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Dynamic models of size-spectra, and exploitation of fish assemblages

Abstract

The size structure of ecological communities in water is often quite different from that on land: primary producers are usually the smallest organisms, and animals the largest. This talk covers some recent ideas from dynamical systems for describing dynamics of size-structured aquatic assemblages. These models have, at their core, the transfer of mass from prey to predator that leads to death of the prey and growth in body mass of the predator, and track the components of productivity through aquatic ecosystems. Numerical results suggest there are benefits both to conservation and to yield in bringing exploitation of aquatic ecosystems more in line with their natural productivity, so-called ‘balanced harvesting’.