

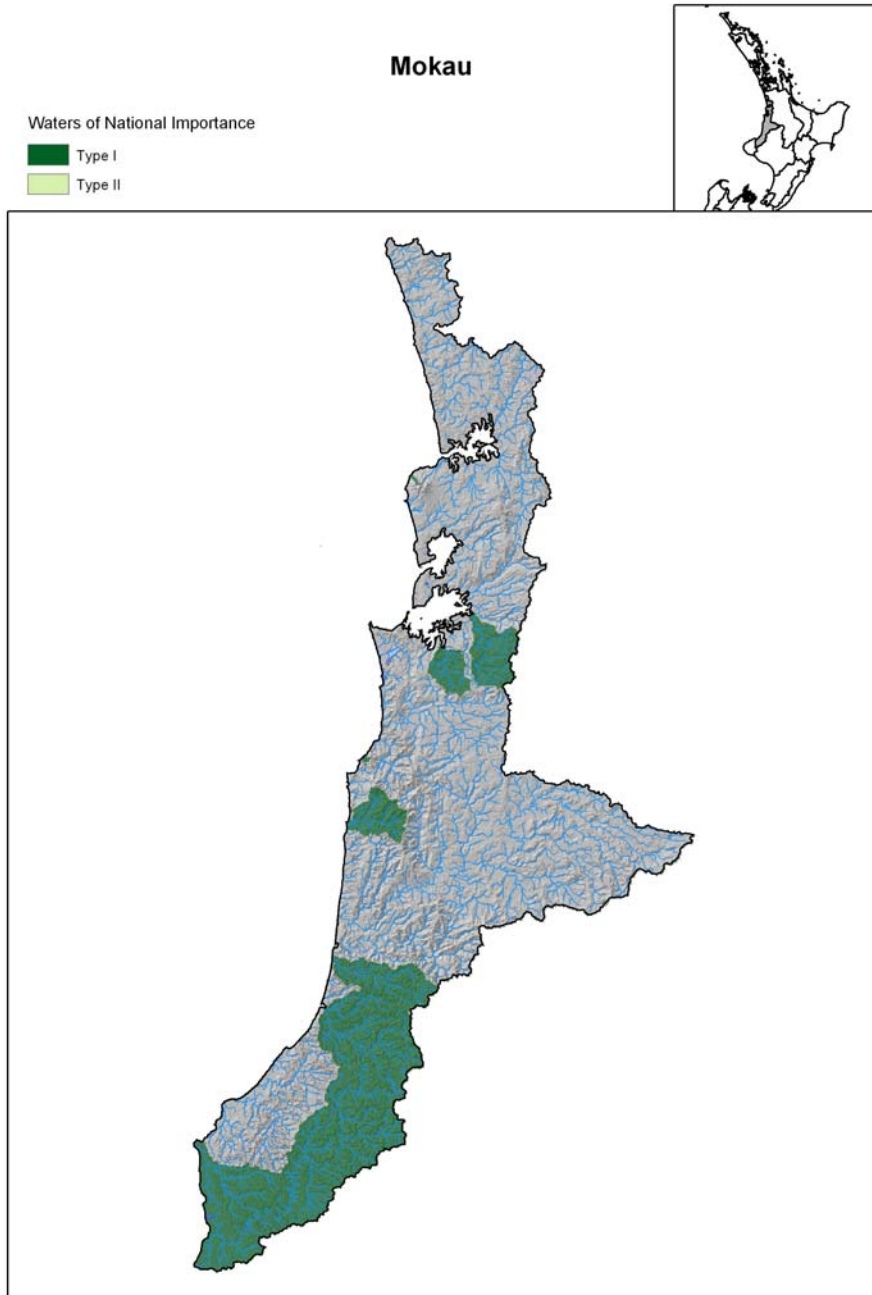
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This topographically diverse unit encompasses the Marlborough Sounds, the Richmond Ranges, and the major catchments of central and southern Marlborough, i.e. the Waiiau, Awatere and Clarence Rivers. Also included are several islands in the Marlborough Sounds, the larger of which, i.e. Arapawa and Rangitoto Ke Te Tonga (D'Urville) Islands, have significant freshwater streams. Studies of genetic similarities in *Galaxias vulgaris* (Waters & Wallis 2001b) indicate that populations of this species in the Clarence River are more closely related to those in the Wairau headwaters than to populations further south in Canterbury, with the low passes between the Clarence and Wairau River headwaters to the north presumably increasing the chances of headwater stream capture events that would facilitate interchange between these populations. However, low passes also occur between the Clarence and Waiiau River to the south (Leathwick et al. 2003). Fish specimens referred to as *Gobiomorphus alpinus* have been collected from tarns or small lakes in the headwaters of the Clarence and Wairau Rivers, but the status of this species is still subject to debate (Smith et al. 2003). Marlborough also represents the southern limit of *Paranephrops planifrons* on the east coast of the South Island (Leathwick et al. 2003). Populations of *Gobiomorphus breviceps* from the Branch River are genetically differentiated from populations in the Motueka-Nelson and Grey-Buller Units (P. Smith pers. comm.).

The Lower Wairau is notable for significant numbers of wading birds including at least one-third of the national population of black-fronted tern, as well as a major population of black-billed gulls. Both are threatened endemic species from braided rivers (O'Donnell in press). The catchment includes rivers draining off the geologically unique Richmond Range ultramafics and Lake Chalice, one of only three New Zealand lakes designated as freshwater reserves under the Freshwater Fisheries Regulations (Faunistic reserves) due the absence of introduced fish. The lower reaches of the Wairau River provide a crucial connectivity/buffering function to the Wairau lagoons, a nationally important wetland system (Cromarty & Scott 1996).

Streams in the Marlborough Sounds contain important populations of threatened short-jawed kokopu.

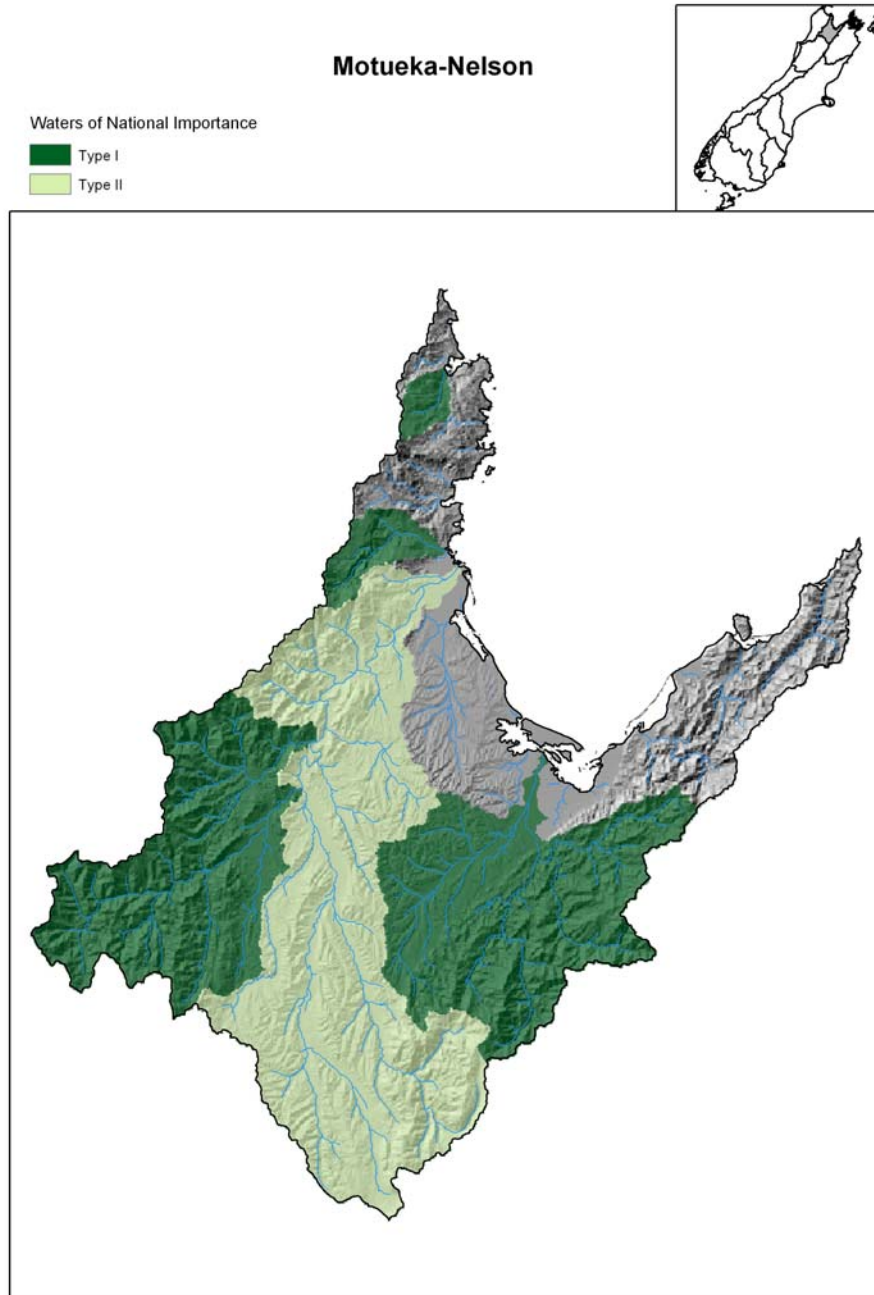
Marlborough										
Catchment number	Name	Type	Heritage value score	Euclidean distance	Total REC classes (96)	Cumulative % REC classes	Area (ha)	% Natural cover	% DOC	Special features and notes
2269	Umungata Bay	I	0.270	1.018	1	1.0	356.0	100.0	99.9	Highly natural, threatened fish
3527	Kawauiti Stream	I	0.208	1.059	1	2.1	161.1	83.0	80.0	Distinctive
2398	Pouowhariki Steam	I	0.186	0.889	1	3.1	319.9	100.0	95.4	Highly natural, threatened fish
1070	Mill Arm Creek	I	0.171	0.624	7	8.3	1520.7	100.0	90.3	
2481	Southernmost stream, South Arm	I	0.134	0.600	4	9.4	295.3	100.0	98.2	Highly natural, threatened fish
1242	Castor Stream	I	0.127	0.547	7	10.4	1143.6	97.6	4.2	Highly natural, threatened fish, ASCV estuary - wetland
18	Wairau River	I	0.866	0.078	57	60.4	358201.0	65.2	47.7	T10, B.Duck, threatened birds and plants, Nat.Sign.bird pop, Nat.Imp. wetland
106	Pelorus River	I	0.548	0.403	26	62.5	89107.9	79.3	69.0	T10, B.Duck
24	Clarence River	I	0.039	0.178	61	82.3	330066.5	51.7	6.1	T10, B.Duck, threatened birds and plants



Small, steep coastal catchments without large flood plains are the dominant feature of the Mokau Unit. They drain into the Tasman Sea along the North Island's west coast from just south of Port Waikato to north Taranaki. Geology consists of a mix of sandstone, mudstone and limestone, older sedimentary rocks, and some volcanic rocks. The largest rivers are the Marokopa, Awakino and Mokau. This unit would have been affected by the massive Kawakawa rhyolitic eruption of around 23,000 years ago, but subsequent eruptions from the Taupo Volcanic Centre would have had much less effect on this unit than on the Waikato River and catchments of the Bay of Plenty and central Hawkes Bay.

Neochanna diversus is recorded at its southern limit from one site in the northern headwaters of the Mokau River, close to the boundary with the Waikato catchment. The unit includes a number of large limestone cave and karst river systems, that contain their own unique invertebrate communities.

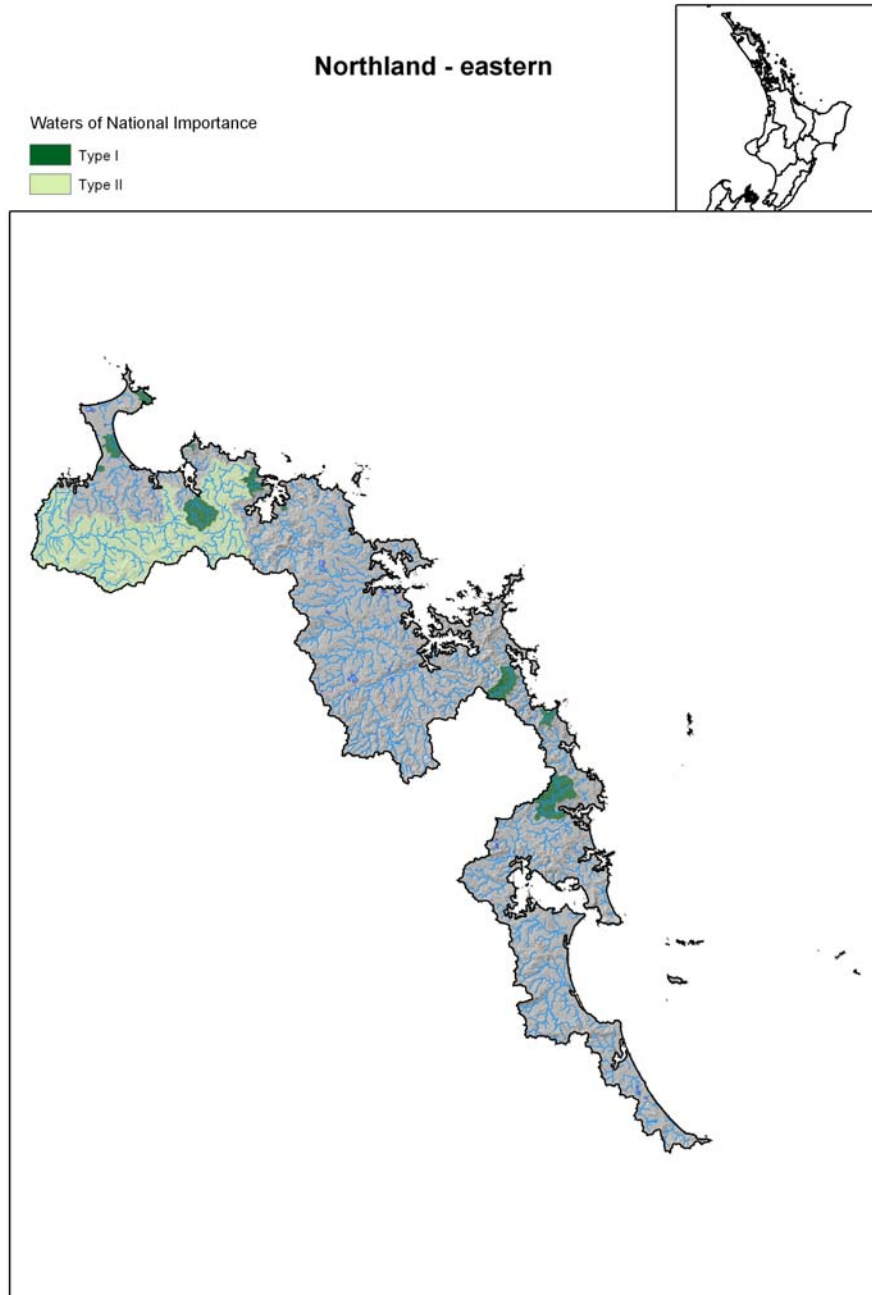
Mokau										
Catchment number	Name	Type	Heritage value score	Euclidean distance	Total REC classes (71)	Cumulative % REC classes	Area (ha)	% Natural cover	% DOC	Special features and notes
3494	Te Toto Stream	I	0.541	0.925	1	1.4	163.7	74.6	86.9	T10
393	Mohakatino River	I	0.361	0.351	16	22.5	12659.5	84.1	57.8	T10
3380	Te Karo Stream	I	0.191	0.959	1	23.9	171.7	93.1	93.0	T10. Distinctive and highly natural
2736	Stream SW of peak 501	I	0.178	0.722	3	25.4	247.0	71.2	41.3	T10
3839	Stream W of peak 294	I	0.163	0.999	1	26.8	140.4	79.1	72.1	T10
270	Tongapurutu River	I	0.117	0.370	13	32.4	26986.8	80.1	50.1	T10
545	Waiharakeke Stream	I	0.116	0.292	20	46.5	5780.4	67.8	15.9	T10 and threatened plants
468	Awakino River	I	0.093	0.389	23	54.9	8202.3	81.1	61.4	T10
412	Awaroa River	I	0.049	0.263	30	64.8	10893.8	56.2	26.7	T10 and threatened plants
78	Waitara River	I	0.042	0.150	31	84.5	113874.2	39.1	19.2	Threatened fish, birds, B.Duck



This unit consists of several catchments, the largest being the Motueka and Waimea Rivers, which flow into Tasman Bay between Separation Point in the west and Cape Soucis just south of Croisilles Harbour in the east. The extensive areas of dissected glacial outwash (Moutere) gravels provide clear evidence of the historic impacts of glaciation in this unit, although parts of both major catchments as well as many small catchments drain hill-country formed mostly from sedimentary or metamorphic rocks. Populations of *Galaxias divergens* and *Gobiomorphus breviceps* in the Motueka are genetically distinct from those found in neighbouring Buller/Grey and Marlborough Units (Allibone 2002; P. Smith pers. comm.). A number of streams in Abel Tasman National Park are notable for the absence of introduced fish, and populations of threatened short-jawed kokopu.

The Motueka Unit contains a substantial area of braided river habitat and associated groundwater communities. It is currently the subject of a major integrated catchment management study.

Motueka-Nelson										
Catchment number	Name	Type	Heritage value score	Euclidean distance	Total REC classes (86)	Cumulative % REC classes	Area (ha)	% Natural cover	% DOC	Special features and notes
188	Whangapeka River	I	0.595	0.148	48	55.8	47367.6	78.6	68.0	T10, B.Duck
303	Baton River	I	0.394	0.227	30	59.3	21415.8	89.9	73.9	B.Duck, highly natural
126	Wairoa - Wai-iti River	I	0.391	0.217	43	73.3	77112.2	47.2	35.4	T10, Nat.Imp. estuary, threatened birds
462	Riwaka River	I	0.145	0.259	22	74.4	8533.4	68.6	45.2	T10, B.Duck
677	Awaroa River	I	0.120	0.577	10	75.6	3783.2	99.4	84.6	Threatened fish, highly natural
41	Motueka River	II	0.524	0.072	69	90.7	205795.2	54.8	42.5	T10, threatened birds and fish, distinctive river classes (Motupeko, and Red Hills tribs), groundwater communities

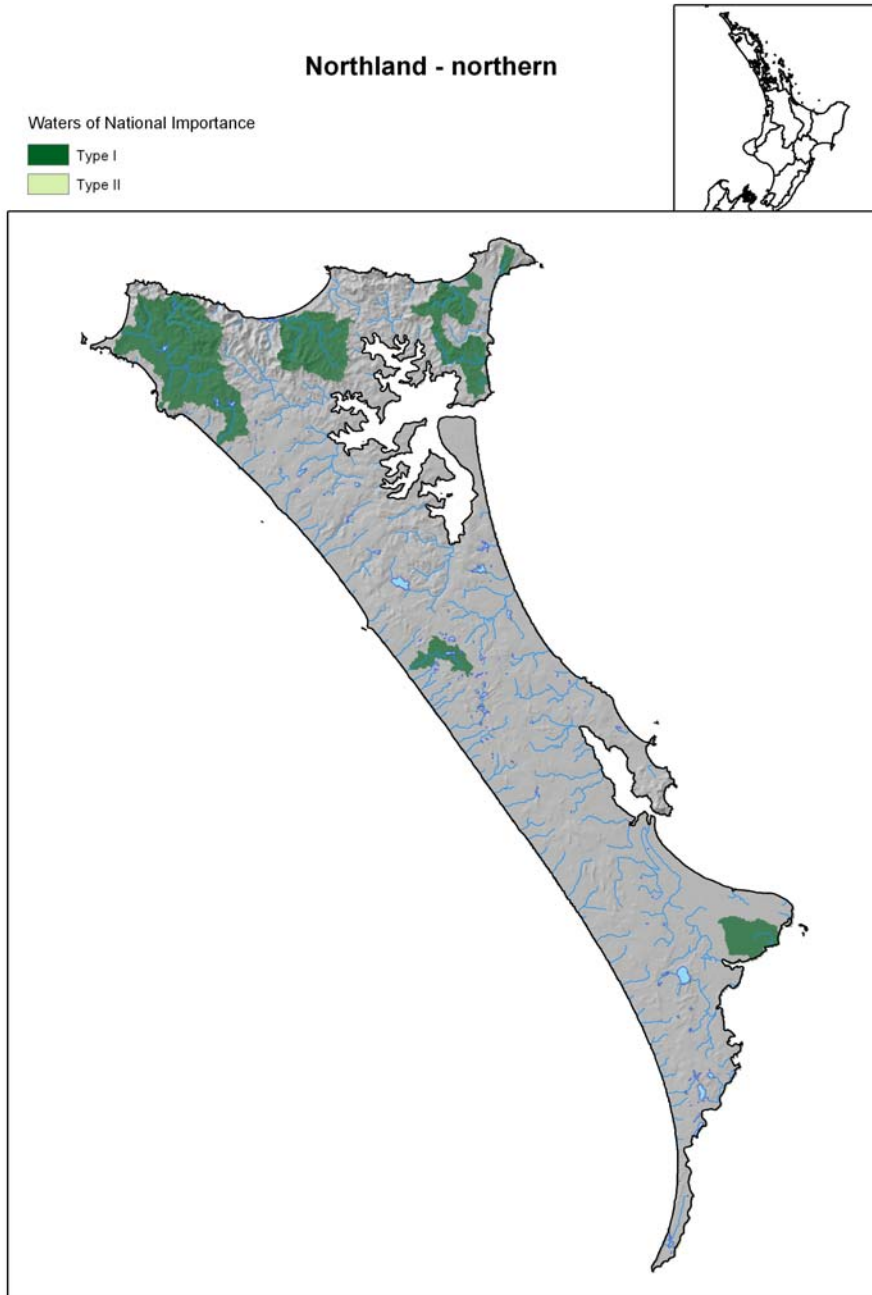


Distinctive biological features of the Northland units include their high diversity of mayflies (Towns 1987; Collier 1993), and the marked differences in stonefly assemblages between Auckland and Northland (McLellan 1990). By contrast, Northland has low caddisfly diversity (Henderson 1985). Evidence of genetic structure in different populations of Hochstetter's frog identifies a distinctive Northland clade (Gemmell et al. 2003) which is centred in western Northland catchments. Studies of several stream invertebrates have also identified marked inter-population genetic differences between individuals of three species collected in Northland compared to samples collected at sites further south, including around Auckland and/or in the Waikato (Smith & Collier 2001; Hogg et al. 2002; P. Smith pers. comm.).

The eastern unit includes the Cavalli, Poor Knights, Hen and Chickens, and Mokohinau Island groups, although many of the smaller islands lack permanent freshwater. Streams in this unit tend to be short. The unit contains the main populations of the northland mudfish *Neochanna beletos*.

The candidate list also includes a stream that flows into the Mimiwhangata Marine Park, as it offers intact protected sequences from its headwaters to seafloor.

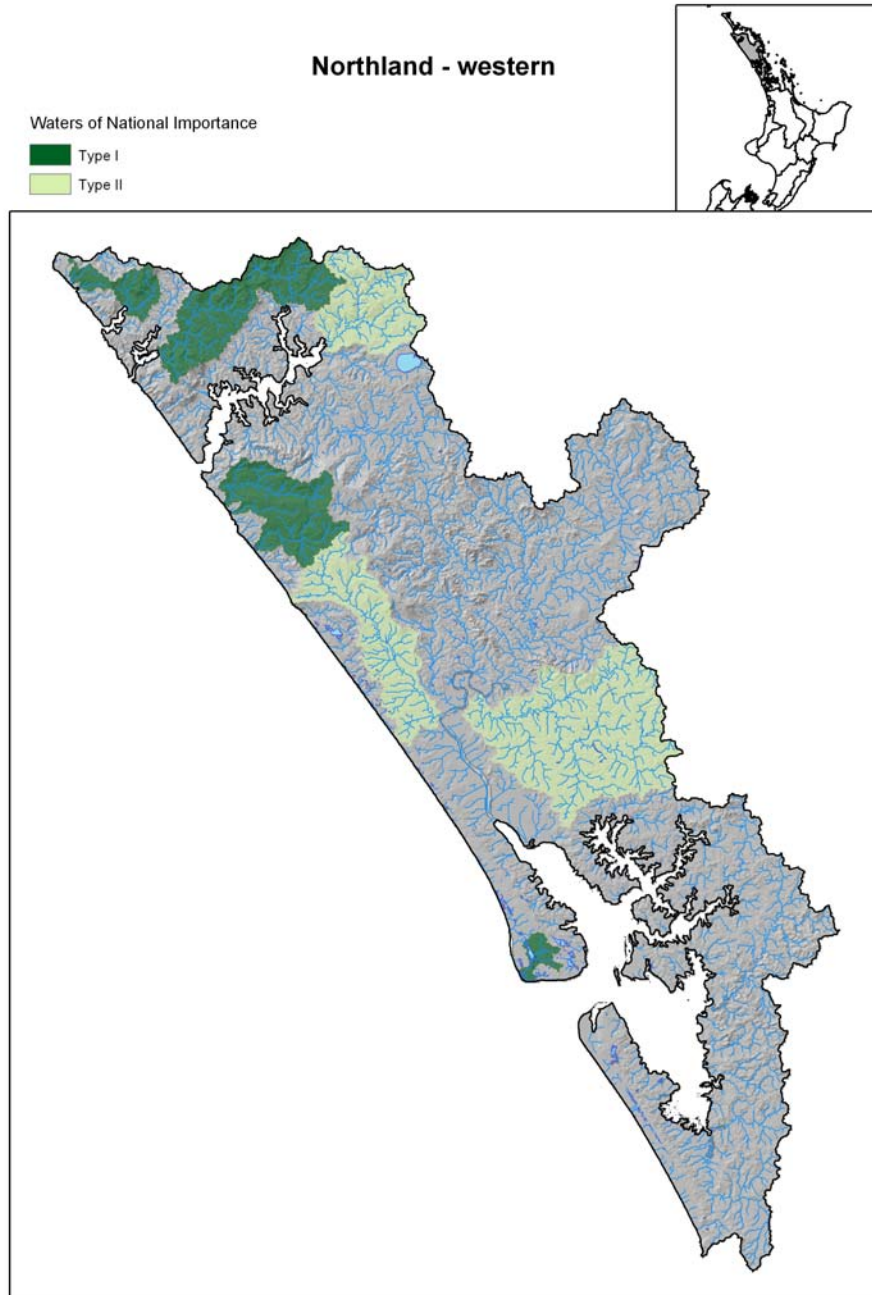
Northland - eastern										
Catchment number	Name	Type	Heritage value score	Euclidean distance	Total REC classes (49)	Cumulative % REC classes	Area (ha)	% Natural cover	% DOC	Special features and notes
1634	Te Rewa Stream	I	0.366	0.475	5	10.2	686.7	75.6	91.1	T10, teal
778	Punaruku Stream	I	0.347	0.458	6	12.2	2870.9	89.0	61.8	T10, highly natural
3045	Catchment south of Koware 142 m	I	0.264	1.037	1	14.3	203.9	100.0	0.0	T10, highly natural
3126	Catchment south of pt 67	I	0.222	0.900	1	16.3	196.2	98.7	56.3	T10, highly natural
3540	Omaruhanga Stream	I	0.196	0.950	1	18.4	160.4	100.0	1.1	T10, highly natural
1959	Taupo Creek	I	0.190	0.322	7	22.4	467.6	60.1	10.2	T10
3515	Waipokara Stream	I	0.169	0.890	2	24.5	162.3	99.1	41.2	T10, highly natural and distinctive
1375	Wairakau Stream	I	0.155	0.632	5	28.6	956.3	97.4	79.0	Highly natural and distinctive
2716	Kopuaparore Stream	I	0.132	0.920	3	30.6	250.0	73.2	45.4	
3979	Waitapu Bay Stream	I	0.090	0.730	2	32.7	131.9	85.1	1.1	
691	Kohumaru Stream	I	0.079	0.517	7	34.7	3618.7	70.4	9.0	
1115	Central Tokerau Beach wetland	I	0.061	0.489	5	42.9	1422.2	35.0	31.5	Threatened plants
566	Ngunguru River	I	0.003	0.321	10	44.9	5301.4	34.4	0.1	Native fish
2852	Te Waiorakau Creek	I	0.001	0.680	3	44.9	231.1	6.4	2.1	Teal, flows into Mimiwhangata Marine Park
433	Oruru River	II	0.034	0.371	16	49.0	10004.6	51.0	12.7	Threatened plants
332	Oruaiti River	II	0.033	0.187	21	55.1	17915.8	39.7	10.9	
220	Awanui River	II	0.013	0.250	18	61.2	36707.0	30.1	11.2	Meander floodplain river classes



The Far North beyond Ahipara was separated from Northland by the sea during the Pliocene interglacial periods, and has subsequently been linked by a series of sand bars. Fleming (1989) argued that the influence this separation had upon speciation is well illustrated by pulmonate land snails (*Rhytida*) and stage beetles (*Lissotes*). In freshwater, separation from the Northland “mainland” is supported by a lack of contemporary genetic connection across this boundary demonstrated for the brown mudfish *Neochanna diversus* (Ling et al. 2001).

Parengarenga Harbour, Muriwhenua wetland including Hohoura Harbour, Rangaunu Harbour, and Kaimaumau Swamp are wetlands of international significance (Cromarty & Scott 1996), noteworthy for their populations of threatened aquatic birds including endemic waders, and a number of threatened plants.

Northland - northern										
Catchment number	Name	Type	Heritage value score	Euclidean distance	Total REC classes (32)	Cumulative % REC classes	Area (ha)	% Natural cover	% DOC	Special features and notes
795	Waitahora Stream	I	0.973	0.349	8	25.0	2751.8	99.6	99.7	T10, highly natural
638	Te Werahi Stream	I	0.914	0.319	12	40.6	4194.2	45.6	99.6	T10
1269	Tom Bowling Bay	I	0.614	0.388	6	43.8	1099.2	67.1	53.5	T10, highly natural
2431	Waihakari Stream	I	0.546	0.383	4	46.9	310.6	73.3	93.0	T10
1169	Tupotupotu Bay	I	0.529	0.644	5	46.9	1281.3	99.7	100.0	T10, highly natural
1292	Rangiora Beach	I	0.433	0.425	7	50.0	1061.1	96.8	99.2	T10, highly natural
1298	Kauaeaparaoa Stream (Te Paki Stream)	I	0.398	0.500	8	56.3	1050.8	43.7	99.5	Threatened plants
1210	Kaimaumau Wetland	I	0.285	0.919	3	62.5	1207.7	70.3	37.0	Nat.Imp.wetland, highly natural
3129	Te Kanakana Stream	I	0.284	1.061	1	65.6	195.9	99.6	63.0	Nat.Imp.Site (unique), threatened plants
1542	Waimaharu Stream	I	0.129	0.535	4	68.8	777.4	21.3	48.4	
3506	Middle, Tom Bowling Bay	I	0.124	0.551	4	71.9	162.9	90.7	99.3	Highly natural



Biological evidence in support of separation of the western northland unit is provided by the non-diadromous fish *Gobiomorphus basalis* and three species of freshwater snail, all of which are much more widespread in west-draining catchments than in the east (M. Haase, pers. comm.; Leathwick et al. 2003). These distributional patterns may also reflect the larger extent of some of the west-draining catchments (e.g., the Wairoa) compared to those draining to the east. Of the two regionally endemic species of non-diadromous fish that occur in Northland, *Galaxias gracilis* is found in the western unit whereas the Northland mudfish *Neochanna beletos* is found almost exclusively in the eastern unit. Short-jawed kokopu is also only present in western catchments, and these streams represent its northern range limit. Collier et al. (2000) also noted that three species of Trichoptera appear to be restricted to western Northland.

Waipoua Stream is the largest least impacted stream remaining in New Zealand with a catchment dominated by mature kauri forests. These kauri streams are important features of this unit, although there has been only limited study of their ecology.

Northland - western										
Catchment number	Name	Type	Heritage value score	Euclidean distance	Total REC classes (74)	Cumulative % REC classes	Area (ha)	% Natural cover	% DOC	Special features and notes
1079	Tanutanu Stream	I	0.776	0.350	9	12.2	1511.6	71.0	73.4	T10
4194	Mokorau Stream	I	0.580	0.968	1	12.2	120.6	62.5	60.0	T10
1201	Waitaha Stream	I	0.513	0.390	10	18.9	1222.8	98.3	70.0	T10
526	Waitokitoki Stream	I	0.467	0.235	17	27.0	6464.3	63.7	39.5	T10
362	Mangamuka River	I	0.428	0.164	23	37.8	14886.4	63.5	36.7	T10
780	Wairau River	I	0.219	0.389	12	39.2	2847.9	98.3	96.2	T10, highly natural
411	Waipoua River	I	0.209	0.360	20	48.6	11175.7	81.7	73.4	T10, highly natural, kauri-forested stream
661	Mokeno-Whakaneke	I	0.181	0.643	7	54.1	3976.8	32.3	33.7	
317	Rotokakahi River	I	0.093	0.142	25	55.4	19830.0	50.3	29.8	
383	Waimamaku River	I	0.035	0.364	34	62.2	13344.5	55.6	31.0	
268	Waipapa River	II	0.038	0.336	28	64.9	27857.7	63.1	47.1	
227	Kaihu River	II	0.001	0.143	31	67.6	35822.5	21.1	6.3	Maritahi Branch - Threatened plants
123	Manganui River	II	0.001	0.194	26	67.6	79043.4	12.3	4.3	Floodplain forest and meander river classes

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