



The evolution of subsistence and commercial fisheries in the Eastern Canadian Arctic



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Introduction

Subsistence hunting has existed in Nunavut for more than 4,000 years. The purpose of this research was to assess the evolution of subsistence and commercial fisheries in the territory. We also determined targeted species, harvest levels, quotas, and tools.

This research was conducted as a B.Sc. co-op workterm jointly under Fish-WIKS (Fisheries – Western and Indigenous Knowledge Systems) and the Transatlantic Ocean System Science and Technology (TOSST) research school.

Study Area

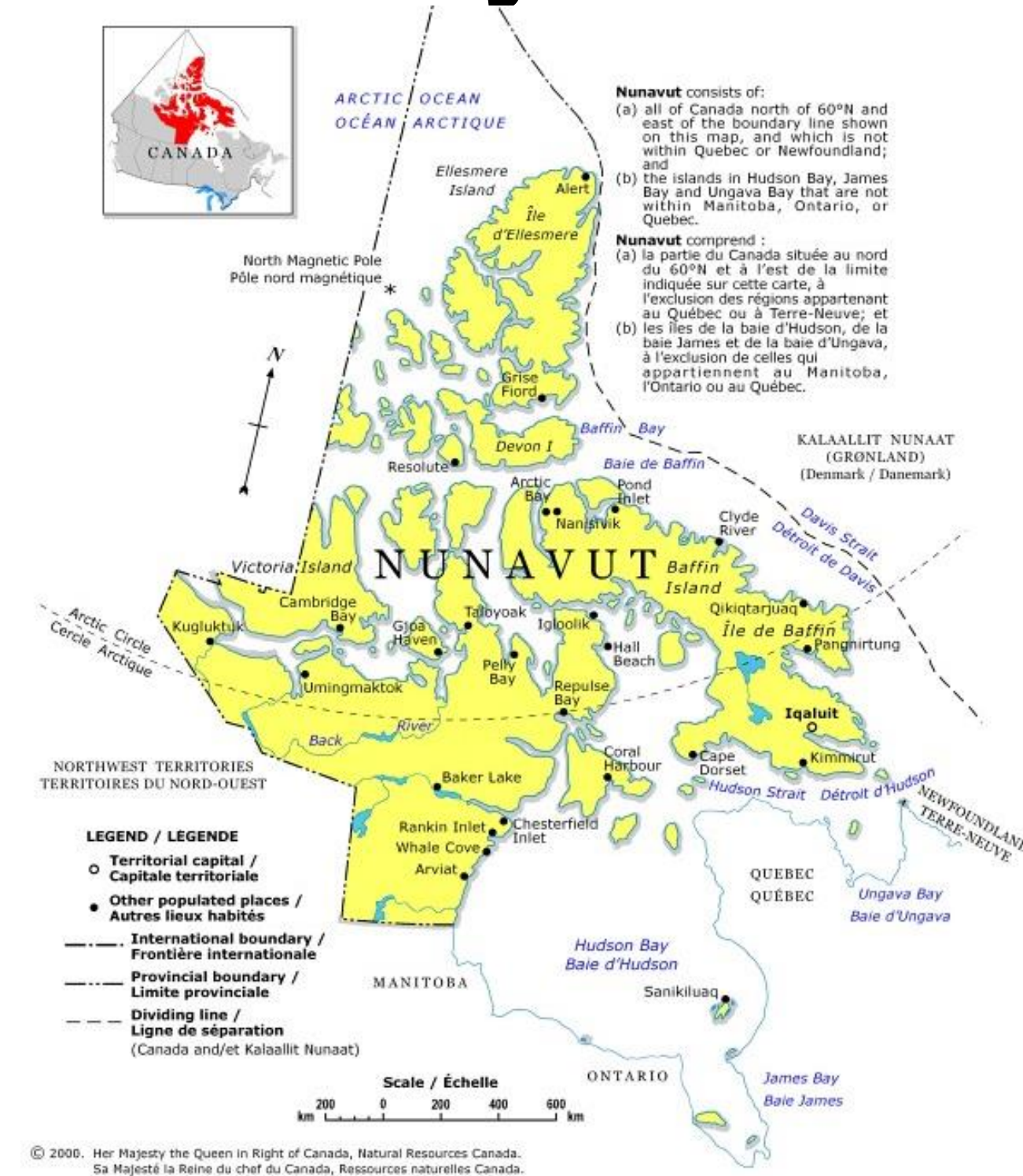


Figure 1. The study area: the Territory of Nunavut, Canada.

Methods

A literature review was conducted to assess historical and current subsistence, as well as commercial fisheries in Nunavut. Landings and quotas were compiled in an Excel database for analysis.

Species Hunted

Arctic peoples adopted previous cultures' targeted species and added new ones.

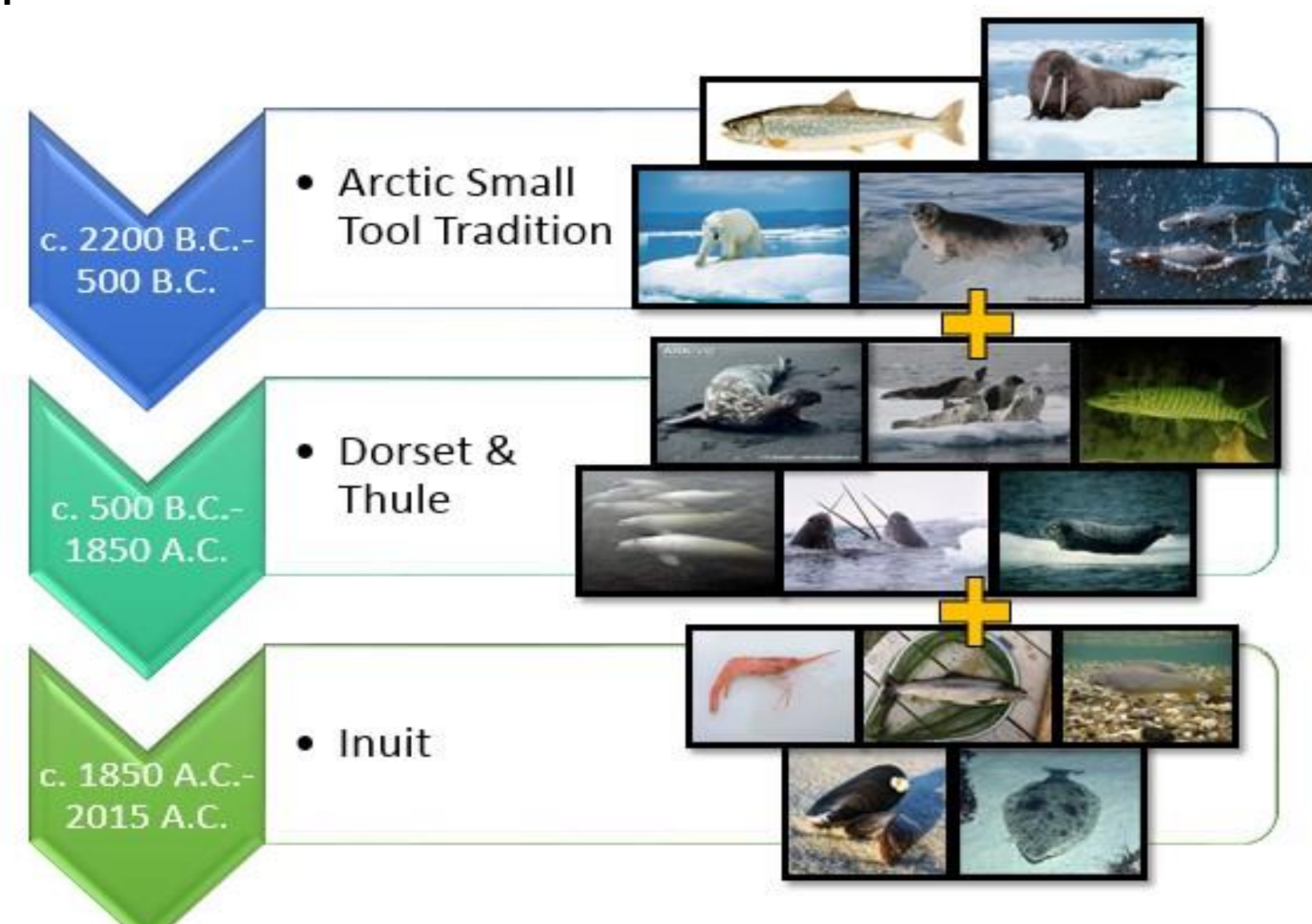


Figure 2. Relative order of targeted species in Nunavut for subsistence and commercial hunting, according to culture. (Various sources, references upon request).

Evolution of Gear Type

Eastern Canadian Arctic people historically used stone, bone, driftwood, antler and ivory to create tools and weapons. Gear type greatly changed over time (Fig. 3) as metal tools, wood, motors and explosives appeared in northern communities (Hay *et al.*, 2000). Climatic variation and external trade greatly influenced gear type in the 19th century (Ross, 1975). Tools like the bow and arrow were abandoned for modern tools; however, other tools like the toggling harpoon have been used continuously for the past 4,000 years.

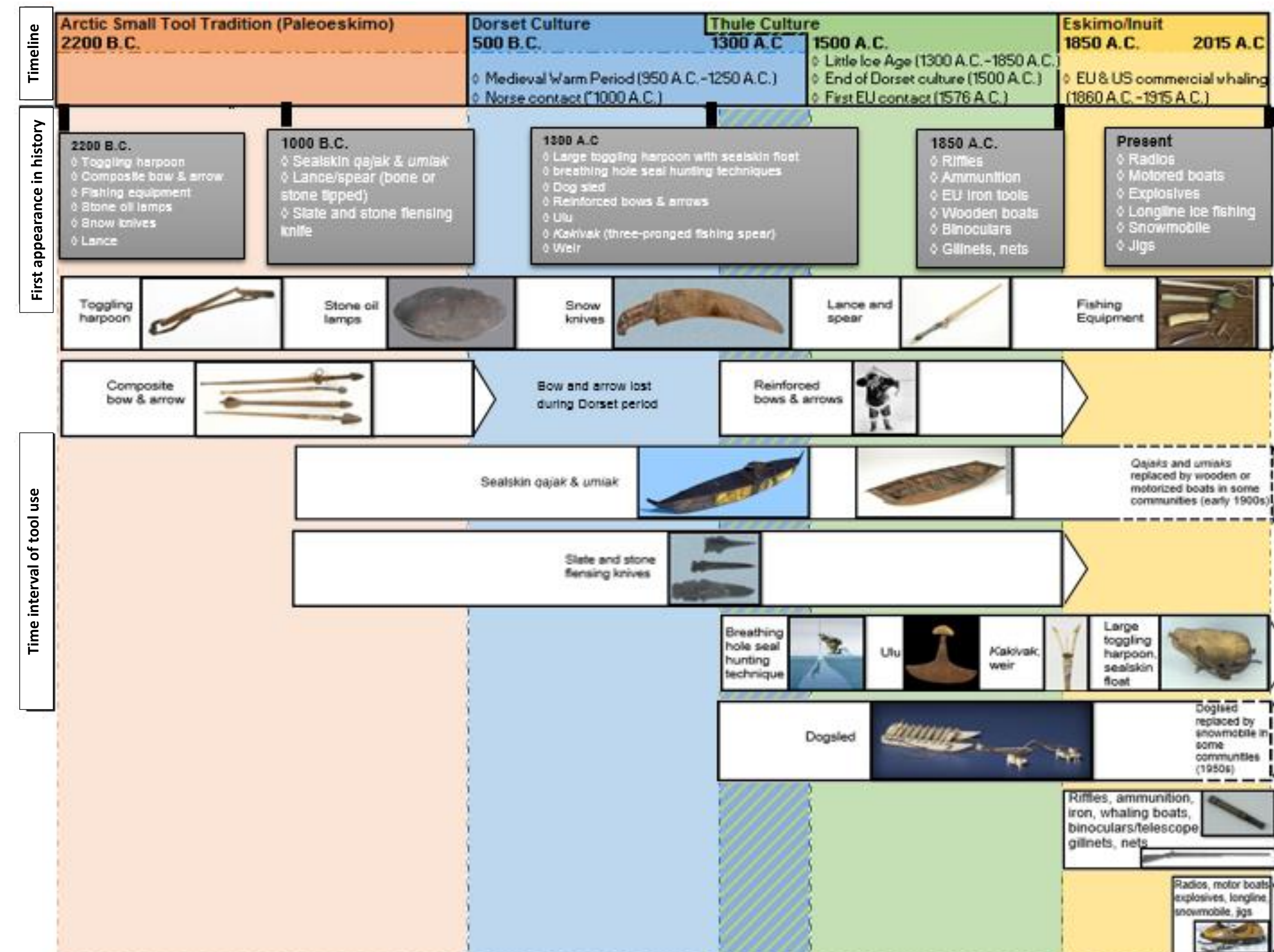


Figure 3. Timeline of the evolution of gear used by the Canadian Arctic people, within Nunavut. Figure shows tools' first appearance in history (invention or introduction), associated culture and length of use through time. Figure adapted from multiple sources, references upon request.

Landings & Quotas

Harvest and quota records for both subsistence (Fig 4, middle & right) and commercial (Fig. 4, left) fisheries in Nunavut only date back 100 years. Harvest size is increasing; this is potentially a result of growing Inuit population or gear technology development. Harvest quotas and other restrictions were introduced in the late 20th century for species with conservation concerns.

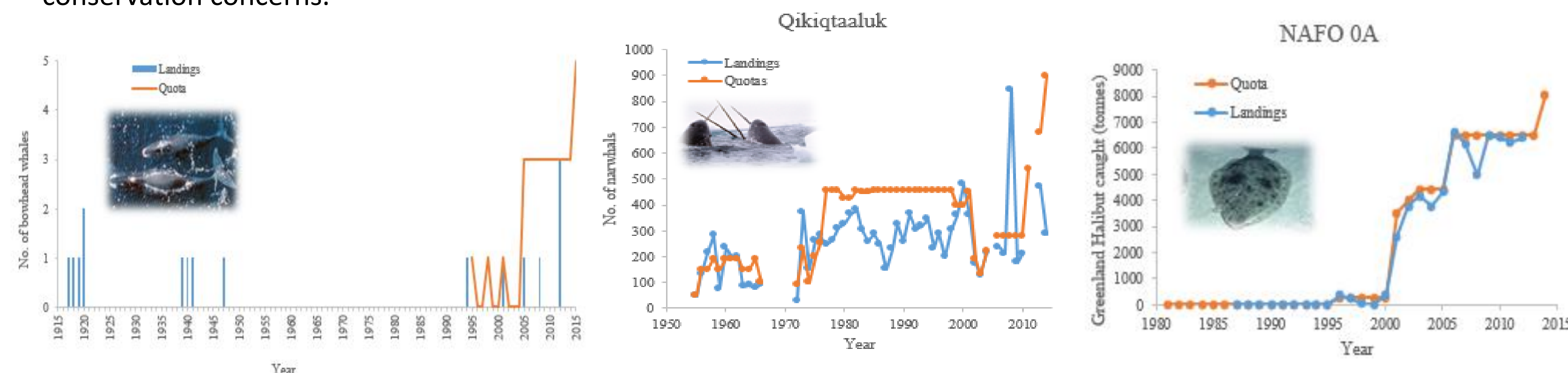


Figure 4. Quotas and landings of subsistence and commercial hunting in the Territory of Nunavut: (left) for the bowhead whale (*Balaena mysticetus*); (middle) the narwhal (*Monodon monoceros*) in the region of Qikiqtaaluk, in the northeast area of Nunavut; and the commercial landings of the Greenland halibut (*Reinhardtius hippoglossoides*) in the Northwest Atlantic Fishing Organisation (NAFO) fishing zone 0A on the eastern coast of Baffin Island. Values based on various sources, references upon request.

Future Fisheries

- Commercial fisheries are expanding
 - Greenland halibut
 - Northern shrimp
 - Striped pink shrimp
- Inuit interested in shaping future fisheries. They suggest:
 - Involve more communities in small Arctic char fisheries
 - Diversify commercial fisheries: clams, flounder, scallops, crab
 - Increase cetacean (notably bowhead) quotas
 - Increase Nunavut's fisheries retention percentage to national norm (85-90%)
- Opportunities will be influenced by climate change (e.g. as species move northward)

(Roux, Tallman & Lewis, 2011; SSCFO, 2009; Hovelsrud, McKenna & Huntington, 2008)

Conclusions

- Modern gear developments improve hunting efficiency, but climate change will increase effort as species move northward away from coasts
- The use of the Inuit Knowledge System, *Inuit Qaujimajatuqangit (IQ)*, will be increasingly important in the decision process of wildlife management to determine variations in species distribution with the effects of climate change
- Inuit will continue to employ a combination of traditional and modern practices

Acknowledgments

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References

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