

**Abstract:**

It was suggested by Rose (2005) that because of the migratory and responsive nature of the capelin, a small pelagic fish that is key to the ecology and fisheries of the North Atlantic, it can be viewed as the "canary in the coalmine" to detect signals of environmental changes in the Arctic Ocean. In this talk, we will combine analysis of data and extensive simulations of the migrations of the capelin and its physiology to analyze the changes in the ocean environment, taking place over the last half-century. Our goals will be to understand and predict the migrations of the capelin and its interactions with the ocean environment. We will explain how these have changed over time and how they are likely to change in the future. Then we will explain how our simulations can be compared with data, with the aim of finding out the rate of the temperature changes in the Arctic Ocean and when thresholds for major disruptions in Arctic environments are likely to be reached.