

**Unique Insights from Historical Fisheries Survey Logbooks in the Arctic**

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During the period 1930–1977, British researchers carried out marine surveys in the Arctic, initially boarding commercial fishing vessels to measure the length distribution of cod near Bear Island in the Svalbard (Spitsbergen) region, but also around northeast Canada, Greenland and Iceland. Thereafter, in 1949 a dedicated research ship (the RV Ernest Holt) was custom-built for the Svalbard-Barents Sea area by the UK Ministry of Agriculture and Fisheries. Recent efforts have been made to digitise these historical datasets and make use of the information to explore the consequences of long-term climate change and commercial fishing. Cod stocks in the Barents Sea are currently at levels not seen since the 1950s. Causes for the recent population increase are unclear, but are thought to be related to a warmer seawater temperatures and availability of key prey resources. Similar conditions existed in the 1940s and 1950s and hence these archival British data sets, as well as more recent data from Norway and Russia can provide a unique long-term perspective. Catch weights, stomach content, prey availability (fish and benthic organisms) and hydrographic data were all digitised from scientific survey logbooks. Generalized Additive Models showed that environmental, spatial and temporal variables were all valuable descriptors of cod catches. Cod diets were highly variable during the study period, with frequent changes in the frequencies of different prey species, particularly capelin. Our study demonstrates the value of using historical datasets that, although lacking contemporary statistical rigour provide valuable knowledge on abundance, spatial distributions, prey selectivity and underlying climatic drivers.

**Keywords:** archive, survey, Svalbard, cod, capelin, climate change.

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