

Topic Session on *“Environmental variability and small pelagic fishes in the North Pacific: Exploring mechanistic and pragmatic methods for integrating ecosystem considerations into assessment and management”*

Duration: 1 day

Conveners:

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Potential invited speaker:

Dr. Taiki Fuji (Japan Fisheries Research and Education Agency, tfuji114@affrc.go.jp)

Co-sponsoring organizations:

North Pacific Fisheries Commission (NPFC; <https://www.npfc.int/>)

International Council for the Exploration of the Sea (ICES; <https://www.ices.dk>), not confirmed yet

Session Description:

Small pelagic fish species are a key component of North Pacific ecosystems. They are a prey species for large bodied fishes, marine mammals and birds and an important predator of zooplankton and phytoplankton production. In addition, there are substantial commercial fisheries that exploit small pelagic species. Small pelagics are often short-lived and respond strongly to environmental changes. This makes these species particularly difficult to manage, as changes in productivity caused by environmental changes can precede management responses. This also creates an opportunity, in that environmental changes can have impacts on the species distribution and abundance over shortened time scales that are relatively easily detected. For example, Pacific Saury is a species with a 2-year life cycle, with distribution and abundance known to be strongly correlated to temperature and ocean conditions. Abundance and productivity are likely to change over very short time scales. The species also supports a large multi-national commercial fishery in international waters. However, the linkages to environmental conditions are not parameterized in the existing stock assessment or management strategy. This proposed session will focus on methods to incorporate the environment into stock assessment and management of small pelagics. We will solicit contributions under three broad categories: (1) contributions that hypothesize and apply mechanistic approaches to relating growth, recruitment and productivity to environmental changes in the North Pacific Ocean, (2) methods for monitoring and predicting ocean conditions that have implications for population status and can assist in projecting future changes in the abundance of small pelagic fishes, and (3) examination of environmental relationships that can contribute to understanding the implications for management measures such as biological reference points and harvest control rules.