

**The Future of Baltic Salmon: Using Participatory Modelling to Predict the Effects of Climate Change on Salmon and Adapt New Goals and Management Strategies.**

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**Abstract:**

In the Baltic region, salmon (*Salmo salar L.*) provide critical ecosystem services in both marine and freshwater environments, contribute economically through commercial and recreational fisheries, and represent a piece of the region's cultural heritage. Though this important resource had dwindled as a result of overfishing and habitat degradation, management efforts have been met with success, as salmon populations show signs of rebounding. Climate change poses the next challenge for salmon management and must therefore be promptly and proactively addressed to ensure continued excellency in salmon management. We plan to provide the "first-steps" in determining the effects of climate change on Baltic salmon by using participatory modelling to help the fishery and its stakeholders adapt to a changing world. The first step toward achieving this goal, will be to elicit the understanding of the problem of salmon management in the face of climate change from various stakeholders using Bayesian belief networks. From this effort we hope to learn how stakeholders conceptualize the problem differently, identify potential areas of concern, and suggest future biological, economic, and social goals for the fishery. Then, fisheries experts will be asked to identify linkages between salmon life-history parameters, like growth, and environmental variables influenced by climate change, like sea surface temperature, and then to describe the causal relationships between them. These perspectives, along with downscaled climate projections will then be integrated into an existing salmon stock assessment model using Bayesian methods to best predict the likely effects of climate change on these valuable fish.

**Key Words:** Baltic salmon, climate change, participatory modeling, Bayesian methods

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