



SPRING 2014 SEMINAR SERIES

DEPARTMENT OF OCEAN, EARTH, AND ATMOSPHERIC SCIENCES
3PM – ROOM 200 IN THE OCEANOGRAPHY/PHYSICS BUILDING
THURSDAY FEBRUARY 20th, 2014

**“Large-scale ocean circulation and life history connectivity of Antarctic toothfish
(*Dissostichus mawsoni*) in the Ross Sea region.”**

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ABSTRACT

The well-documented success of spatial refuges in restoring several over-exploited fish stocks has focused attention on protecting marine areas as a tool for fisheries management, with benefits from increased production accruing to neighbouring fisheries. However, the spatial structure of targeted populations and their life cycles is critical to this success and has received much less attention. Recent initiatives by the Commission of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) for a representative system of Marine Protected Areas (MPAs) in the Southern Ocean include a proposal for the Ross Sea, where an important fishery for Antarctic toothfish (*Dissostichus mawsoni*) is managed through spatially explicit catch quotas. A multi-disciplinary approach incorporating genetics, otolith chemistry, age data and numerical Lagrangian particle simulations was used to test and further develop a hypothesis describing a single, self-recruiting population of toothfish in the Southeast Pacific Basin and Ross Sea, with a life history structured by the large-scale circulation. The results suggest that any proposal for an MPA should include the Iselin Bank as well as the Ross Gyre; and that production within the MPA may supply fishing management areas in the southern Indian Ocean and along the Antarctic Peninsula.

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