

Two ways of seabed mapping: Habitat maps from science and traditional knowledge in Frobisher Bay, NU

Benjamin Misiuk^{1*}, Trevor Bell¹, Teresa Tufts², Manasie Kendall², Janelle Kennedy², Evan Edinger¹, Alec Aitken³
 *bmisiuk@mun.ca

¹Memorial University of Newfoundland, Department of Geography
²Government of Nunavut, Department of Environment, Fisheries and Sealing Division
³University of Saskatchewan, Department of Geography & Planning



Summary

- Habitat maps of Frobisher Bay are required for marine conservation and management.
- We have seabed habitat data from both scientific sampling and traditional knowledge.
- Using these knowledge sources together is uncommon; it can help us create more holistic and useful habitat maps.

Seabed sediment map

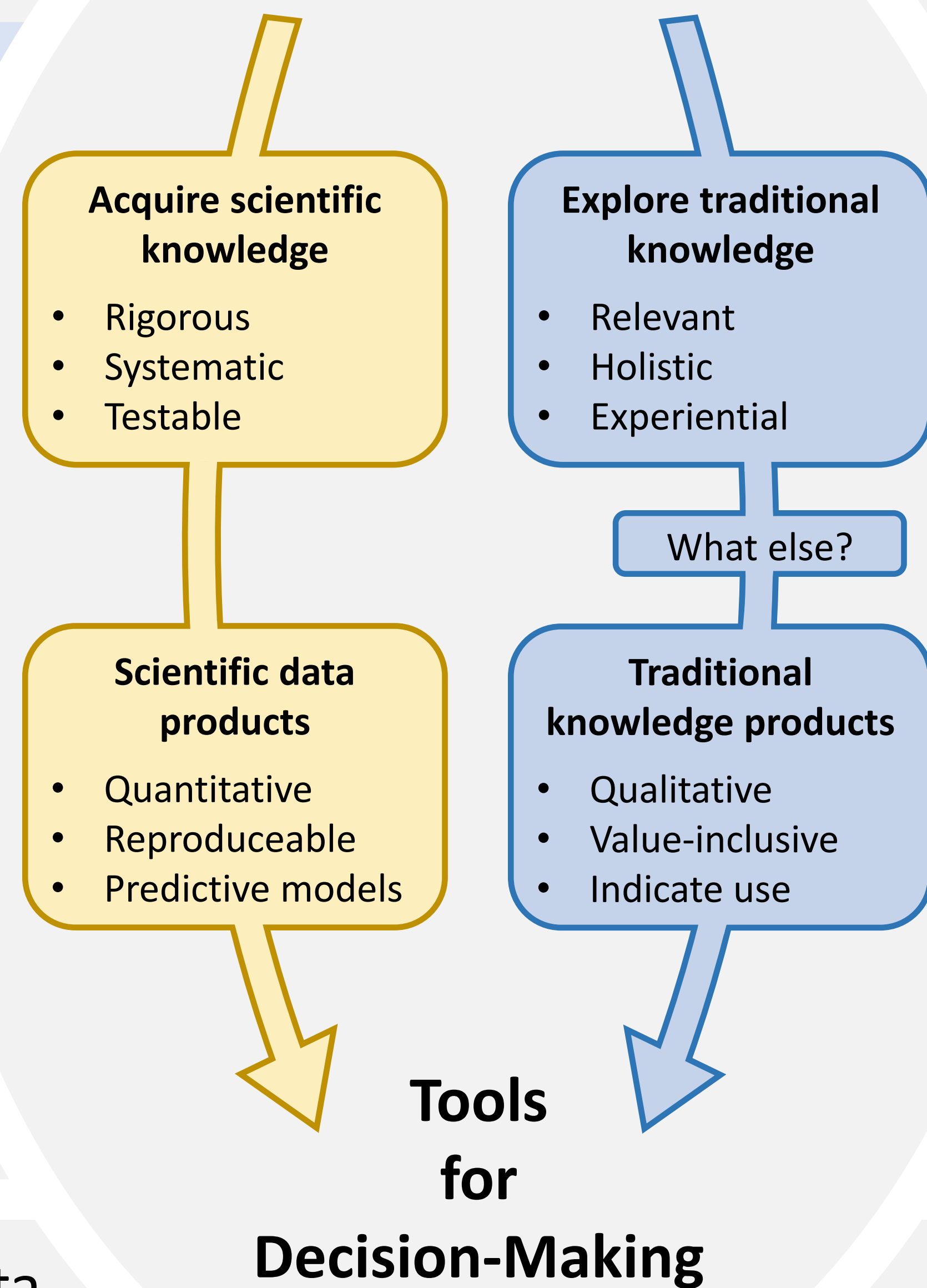
- Sediment grain size data were used to create a statistical model of seabed sediment distribution.
- Common seabed classes were sandy mud, gravelly mud, and muddy gravel – these are important indicators of habitat.
 - Predictions based on samples processed to date ($n=59$).
 - Limited to areas of sonar coverage.

The need for maps

Habitat maps are important tools for the management of marine resources.

- Iqaluit relies on marine resources for food, income, and culture.
- Impacts associated with coastal development are likely to affect marine habitats, and the services they provide.

Mapping Need



Traditional knowledge map

Certain species groups can potentially inform on bottom type.

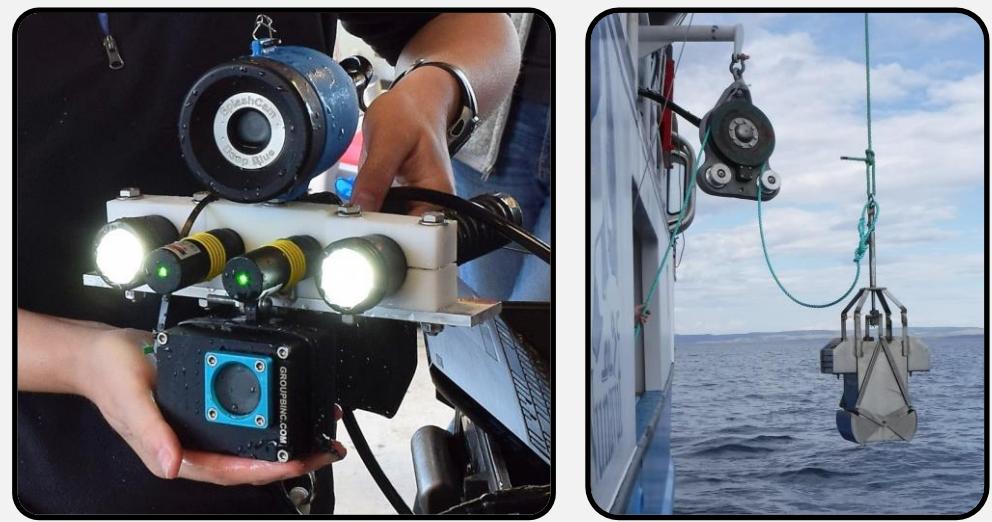
- Areas of consensus** identify where species are most commonly observed.
- Traditional knowledge maps include **values** of local land-users.

Broad perspective

- Two different types of data.
- Different **scope**; different **scale**.
- More **holistic** understanding of the distribution of seabed ecology.
- Results from one data type can guide the other.

Scientific data

- Sonar coverage:** 830+ km²
- Underwater video:** 6 hrs.
- Sediment samples:** 300+



Traditional knowledge data

The **Nunavut Coastal Resource Inventory¹** (NCRI) is a series of reports documenting locations of animals and plants observed near Nunavut communities.

- Fourteen elders and hunters from Iqaluit were interviewed in 2012 as part of this project.
- Responses were recorded, mapped, and entered into a GIS, making them accessible as a management tool.

Conclusions

- Predominately **muddy** bottom type, especially in deep areas.
- High number of NCRI observations close to **Iqaluit** and **polynya**.
- Further scientific mapping can focus on important areas and species identified in the NCRI.
- Future traditional knowledge mapping could include seabed type or community.

Acknowledgements and references

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 2. Spindler, M. (2008). U.S. Fish and Wildlife Service National Digital Library. Retrieved from <https://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/2925/rec/1>.
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