

Session E

Climate Impacts on Marine Fishes: Discovering Centennial Patterns and Disentangling Current Processes

Conveners: Brian MacKenzie (Denmark), Corinna Schrum (Norway), Myron A. Peck (Germany), and Skip McKinnell (PICES)

Climate change will impact fisheries resources and challenge both fishers and managers to develop sustainable exploitation strategies and disentangling the effects of climate variability from those due to fishing pressure is problematic. Unfortunately, the bulk of information on the impacts of climate variability on fish populations is often merely descriptive and stems from the last century (from periods of intense exploitation). This theme session has two, complimentary objectives. The first is to compile longer-term data (e.g., from historical sources, archaeological findings, paleoecological studies from sediments) that reveal how fish populations fluctuated on the centennial (and millennial) scales. The second is to highlight recent process-oriented research aimed at defining causal links between climate variability and inter- and intra-annual changes in the abundance and distribution of commercially-exploited marine fish species. The long-term perspective provides one the opportunity to examine patterns in response of fish population well before industrialized fishing, eutrophication and pollution took their tolls. For our first objective, we encourage submissions from historians, archaeologists, marine geologists and experts on fish population dynamics working on past fluctuations in the Atlantic and Pacific. Information originating from different sources (e.g., fish scale deposition rates in the Pacific, historical information from the Atlantic realm) will be collated and formatted into a chapter for the ICES position paper on Marine Climate Change. Our second, complimentary objective provides a forum to move from pattern- to process-oriented research. In this regard, we place particular emphasis on new applications of statistical methods, identification of critical life stages and potential climate-driven changes in connectivity of their essential habitats, results from coupled 3-D physical-biological models and assessment of climate impacts on variability in upper trophic levels and top-down control. Process-oriented research can cover a broad range of spatial and temporal scales and levels of biological organization (e.g., from individual species or ecotypes to communities and/or ecosystems). The ultimate goal of assembling this ensemble of climate-related research topics (that spans from patterns to processes) is to help disentangle the impacts of climate variability from the other myriad factors impacting our marine fish resources.

Brian R. MacKenzie, National Institute for Aquatic Resources (DTU-Aqua), Technical University of Denmark, e-mail: brm@aqua.dtu.dk

Myron A. Peck, University of Hamburg Institute of Hydrobiology and Fishery Science, Germany, e-mail: myron.peck@uni-hamburg.de

Corinna Schrum, University of Bergen Geophysical Institute, Norway, e-mail corinna.schrum@gfi.uib.no

Skip McKinnell, PICES, Sidney BC, Canada e-mail: mckinnell@pices.int