horizons
REGIONAL COUNCIL

NATURE-BASED SOLUTIONS INVESTIGATION

Ōroua and Pohangina Rivers

OUTLINE

- Work programme update;
  - Lower Manawatū NCI;
  - Reporting to MfE;
- Communication;
  - Website;
  - Other?;
- Terms of Reference.

Tonkin+Taylor

Lower Manawatū Gravel Study

Natural Character Index (NCI) and River management lines

Prepared for
Horizons Regional Council
Prepared by
Tonkin & Taylor Ltd
Date
April 2024
Job Number
1092594.0000 v1

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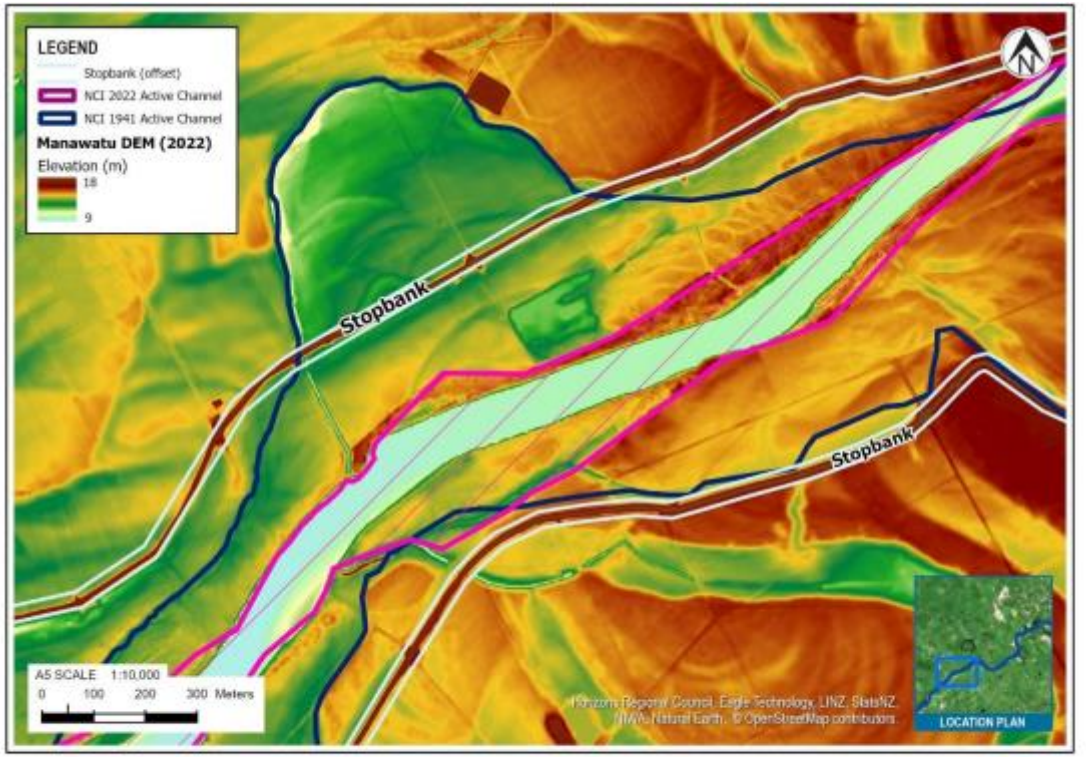

Figure 4.1: Ground level elevation each side of the stopbank on the north side of the river is seen through the colour gradient of the LiDAR DEM. This is compared with the 1941 active channel, which spread outside of the area now constrained by the stopbank.

Figure 2.1: Study reaches for the assessment of NCI.

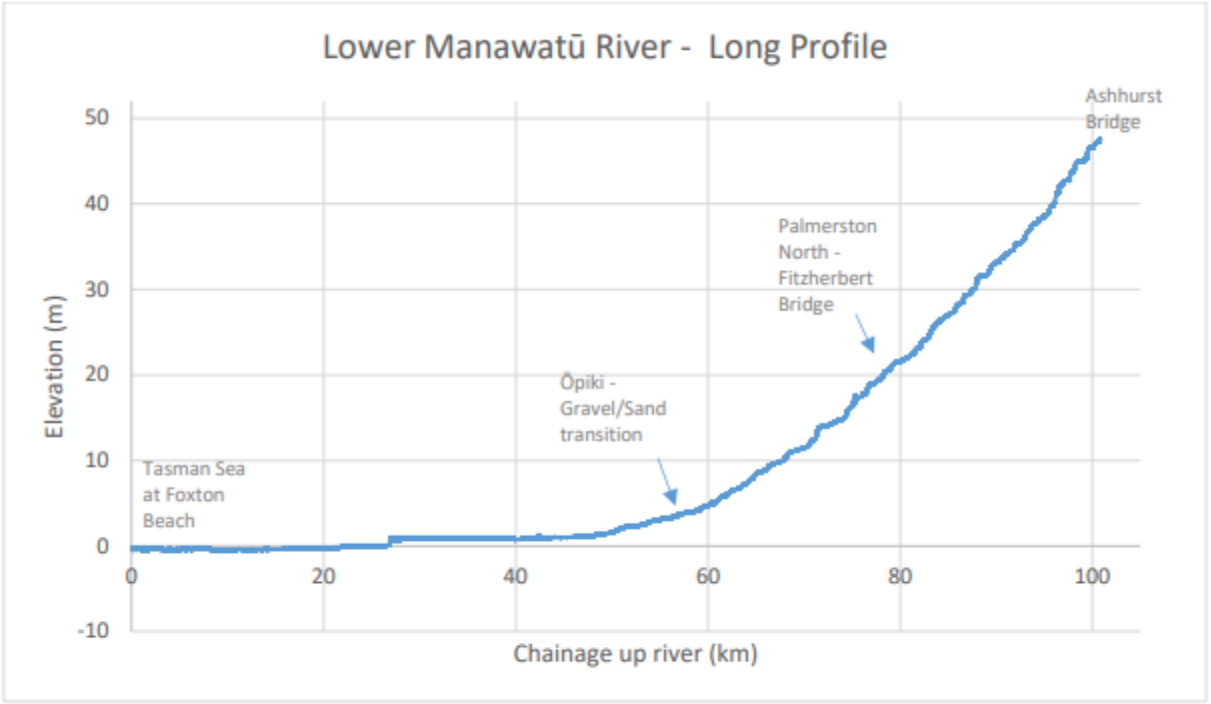

Figure 1.3: Channel long profile from 2022 LiDAR along the centreline of the lower Manawatū River, with annotations.

T:\Tauranga\Projects\1092594\WorkingMaterial\GIS\Map Documents\Lower_Manawatu_ReportingFigures\Banklines_LowerManawau_DSMI.aprx Layout: All Horizons Channels 2024-Apr-26 4:29 pm Drawn by DSMI

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NOTES:
2022 Aerial (LINZ): . NZ Navigation Map: Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors.. NZ Imagery: Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

REVISIONS	NO.	BY
First version (16/04/2024)	0	DSMI

PROJECT No.	1092594.0000	
DESIGNED	DSMI	APR.24
DRAWN	DSMI	APR.24
CHECKED	CHSA	APR.24
APPROVED	DATE	

CLIENT **HORIZONS REGIONAL COUNCIL**
PROJECT **LOWER MANAWATŪ GRAVEL STUDY**
TITLE BANK LINES ASSESSMENT
SCALE (A4) 1:25,000 FIG No. APPENDIX B (FIGURE 1-D) REV 0

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Reach	Characteristic	Value (1941)	Value (2022)	NCI
Manawatū Gorge to Palmerston North	Wetted channel area [ha]	203.84	109.40	0.54
	Exposed bars area [ha]	142.97	86.32	0.60
	Lightly vegetated bars area [ha]	30.52	17.91	0.59
	Heavily vegetated bars area [ha]	409.55	126.16	0.31
	Active channel area [ha]	**786.88**	**339.79**	***0.43***
	Active width [m]	*346.92*	*160.00*	*0.46*
	Valley length [km]	*13.68*	*13.65*	*1.00*
	River centreline length [km]	*22.68*	*21.24*	*0.94*
	Sinuosity index	*1.66*	*1.56*	*0.94*
Palmerston North to Ōpiki	Wetted channel area [ha]	179.90	126.02	0.70
	Exposed bars area [ha]	182.08	57.98	0.32
	Lightly vegetated bars area [ha]	104.67	9.51	0.09
	Heavily vegetated bars area [ha]	332.79	103.94	0.31
	Active channel area [ha]	**799.44**	**297.46**	***0.37***
	Active width [m]	*348.88*	*125.48*	*0.36*
	Valley length [km]	*15.31*	*15.66*	*1.02*
	River centreline length [km]	*22.91*	*23.71*	*1.03*
	Sinuosity index	*1.50*	*1.51*	*1.01*
Ōpiki to Tasman Sea	Wetted channel area [ha]	786.03	563.57	0.72
	Exposed bars area [ha]	93.70	12.23	0.13
	Lightly vegetated bars area [ha]	97.84	0.50	0.01
	Heavily vegetated bars area [ha]	230.34	206.99	0.90
	Active channel area [ha]	**1207.90**	**783.30**	***0.65***
	Active width [m]	*187.28*	*140.20*	*0.75*
	Valley length [km]	*21.02*	*21.17*	*1.01*
	River centreline length [km]	*64.50*	*55.87*	*0.87*
	Sinuosity index	*3.07*	*2.64*	*0.86*

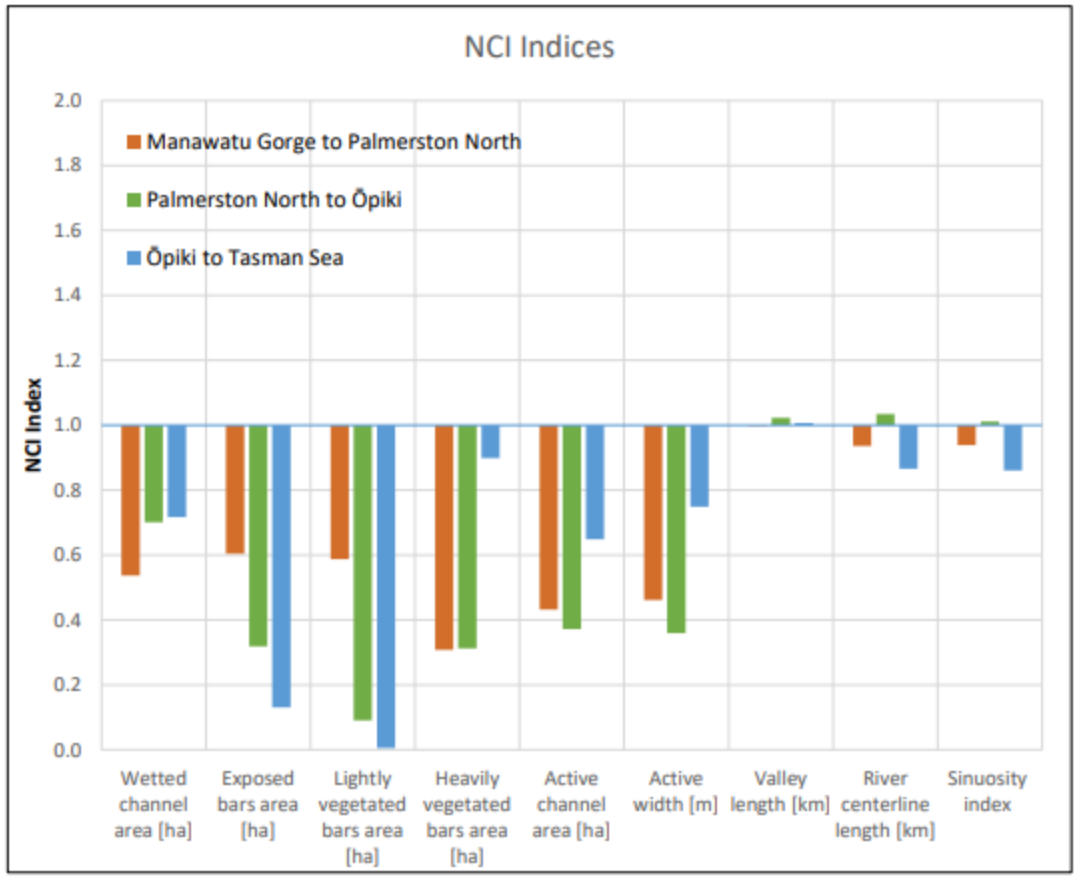


Figure 3.1: Comparison of NCI results for each parameter, with 1 (no change) being the horizontal axis. This graph shows that the largest relative changes are for the bars (exposed, lightly vegetated, and heavily vegetated). Sinuosity experienced the least relative change. All change was in the negative direction (the assessed parameter was lower in 2022 than in 1941), except for a small increase in sinuosity between Palmerston North and Ōpiki.

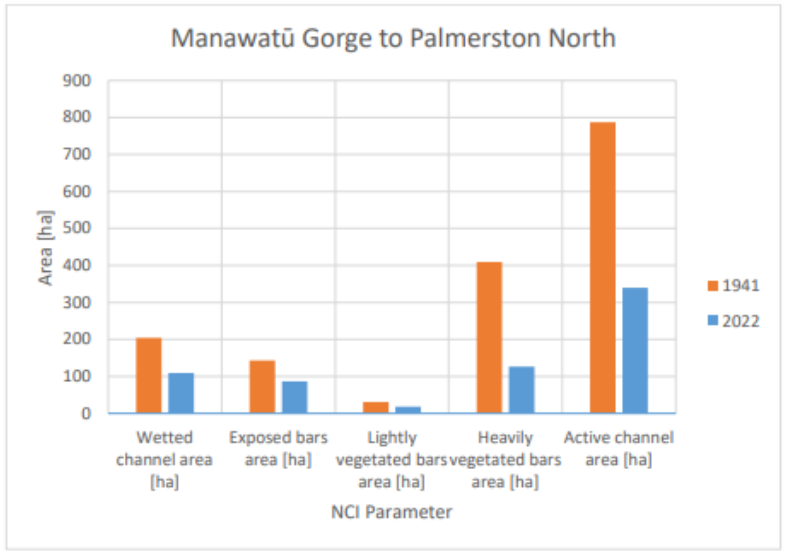


Figure 3.2: Comparison of areas for each NCI parameter for the upper reach, from the Manawatū Gorge to Palmerston North. Of the parameters which make up the total active channel area, heavily vegetated bars were the largest in both 1941 and 2022.

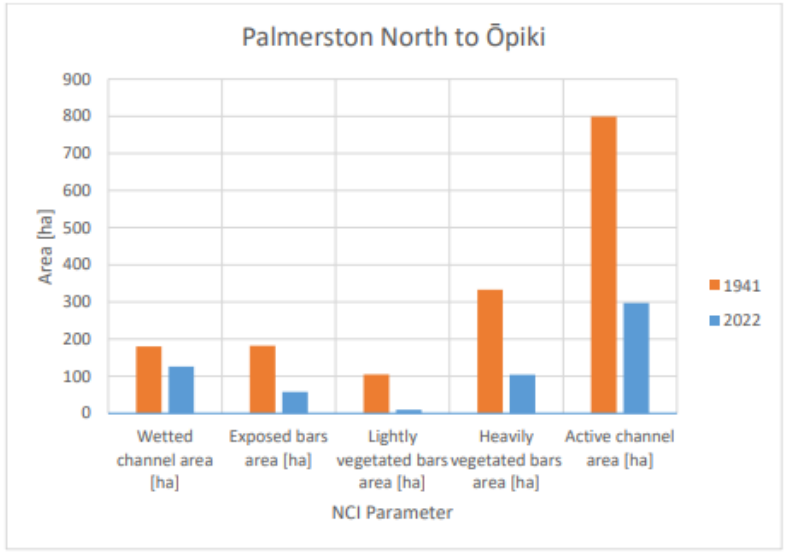


Figure 3.3: Comparison of the areas for each NCI parameter for the central reach, from Palmerston North to Ōpiki. The parameter that made up the largest proportion of the active channel was heavily vegetated bars in 1941, but was less large than wetted channel area in 2022.

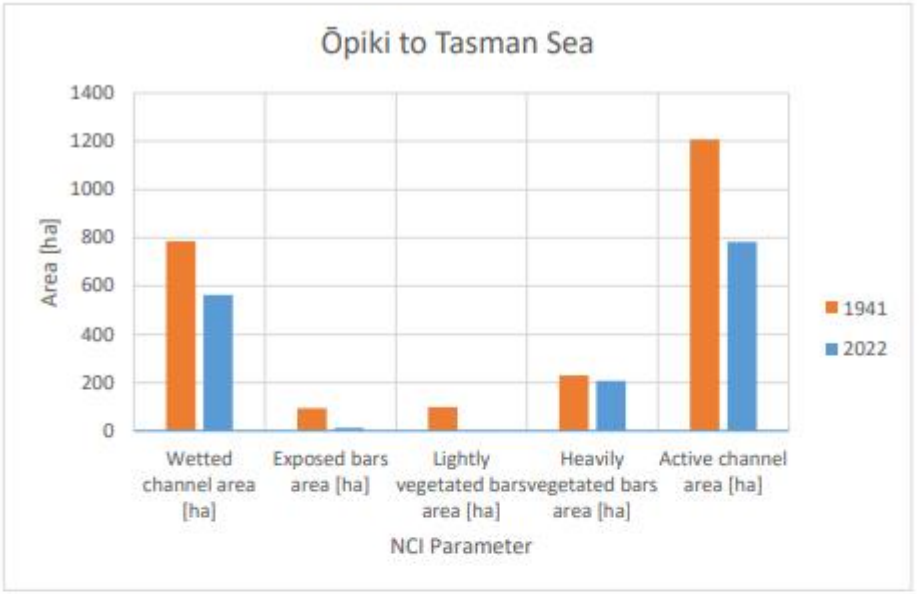


Figure 3.4: : Comparison of the areas for each NCI parameter for the lower reach, from Ōpiki to the Tasman Sea. In this reach, most of the active channel area was wetted channel.

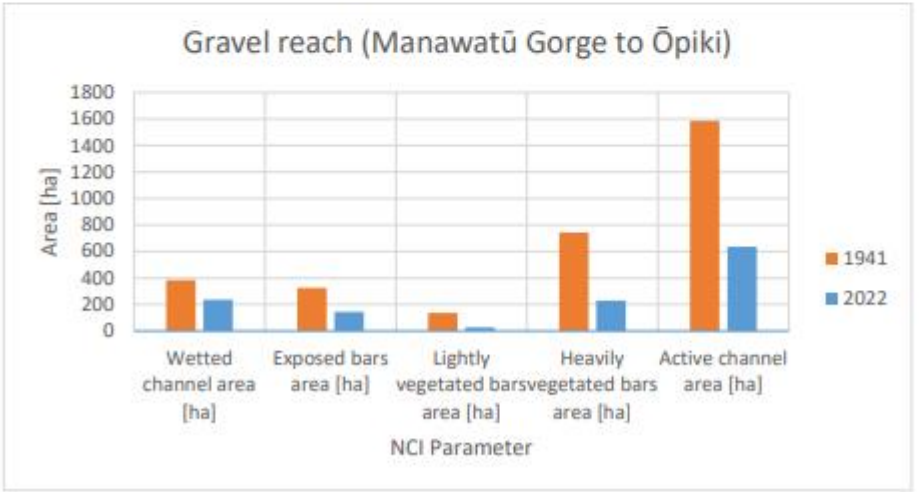
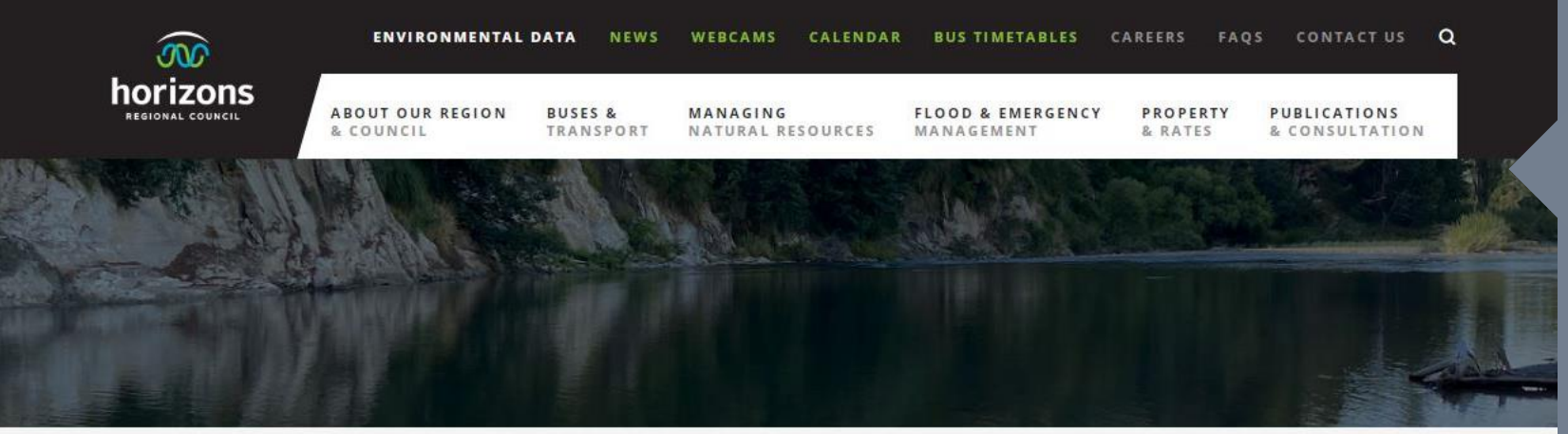


Figure 3.5: Comparison of the areas for each NCI parameter across the gravel reach, from the Manawatū Gorge to Ōpiki. Within this section, heavily vegetated bars were the predominant unit within the active channel in 1941, but reduced in area significantly to 2022.



MANAGING NATURAL RESOURCES

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Nature-Based Solutions Investigation - Ōroua and Pohangina Rivers

This page covers work done by Horizons Regional Council and partners as part of of a feasibility study looking at nature-based river management practices for the Ōroua and Pohangina rivers. You can learn more about flood protection in the Horizons Region here.

In July 2023, Horizons was granted $300,000 from the Ministry for the Environment, through Nature Based Solutions for Resilience Planning, to conduct a feasibility study looking at if management practices such as channel symmetry, alignment and confinement are still relevant, and to futher explore the concept of mobility corridors for the Ōroua and Pohangina rivers.

The study is based on the Room for the River Guidelines, with guidance from the Governance Group and information from a range of sources.

PROJECT DETAILS | GOVERNANCE GROUP | REPORTS AND RESOURCES

Work Programme Update

https://www.horizons.govt.nz/managing-natural-resources/nature-based-solutions-investigation-oroua-and-poh

FUTURE STEPS – NEXT QUARTER

- Iwi/hapu engagement on values, Mātauranga input into reports;
- Commissioning of and fieldwork for NCI and HQI – Pohangina and Ōroua;
- River lines for the Ōroua.

TERMS OF REFERENCE

GOVERNANCE GROUP

Next Meeting...

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For more information visit **www.horizons.govt.nz**
or freephone Horizons on **0508 800 800**