Contents

Schedule 1 – Aquatic Ecosystem Areas

A *Habitats and migratory pathways of indigenous fish species*

Note: The GPS co-ordinates relate to points at which the fish species were identified.

The following streams, rivers and lakes are habitats or migratory pathways for indigenous fish species.

Catchment	River, Stream or Lake	Tributary	Species Present
Waihi Beach	Waihi Stream		Banded Kokopu, Giant Kokopu, Redfinned Bully, Unidentified Eel
	2 Mile Creek		Banded Kokopu, Redfinned Bully, Common Bully, Inanga, Common Smelt, Longfinned Eel, Shortfinned Eel
	3 Mile Creek		Banded Kokopu, Redfinned Bully, Common Bully, Inanga, Common Smelt, Longfinned Eel, Shortfinned Eel
Tauranga Harbour	Waiau River	Firewood Stream Tributary (T13 662 132)	Banded Kokopu, Longfinned Eel, Shortfinned Eel, Koura
		Athenree tributary (T13 675 110)	Banded Kokopu, Redfinned Bully, Koura
		Unnamed tributary Athenree (U13 717 144)	Giant Bully, Cockabully, Common Bully, Common Smelt, Inanga
	Tuapiro Creek	Waitengaue Stream	Banded Kokopu, Longfinned Eel, Redfinned Bully: Common Smelt: Common Bully
	Wharawhara Stream		Banded Kokopu, Common Smelt, Longfinned Eel, Shortfinned Eel, Redfinned Bully
	Uretara Stream		Redfinned Bully, Longfinned Eel, Inanga, Giant Kokopu, Common Smelt, Banded Kokopu, Koura, Common Bully, Shortfinned Eel, Torrentfish
		Boyd Stream	Banded Kokopu, Longfinned Eel, Shortfinned Eel, Common Bully, Common Smelt, Torrentfish
		Boyd Stream Tributary (T13 646 000)	Common Bully, Koura, Longfinned Eel, Unidentified Eel
		Te Mania Stream	Common Bully, Common Smelt, Inanga, Unidentified Eel
	Aongatete River	Aongatete River Tributary (T14 673 893)	Banded Kokopu, Longfinned Eel
	Wainui River	Wainui River Tributary (U14 711 919)	Shortjawed Kokopu
	Te Puna Stream		Koara, Longfinned Eel, Shortfinned Eel
	Wairoa River		Shortjawed Kokopu (below dam), Giant Bully, Inanga, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Common Smelt, Common Bully, Inanga, Banded Kokopu, Giant Kokopu
		Waireia Stream	Inanga, Redfinned Bully, Koura, Longfinned Eel, Shortfinned Eel
		Mangatarata River	Banded Kokopu, Longfinned Eel, Koura
		Ohourere Stream	Banded Kokopu, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Koura

Catchment	River, Stream or Lake	Tributary	Species Present
		Wairoa River Tributary (U14 816 848)	Common Smelt, Common Bully, Shortfinned Eel, Redfinned Bully, Inanga, Shortfinned Eel, Koura
		Opuiaki River	Shortjawed Kokopu, Longfinned Eel
		Mangakarengorengo River	Banded Kokopu, Longfinned Eel, Koura, Giant Kokopu
	Carmichael Reserve		Giant Kokopu, Shortfinned Eel, Banded Kokopu, Longfinned Eel, Common Bully, Redfinned Bully, *galaxiid sp*
	Kopurererua Stream		Inanga, Shortfinned Eel, Banded Kokopu, Giant Kokopu, Common Smelt, Longfinned Eel, Redfinned Bully, Common Bully
		Kopurererua Stream Tributary & Drain (U14 856 816)	Kokopu, Inanga
	Waimapu River		Common Bully, Longfinned Eel, Shortfinned Eel
	Kaitemako Stream		Cockabully, Common Bully, Common Smelt, Inanga
Wairakei Stream	Wairakei Stream		Shortfinned Eel, Longfinned Eel
Kaituna River	Kaituna River		Common Smelt, Redfinned Bully, Giant Bully, Inanga, Shortfinned Eel, Koura, Common Bully, Longfinned Eel
		Kaituna River Tributary (U15 041 555)	Banded Kokopu, Common Bully, Longfinned Eel, Koura
		Kopuroa Canal	Common Bully, Torrentfish, Unidentified Eel
		Ohineangaanga Stream	Inanga, Common Smelt, Longfinned Eel, Shortfinned Eel, Koura, Common Bully
		Raparapahoe Stream	Common Bully, Common Smelt, Banded Kokopu, Koaro, Longfinned eel
		Wairapukao Stream	Common Smelt, Lamprey, Longfinned Eel, Redfinned Bully
		Waiari Stream	Koura, Lamprey, Longfinned Eel, Redfinned Bully, Unidentified Galaxiid, Common Bully, Shortfinned Eel, Unidentified Eel, Common Smelt, Koura, Inanga
Waihi Estuary	Kaikokopu Canal		Inanga, Cockabully, Common Bully, Common Smelt
	Pokopoko Stream Tributary		Banded Kokopu
	Pongakawa Stream		Koura, Common Smelt, Giant Bully, Common Bully, Inanga, Shortfinned Eel, Longfinned Eel, Redfinned Bully, Banded Kokopu
		Pongakawa Stream Tributary (V15 208 669)	Banded Kokopu: Common Smelt, Longfinned Eel, Shortfinned Eel, Giant Bully, Common Bully, Redfinned Bully
Rotorua Lakes	Lake Rotoiti		Koaro, Common Bully, Common Smelt, Koura
		Ruato Bay Stream	Koaro, Common Bully
		Lake Rotoiti Tributary (U15 161 460)	Koaro, Common Bully, Common Smelt
	Lake Rotorua		Common Bully, Common Smelt, Koura
		Awahou Stream	Koaro, Koura, Unidentified Bully
	Lake Okataina		Common Bully, Common Smelt, Koaro

Catchment	River, Stream or Lake	Tributary	Species Present
		Haumingi Stream	Banded Kokopu, Koaro, Common Bully, Common Smelt
		Heruparaoa Stream	Banded Kokopu, Koaro, Common Bully, Common Smelt
		Kaikakahi Stream	Banded Kokopu, Koaro, Unidentified Galaxiid
		Lake Okataina Tributary (U16 068 365)	Banded Kokopu, Koaro, Common Bully, Common Smelt
		Rayners Bay Tributary (Pukahu Stream)	Banded Kokopu, Koura, Common Bully, Common Smelt
		Te Rereoterangi Stream	Common Bully, Common Smelt
	Lake Rorokawau		Koaro
	Lake Okaro		Common Bully, Common Smelt
	Lake Rerewhakaaitu		Common Smelt
	Lake Tarawera		Koaro, Common Bully, Common Smelt
		Lake Tarawera Tributary (U16 056 273)	Common Bully, Common Smelt, Koura
	Lake Okareka		Koaro, Common Bully, Common Smelt, Koura
		Lake Okareka Tributary (U16 035 325)	Koaro, Common Bully
Waitahanui	Waitahanui Stream		Redfinned Bully, Longfinned Eel, Common Smelt, Giant Bully, Shortfinned Eel
		Waitahanui Stream Estuary	Inanga, Longfinned Eel, Common Smelt, Giant Bully, Torrentfish
		Waitahanui Stream Tributary (V15 234 652)	Banded Kokopu, Inanga, Longfinned Eel, Common Smelt
		Pungerehu Stream	Banded Kokopu, Redfinned Bully, Longfinned Eel, Common Smelt
Matata	Hauone Stream		Common Bully, Common Smelt, Bluegilled Bully, Longfinned Eel, Unidentified Galaxiid
		Hauone Stream Estuary	Inanga, Giant Bully, Common Smelt, Shortfinned Eel
	Ruataniwha Stream		Banded Kokopu, Redfinned Bully, Unidentified Eel
	Unnamed Stream Matata (V15 365 630)		Bluegilled Bully, Redfinned Bully, Longfinned Eel
	Pikowai Stream		Banded Kokopu, Bluegilled Bully, Common Smelt, Shortfinned Eel, Longfinned Eel, Torrentfish, Redfinned Bully
	Herepuru Stream		Koaro, Longfinned Eel, Giant Kokopu, Shortfinned Eel, Redfinned Bully, Common Smelt, Torrentfish, Koura, Inanga
		Herepuru Stream tributary (V15 326 582)	Longfinned Eel, Redfinned Bully, Shortjawed Kokopu, Koaro, Unidentified Eel
	Mimiha Stream		Banded Kokopu, Giant Kokopu, Bluegilled Bully, Common Smelt, Inanga, Shortfinned Eel, Longfinned Eel, Koura, Redfinned Bully, Torrentfish
Tarawera	Tarawera River		Common Bully, Giant Bully, Shortfinned Eel, Torrentfish, Smelt, Koura, Longfinned Eel, Inanga, Banded Kokopu
	Tarawera Falls		Banded Kokopu, Longfinned Eel, Common

Catchment	River, Stream or Lake	Tributary	Species Present
			Bully
	Tarawera Outlet		Koaro, Common Bully, Common Smelt, Longfinned Eel
	Awatarariki Stream		Banded Kokopu, Inanga, Giant Bully, Shortfinned Eel, Longfinned Eel, Redfinned Bully
		Awatarariki Stream Estuary	Inanga, Common Smelt, Giant Bully, Shortfinned Eel, Banded Kokopu, Longfinned Eel, Redfinned Bully
		Umahika Stream	Giant Kokopu
		Watiepuru Stream	Longfinned Eel, Shortfinned Eel, Redfinned Bully
		Awaiti Canal	Giant Kokopu, Shortfinned Eel
		Awaiti Stream	Shortfinned Eel
		Omeheu Canal	Giant Bully, Shortfinned Eel, Redfinned Bully, Common Bully
		Awakaponga Stream/Canal	Common Bully, Lamprey, Shortfinned Eel, Redfinned Bully, Torrentfish
		Waikamihi Stream	Giant Kokopu, Banded Kokopu, Longfinned Eel, Shortfinned Eel, Inanga, Common Bully, Giant Bully, Redfinned Bully, Torrentfish
		Braemar Lagoon Outlet	Shortfinned Eel
		Braemar Spring	Shortfinned Eel
		Mangaone Stream	Banded Kokopu, Koaro, Inanga, Common Bully, Redfinned Bully, Shortfinned Eel, Longfinned Eel, Koura, Torrentfish, Lamprey
		Karaponga Stream	Redfinned Bully, Longfinned Eel, Koura, Torrentfish
		Waikanapiti Stream Tributary (V19 273 418)	Longfinned Eel
		Ruruanga Stream	Longfinned Eel, Koura
		Buddles Creek	Longfinned Eel
		Mangate Stream	Longfinned Eel, Shortfinned Eel
		Mangawhio Stream	Banded Kokopu, Shortfinned Eel
		Waiaute Stream	Longfinned Eel
		Waiaute Stream Tributary (V16 240 313)	Banded Kokopu, Longfinned Eel
		Okahiri Stream Tributary (V16 277 296	Banded Kokopu
		Kaipara Stream	Longfinned Eel
		Unnamed Tributary (V16 259 340)	Banded Kokopu
Rangitaiki	Rangitaiki River		Banded Kokopu, Giant Kokopu, Common Bully, Longfinned Eel, Shortfinned Eel, Inanga, Common Smelt, Torrentfish
		Western Drain	Giant Kokopu, Common Bully, Longfinned Eel, Shortfinned Eel, Inanga
		Ngakauroa Stream	Banded Kokopu, Giant Kokopu, Redfinned Bully, Longfinned Eel
		Lake Matahina	Banded Kokopu, Common Bully, Longfinned Eel, Shortfinned Eel
		Mangapapa Stream	Longfinned Eel

Catchment	River, Stream or Lake	Tributary	Species Present
		Kopuriki Stream	Dwarf Galaxiid
		Horomanga River	Unidentified Galaxiid, Dwarf Galaxiid, Longfinned Eel
		Tukuhouhou Stream	Dwarf Galaxiid, Longfinned Eel
		Kotukutuku Stream	Dwarf Galaxiid, Longfinned Eel
		Wairohia Stream	Longfinned Eel
		Mangawhiri Stream	Longfinned Eel
Whakatane	Whakatane River		Koaro
		Paekoau Stream	Redfinned Bully, Longfinned Eel, Shortfinned Eel
		Paekoau Stream tributary (W16 583 314)	Redfinned Bully, Longfinned Eel, Shortfinned Eel
		Huape Stream	Redfinned Bully, Longfinned Eel
		Apiti Stream	Shortjawed Kokopu
		Mangaawai Stream	Shortjawed Kokopu
		Kawekawe Stream	Redfinned Bully, Longfinned Eel, Shortfinned Eel
		Ohineteraraku Stream	Banded Kokopu, Shortjawed Kokopu, Redfinned Bully, Longfinned Eel, Shortfinned Eel
		Wainuitewhara Stream Tributary (W15 611 520)	Banded Kokopu, Shortfinned Eel
		Te Rahu Canal	Giant Kokopu, Longfinned eel, Shortfinned eel
		Otarere Stream	Banded Kokopu, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Inanga, Common Smelt
		Waimeha Stream	Common Smelt, Inanga, Longfinned Eel
		Owhakatoro Stream	Bluegilled Bully, Redfinned Bully, Torrentfish
		Ngutuoha Stream	Koaro, Bluegilled Bully, Redfinned Bully, Longfinned Eel, Shortjawed Kokopu, Common Bully
		Wairere Stream	Common Smelt, Inanga, Unidentified Bully, Shortfinned Eel, Redfinned Bully, Common Bully
		Waipapa Stream	Koaro, Redfinned Bully, Longfinned Eel
		Tauranga River Tributary (W16 696 206)	Common Bully, Shortfinned Eel, Longfinned Eel
		Orouamananui Stream	Redfinned Bully, Longfinned Eel, Bluegilled Bully, Common Smelt, Common Smelt, Torrentfish, Unidentified Eel
		Pukareao Stream	Bluegilled Bully, Longfinned Eel, Common Smelt, Torrentfish
		Mangapae Stream	Longfinned Eel
	Tauranga River		Redfinned Bully, Longfinned Eel, Shortfinned Eel, Torrentfish
		Tauranga River Tributary (W16 695 128)	Redfinned Bully, Longfinned Eel
	Tauranga River	Whanganui Stream	Bluegilled Bully, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Torrentfish
		Waionepu Stream	Longfinned Eel
		Haruru Stream	Longfinned Eel, Banded Kokopu, Shortfinned Eel, Longfinned Eel

Catchment	River, Stream or Lake	Tributary	Species Present
		Raroa Stream	Bluegilled Bully, Redfinned Bully, Inanga, Torrentfish
		Tarepe Stream	Bluegilled Bully, Redfinned Bully, Common Bully, Common Smelt, Longfinned Eel, Shortfinned Eel, Inanga
		Parau Stream	Longfinned Eel, Redfinned Bully
		Parau Stream Tributary (W16 706 263)	Longfinned Eel, Shortjawed Kokopu, Longfinned Eel, Redfinned Bully
		Waihui Stream	Koaro
		Manaohou Stream	Koaro
		Te Paraunu Stream	Koaro
		Mangapouri Stream	Shortjawed Kokopu, Bluegilled Bully, Redfinned Bully, Longfinned Eel
Ohiwa Harbour	Wainui Stream (W15 672 457)		Banded Kokopu, Common Bully, Inanga, Common Smelt, Shortfinned Eel, Giant Bully, Black Flounder, Grey Mullet, Yellow-eyed Mullet
		Wainui Stream Tributary (W15 663 433 W15 661 445 W15 663 431 W15 656 403 W15 657 413 W15 654 407 W15 654 429 W15 654 417 W15 663 434)	Common Smelt, Shortfinned Eel, Longfinned Eel, Redfinned Bully, Inanga, Koura, Banded Kokopu, Koaro, Common Bully, Bluegill Bully, Torrentfish
	Nukuhou River (W15 707 437)		Inanga, Common Bully, Shortfinned Eel, Longfinned Eel, Red-finned Bully, Common Smelt
		Arawhatawhata Stream (W15 710 277 W15 713 274)	Banded Kokopu, Shortjawed Kokopu, Koaro, Longfinned eel, Redfinned Bully, Common Bully, Bluegill Bully
		Kotare Stream (W15 713 422)	Common Bully, Inanga, Common Smelt, Longfinned Eel, Shortfinned Eel
		Waionepu Stream (W15 731 278)	Longfinned Eel
Ohope	Maraetotara Stream		Giant Kokopu, Shortjawed Kokopu, Shortfinned Eel, Longfinned Eel, Redfinned Bully, Unidentified Eel, Torrentfish, Common Bully, Common Smelt
		Maraetotara Stream Tributary (W15 639 475)	Banded Kokopu, Redfinned Bully
		Unnamed stream discharging into coast. Directly west of Maraetotara Stream running alongside road to Whakatane.	Banded Kokopu
Waiotahe	Waiotahe River		Unidentified Bully, Torrentfish, Longfinned Eel, Common Bully, Common Bully, Inanga

Catchment	River, Stream or Lake	Tributary	Species Present
		Ataurere Stream	Redfinned Bully, Unidentified Eel, Longfinned Eel, Unidentified Galaxiid
		Ataurere Stream Tributary (W16 777 343)	Redfinned Bully, Unidentified Eel, Longfinned Eel, Shortfinned Eel, Unidentified Bully
		Waitahi River Tributary (W16 759 311)	Redfinned Bully, Longfinned Eel, Common Bully, Torrentfish
Waioeka	Waioeka River Mouth		Banded Kokopu, Inanga
	Waioeka River		Bluegilled Bully, Common Smelt, Inanga, Shortfinned Eel, Longfinned Eel, Torrentfish
		Cruen Creek	Koaro, Bluegilled Bully, Redfinned Bully, Common Bully, Longfinned Eel, Shortfinned Eel, Inanga, Common Smelt, Torrentfish
		Papepeti Stream	Koaro, Bluegilled Bully, Redfinned Bully, Common Bully, Longfinned Eel, Torrentfish
		Unnamed Tributary (W16 869 374)	Redfinned Bully, Longfinned Eel
		Marawaiwai Stream	Banded Kokopu, Redfinned Bully, Longfinned Eel, Common Bully, Redfinned Bully, Torrentfish: Unidentified Eel, Unidentified Galaxiid
		Marawaiwai Stream Tributary (W16 878 365)	Banded Kokopu, Redfinned Bully, Unidentified Bully, Longfinned Eel, Unidentified Eel
		Stoney Creek	Shortjawed Kokopu, Common Bully, Inanga, Longfinned Eel
		Kukomoa Creek	Common Bully, Inanga, Shortfinned Eel, Redfinned Bully, Longfinned Eel, Torrentfish, Common Smelt
		Omaukora Stream	Redfinned Bully, Torrentfish, Bluegilled Bully
		Owhiritoa Stream	Bluegilled Bully, Longfinned Eel, Common Bully, Torrentfish
Waiaua	Waiaua River		Common Bully, Common Smelt, Shortfinned Eel, Longfinned Eel, Cran's Bully, Redfinned Bully, Torrentfish, Cockabully
		Opape Stream	Inanga, Shortfinned Eel
Torere	Torere River		Bluegilled Bully, Common Bully, Cran's Bully, Inanga, Shortfinned Eel, Longfinned Eel, Torrentfish
Hawai	Hawai River		Common Smelt, Longfinned Eel, Unidentified Bully
Motu	Motu River		Bluegilled Bully, Common Bully, Inanga, Shortfinned Eel, Longfinned Eel, Torrentfish
		Motu River Tributary (X15 161 614)	Common Bully, Inanga, Longfinned Eel, Redfinned Bully
		Motu River Tributary (X15 160 613)	Banded Kokopu, Common Bully, Longfinned Eel, Shortfinned Eel, Inanga
		Mangakirikiri Stream	Koaro, Bluegilled Bully, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Torrentfish, Unidentified Galaxiid
		Omatapo Stream	Koaro
		Te Pohoe Stream	Banded Kokopu, Bluegilled Bully, Redfinned Bully, Common Bully, Longfinned Eel, Torrentfish
		Tutu Stream	Banded Kokopu, Longfinned Eel, Shortfinned

Catchment	River, Stream or Lake	Tributary	Species Present
			Eel
		Omawaka Stream	Redfinned Bully, Longfinned Eel, Shortfinned Eel, Cran's Bully
		Te Wai o Paohu Stream	Giant Kokopu, Redfinned Bully, Common Bully, Giant Bully, Longfinned Eel, Unidentified Galaxiid.
		Waiopoahu Stream	Koaro, Common Bully, Redfinned Bully, Inanga, Longfinned Eel, Torrentfish, Giant Kokopu, Giant Bully, Unidentified Galaxiid
		Houpoto Stream	Redfinned Bully, Common Bully, Inanga, Longfinned Eel
		Mangatutara Stream	Koaro, Bluegilled Bully, Longfinned Eel, Torrentfish, Unidentified Eel
		Mangatutara Stream Tributary (Y15 369 537)	Koaro, Bluegilled Bully, Longfinned Eel, Torrentfish, Shortjawed Kokopu
		Te Kahika Stream	Bluegilled Bully, Longfinned Eel, Torrentfish, Koaro
		Kohoka Stream	Koaro
		Kohoka Stream Tributary (Y15 357 429)	Koaro
		The Big Unknown Stream	Bluegilled Bully, Common Bully, Unidentified Eel, Torrentfish, Koaro
		Waihunga Stream	Koaro, Bluegilled Bully, Longfinned Eel, Torrentfish
		Takaputahi River	Koaro
		Takaputahi River Tributary (X16 134 354)	Koaro, Shortjawed Kokopu
		Rawea Stream	Koaro
		Whitikau Stream	Shortjawed Kokopu
		Whitikau Stream Tributary (X16 128 257)	Koaro
		Mangaotane Stream Tributary (Y16 300 360)	Koaro
Pokahinu	Waihapokopoko Stream		Koaro, Shortjawed Kokopu, Banded Kokopu, Redfinned Bully, Longfinned Eel, Shortfinned Eel
	Waiora Stream		Common Bully, Inanga, Shortfinned Eel, Longfinned Eel
Haparapara	Haparapara River		Shortjawed Kokopu, Giant Kokopu
		Haparapara River Tributary (X15 253 648)	Koaro, Shortjawed Kokopu, Bluegilled Bully, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Unidentified Galaxiid, Common Bully
		Waikakariki River	Bluegilled Bully, Torrentfish, Unidentified Eel, Unidentified Galaxiid
		Waikakariki River Tributary (X15 281 667)	Shortjawed Kokopu, Bluegilled Bully, Redfinned Bully, Shortfinned Eel
Te Kaha	Puremutahuri Stream		Banded Kokopu, Bluegilled Bully, Redfinned Bully, Inanga, Longfinned Eel, Torrentfish
Kereru	Kereru River		Bluegilled Bully, Cran's Bully, Longfinned Eel, Redfinned Bully
		Kereru River Tributary (Y14 334 727)	Banded Kokopu, Bluegilled Bully, Longfinned Eel, Redfinned Bully
		Ohinetutaekiora Stream	Banded Kokopu, Shortjawed Kokopu

Catchment	River, Stream or Lake	Tributary	Species Present
		Swamp	
		Ponuiahine Stream	Banded Kokopu, Common Bully, Longfinned Eel, Shortfinned Eel
		Kaumaro Stream	Bluegilled Bully, Common Bully, Redfinned Bully, Longfinned Eel, Shortfinned Eel, Inanga, Lamprey
Whanarua	Whanarua Stream		Koaro, Short-Jawed Kokopu, Bluegilled Bully, Redfinned Bully, Longfinned Eel, Inanga, Torrentfish, Banded Kokopu, Common Bully, Common Smelt, Inanga, Shortfinned Eel, Giant Kokopu
Kopua	Kopua Stream		Banded Kokopu, Bluegilled Bully, Longfinned Eel, Shortfinned Eel, Inanga.
	Whakaataua Stream		Banded Kokopu, Redfinned Bully, Longfinned Eel, Bluegilled Bully, Common Bully, Inanga, Shortfinned Eel
Maraehako	Maraehako Stream		Inanga, Shortfinned Eel
Raukokore	Raukokore River		Common Bully, Inanga, Shortfinned Eel, Redfinned Bully, Torrentfish
Waihau	Waitewake Stream		Giant Kokopu, Bluegilled Bully, Common Bully, Inanga, Longfinned Eel, Torrentfish
Whangaparaoa	Whangaparaoa River		Cran's Bully, Inanga, Torrentfish, Unidentified Eel
		Te Rereauira Stream	Cran's Bully, Inanga, Shortfinned Eel, Longfinned Eel

B Habitats of threatened indigenous flora and fauna

Catchment	Central Grid Reference	Species Present
Waihi Beach Catchment		
Mangakiri Stream	T13 580 100	Hochstetter's Frog
Tauranga Harbour Catchment		
Waitengaue Stream	T13 620 067	Blue Duck
Tahawai Stream Tributary	T13 646 044	Hochstetter's Frog
Te Rereatukahia Tributary	T14 623 954	Hochstetter's Frog
Aongatete River Tributary	T14 665 880	Hochstetter's Frog
Wainui River Tributary	U14 700 820	Little Shag
Omanawa River	U15 822 627	Little Shag
Mangapapa River	U15 791 556	Blue Duck
Opuiaki River	U15 735 596	Blue Duck
Ngamuwahine River	T14 600 600	Blue Duck
Ngatuhoa Stream	U15 754 649	Blue Duck
Kaituna River Catchment		
Kaituna River Mouth	V14 108 776	Spoonbill, Pied Shag, Black Shag (breeding)
Kaituna River	U15 040 559	Blue Duck
Atuaroa Stream	U14 996 709	Little Shag

Catchment	Central Grid Reference	Species Present
Raparapahoe Stream Tributary	U14 952 693 and 955 693	Hochstetter's Frog
Mangatoi Stream	U15 965 626	Blue Duck
Te Rerenga Stream	U15 910 594	Blue Duck
Whataroa Gorge	U15 971 617	Blue Duck
Tarehapa and Taumatapaua Stream (Upper Whataroa)	U15 928 581	Blue Duck
Mangorewa River	U15 883 535	Blue Duck
	U15 884 543	Blue Duck
Upper Mangorewa Gorge	U15 928 557	Blue Duck
Kiwi Stream	U15 974 566	Blue Duck
Ohaupara River	U15 887 551	Blue Duck
Pipikarahi Stream	U15 939 555	Blue Duck
Rotorua Lakes Catchments		
Parengarenga Springs	U15 050 453	*Juncus holoschoenus*
	U15 050 453	*Juncus holoschoenus*
Lake Rotorua Mokoia Island	U15 978 415	*Rorippa divaricata*
	U15 978 415	*Rorippa divaricata*
	U15 978 415	*Rorippa divaricata*
	U15 978 415	*Rorippa divaricata*
Ohau Channel	U15 025 455	Little Shag breeding site. Good water bird numbers e.g. NZ Scaup, Dabchick
Utuhina Stream	U16 848 316	Blue Duck
Paradise Valley Springs	U16 863 364	Blue Duck
Lake Rotorua	U16 948 367	Outstanding area for water birds
Puarenga Stream	U16 946 317	Hemo Gorge Little Shag colony
Lake Okataina	U16 090 355	NZ Scaup, Dabchick
Lake Rotokawau	U15 063 423	NZ Dabchick
Lake Rotongata (Mirror Lake)	V15 102 420	NZ Scaup, Spotless Crake, NZ Dabchick, Australasian Bittern
Lake Okaro	U16 070 172	Range of waterbirds including NZ Dabchick, Little Shag, Little Black Shag
Lake Rerewhakaaitu	U16 165 173	Range of waterbirds including NZ Dabchick, NZ Scaup, Australasian Bittern, Little-Shag
Lake Tarawera	U16 057 273	NZ Dabchick, NZ Scaup, and a wide range of other water birds
Te Wairoa Stream	U16 040 266	NZ Scaup, Dabchick
Lake Okareka	U16 045 315	NZ Scaup, NZ Dabchick and range of other water birds
Lake Tikitapu	U16 014 289	*Rorippa divaricata*
	U16 020 290	NZ Scaup, NZ Dabchick and other water birds
Lake Rotokakahi	U16 010 265	NZ Scaup, NZ Dabchick and other water birds
Tarawera River Catchment		
Tarawera River	V16 185 316	Brown Teal (very rare), N.Z Scaup
Braemar Lagoon Outlet	V15 384 524	NZ Scaup

Catchment	Central Grid Reference	Species Present
Tarawera Outlet	V16 170 297	NZ Scaup, Black Shag, Little-Shag
Rangitaiki River Catchment		
Rangitaiki River Mouth	W15 514 585	Range of waterbirds including shags
Rangitaiki River	V17 293 884	Blue Duck
Lake Aniwhenua	V16 400 105	NZ Scaup, NZ Dabchick and range of other water birds
Lake Matahina	V16 449 361	NZ Dabchick, Scaup, Black Shag
Mangamako Stream	V16 444 204	Blue Duck
Pahekeheke Stream	V16 405 175	NZ Dabchick, Banded Dotterel, Caspian Tern, Australasian Bittern, Spotless Crake, NI Fernbird, NZ Scaup
Horomanga River	V14 379 082	Blue Duck
Whirinaki River	V17 370 959	Blue Duck
	V18 317 720	Blue Duck
	V18 294 563	Blue Duck
	V18 295 559	Blue Duck
	V18 295 563	Blue Duck
	V18 295 689	Blue Duck
	V18 296 689	Blue Duck
	V18 297 680	Blue Duck
	V18 298 692	Blue Duck
	V18 298 693	Blue Duck
	V18 298 698	Blue Duck
	V18 300 559	Blue Duck
	V18 302 643	Blue Duck
	V18 288 575	Blue Duck
	V18 285 680	Blue Duck
	V18 287 593	Blue Duck
Kakanui Stream	V18 284 675	Blue Duck
Taumutu Stream	V18 287 620	Blue Duck
	V18 289 620	Blue Duck
Kakaiti Stream	V18 293 618	Blue Duck
Kakanui Stream	V18 314 629	Blue Duck
Mangamate Stream	V18 315685	Blue Duck
Unnamed Stream	V17 380 890	Blue Duck
Minginui Creek	V18 365 732	Blue Duck
Pekepeke Stream	V17 270 967	NI Fernbird
Otamatea River	V18 206 729	Blue Duck

Catchment	Central Grid Reference	Species Present
Whakatane River Catchment		
Whakatane River Estuary	W15 542 605	Caspian Tern, Royal Spoonbill, Banded Dotterel, Australasian Bittern, Banded Rail, NI Fernbird and a range of other waterbirds
Whakatane River main stem		Banded Dotterel breeding, other waterbirds
Otapukawa Stream	W17 715 050	Black Shag
Ohiwa Harbour Catchment		
Te Kakaha Stream	W15 750 414	Spotless Crake
Awaraputuna Stream Inlet	W15 667 495	Australasian Bittern, NI Fernbird
Tunanui Stream Inlet	W15 662 485	Australasian Bittern, NI Fernbird
Waiotane Stream	W16 665 475	Banded Rail, NI Fernbird
Wainui Stream Lower reaches	W15 669 465	NI Fernbird, Spotless Crake, Banded Rail
Kutarere Stream	W15 743 426	Banded Rail
Whitiwhiti Stream	W15 677 479	NI Fernbird
Ouaki Creek	W15 698 456	Australasian Bittern, Banded Rail, NI Fernbird
Te Awawairoa Stream	W15 730 428	Banded Rail, NI Fernbird
Kutarere Stream	W15 738 425	Banded Rail
Unnamed Stream West of Papanui Road	W15 745 424	Banded Rail
Unnamed Stream at Reeves Road	W15 747 456	Banded Rail
Nukuhou River	W15 707 440	NI Fernbird, Spotless Crake, Banded Rail, shags (various)
Waiotahe River Catchment		
Waiotahe River Mouth	W15 780 475	Caspian Tern, Australasian Bittern, Banded Rail, 4 species of shag, Pied Shag roosting/breeding
Waioeka/Otara River Catchment		
Waioeka River	W16 878 117	Blue Duck
Wairata Stream	W16 884 123	Blue Duck
Wairata Waioeka Gorge	W16 881 172	Hochstetter's Frog
Waioeka River Tributary	W16 845 288	Hochstetter's Frog
Matahanea Creek	W16 852 313	Hochstetter's Frog
Tributary Owhiritoa Stream	W16 857 285	Hochstetter's Frog
Oponae Waiata Stream	W16 810 197	Hochstetter's Frog
Opato Stream	W16 800 100	Blue Duck
Manganuku Stream	X16 935 142	Blue Duck
Te Pato Stream (Kotepato)	W17 882 097	Hochstetter's Frog
Kahunui Stream	W17 843 022	Blue Duck

Catchment	Central Grid Reference	Species Present
Tataweka Stream	W17 773 964	Blue Duck
Makakoere Stream	W17 790 915	Blue Duck
Te Waiti Stream	X16 948 318	Blue Duck
Tokenui Stream	X16 958 267	Hochstetter's Frog
Orokutia Stream	X16 985 328	Blue Duck
Pakahi Stream	X16 001 293	Blue Duck
Motu River Catchment		
Mangakirikiri Stream	X15 208 438	Hochstetter's Frog
Motu River Mouth	X15 140 610	Banded Dotterel
Motu River	X16 150 235	Hochstetter's Frog
Motu River Tributary	X15 264 523	Hochstetter's Frog
Houpoto Stream	W15 137 578	Spotless Crake
Manuriki Stream	X15 208 527	Blue Duck
Tributary Manuriki Stream	X15 199 566	Hochstetter's Frog
Huaero Stream	X15 251 566	Hochstetter's Frog
Mangatutara Stream	Y15 461 539	Hochstetter's Frog
Kahoka Stream Tributary	Y15 357 429	Blue Duck
Te Kahika Stream	X15 280 477	Blue Duck
Takaputahi River	X16 103 322	Blue Duck
Rawea Stream	X15 126 388	Blue Duck
Nga Upokotangata Stream	X16 071 340	Blue Duck
Waitukuaruhe Stream	X16 084 312	Blue Duck
Mangamate Stream - All Tributaries	X16 100 300	Hochstetter's Frog
Mangamate Stream	X16 165 446	Blue Duck
Whitikau Stream	X16 123 297	Blue Duck
Eastern Rivers Catchments		
Opape Stream	X15 998 485	Blue Duck
Waiaua River	X15 976 450	Spotless Crake
Takataka Stream Tributary	X15 049 440	Hochstetter's Frog
Oteakona Stream	X15 990 410	Hochstetter's Frog
Waiiti Stream	X15 087 499	Hochstetter's Frog
Te Whiorau Stream		Hochstetter's Frog
Haparapara River		Banded Dotterel
Te Waiohuinga Stream Tributary	X15 204 650	Hochstetter's Frog
Waikakariki River	Y15 352 658	Blue Duck
Waikakariki River Tributary	X15 252 671	Hochstetter's Frog
Waiorere Stream	X15 233 698	Hochstetter's Frog
Orini Stream	X15 214 685	Hochstetter's Frog
Kereru River		Hochstetter's Frog in Whanarua-Kereru corridor
Whanarua Stream	Y14 323 796	Hochstetter's Frog
Raukokore River Mouth, Lagoon and Lower River	Y14 400 816	Caspian Tern, Banded Dotterel breeding site
Raukokore River	Y14 451 755	Hochstetter's Frog

Catchment	Central Grid Reference	Species Present
	Y15 437 679	Hochstetter's Frog
	Y15 460 677	Hochstetter's Frog
	Y15 416 617	Blue Duck
	Y15 422 598	Blue Duck
	Y15 426 629	Blue Duck
	Y15 440 639	Blue Duck
	Y15 440 642	Blue Duck
	Y15 445 647	Blue Duck
	Y15 450 686	Blue Duck
	Y15 454 650	Blue Duck
	Y15 455 671	Blue Duck
	Y15 461 673	Blue Duck
Raukokore River Tributary	Y14 406 785	Hochstetter's Frog
Raukokore River Tributary	Y14 387 806	Hochstetter's Frog
Mangaikakorea Stream	Y14 401 791	Hochstetter's Frog
Mangahatoto Stream	Y14 396 799	Hochstetter's Frog
Waihueroto Stream	Y14 391 778	Hochstetter's Frog
Okapua Stream	Y15 459 657	Blue Duck
Unnamed Stream	Y15 462 639	Blue Duck
Waitawake Stream	Y14 502 894	NZ Dotterel, Australasian Bittern, Spotless Crake, Fernbird
Whangaparaoa River Mouth	Y14 515 915	NZ Dotterel, Australasian Bittern, Spotless Crake, Fernbird
Te Rereauira Stream	Y14 565 909, Y14 580 904	NI Fernbird, Spotless Crake, Australasian Bittern

C *Whitebait Spawning Sites*

The tidal reaches of any river or stream flowing into a harbour or estuary, or to the open coast are also potential whitebait spawning areas.

Name of River or Stream	Central Grid Reference
Kaikokopu Canal	V14 164 747
Kaituna River Mouth	V14 101 779
Kaituna River	U14 062 789
Nukuhou River	W15 707 440
Otara River	W15 866 474
Otara River	W15 868 473
Pongakawa Canal	V14 171 745
Pukehina Canal	V14 171 746
Rangitaiki River	V15 501 573
Tunanui Stream Inlet	W15 662 485
Uretara Stream	T13 679 016
Waiau River	U13 711 136
Waiaua River	X15 955 478
Waiaua River	X15 596 477
Waioeka/Otara River	W15 854 463

Name of River or Stream	Central Grid Reference
Waioeka/Otara River	W15 866 474
Waioeka River	W15 839 475
Waiotahe River	W15 783 458
Waiotane Stream	W16 665 475
Wairoa River	U14 837 835
Wairoa River	U14 837 834
Whakatane River	W15 578 530
Whakatane River	W15 595 534

D Important Habitats of Trout

Catchment	River, Stream or Lake	Comments
Eastern Region Motu	Raukokore River	Trout habitat values in upper reaches of river.
	Motu River	Regionally significant trout habitat and fishery value.
	Takaputahi River	Regionally significant trout habitat values (spawning) and locally significant fishery values.
Waioeka/Otara	Waioeka River	Regionally significant trout habitat and fishery values.
	Otara River	Locally significant trout habitat and brown trout fishery values.
	Opato Stream	Regionally significant trout habitat values (resident adult and spawning habitats), locally significant fishery values.
	Wairata Stream	Locally significant trout habitat values (spawning).
	Koranga Stream	Regionally important adult and spawning habitats (upper tributary).
	Kahunui Stream	Locally significant trout habitat and fishery values.
Waiotahe	Waiotahe Stream	Locally significant trout habitat and fishery values.
Whakatane	Whakatane River	Regionally significant trout habitat and fishery values.
	Tauranga River	Regionally significant trout habitat and fishery values.
	Waikare River	Locally significant trout habitat and fishery values.
	Kahaki Stream	Locally significant trout habitat values.
	Ohora Stream	Locally significant trout habitat values.
	Owaka Stream	Locally significant trout habitat values.
Rangitaiki	Rangitaiki River	Regionally significant trout habitats and fishery throughout its length.
	Rangitaiki River	Locally significant trout habitat and fishery values.
	Waikokopu Stream	This tributary provides significant spawning and juvenile rearing habitats.
	Waihua Stream	Locally significant trout habitat and fishery values.
	Mangamako Stream	Locally significant trout habitat.
	Lake Aniwhenua	Regionally significant trout habitat and fishery values.
	Ngatamawahine Stream	Locally significant trout habitat values.
	Horomanga River	Regionally significant trout habitat and fishery values.
	Haumea Stream	Locally significant trout habitat values.
	Whirinaki River	Regionally significant trout habitat and fishery values.
	Wheao River	Regionally significant trout habitat and fishery values.
	Lake Flaxy	Regionally significant trout habitat and fishery values.
	Otamatea River	Locally significant trout habitat and fishery values.
Tarawera	Tarawera River (above falls)	Nationally significant habitat values and internationally significant fishery values.

Catchment	River, Stream or Lake	Comments
	Falls to Kawerau	Regionally significant habitat and fishery values.
	Mangaone Stream	Locally significant habitat and fishery values.
	Ruruanga Stream	Locally significant habitat and fishery values.
	Buddles Creek	Locally significant trout habitat.
	Kaipara Stream	Locally significant trout habitat.
	Waiautu Stream	Locally significant trout habitat.
Pongakawa	Pongakawa Stream	Locally significant habitat and fishery values.
Kaituna	Kaituna River	Regionally significant habitat and fishery values.
	Mangorewa River	Locally significant trout habitat.
	Waiari Stream	Locally significant trout habitat and fishery values.
Tauranga Harbour	Waimapu Stream	Locally significant trout habitat and fishery values.
	Mangakarengorengo (upstream of Kaimai 5 Power Station)	Regionally significant habitat and fishery values.
	Mangaonui Stream	Regionally significant habitat and fishery values.
	Ngatuhoa (between confluence with Opuiaki River and NZMS 260 U15 758 645 approx)	Regionally significant habitat and fishery values.
	Ngatuhoa (upstream of Ngatuahoa Canal)	Regionally significant habitat and fishery values.
	Mangapapa (between confluence with Opuiaki River and Lower Mangapapa Power House)	Regionally significant habitat and fishery values.
	Mangapapa (upstream of weir for Kaimai Hydroelectric Power Scheme Tunnel No 2)	Regionally significant habitat and fishery values.
	Mangaroa Stream	Regionally significant habitat and fishery values.
	Mangakaiwhiria Stream	Regionally significant habitat and fishery values.
	Ohourere Stream	Locally significant trout habitat.
	Ngamuwahine River	Regionally significant habitat and fishery values.
	Opuiaki River	Locally significant trout habitat.
	Lake Mangapapa (Matariki)	Trout exists but no significant trout habitat.
	Lake McLaren	Locally significant trout habitat and fishery values.
	Tuapiro Stream	Locally significant trout habitat
Rotorua Lakes	Lake Rotorua	Nationally significant habitat values and internationally significant fishery values.
	Puarenga Stream	Locally significant trout habitat – may have brook char population.
	Utuhina Stream	Regionally significant habitat and fishery values.
	Ngongotaha Stream	Nationally significant habitat and fishery values.
	Waimata Stream	Locally significant habitat values – supports trout hatchery.
	Waiowhero Stream	Locally significant trout habitat.
	Waikuta Stream	Locally significant trout habitat.
	Waiteti Stream	Regionally significant habitat and fishery values.
	Awahou Stream	Nationally significant habitat and fishery values. Cold water source.

Catchment	River, Stream or Lake	Comments
	Hamurana Stream	Nationally significant habitat and fishery values. Cold water source.
	Waiohewa Stream	Locally significant trout habitat.
	Waingaehe Stream	Locally significant trout habitat.
	Ohau Channel	Regionally significant habitat values and nationally significant fishery values. The Ohau Channel also acts as a significant migratory corridor for trout passing between lakes Rotoiti and Rotorua.
	Lake Rotoiti	Nationally significant habitat values and internationally significant fishery values.
	Te Taroa (Coles) Stream	Regionally significant habitat values.
	Hauparu Stream	Regionally significant habitat values and locally significant fishery values.
	Ruato Stream	Regionally significant habitat values and fishery values.
	Waiti Stream	Locally significant habitat and fishery values.
	Tapuaeharuru Stream (Transformer)	Locally significant habitat and regionally significant fishery values.
	Lake Rotoehu	Regionally significant habitat and fishery values. Most of the wild spawning is thought to occur in Maero Stream on the southern side of the lake.
	Lake Rotoma	Regionally significant habitat and fishery values. Lake contains tiger trout (brook char-brown trout hybrid).
	Lake Okataina	Nationally significant habitat values and internationally significant fishery values.
	Western tributaries (Log pool, Rayner 1 & 2, Unnamed stream in south western corner V16 604 348)	Regionally significant habitat and fishery values.
	Lake Tarawera	Nationally significant habitat values and internationally significant fishery values.
	Tarawera Outlet	Nationally significant habitat values and internationally significant fishery values.
	Wairua Stream	Regionally significant habitat and fishery values.
	Te Wairoa Stream	Nationally significant habitat values and regionally significant fishery values.
	Waitangi Stream	Regionally significant habitat and fishery values.
	Reg's Creek (Western Spring Streams)	Locally significant habitat and fishery values.
	Lake Rotomahana	Regionally significant habitat and fishery values, Most known spawning occurs in the two streams flowing from the south into the lake, the Waingongonga Stream and the other unnamed stream on its western side.
	Lake Rerewhakaaitu	Regionally significant habitat and fishery values.
	Lake Okaro	Locally significant habitat and fishery values.
	Lake Rotokakahi	Regionally significant habitat and fishery values to local iwi.
	Lake Tikitapu	Regionally significant habitat and fishery values.
	Lake Okareka	Regionally significant habitat and fishery values. There is thought to be some wild spawning in the outlet (Waitangi Stream) and also on an unnamed tributary on the south eastern shore.

Schedule 2 – Fish spawning and migration calendar

The fish calendar is summarised in Table S2 1 and Table S2 2. If the recruitment of all species in the Bay of Plenty is considered, there is no time when an activity will be allowed. It is in a developer's interest to identify what species are present and what recruitment activities are likely to be affected by a given activity. Whitebait runs, inanga spawning, elver migrations, downstream adult eel migrations and trout spawning represent the main recruitment events for freshwater fish in the Bay of Plenty. Development is unlikely to affect more than one or two of these activities and so restrictions on development will usually be short. For example, only activities that affect the tidal reaches of rivers have the potential to damage inanga spawning sites. Some streams are inaccessible to whitebait and therefore allowing for migration is not always a consideration. In some cases it may be worthwhile monitoring fish directly to determine when recruitment starts. For example, whitebait could be monitored to track when migration reaches the affected site to allow an extra few days/weeks of instream works. The more effort put into identifying the affected ecosystem the narrower the restriction period is likely to be. The following steps are recommended when using the calendars:

1 What fish are present in or pass through the affected reach?

   Identifying the species present might involve fishing, reviewing existing records (e.g. NZ Freshwater Fish Database), extrapolating from fish records of nearby streams, or taking an educated guess at what species are likely to occur there. The latter options will need to be more conservative (i.e. produce longer species lists).

2 What recruitment activities do these species carry out in the affected reach?

   Do the species identified in step 1 spawn in or migrate through the affected reach? For example, inanga spawning takes place in the tidal reaches of rivers and streams, adult trout migrate up river to spawning streams.

3 Use the calendar to identify what times of year this recruitment takes place.

   For example, if bridge supports are to be constructed in a small coastal stream that supports inanga only, construction should avoid the August to October period when whitebait are likely to be migrating upstream.

Further Considerations

Decisions on a final time frame should take into account the importance and vulnerability of the fishery. For example, giant kokopu and shortjawed kokopu are threatened species and so the exclusion period should extend through the peak and range of activity. The same might apply for significant inanga spawning sites.

The times of year given in the calendar for diadromous migrations (whitebait and elvers) apply to coastal streams. The young fish can take a while to reach inland sites. For example, elvers that entered the Rangitaiki estuary in September don't reach the Matahina Dam until January. Migrations speeds were estimated by some authors and are presented in the literature review. These could be used to estimate time of arrival for inland sites.

There is little or no information available for the spawning and migration of many species. Timing of these events varies from year to year and between regions, so results that are based on single river season studies have predictably narrow periods of activity. Further research is needed, but in the meantime caution is needed when interpreting results for less studied species.

Table S2 1 Whitebait and Juvenile Migration Summary

Peak activity is shown in black, range of activity in grey

	Winter			Spring			Summer			Autumn		
	Jun	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*
Inanga[1]												
Banded Kokopu[1]												
Koaro - sea run [1]												
Koaro – lake run												
Giant Kokopu												
Smelt - sea run												
Smelt – L. Rotorua[2]												
Redfinned Bully												
Common Bully												
Eel[3]			4.	4.	4.							

1 Principal whitebait species.
2 Principal whitebait species in Rotorua Lakes.
3 Two species of eel moving at overlapping times of year.
4 Glass eels moving into harbour mouths and estuaries.

Table S2 2 Spawning Summary

Peak activity is shown in black, range of activity in grey

	Spring			Summer			Autumn			Winter		
	Sep	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*
Inanga												
Banded Kokopu[1]												
Koaro[2]												
Giant Kokopu[1]												
Shortjawed Kokopu[1]												
Smelt - ocean run												
Smelt – L. Rotorua												
Eel[3]												
Trout spawning[4]												
Trout egg develop.[5]												

1 Spawning migrations away from adult habitat poorly known or infrequently documented.
2 Spawning migrations not likely.
3 Two species of eel moving at overlapping times of year.
4 Brown's and Rainbow's migrating upstream and spawning.
5 Brown's and Rainbow's egg and elver development in gravel's.

Schedule 3 – Watercourses in Land Drainage Schemes with Ecological Values

Land Drainage Canal	Column 1 Fish Species Resident in the Land Drainage Canal or its Catchment that Spawn in Tidal Areas	Column 2 Fish Species Resident in Land Drainage Canal	Column 3 Fish Species Resident in the Upper Catchment of the Land Drainage Canal
Rangitaiki Plains			
Awaiti Canal	N/A	Giant Kokopu, Shortfinned Eel	N/A
Omeheu Canal	N/A	Giant Bully, Shortfinned Eel, Redfinned Bully, Common Bully	N/A
Awakaponga Canal and Stream	N/A	Shortfinned Eel	Common Bully, Lamprey, Shortfinned Eel, Redfinned Bully, Torrentfish
Waikamihi Stream	Not tidal	Giant Kokopu, Banded Kokopu, Shortfinned Eel, Longfinned Eel, Inanga, Common Bully, Giant Bully, Redfinned Bully, Torrentfish	Common Bully, Inanga, Giant Bully, Shortfinned-Eel, Redfinned Bully, Torrentfish
Mangaone Stream	Not tidal	Banded Kokopu, Koaro, Inanga, Common Bully, Redfinned Bully, Shortfinned Eel, Longfinned Eel, Koura, Torrentfish, Lamprey	Shortfinned Eel, Redfinned Bully, Longfinned Eel, Koura, Torrentfish
Western Drain	Has flood gate – no tidal spawning	Common Bully, Shortfinned Eel, Longfinned Eel, Inanga	N/A
Ngakauroa Drain/Stream	N/A	Giant Kokopu, Banded Kokopu, Redfinned Bully, Longfinned Eel	No information
Te Rahu Canal	N/A	Giant Kokopu, Shortfinned Eel, Longfinned Eel	No information
Otarere Stream/Drain	Not tidal	Banded Kokopu	Redfinned Bully, Longfinned Eel, Shortfinned Eel, Inanga, Common Smelt
Reid's Central Canal	No spawning sites identified	Longfinned Eel, Shortfinned Eel, Common Smelt, Inanga, Giant Bully, Yellow-eyed Mullet, Kahawai, Black Flounder	N/A
Te Puke Kaituna			
Kopuroa/Kopuaroa Canal	N/A	Common Bully, Torrentfish, Unidentified Eel	No information
Ohineangaanga Canal	Not tidal	Inanga, Common Smelt, Longfinned Eel, Shortfinned Eel, Koura, Common Bully	No information

Land Drainage Canal	Column 1 Fish Species Resident in the Land Drainage Canal or its Catchment that Spawn in Tidal Areas	Column 2 Fish Species Resident in Land Drainage Canal	Column 3 Fish Species Resident in the Upper Catchment of the Land Drainage Canal
Raparapahoe Canal	N/A	Common Smelt	Common Smelt, Lamprey, Longfinned Eel, Redfinned Bully
Waiari Stream	Not tidal	Common Smelt, Lamprey, Longfinned Eel, Redfinned Bully, Koura, Unidentified Galaxiid	Common Bully, Shortfinned Eel, Unidentified Eel
Little Waihi Estuary			
Kaikokopu Canal	Inanga Whitebait spawning site at V14 164 747	Inanga, Cockabully, Common Bully, Common Smelt	Banded Kokopu
Pongakawa Canal	Inanga Whitebait spawning site at V14 171 745	Koura, Common Smelt, Giant Bully, Common Bully, Inanga, Shortfinned Eel, Longfinned Eel,	Giant Bully, Common Smelt, Inanga, Koura, Longfinned Eel, Banded Kokopu, Shortfinned Eel, Common Bully, Redfinned Bully
Pukehina Canal	Whitebait spawning site at V14 171 746	No information	No information
Waioeka/Otara			
Kukomoa Creek	Has flood gate – no tidal spawning	Inanga, Redfinned Bully, Common Bully, Shortfinned Eel, Longfinned Eel, Torrentfish	Common Bully, Inanga, Shortfinned Eel
Waihi Beach			
2 Mile Creek			Banded Kokopu, Common Bully, Redfinned Bully, Inanga, Common Smelt, Shortfinned Eel, Longfinned Eel
3 Mile Creek			Banded Kokopu, Common Bully, Redfinned Bully, Inanga, Common Smelt, Shortfinned Eel, Longfinned Eel
Tauranga City			
Wairakei Stream		Shortfinned Eel, Longfinned Eel	N/A
Carmichael Reserve		Giant Kokopu, Shortfinned Eel, Banded Kokopu, Longfinned Eel, Common Bully, Redfinned Bully, galaxiid	
Kaitemako Stream between the Welcome Bay Road bridge and Lochinvar Place	Inanga	Cockabully, Common Bully, Common Smelt Inanga.	

N/A – refers to drains that do not link to upper catchments streams.

Schedule 4 – High Risk Facilities

Para 1 The use of industry guidelines and codes of practice that detail management procedure to reduce the level of contaminants present in stormwater is encouraged. An example of an appropriate guideline would be the Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand (Ministry for the Environment, 1998). Compliance with such guidelines represents current industry best practice. However, it is recognised that discharge quality may need to be assessed on a site specific risk and/or effects basis in sensitive environments.

	Activity	Reason for High Risk Classification
1	Mechanical workshops, service stations, and automotive dismantlers	These sites use and handle large volumes of oils and other petroleum products. Spillages of these substances are not uncommon, hence the greater risk of stormwater discharges to the environment.
2	Printers	Relatively large quantities of dyes and paints are handled at these sites. The risk of spillages is relatively high.
3	Spray painting facilities	Paints can not only be spilt at these sites but can enter stormwater as a consequence of drift from spray painting operations.
4	Meat, fish and shellfish processing industries, food and pet food processing	Wastes from these industries can typically have a high BOD (refer to the Definition of Terms). This can cause significant adverse effects when discharged into water bodies.
5	Dairy products processing.	Wastes from these industries can typically have a high BOD. This can cause significant adverse effects when discharged into water bodies.
6	Waste Management sites (transfer stations, compost sites, landfills, recycling operations, etc).	Litter, hazardous substances and high BOD wastes can all enter stormwater systems from these sites.
7	Truck wash facilities	The activity of truck washing can discharge hazardous contaminants off trucks as well as sediments and wastes from spillages on site.
8	Manufacturing and bulk storage of fertiliser.	This classification applies to permanent storage facilities that are uncovered, or where there are dispensing activities that increase the risk that fertiliser material will enter stormwater. Fertiliser can cause water quality degradation (due to eutrophication) where it enters surface water bodies.
9	Textile fibre and textile processing industries where dying and washing of fabric occurs.	Large quantities of dye and high BOD wastes (from wool scourers for instance) are handled on these sites. The risk of spillages that could enter stormwater is high.
10	Tanneries and leather finishing	Large quantities of dye and high BOD wastes are handled on these sites. The risk of spillages that could enter stormwater is high.
11	Footwear manufacture	Large quantities of dye and high BOD wastes are handled on these sites. The risk of spillages that could enter stormwater is high.
12	Manufacture of paper and paper products	Hazardous substances such as chlorine based bleaches and dyes are regularly handled on these sites. The risk of spillages, entering stormwater can be high.

	Activity	Reason for High Risk Classification
13	Manufacture or processing of chemicals, and of petroleum, coal, rubber and plastic products.	The risk of spillages associated with hazardous substances used in these industries can be high.
14	Manufacture of clay, glass, plaster, masonry, asbestos and related mineral products.	The risk of spillages associated with hazardous substances used in these industries can be high.
15	Manufacture of fabricated metal products, machinery and equipment.	The risk of spillages associated with hazardous substances used in these industries can be high.
16	Electroplaters, foundries, galvanising plants and metal surfacing.	The risk of spillages associated with hazardous substances used in these industries can be high.
17	Concrete batching plants and asphalt manufacturing plants.	The risk of spillages associated with hazardous substances used in these industries can be high.
18	Stock sale yards	High BOD runoff can be associated with these sites.
19	Bakeries	Outside washing of trays, discharges and pans can result in high BOD, fats, greases and detergents entering stormwater systems.
20	Car wash and valet services	High oil, solvent and solid discharges can occur from these activities.
21	Commercial laundries (excluding service laundrettes and laundromats)	The risk of spillages associated with detergents, alkalis and salts used in this industry can be high.
22	Furniture/wood manufacturing and refinishing industries	Some of these industries work outside extensively, usually with no stormwater treatment. Contaminants such as sawdust, glues, alkali stripper solution in the stormwater coming off these sites can include high solids, BOD and high pH.
23	Timber preservation, treatment and storage sites where chemically treated timber is stored.	A range of hazardous substances are used on these sites (e.g. Copper Chrome, Arsenic, Boron and copper-quinoline compounds). In addition, timber treatment chemicals have been shown to be able to leach from treated wood in storage, contaminating water bodies and soil.
24	Paint stripping or abrasive blasting operations	May produce wastes containing heavy metals. The risk and effect of spillages is relatively high.
25	Bulk log storage	The discharge of stormwater from these sites has a high risk of contaminants entering the stormwater system.
26	Bulk storage of petroleum products	The discharge of stormwater from these sites has a high risk of contaminants entering the stormwater system.

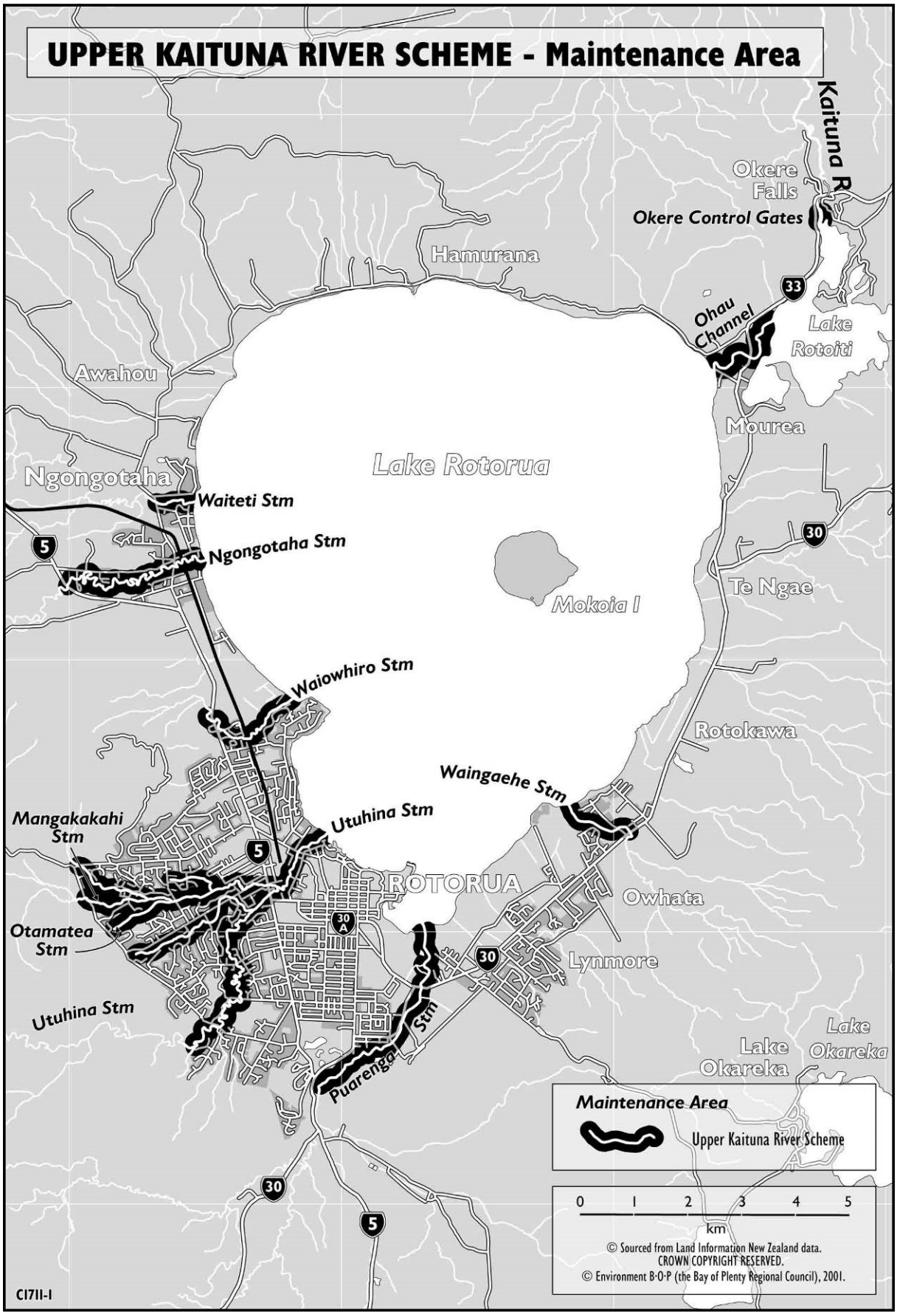
Schedule 5 – Maintenance Areas of River Schemes and Land Drainage Schemes

The following maps show the maintenance areas of river schemes and land drainage schemes that existed as of 1 January 2000.

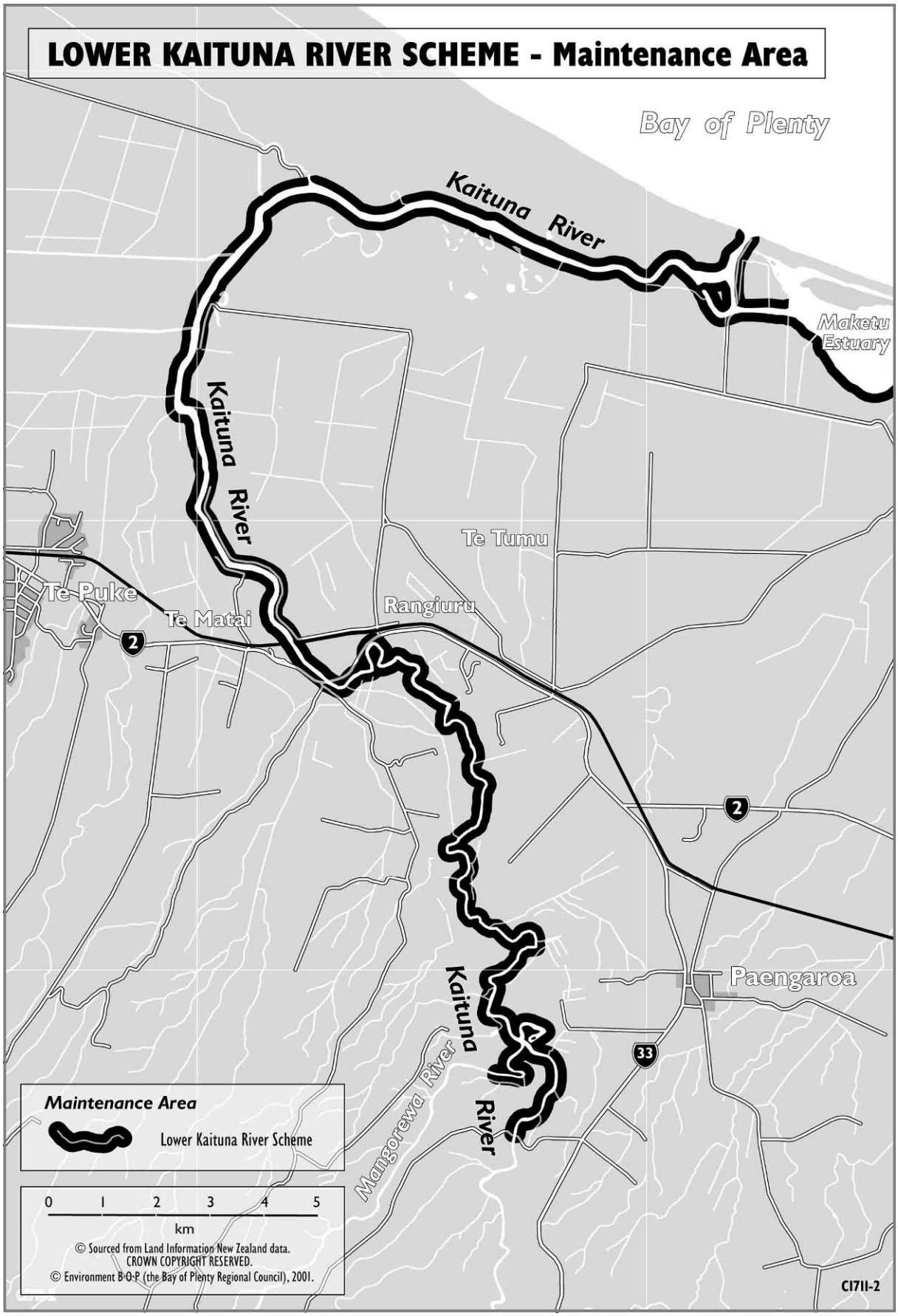
The maps show:

- River Scheme maintenance areas where maintenance works are carried out. These areas are different from the River Scheme rating areas.
- Land drainage scheme areas where maintenance works are carried out on canals, arterial drains, regional drains, pumped schemes and scheme drains within the shaded areas that are maintained by the drainage scheme administrator.

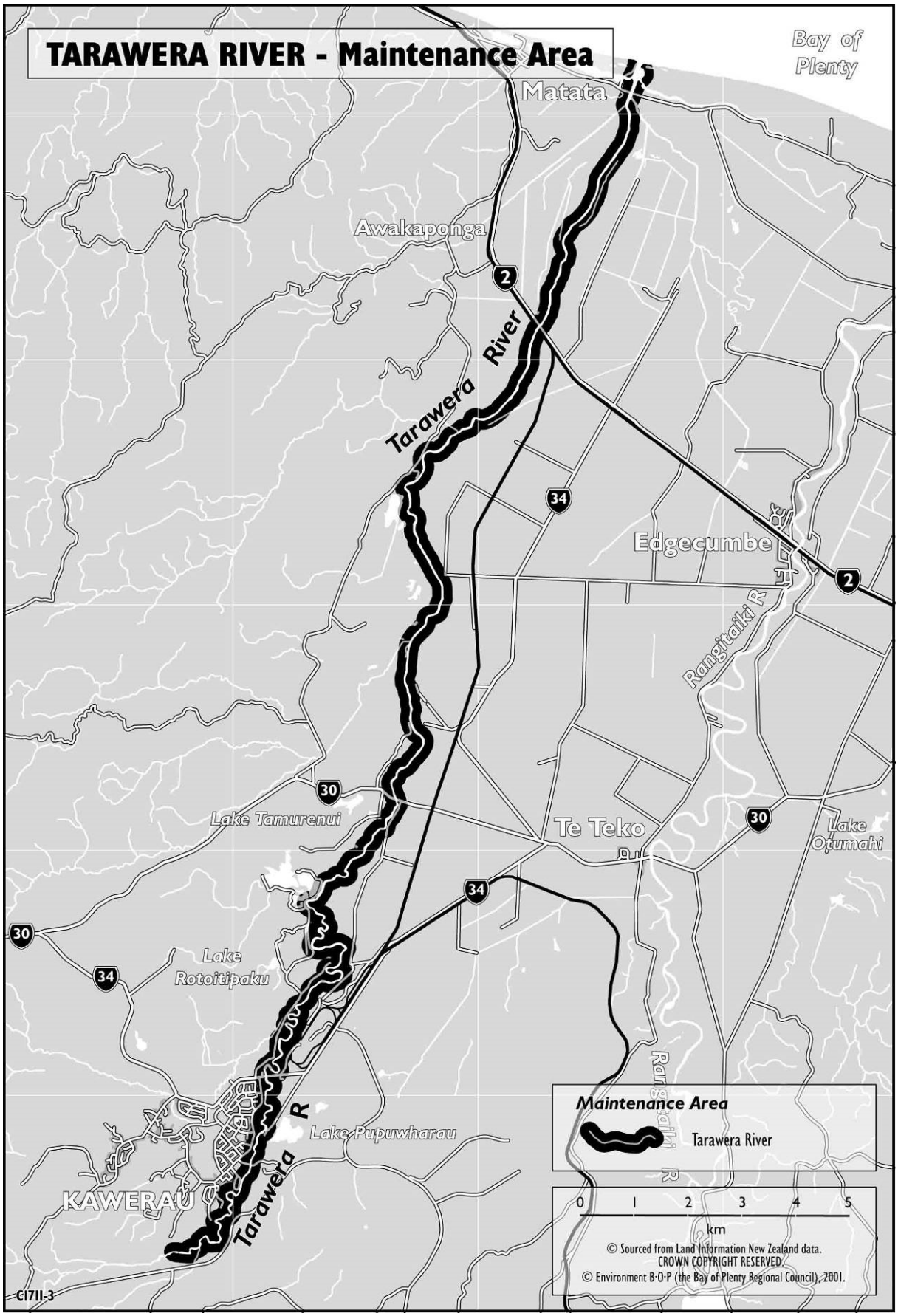
Map S5 1 – Upper Kaituna River Scheme Maintenance Area



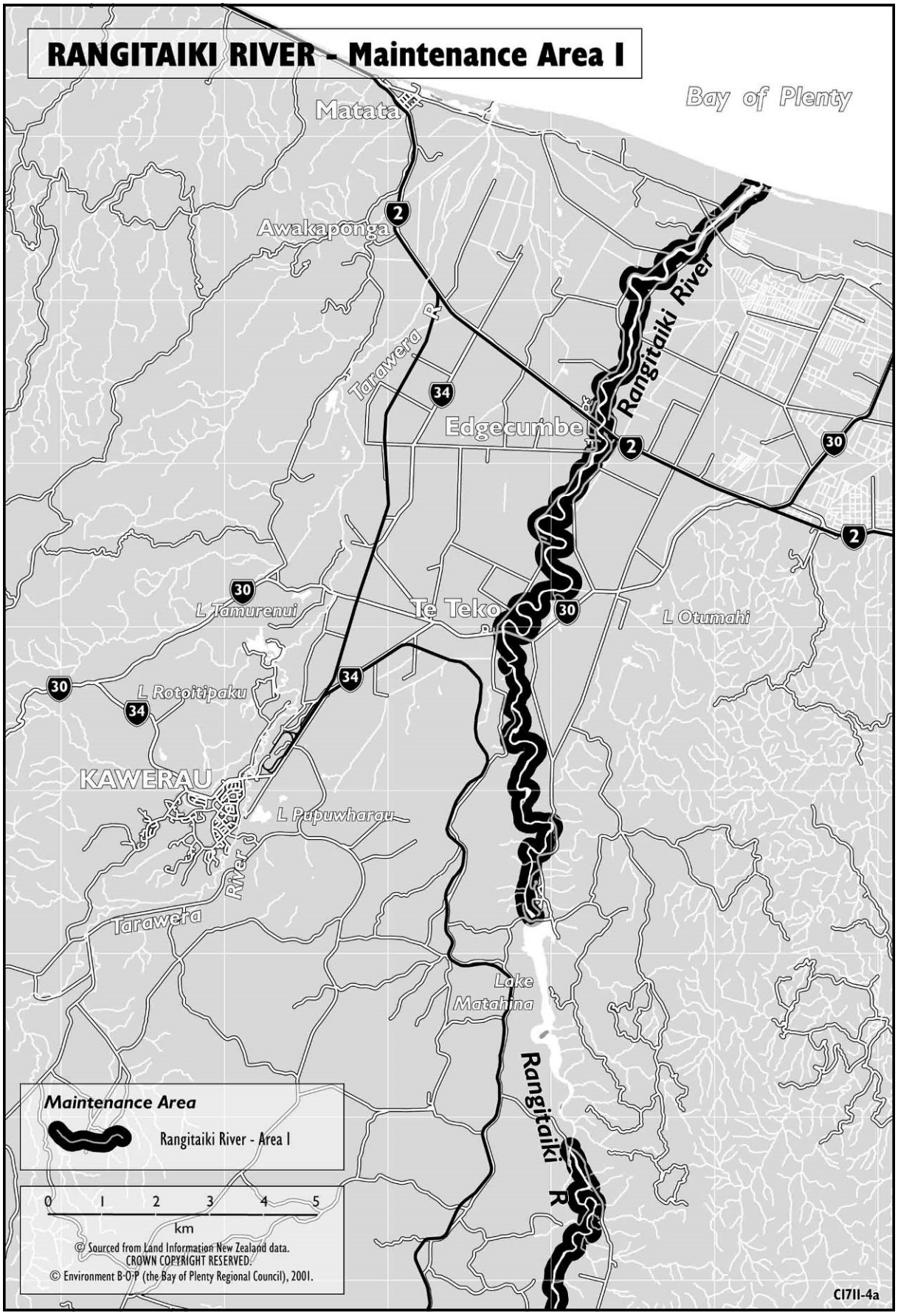
Map S5 2 – Lower Kaituna River Scheme Maintenance Area



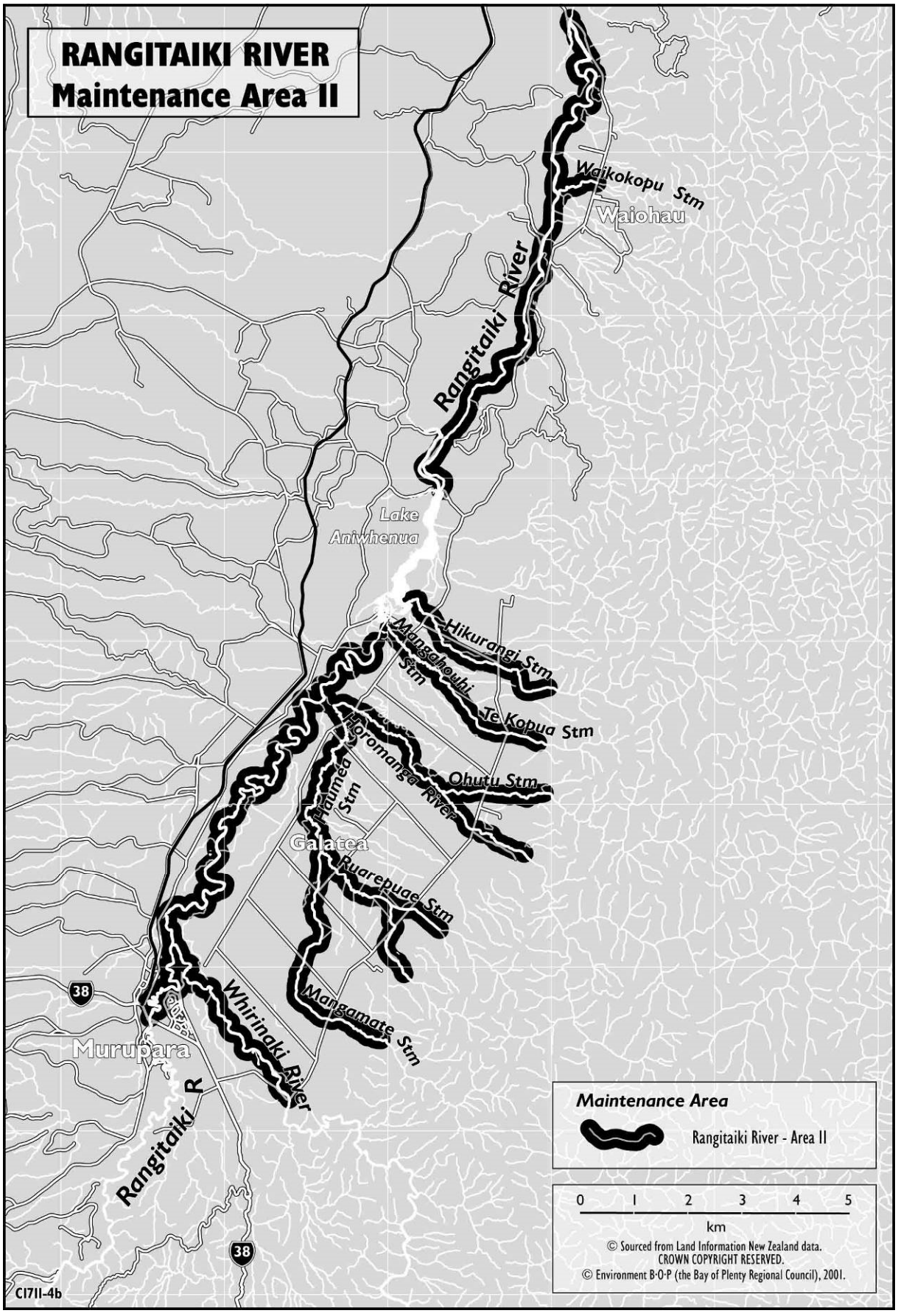
Map S5 3 – Tarawera River Scheme Maintenance Area



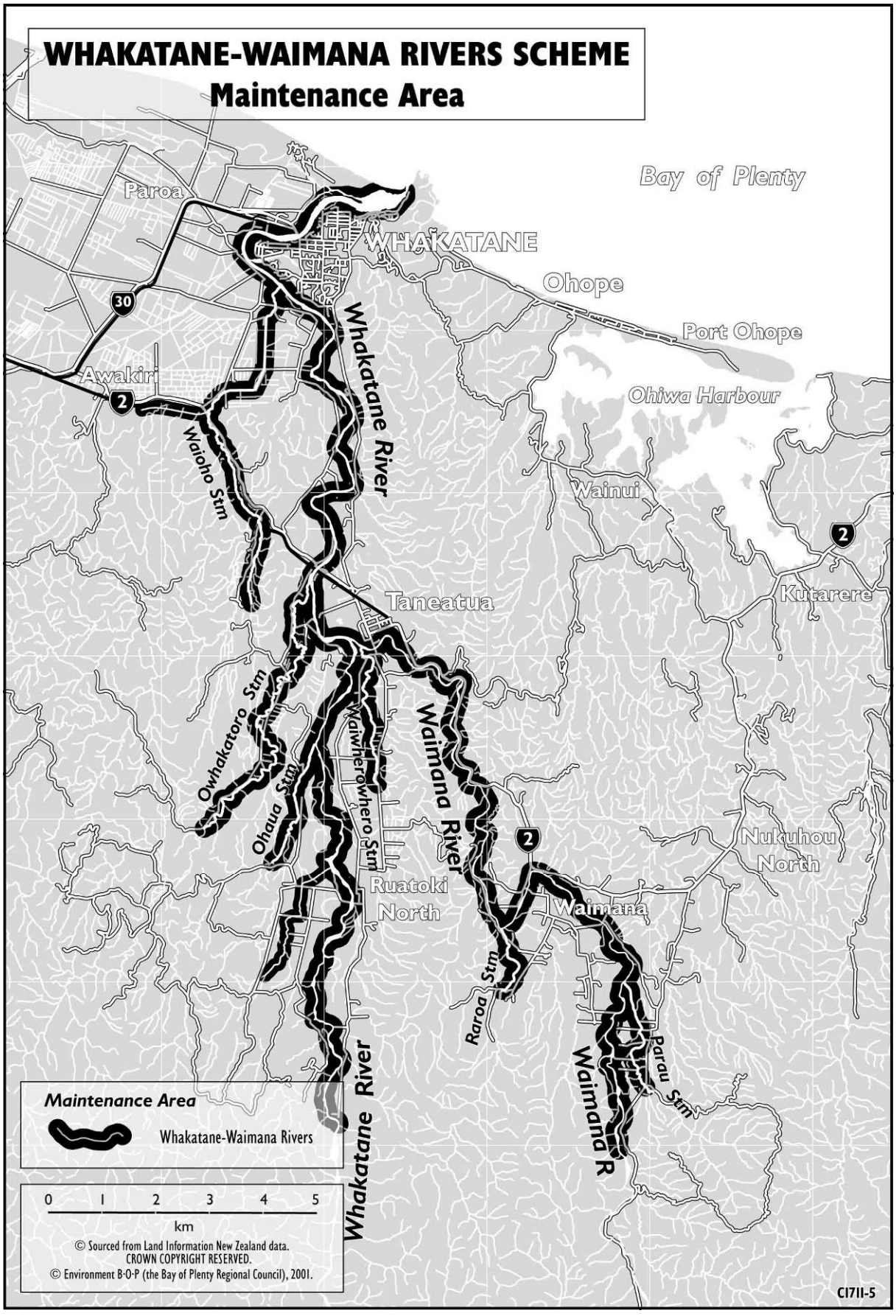
Map S5 4 – Rangitaiki River Scheme Maintenance Area I



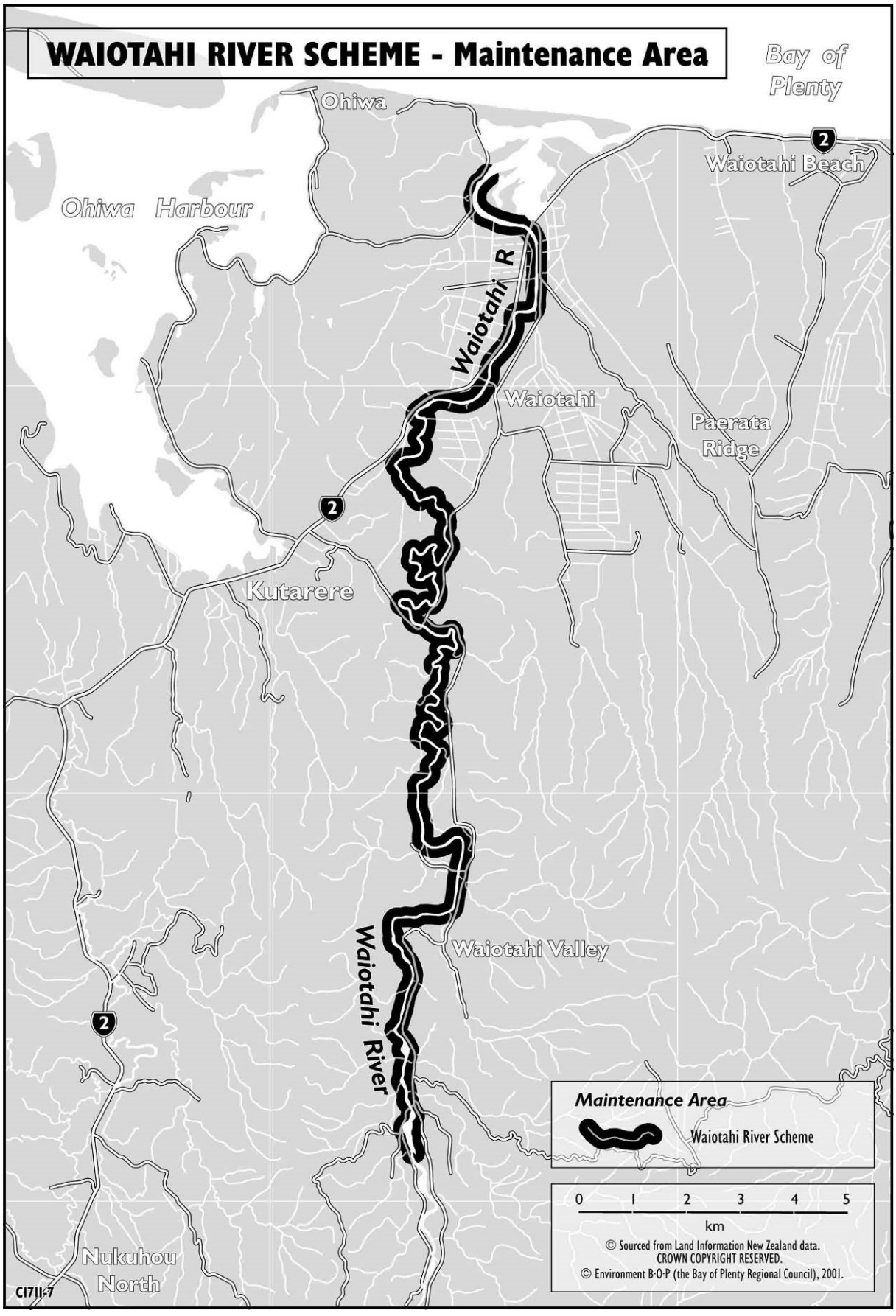
Map S5 5 – Rangitaiki River Scheme Maintenance Area II



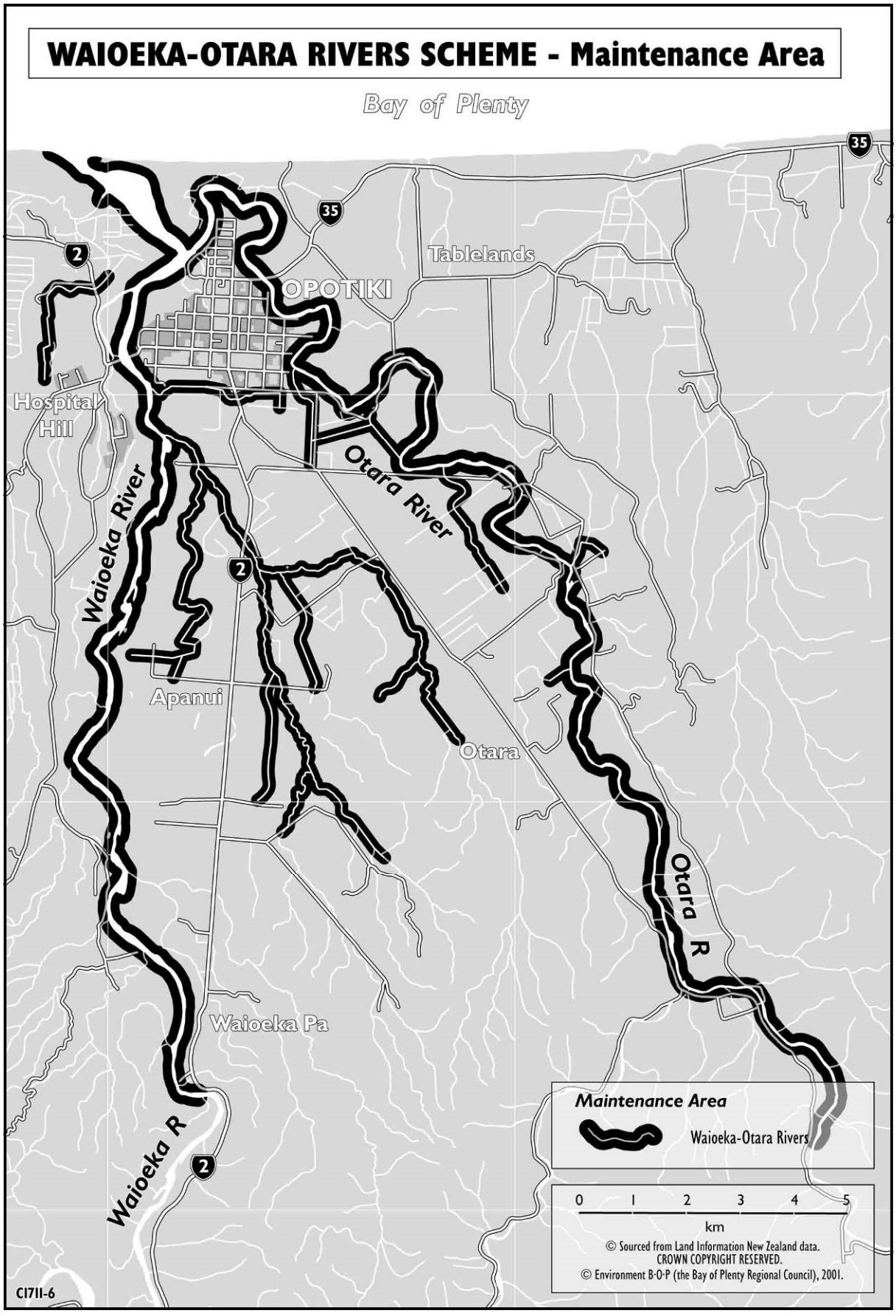
Map S5 6 – Whakatane-Tauranga Rivers Scheme Maintenance Area



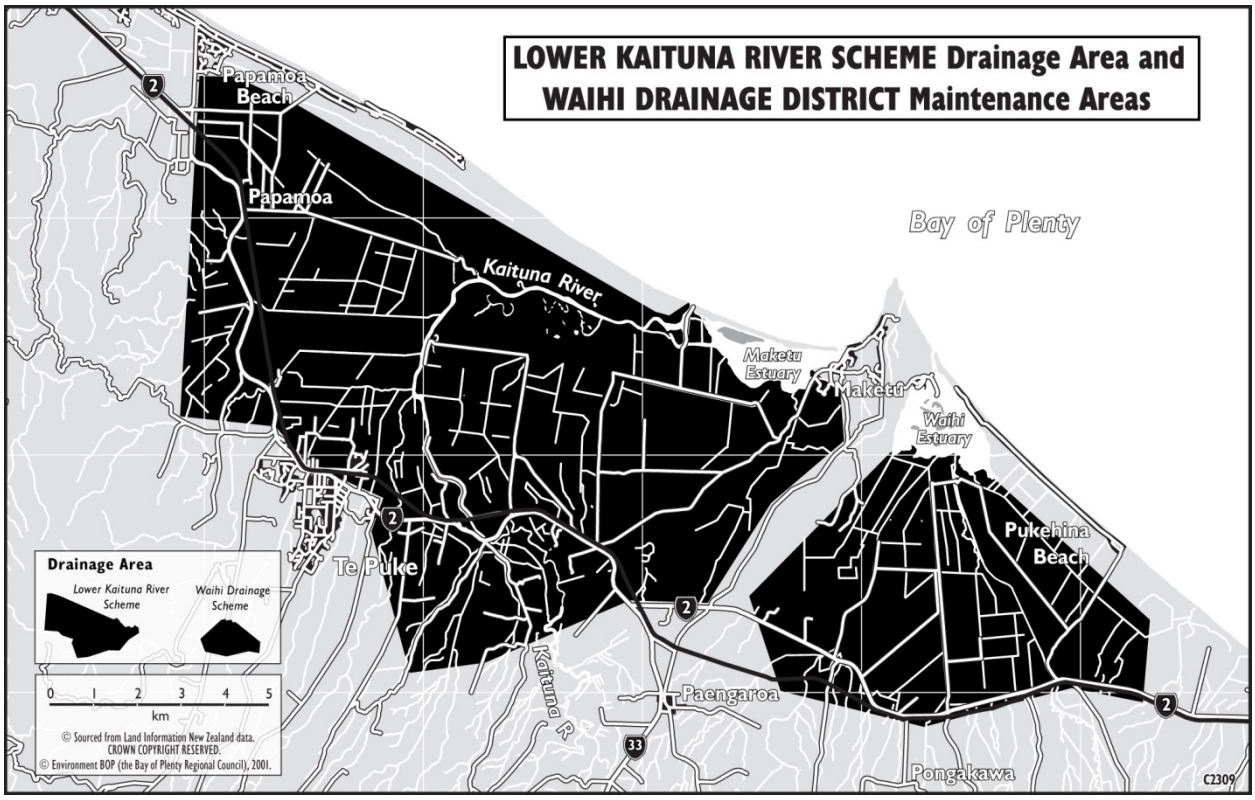
Map S5 7 – Waiotahe River Scheme Maintenance Area



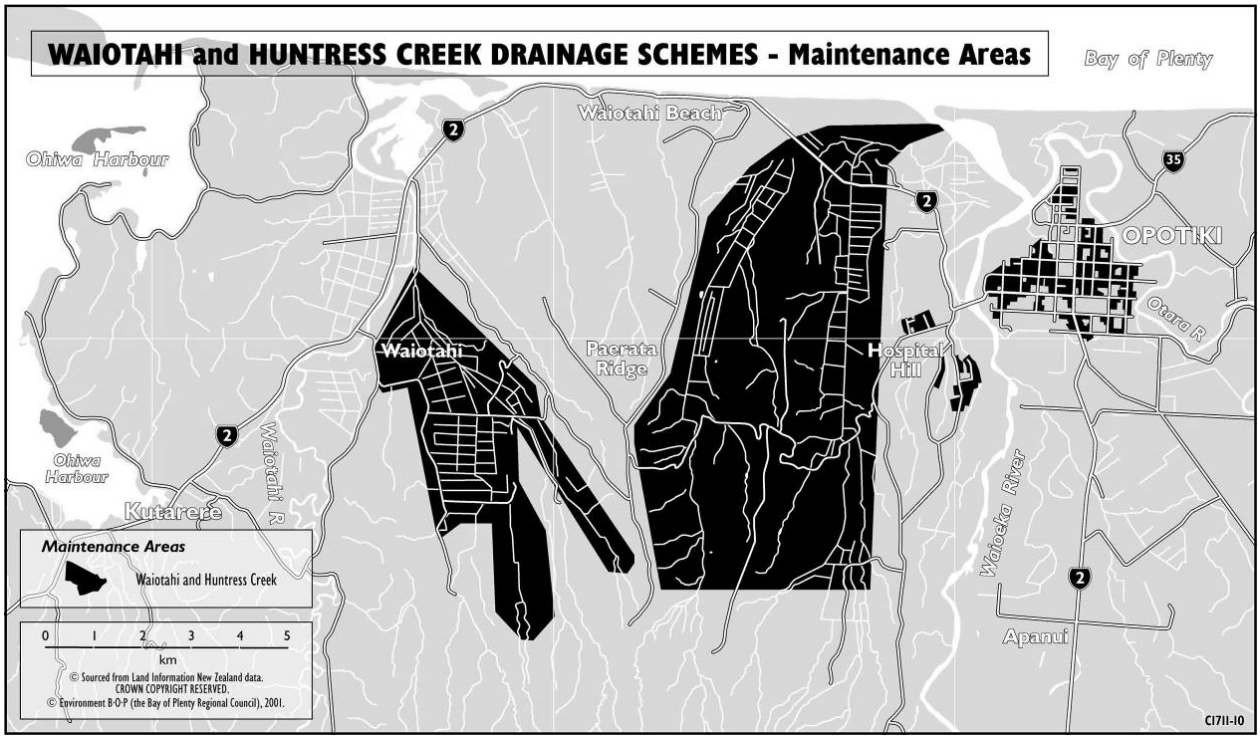
Map S5 8 – Waioeka-Otara River Scheme Maintenance



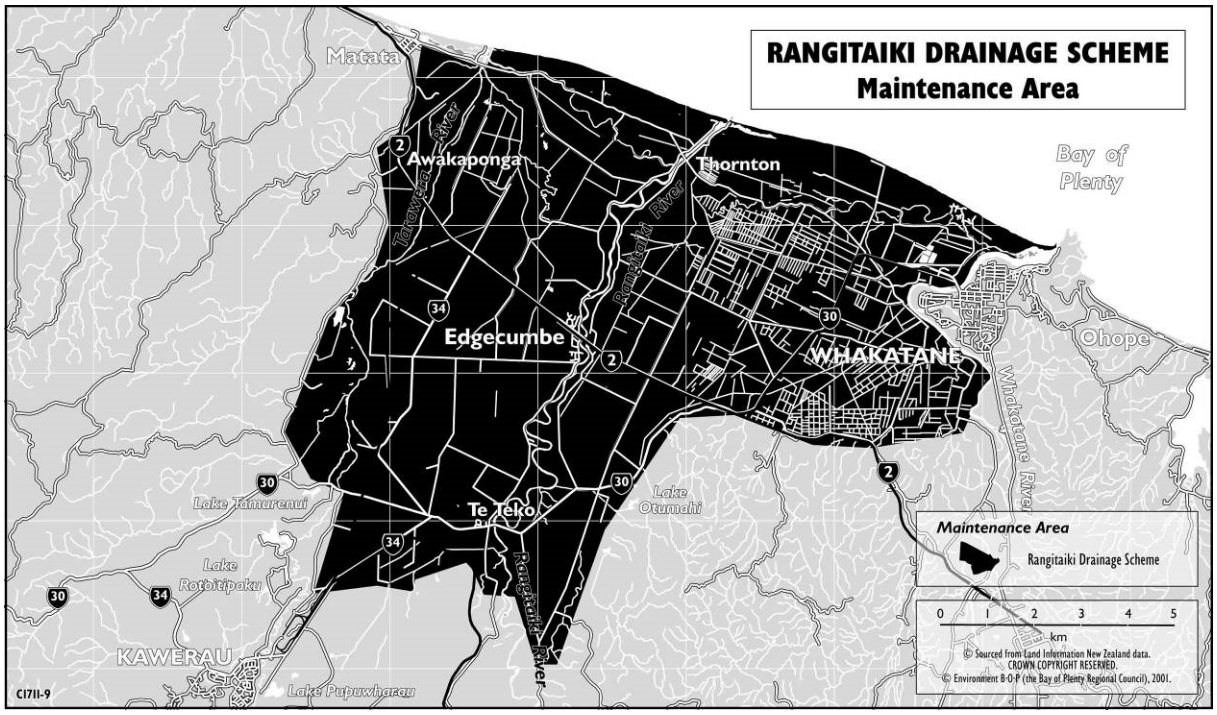
Map S5 9 – Lower Kaituna River Major Scheme Drainage Area



Map S5 10 – Waiotahe and Huntress Creek Drainage Districts



Map S5 11 – Rangitaiki Drainage District



Schedule 6 – Floodways in the Bay of Plenty

Map S6 1 - Rangitaiki Floodway

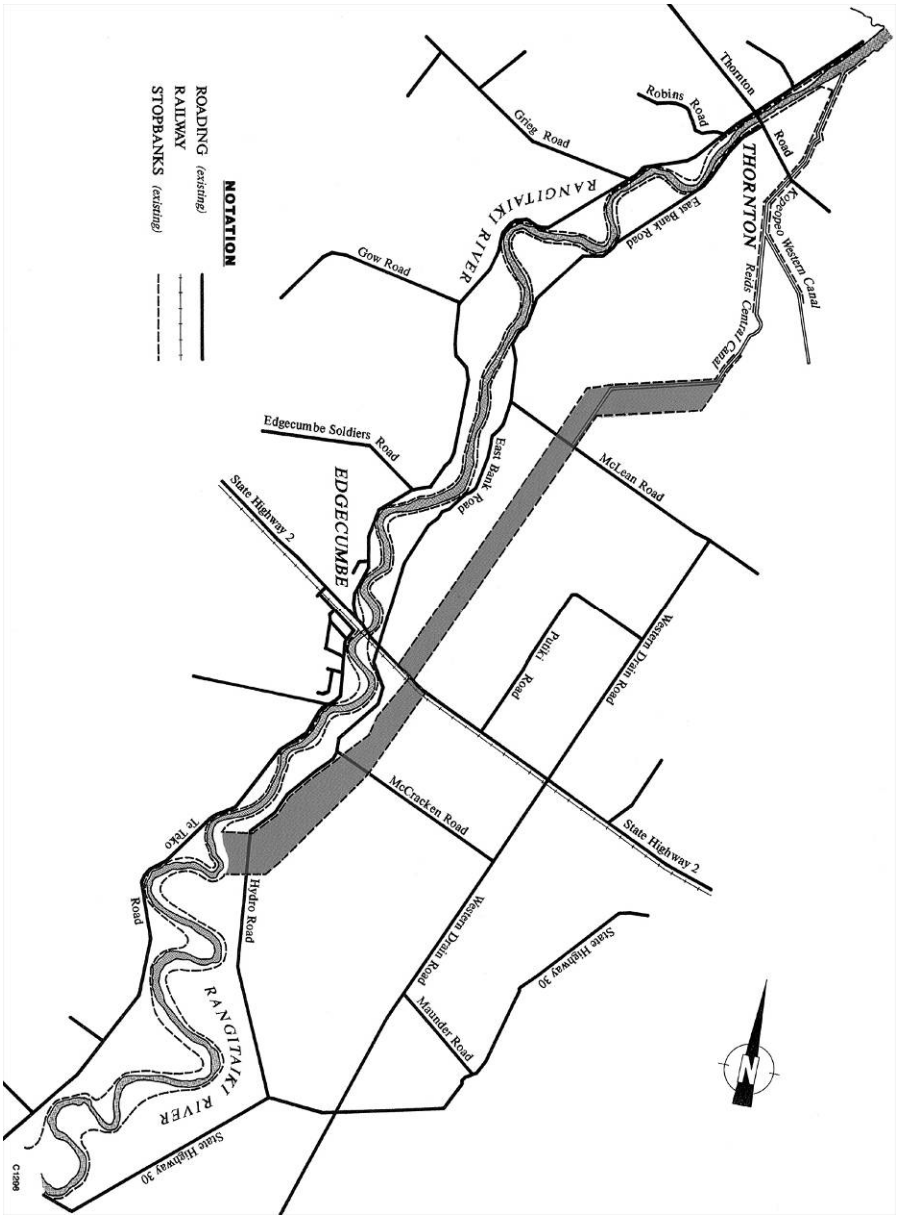
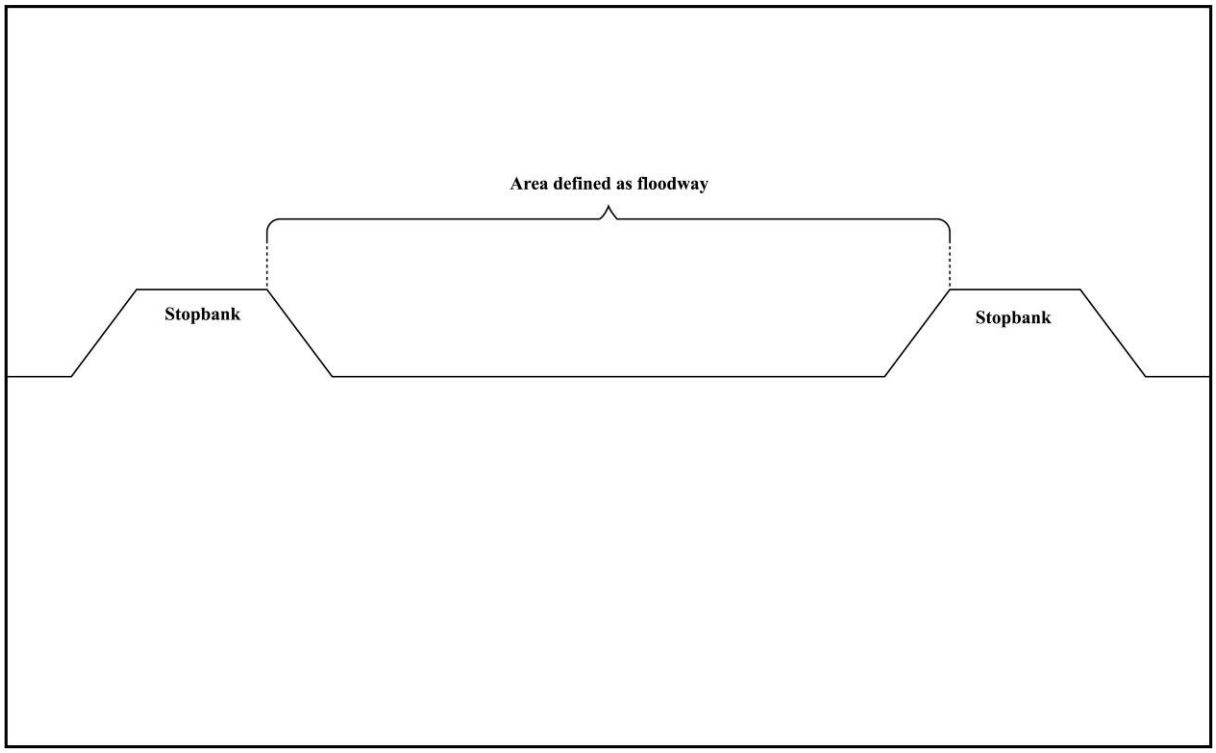


Figure S6 1 Typical Cross Section of the Rangitaiki Floodway



Schedule 7 – Instream Minimum Flow Requirements

River or Stream	Stream Reach	Instream Minimum Flow Requirement
Waitahanui Stream	From confluence with Whakahaupapa Stream to stream mouth	3.8 m^3/s

Schedule 8 – Approved Quality Assurance Programmes and Environmental Management Plans

Para 1 The following Quality Assurance Programmes, and specific Environmental Management Plans for an area of land comply with the requirements of BW M38 of this regional plan.

Para 2 There are currently no approved Quality Assurance Programmes or Environmental Management Plans for a specific area of land that have been assessed by the Regional Council to comply with WQ M10 of this regional plan. A list of approved Quality Assurance Programmes or Environmental Management Plans will be added as appropriate via a plan variation or plan change.

Schedule 9 – Water Quality Classification Standards and Criteria

The Water Quality Classification Standards and Criteria in Schedule 9 will be used to assess discharges to water that are discretionary activities under DW R8, after reasonable mixing of any contaminant or water with the receiving water, and disregarding the effect of any natural perturbations that may affect the water body. A 'natural perturbation' is a change in a water body caused by natural processes, including heating by the sun or natural geothermal inputs. Natural perturbations will be taken into account when monitoring the activity. Where appropriate, the reasonable mixing zone for a discharge of contaminants to surface water is determined in accordance with DW P1 and IM M28.

Applicants are advised to determine the water quality classification applicable to their proposed activity by viewing the Water Quality Classification Map or by contacting the Regional Council for further information.

The standards and criteria listed for each classification do not prohibit additional discharges to any water body, but the effects of any additional discharge will be assessed against the relevant Water Quality Classification and RL O1.

In relation to the E.coli limits specified in Schedule 9 (1)(b), (2)(b), (3)(d), (4)(c), (5)(b), (6)(g), (9)(c), compliance will be accepted where no single monitoring sample exceeds the limits specified for the Water Quality Classification.

LM M16 and section 128 of the Act provide for the review of resource consent conditions for discharges of contaminants to water if water quality in the water body does not meet its water quality classification, and discharges are identified to be the cause of water degradation. Existing discharges will be required to comply with these water quality classifications if a significant environmental effect is being caused, and at the time of consent renewal.

Refer to the Regional Plan for the Tarawera River Catchment for the standards and criteria for Fish Spawning Purposes Upper Tarawera River, and Fish Purposes Lower Tarawera.

The following water quality classification standards reference the ANZECC Guidelines for Fresh and Marine Water Quality, 2000 (ANZECC 2000). ANZECC 2000 set 'trigger levels' for contaminant levels, but allow for 'guideline levels' to be determined for specific sites based on geological areas. For example, guideline values for geothermally influenced streams will be different from those for marine water. Methodology for determining 'guideline values' is set in ANZEC 2000. Over time the Regional Council will be determining 'guideline levels' for the Bay of Plenty in accordance with IM M23. However, resource consent applicants may use alternative limits that otherwise comply with the narrative standards in Schedule 9, providing these are scientifically justified for the proposed activity, site characteristics and values. Where the standards reference the ANZECC 2000 guidelines, compliance will be assessed in accordance with either (a), (b) or (c):

(a) Discharges of contaminants to water shall comply with the trigger levels in the ANZECC 2000 guidelines in relation to the appropriate protection level for the receiving environment. The range of protection levels is set in ANZECC 2000 in relation to the state and value of a water body. These are:
    (i) High conservation/ecological value – 99%
    (ii) Slightly to moderately disturbed ecosystems – 95 – 99%
    (iii) Highly disturbed ecosystems – 80 – 90%

(b) Resource consent applicants wishing to discharge contaminants at a higher level that the trigger levels in the ANZECC 2000 guidelines (where no other guideline levels have been determined for that site in accordance with IM M23) are to determine appropriate guideline levels (site-specific criteria) in accordance with the methodology set in ANZECC 2000. Documentation of this process and justification for the guideline levels are required as part of a resource consent application. Resource consent applicants should also consider the appropriate aquatic ecosystem protection level for the site, and reasonable mixing zone.

(c) Resource consent applicants are to provide scientific justification for alternative limits that are appropriate to the sensitivity of the receiving environment and instream values, and otherwise comply with the narrative standards in Schedule 9 of this regional plan.

In relation to Schedule 9 3(c), 4(d), 5(d), 6(e), 7(c), 8(b) and 9(d), the following species shall be used as indicators to assess compliance for 'undesirable biological growths': growths where organisms of the genus Spahaerotilus, Zoogloea, or Beggiatoa are present. Appropriate levels for biological growths resulting from a discharge to water will be set on a case by case basis in relation to reasonable mixing, natural perturbations and relevant characteristics of the receiving water body. Natural perturbations will be taken into account when monitoring the discharge and the receiving environment.

1 Natural State (Lake) Water Quality Classification

Any discharge of contaminants or water to water in a lake classified as Natural State (Lake) in the Water Quality Classification Map shall not alter the natural quality of the water after reasonable mixing of the discharge with the receiving water. The standards and criteria that apply to Natural State (Lake) are:

(a) There shall be no change in water quality parameters as a result of the discharge that causes a decrease in water quality, including, but not limited to:
  (i) No increase in temperature.
  (ii) No change in pH.
  (iii) No increase in suspended solids.
  (iv) No decrease in dissolved oxygen.

(b) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.

(c) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 200[40]).

(d) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  (ii) Any conspicuous change in the colour or visual clarity. There shall be no (0%) decrease in secchi disc depth or black disk range.
  (iii) Any emission of objectionable odour (refer to the Air Chapter).
  (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
  (v) Any adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

[40] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

(e) There shall be no net increase of nitrogen or phosphorus in the lake as a result of the discharge. This means the mass of nitrogen or phosphorus being discharged directly to surface water or to groundwater, after taking into account mitigation or offset measures, is not above that entering surface water or groundwater from the activity site prior to the discharge.

Explanation/Intent of Classification

To ensure that the natural water quality in lakes classified as Natural State (Lake) is not altered by discharges to the lake. Such lakes are to be protected in their existing high quality state.

2 Natural State (River) Water Quality Classification

Any discharge of contaminants or water to water in a river or stream classified as Natural State (River) in the Water Quality Classification Map shall not alter the natural quality of the water after reasonable mixing of the discharge with the receiving water. The standards and criteria that apply to Natural State (River) are:

(a) There shall be no change in water quality parameters as a result of the discharge that causes a decrease in water quality, including, but not limited to:
  (i) No increase in temperature.
  (ii) No change in pH.
  (iii) No increase in suspended solids.
  (iv) No decrease in dissolved oxygen.

(b) The discharge shall not cause the *E. coli* level to exceed 126cfu/ml as measured by a single sample.

(c) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[41]).

(d) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  (ii) Any conspicuous change in the colour or visual clarity. There shall be no (0%) decrease in secchi disc depth or black disk range.
  (iii) Any emission of objectionable odour (refer to the Air Chapter).
  (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
  (v) Any adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

To ensure that the natural water quality in streams and rivers classified as Natural State (River) is not altered by discharges to the water body. Such streams and rivers are to be protected in their existing high quality state, which is under protected indigenous forest cover. It is recognised that the 'natural state' of rivers in the region will vary according to underlying geology and other natural influences. The *E. coli* limit is set to allow for bathing suitability in downstream river reaches, and recognises the cumulative inputs from upper catchments.

[41] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

3 Managed State (Lake) Water Quality Classification

Any discharge of contaminants or water to water in a lake classified as Managed State (Lake) in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The natural temperature of the water shall not be changed by more than 3 degrees Celsius.
(b) There shall be no net increase of nitrogen or phosphorus in the lake as a result of the discharge. This means the mass of nitrogen or phosphorus being discharged directly to surface water or to groundwater, after taking into account mitigation or offset measures, is not above that entering surface water or groundwater from the activity site prior to the discharge.
(c) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the lake.
(d) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
(e) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[42]).
(f) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
    (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
    (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 10% decrease in secchi disc depth or black disk range.
    (iii) Any emission of objectionable odour (refer to the Air Chapter).
    (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
    (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

To ensure that the water quality in lakes classified as Managed State (Lake) is maintained or improved to meet the established standards and criteria. The classification is applied to those lakes that are affected by human activities and may have degraded water quality. The *E.coli* limit is set to allow for bathing suitability. The standards and criteria are a combination of important water quality indicators, including factors used in the water quality classes of Schedule 3 of the Act.

4 Aquatic Ecosystem (Bay of Plenty) Water Quality Classification

Any discharge of contaminants or water to water in a river or stream classified as Aquatic Ecosystem (Bay of Plenty) in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The natural temperature of the water shall not be changed by more than 3 degrees Celsius as a result of the discharge.

[42] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

(b) The discharge shall not cause the dissolved oxygen level to fall below 80% of saturation concentration.
(c) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
(d) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the river or stream.
(e) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[43]).
(f) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
    (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
    (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 10% decrease in secchi disc depth or black disk range.
    (iii) Any emission of objectionable odour (refer to the Air Chapter).
    (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
    (v) No more than minor adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

To ensure that the aquatic ecological values of rivers and streams classified as Aquatic Ecosystem (Bay of Plenty) are protected from the adverse effects of discharges. Such streams provide habitat for indigenous species or trout. The standards and criteria are based on the AE (aquatic ecosystem) water quality class of Schedule 3 and section 70 of the Act. Condition (e) provides for food gathering, including trout fishing for consumption. The *E. coli* limit is set to allow for bathing suitability in downstream river reaches, and recognise the cumulative inputs from upper catchments.

5 Contact Recreation Water Quality Classification

Any discharge of contaminants or water to water in a river or stream classified, as Contact Recreation in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The discharge shall not cause the visual clarity of the water to fall below 1.6 m of a horizontal sighting distance of a 200 mm black disc (from Water Quality Guidelines Number 2, Ministry for the Environment, June 1994)[44].
(b) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
(c) The water shall not be rendered unsuitable for bathing by the presence of contaminants as a result of the discharge at levels exceeding those specified in the Recreational Water Quality Guidelines, Ministry of Health/Ministry for the Environment, November 1999[45].
(d) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.

[43] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.
[44] Ministry for the Environment, June 1994. Water Quality Guidelines Number 2. Wellington, New Zealand.
[45] Ministry of Health/Ministry for the Environment, November 1999. Recreational Water Quality Guidelines. New Zealand.

(e) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  (ii) Any conspicuous change in the colour or visual clarity, subject to (a).
  (iii) Any emission of objectionable odour (refer to the Air Chapter).
  (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[46]).
  (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

To ensure that the contact recreation values of rivers and streams classified as Contact Recreation are protected from the adverse effects of discharges. The standards and criteria are based on the CR (contact recreation) water quality class of Schedule 3 and section 70 of the Act, and relevant national standards. The *E. coli* limit is set to allow for bathing suitability.

6 Water Supply Water Quality Classification

Any discharge of a contaminant or water to water in a stream or river classified as Water Supply in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The discharge shall not cause the pH of the surface water to exceed 9.0 units, or fall below 6.0 units.
(b) The discharge shall not cause the dissolved oxygen level to fall below 5 grams per cubic metre.
(c) The water shall not be rendered unsuitable for treatment (equivalent to coagulation, filtration, disinfection or micro-filtration) for human consumption by the presence of contaminants as a result of the discharge.
(d) The water shall not be tainted or contaminated so as to make it unpalatable or unsuitable for consumption by humans after treatment (equivalent to coagulation, filtration, disinfection and micro-filtration), or unsuitable for irrigation as a result of the discharge.
(e) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
(f) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  (iii) Any emission of objectionable odour (refer to the Air Chapter).
  (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[47]).
  (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
(g) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.

[46] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.
[47] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

(h) The discharge shall not contain any hazardous substance that presents a risk to human health, or which renders water untreatable to a potable quality (as defined by the Ministry of Health).
(i) The natural temperature of the water shall not be changed by more than one (1) degree Celsius as a result of the discharge.

Explanation/Intent of Classification

To ensure that the municipal water supply values of rivers and streams classified as Water Supply are protected from the adverse effects of discharges. The standards and criteria are based on the WS (water supply) water quality class of Schedule 3 and section 70 of the Act, and relevant national standards.

7 Modified Watercourses with Ecological Values Water Quality Classification

Any discharge of a contaminant or water to water in a watercourse classified as Modified Watercourses with Ecological Values in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The temperature of the water:
  (i) Shall not be changed by more than 3 degrees Celsius; and
  (ii) Shall not exceed 18 degrees Celsius,
  as a result of the discharge.
(b) The concentration of dissolved oxygen shall not be lowered as a result of any discharge of a contaminant into the water.
(c) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
(d) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  (iii) Any emission of objectionable odour (refer to the Air Chapter).
  (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[48]).
  (v) Any more than minor adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

Modified Watercourses with Ecological Values water quality classification is to maintain water quality in specific watercourses (refer to the Water Quality Classification Map) in order to maintain the aquatic habitats and migratory pathways of indigenous fish species that are present in the watercourse. This classification has only been applied to modified watercourses that are part of land drainage systems (referred to as Land Drainage Canals) that provide aquatic habitats or migratory pathways for indigenous fish species. The conditions reflect the need to minimise any further degradation of water quality in modified watercourses used for land drainage, and the somewhat limited opportunity to improve water quality in these watercourses. The standards and criteria are based on section 70 of the Act, and relevant national standards. This classification links to Schedule 3. Condition (a) means that there shall not be more than a 3 degree Celsius change in water temperature as a result of the discharge while the ambient

[48] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

water temperature remains below 18 degrees Celsius. Once the ambient water temperature exceeds 18 degrees Celsius there shall be no measurable increase in water temperature as a result of the discharge after reasonable mixing.

8 Drain Water Quality Classification

Any discharge of a contaminant or water to water in a watercourse classified as Drain Water Quality in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The temperature of the water:
  (i) Shall not be changed by more than 3 degree Celsius; and
  (ii) Shall not exceed 25 degrees Celsius,
  as a result of the discharge.
(b) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
(c) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  (iii) Any emission of objectionable odour (refer to the Air Chapter).
  (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[49]).
  (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

The Drain Water Quality Classification is to set minimum standards and criteria for any discharge to water in an open drain to prevent further degradation of water quality, particularly in receiving environments. The conditions recognise that water quality in drains is already poor, and the somewhat limited opportunity to improve water quality in these watercourses. Condition (c) is directly from section 70(1) of the Act, which are the minimum conditions for discharge quality. Condition (a) means that there shall not be more than a 3 degree Celsius change in water temperature as a result of the discharge while the ambient water temperature remains below 25 degrees Celsius. Once the ambient water temperature exceeds 25 degree Celsius there shall be no measurable increase in water temperature as a result of the discharge after reasonable mixing.

9 Regional Baseline (Bay of Plenty) Water Quality Classification

Any discharge of a contaminant or water to water in a river or stream classified as Regional Baseline (Bay of Plenty) in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

(a) The natural temperature of the water shall not be changed by more than 3 degrees Celsius as a result of the discharge.
(b) The discharge shall not cause the dissolved oxygen level to fall below 80% of saturation concentration.

[49] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

(c) The discharge shall not cause the *E. coli* level to exceed 410 cfu/ml as measured by a single sample.
(d) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
(e) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
    (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
    (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
    (iii) Any emission of objectionable odour (refer to the Air Chapter).
    (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000[50]).
    (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

Explanation/Intent of Classification

The Regional Baseline (Bay of Plenty) water quality classification is to maintain water quality for general water usage in rivers and streams that have not otherwise been classified to a specific standard. The standards and criteria are a combination of standards and criteria from other water quality classes in this regional plan and in Schedule 3 of the Act. Conditions (a), (b), (d) and (e) are general limits used for consistency with other water quality classifications used in this regional plan. Condition (c) allows for the water quality to generally meet the bathing suitability guidelines (single sample limit), although the water body will occasionally fail such guidelines.

[50] Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

Schedule 10 – Freshwater Bathing Sites

The listed sites are those monitored as part of the Bathing Suitability investigations, and have been identified by the community and the Regional Council as major bathing areas in the region.

	Stream or Lake	Location of Monitoring
	River and Stream Sites	
1	Haparapara River	State Highway 35
2	Waioeka River	Waioeka Gorge mouth
3	Tauranga River	Te Paakau
4	Tauranga River	Wardlaw Glade
5	Whakatane River	Landing Road Bridge
6	Whakatane (Ohinemataroa) River	Ruatoki Valley Road (Waikirikiri)
7	Rangitaiki River	Murupara
8	Rangitaiki River	Te Teko
9	Tarawera River	Kawerau
10	Puarenga Stream	Whakarewarewa
11	Kaituna River	The Trout-pool
12	Utuhina Stream	Pukehangi Road
13	Ngamuwahine River	
14	Wairoa River	McLaren Falls
15	Wairoa River	Bethlehem
16	Uretara Stream	Katikati
17	Tuapiro Stream	McMillan Road
	Lake Sites	
18	Lake Rotoiti	Hinehopu
19	Lake Rotoiti	Gisborne Point
20	Lake Rotorua	Haumurana
21	Lake Rotorua	Waiteti Stream
22	Lake Rotorua	Ngongotaha
23	Lake Okareka	
24	Lake Okaro	

Schedule 11 – Lawfully Existing Hydroelectric Power Schemes

The hydroelectric power schemes listed below existed at the date this regional plan become operative and are subject to WQ R20 when applications are made to replace existing resource consents.

	Hydroelectric Power Scheme	Description
(a)	Kaimai	Lloyd Mandeno Power Station – damming of nine streams; take of water from these streams; discharge of water to Lake Mangaonui; take and use of water from Lake Mangaonui; discharge to Mangapapa River. Lower Mangapapa Power Station – damming of Mangapapa River to form Lake Matariki/Mangapapa; take and use of water; discharge to lake McLaren. Ruahihi Power Station – Take of water from Mangakarengorengo River; discharge of water to Lake McLaren; take of water from Lake McLaren via canal to Ruahihi Power Station; discharge to Wairoa River; release of water from McLaren Falls Power Station for recreational purposes.
(b)	Wheao	Damming of water in Wheao River, Rangitaiki River and Flaxy Creek; take and use of water for power generation; discharge of water from Wheao Dam.
(c)	Matahina	Damming of water in the Rangitaiki River; take and use of water for power generation; discharges to the Rangitāiki River.
(d)	Aniwhenua	Damming of water in the Rangitaiki River, Pokairoa Stream and Pahekeheke Stream; take and use of water for power generation; discharge to the Rangitaiki River.
(e)	Karaponga	Damming of water in the Karaponga Stream; take and use water; discharge to the Karaponga Stream.

Schedule 12 – Removed to give effect to the National Environmental Standards for Plantation Forestry Regulations 2017

Schedule 13 – Statutory Acknowledgements in the Bay of Plenty Region

Five statutory acknowledgements apply to the Bay of Plenty Region – these relate to the Ngati Awa, Ngāti Tuwharetoa, Te Arawa Lakes, and Affiliate Te Arawa Iwi and Hapu (two) deeds of settlement[51].

References to the relevant statutory subparts:

- Ngati Awa Claims Settlement Act 2005, Part 4 Cultural redress, Subpart 3—Statutory acknowledgements and deeds of recognition. (In accordance with section 45, Recording statutory acknowledgements on statutory plans, of that Act.) Date of Royal Assent: 24 March 2005. Statutory Acknowledgement effective date: 26 October 2005.
- Ngati Tuwharetoa (Bay of Plenty) Claims Settlement Act 2005, Part 4 Cultural redress, Subpart 3—Statutory acknowledgements and deeds of recognition. (In accordance with section 42, Recording statutory acknowledgements on statutory plans, of that Act.) Date of Royal Assent: 23 May 2005. Statutory Acknowledgement effective date: 22 December 2005.
- Te Arawa Lakes Settlement Act 2006, Part 3 Other cultural redress, Subpart 3—Statutory acknowledgement. (In accordance with section 65, Recording of statutory acknowledgement on statutory plans, of that Act.) Date of Royal Assent: 25 September 2006. Statutory Acknowledgement effective date: 25 April 2007.
- Affiliate Te Arawa Iwi and Hapu Claims Settlement Act 2008, Part 2 Cultural redress, Subpart 2—Statutory acknowledgement, geothermal statutory acknowledgement, and deed of recognition. (In accordance with section 32, Recording statutory acknowledgement on statutory plans, of that Act.) Date of Royal Assent: 29 September 2008.
- Affiliate Te Arawa Iwi and Hapu Claims Settlement Act 2008, Part 2 Cultural redress, Subpart 2—Statutory acknowledgement, geothermal statutory acknowledgement, and deed of recognition. (In accordance with section 40, Recording geothermal statutory acknowledgement on statutory plans, of that Act.) Date of Royal Assent: 29 September 2008.

[51] The full text of statutory acknowledgements applying in the Bay of Plenty Region is also available in a separate document available from Environment Bay of Plenty and on www.envbop.govt.nz.

Schedule 14 – Standards for the Construction, Reconstruction, Maintenance or Decommissioning of Holes, Bores, Wells and Infiltration Galleries

Section 1 Bore, Wells and Infiltration Gallery Maintenance Requirements	
a) All bores, wells or infiltration galleries shall have sufficient surrounding open space to allow access for maintenance, monitoring, testing or decommissioning. b) The headworks of the bore shall be maintained and the annular space between the casing and the hole shall be sealed from the surface to: (i) Prevent the entry of contaminants; and (ii) Control subsurface pressures; and (iii) Prevent any movement of the casing until the bore is decommissioned. c) All wells and water infiltration galleries shall be maintained to prevent the entry of contaminants to groundwater or an aquifer.	
Section 2 Construction and Reconstruction Requirements	
2.1 General Requirements	a) All equipment used for drilling and bore or well construction, and their maintenance, shall be kept clean to prevent the entry of contaminants to groundwater. b) All chemicals, drilling fluid additives, grout materials used in the construction and operation of the bore or well shall be prepared and used in accordance with the manufacturers' instructions. c) The driller shall have available manufacturers' guidelines and material safety data sheets for chemicals, drilling fluid additives, grout materials. This shall include instructions for handling, preparation, use, potential hazards, and disposal requirements for the materials and their containers.
2.2 Drilling fluids and additives	a) Drilling fluid must not be discharged directly to water. b) Drilling fluid must be discharged to land, with measures taken to ensure that there is no runoff into surface waterways. c) All grout materials used shall be suitable in terms of its composition, density, strength and corrosion resistance for the site and installation conditions. d) Grout additives that could leave a residual toxicity in groundwater shall not be used. e) Water used for drilling fluid or grouting shall be free of substances or contaminants that may adversely affect the strength of the grout or grout setting time. f) Bentonite shall contain no added substances that may adversely affect the strength of the grout or grout setting time, or result in a discharge that affects groundwater quality.
2.3 Casing	a) All casing materials used (including temporary casing) shall be suitable in terms of its composition, cleanliness, strength and corrosion resistance for site and installation conditions, and the use of the bore. b) Bore casing shall be secure, leak-proof, and suitable to withstand the stress of installation, bore testing and bore use.
2.4 Screens	a) All screen material (including temporary screen material) shall be suitable, in terms of its composition, cleanliness, strength and corrosion resistance for the site and installation conditions and the use of the bore. b) The screen slot size shall be appropriate for the aquifer and the gravel pack grain size and grading. c) The screen shall be securely sealed to the casing to prevent entry of rock or soil or gravel pack material into the bore.

2.5 Gravel Pack	a) The gravel pack shall consist of non-toxic, washed, rounded gravel of selected grain size and gradation, free of material that may decay or disintegrate during installation, development and bore use. b) No more than two percent by weight of the gravel pack shall consist of thin, flat or elongated material, where the maximum length exceeds three times the minimum width or thickness whichever is the lesser. c) No more than five% by volume of the gravel pack shall be acid soluble gravel. d) The gravel pack material shall fill the annulus from below the screen to above the top of the screen at all times during bore development, testing and use.
2.6 Headworks	a) All materials used in the bore headworks shall be of appropriate composition, corrosion resistance, and strength for the site, installation conditions, and the use of the bore. b) All joints, valves, sockets, bungs, taps and gauges used in the headworks shall be able to withstand the pressure and temperature of the bore under all conditions. c) Bore headworks shall be constructed and maintained to prevent: the leakage of groundwater, any movement of the casing, and any material or surface water entering the bore or annulus.

Section 3 Bore-Specific Requirements

a) All bores shall have a concrete pad or grout seal placed around the bore head to prevent the entry of surface water or contaminants between the bore casing and surrounding ground and to control subsurface pressures.

b) The bore shall be protected from interference by stock or tampering.

c) When a bore is not in use, it shall be capped to prevent the entry of contaminants down the bore or artesian water flowing from the bore.

d) Bores that present with perennial flowing artesian conditions shall:

(i) Be fitted with headworks that control artesian pressures to avoid the uncontrolled discharge of water and;

(ii) Have provision to allow pressure readings to be taken.

Section 4 Hole, Bore, Well and Infiltration Gallery Decommissioning

a) The hole, bore or well shall be backfilled and sealed at the surface to confine the gallery system and prevent contaminants from surface sources leaking or leaching to groundwater.

b) The water infiltration gallery and excavation shall be backfilled with inert material and sealed at the surface sufficiently to prevent contamination of groundwater or an aquifer.

c) Backfill materials used shall be inert and consist of clean sand, coarse stone, clay or drill cuttings. The materials used shall not contain contaminants that may degrade groundwater or aquifer water quality.

d) Backfill materials shall be placed form the bottom upward, by methods that will avoid segregation or dilution of material and the contamination of groundwater or an aquifer.