

Factsheet 03

Te Whakaheke o Te Wai

Mātauranga and modelling

We have explored Mātauranga (see Factsheet 2) through engagement in hui and field site visits, reviewing historical mapping of the waterways and wetlands and treaty settlement documents. This knowledge (mātauranga) is woven together with contemporary scientific data and incorporated into a groundwater model. We can now better understand the Heretaunga Plains aquifer over time and have developed a tool that provides a numerical voice to the local community.



During hui and field visits we:

- listened to the values and aspirations of the community
- co-developed modelling questions
- explored hindcasting scenarios from previous catchment conditions and
- discussed restoration scenarios that the model would be used to test.

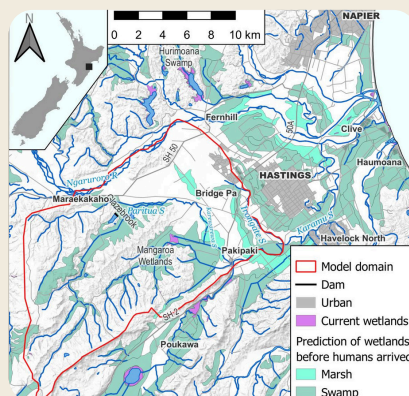


Mātauranga and modelling

This knowledge sharing approach allowed us to develop questions and scenarios relevant to the local community. This set the direction for the Bridge Pa catchment modelling project. Based on the goals defined through catchment hindcasting (e.g., how the catchment has changed over time), we were able to make more informed water management decisions such as where and how to focus restoration efforts.

We have explored the following ways of incorporating mātauranga in the Bridge Pa groundwater model:

- hindcasting to see how early European settlement changed hydrology;
- using historical mapped data (see Figure) to better inform the conceptual model; and
- combining historical documents and recent data.



Mātauranga has allowed us to develop a more informed model for the Heretaunga Plains. Our aspiration is for the model to support entire community involvement in resource management decisions. We also identified historical observations and other data that are not typically used in models and would have otherwise been omitted. Incorporation of this information reduced the uncertainty of model outputs to support decision making.

Moore C., Aranui A., et. al., 2022. Model-Based processing of measured and historical stream behavior; seeking culturally meaningful environmental restoration. NZHS & MSNZ Joint Conference 6 – 9 December 2022, Otepoti Dunedin.