

The CodStory project - multidisciplinary research on Atlantic cod, climate and historical fisheries in the North Atlantic

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Genetic variation and stable isotope signatures of Atlantic cod were examined over the period of 1500-1910 AD using zoo-archaeological material recovered from excavations of historical fishing sites in western Iceland. The results showed loss of genetic variation in Atlantic cod, most likely associated with a population size reduction, and a shift in stable isotope signatures both coinciding with the cooling of the northern hemisphere, or the onset of the “little ice age”. In the current phase of the project the geographical range of samples is increased and high resolution genetic markers (SNPs) added, thereby facilitating inference on both population structure and adaptive dynamics. The combined pattern of temporospatial genetic variation and stable isotopic signatures of Atlantic cod over this geographical range allows evaluation of the stability of contemporary patterns and may provide further answers to fundamental questions in evolutionary ecology and fisheries management. For example, how climatic fluctuations have affected the population size, distribution ranges, feeding migrations and population structure of Atlantic cod across the North Atlantic and if either climate change or associated changes in the marine ecosystem have may have induced genetic adaptation in Atlantic cod. Although the current project focuses on the evolutionary biology of Atlantic cod and Atlantic cod fisheries ecology, the groundwork laid by the potential results, as well as the methodological developments in retrospective eco-genetics, will very likely allow further multidisciplinary projects on the development of North Atlantic fisheries, human ecodynamics in the North Atlantic as well as trade networks and historical economy. In this presentation both current results of the CodStory project and future implications will be discussed.