

This summary outlines the process of developing a system map with some members of the HBMaC Group, the resulting map and knowledge stocktake, and how they can be used. This is intended as a brief summary of the full report for HBMaC members who were not able to join the process. The full report will be available on request for any interested HBMaC members and publicly available once published (likely before Christmas).

**What is system mapping**

System mapping is a visual tool that builds a picture of interconnected factors contributing to, and impacted by, a certain issue(s) of interest. It specifically focuses on the circular nature of these relationships and how they ‘feedback’ on themselves and each other. Once this is articulated it can be used to explore how any action taken will impact other parts of the system over time.

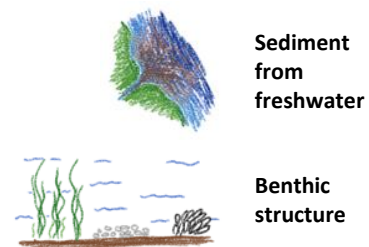
**Pros & Cons**

Some **benefits** include: it is intended as a *pragmatic tool*; enabling a *wide range of people* to contribute, within a reasonably *short period of time*; *synthesising* a wide range of knowledge about the causes, and effect of, an issue; which helps to build *understanding* of an issue; and leaving a group with a map to *support ongoing discussions* over coming years, *in conjunction with other tools*.

Some **shortcomings** include: a focus on synthesis necessarily means *not all detail* is represented; it is *not geographically specific* (yet can be applied to specific geographic contexts); it is focused on a *specific issue(s)*; and *does not claim to represent all worldviews* perfectly (for example, either Te Aō Māori or Te Aō Pākeha).

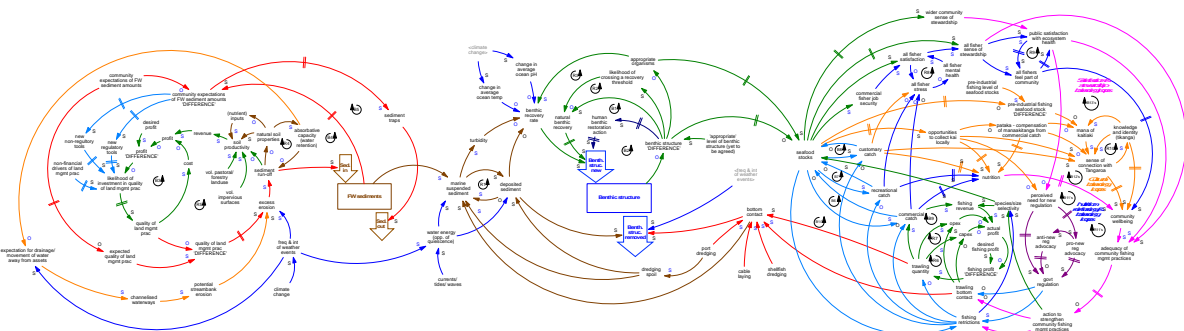
**Freshwater sediment and benthic structure**

The HBMaC Group had previously identified sediments from freshwater and loss of benthic structure as two key stressors on Hawke’s Bay. These were used as the two main issues around which the map was built.



**The system map**

The system map is shown below. It is a very large map so not possible to read at this scale, this is just to give an overview. A larger PDF of the map is attached with this email and the map will be on display at the next HBMaC meeting.

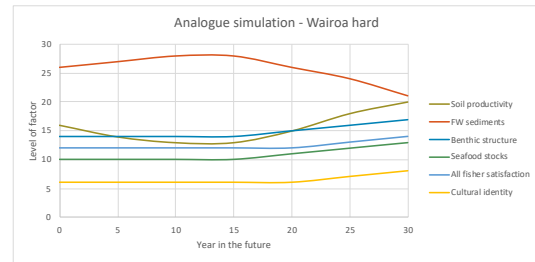


You can see how everything is connected: land-based influences of sediment runoff are on the left; physical influences on the amount of benthic structure are in the middle; and the social impacts on and from the seafood stocks in Hawke’s Bay are on the right.

**How to gain insight**

The system map is used to 2 main ways: to visually highlight the inter-connectedness of the system; and to explore likely changes over time in the system resulting from any action taken.

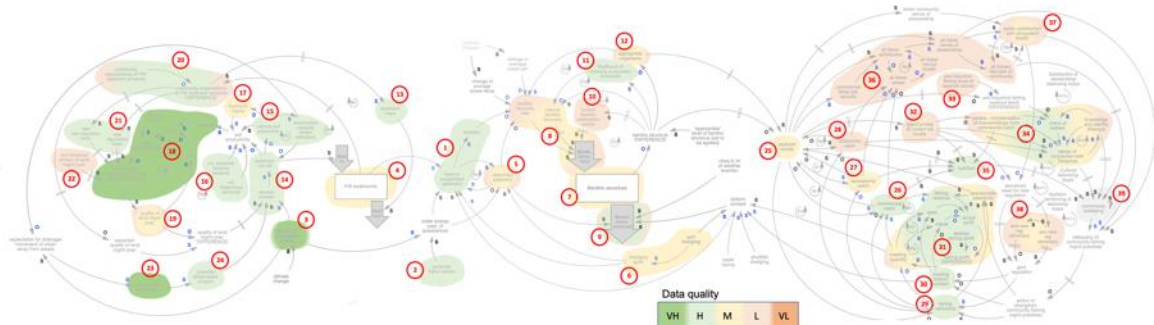
- Visual inter-connectivity: The system map highlights the interconnected nature of factors within the system. In particular, where there is circular influence, demonstrating how much influence comes from ‘within’ the system, not ‘outside’ of it.
- Explore changes over time: The map helps support discussion of what the likely change in the system will be over time, based on proposed actions to be taken. Example outcomes of these types of discussion are shown in graph image. This demonstrates how people anticipate hypothetical changes to manifest over coming years.



**Knowledge stocktake**

Following its development, various knowledge types that are available for different factors were mapped onto the system map. These were qualitatively rated to account for their quality in terms of robustness (reliability) and coverage (both geographic and time). Knowledge sources included scientific data as well as traditional and anecdotal sources of knowledge.

These knowledge sources are available to use to help either: qualitative discussions about subject areas within the map; or inform other modelling or analysis being undertaken by HBMaC.



The colours in the image indicate the knowledge quality scale: dark green (■) = very high; yellow (■) = medium; dark orange (■) = very low.

**Where to from here**

A second phase will explore further use of this map in conjunction with more specific seafloor modelling. This will be done in conjunction with the HBMaC Group and will focus on: developing potential scenarios to explore; modelling these in detail with specific seafloor disturbance and recovery modelling; and then exploring the wider impacts of those modelling results across social and economic activity using the system map. These activities are planned over the approximately the next 12 months.

**HBMaC Group members involved**

HBMaC Group members involved in the development of this system map were:

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|--|---|
| Alicia McKinnon (Fisheries New Zealand)      | Rick Birch (Napier Fishers Association) |
| Anna Madarasz-Smith (HBRC)                   | Shade Smith (Ngati Kahungunu)           |
| Becky Shanahan (HBRC)                        | Te Kaha Hawaikirangi (Napier Port)      |
| Brianna King (Fisheries Inshore New Zealand) | Wayne Bicknell (Legasea)                |
| Ngaio Tiuka (Ngati Kahungunu)                |   |
| Paul Ratapu (Mahia Maori Committee)          |   |