

Executive summary

ICES/ PICES Workshop on Political, Economic, Social, Technological, Legal and Environmental scenarios used in climate projection modelling (WKPESTLE), held in Washington D.C., USA, 9 June 2018, was attended by 20 participants from 9 countries. The workshop directly followed the 4th International Symposium on the Effects of Climate Change on the World's Oceans (ECCWO) and hence benefitted from enhanced participation.

As ICES strives to provide improved scientific advice within the context of a changing environment, it is essential to consider how different futures of physical climate as well as societal development are together impacting marine ecosystems and maritime activities. Short-, medium- and long-term developments in governance, social, technological and economic drivers may be just as important to the future development of fisheries and aquaculture as climate-driven changes in habitats and species abundances and distributions.

WKPESTLE aimed to investigate how and where scenarios are being developed around the world to explore the impacts of anthropogenic drivers on marine systems?

WKPESTLE brought together a diverse group of researchers from the ICES and PICES communities who are active in the development of social and economic storylines and connecting them to integrated marine climate modelling approaches. One of the workshop co-chairs, John Pinnegar, is a co-chair of the ICES/ PICES Strategic Initiative on Climate Change Impacts on Marine Ecosystems (SICCME) and two of the co-chairs, Jörn Schmidt and Alan Haynie, are co-chairs of the ICES Strategic Initiative on the Human Dimension (SIHD). Tyler Eddy, the fourth co-chair, is coordinator for regional models and the co-coordinator of the scenarios working group within the global FishMIP initiative.

The meeting provided an opportunity for the leading researchers to exchange ideas and to update each other on current work. A number of related publications are in preparation by meeting attendees and a global synthesis paper remains in discussion. The meeting was valuable for all participants as a means to understand the different approaches to scenario-building employed across different projects. The workshop led directly to a successful proposal for an 'oceans' theme session at the first 'Scenarios Forum' in Denver in March 2019.

A range of different projects was presented during the WKPESTLE workshop (and subsequently in Denver) and the geographic and thematic focus of each was compared, contrasted and discussed. Conclusions from the work included:

- Comparison across projects is valuable, although the diversity of purposes makes direct comparisons challenging.
- Projects have adopted a wide variety of approaches, some involving stakeholder engagement and elicitation, others drawing heavily on previous published studies.
- Shared Socioeconomic Pathways (e.g., O'Neill 2015) provide some general direction for how society may address climate adaptation and mitigation challenges. Many projects are working to balance the value of standardization with these frameworks with the specific needs of their project and geographic scope.