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## Climate variability, marine ecosystems and fish ecology: process-based perspectives of future events

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One of the most likely environmental changes in the next 70-100 years is an increase in global mean air temperature and the frequency of storms, floods and droughts. These changes will have major consequences for marine ecosystems, fish production and biodiversity. Forecasting how fish populations and communities react to these changes will require both an understanding of biological and oceanographic processes and knowledge of how fish have reacted to historical variations in climate. This presentation will use case study examples to demonstrate links between climate variability, oceanographic conditions and biology at scales of individual fish larvae up to entire fish populations and marine ecosystems. The examples will involve processes related to small-scale turbulence and larval fish feeding, and how climate variability affects reproductive habitat and success for fish in a large, partially anoxic estuarine ecosystem (Baltic Sea). The examples show that process knowledge of climate-oceanography-ecology links will be essential for estimating how fish populations and communities could react to future climatic changes.