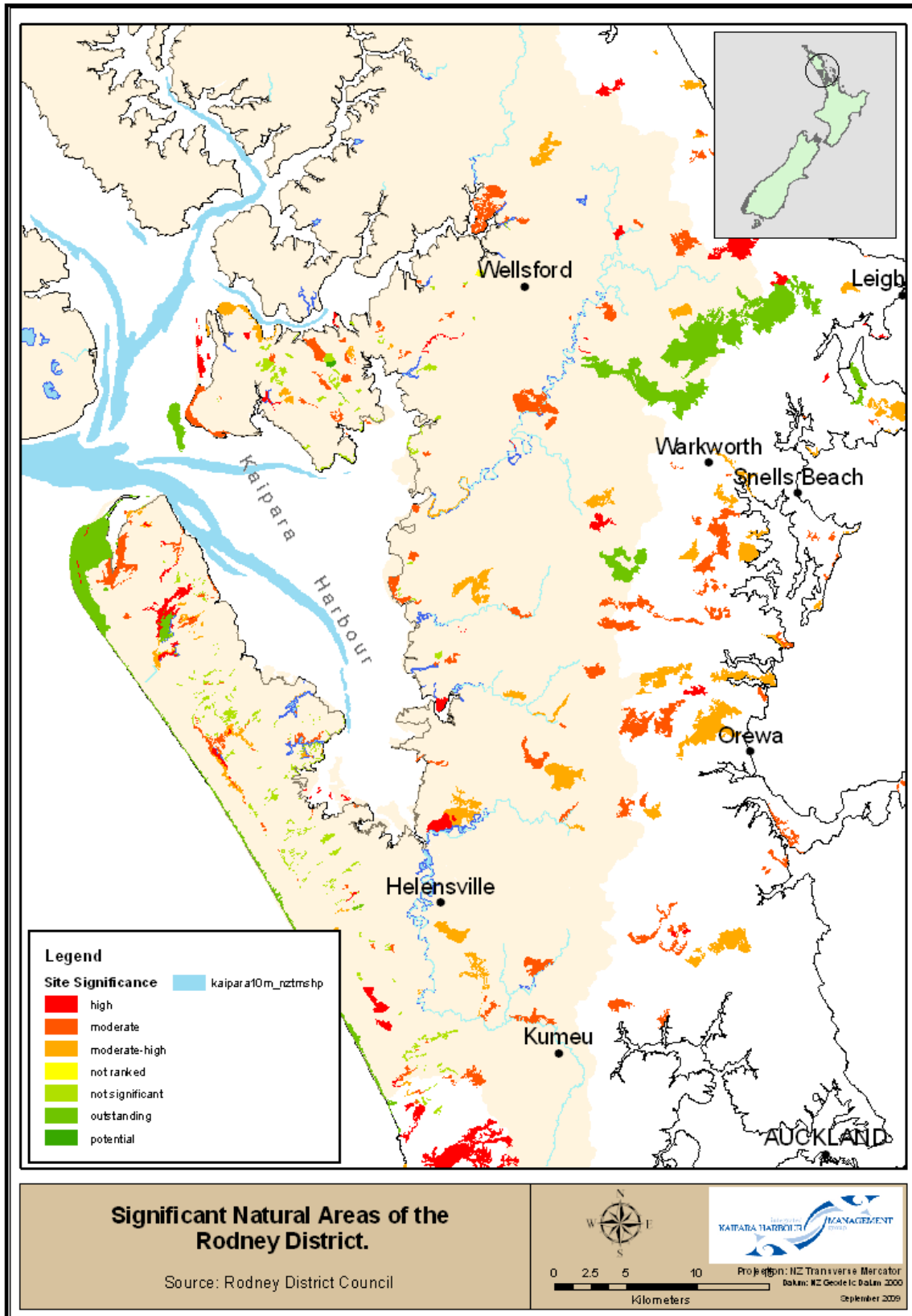


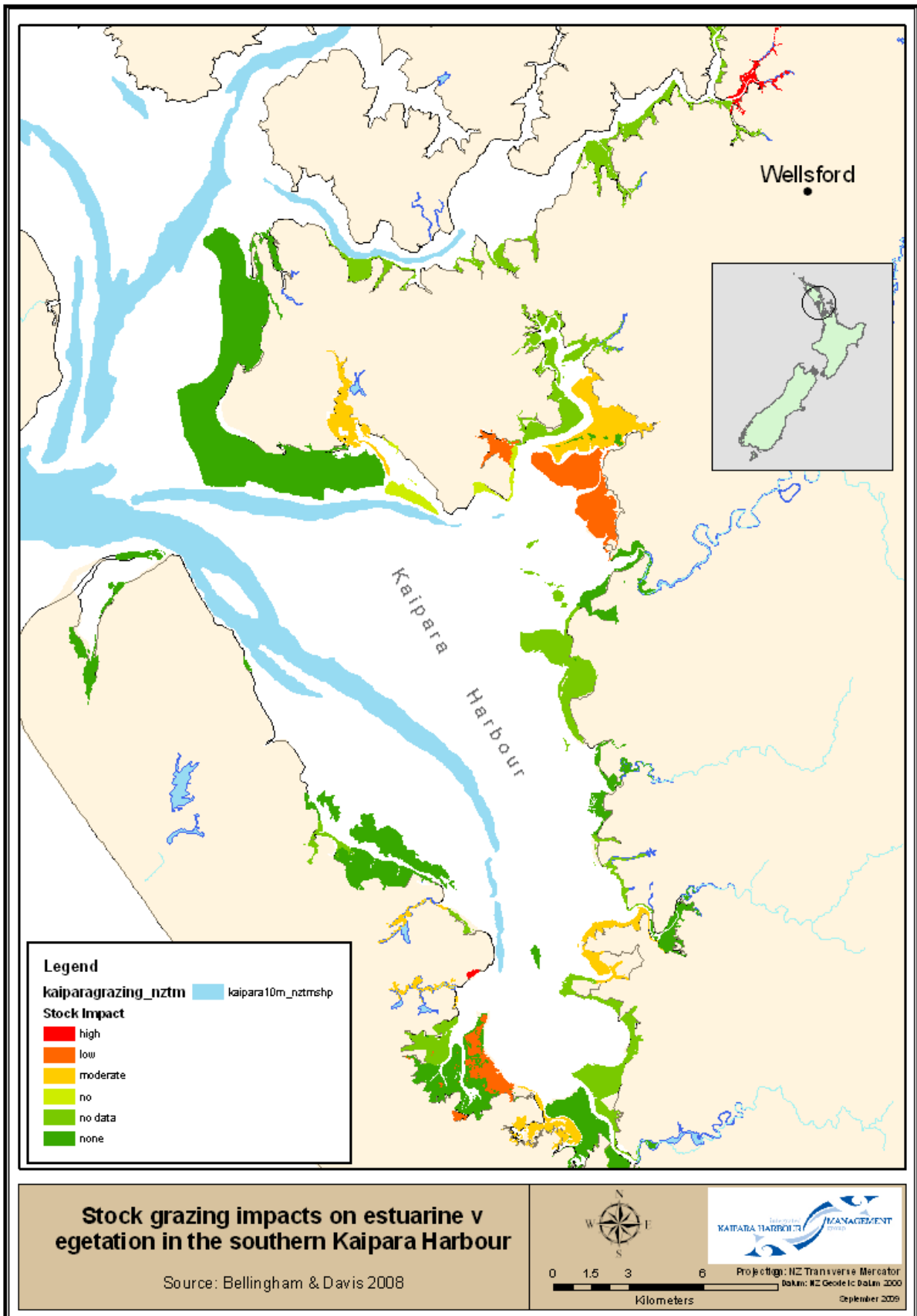


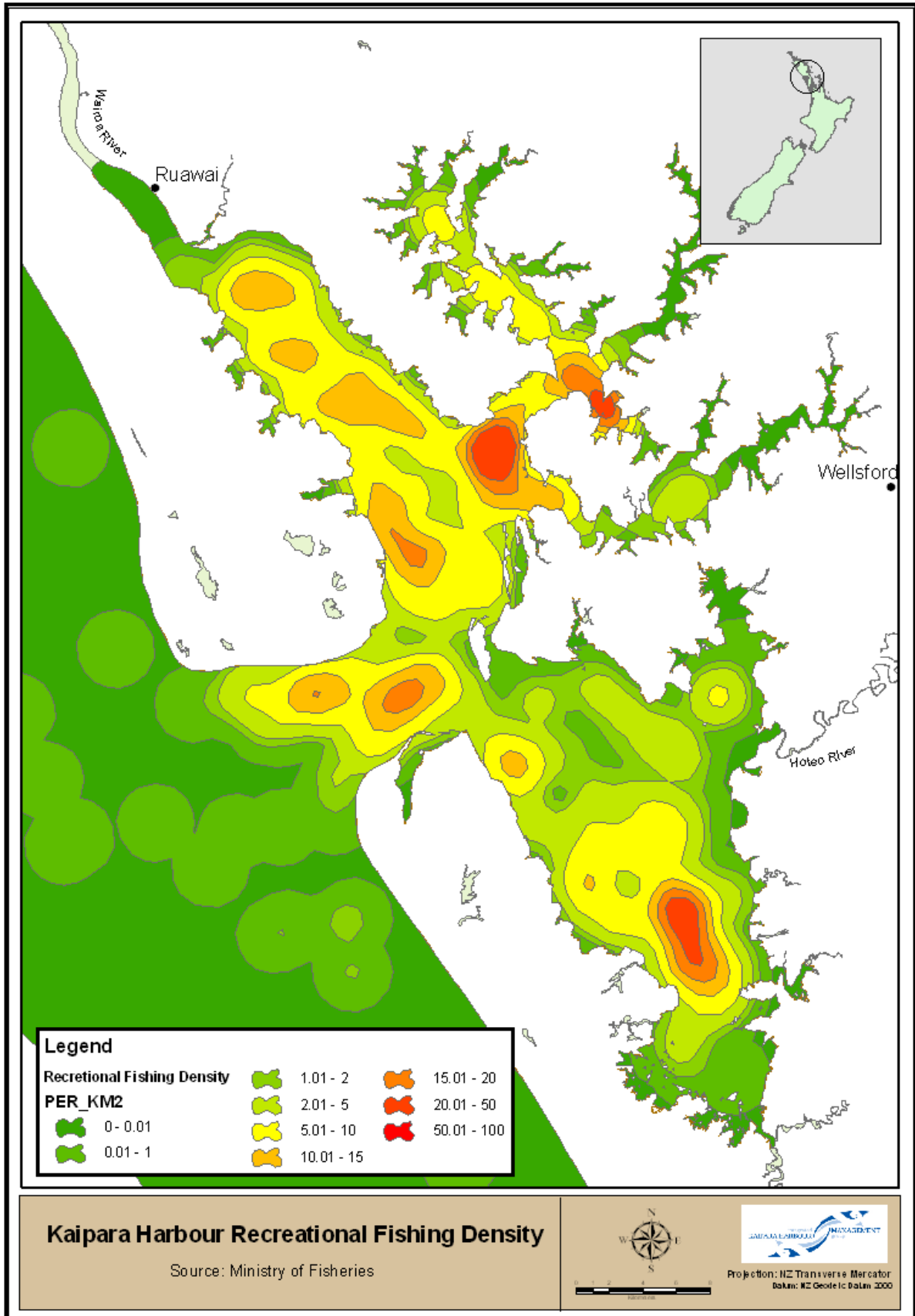


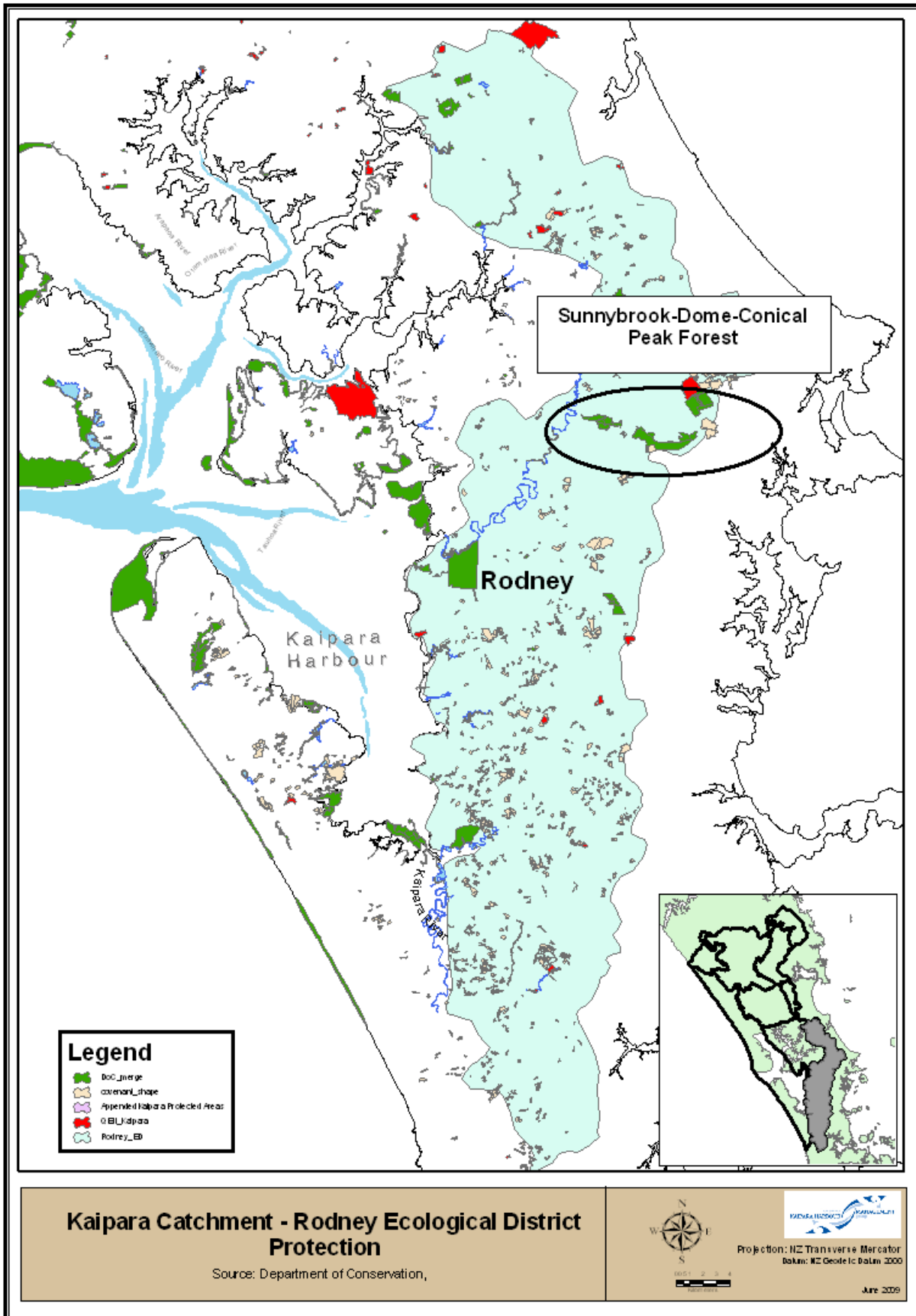


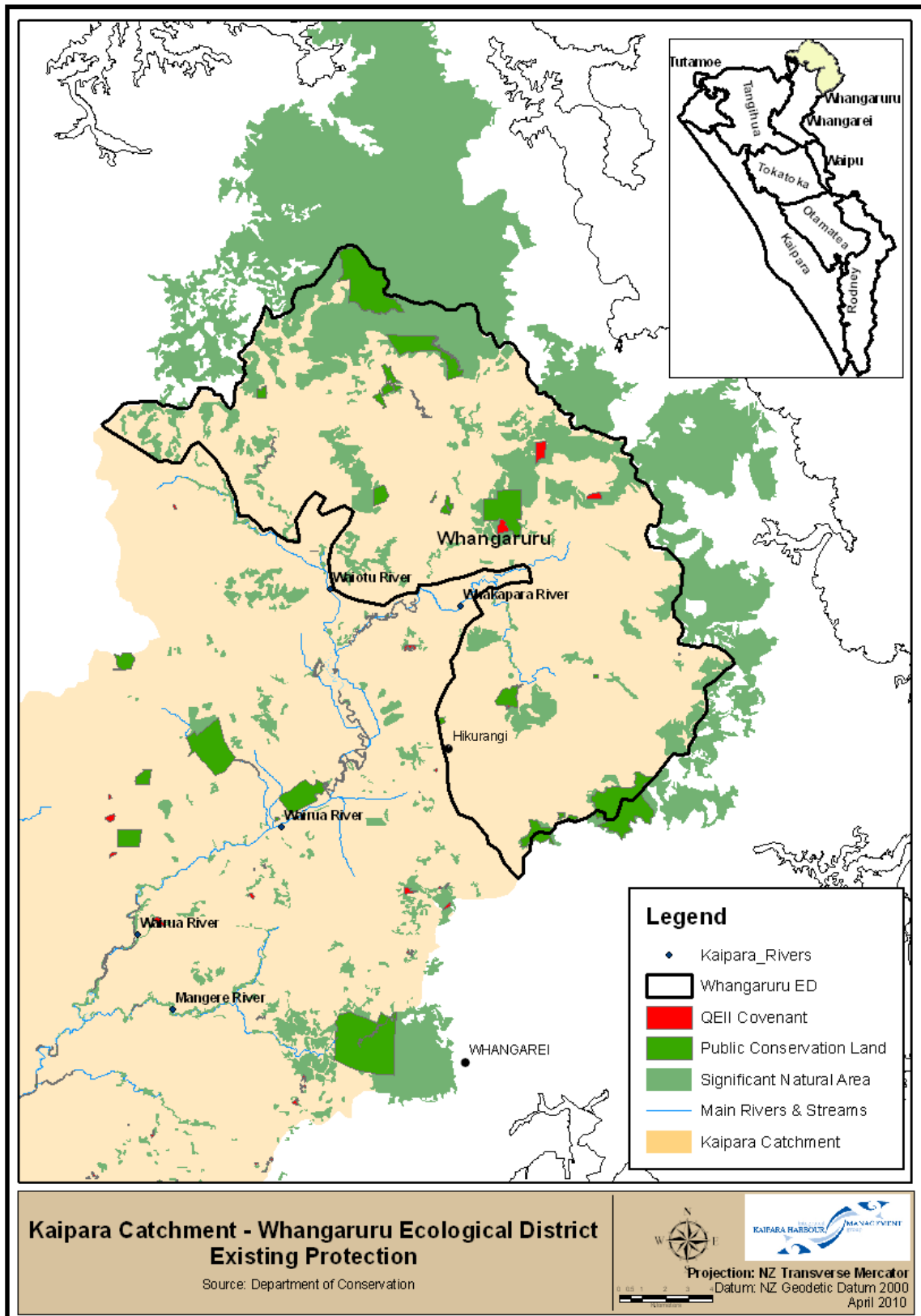












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