Statistics Colloquium

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Tuesday, November 20, 2012
11:00a.m., HH-3026

Statistical problems to address for some NL fish stocks when deriving Maximum Sustainable Yield reference points

Abstract:

Many fisheries are managed using reference points, where prescribed actions should occur when stock size or fishing mortality rates (F) exceed the reference points. The biomass (Bmsy) that produces maximum sustainable yield (MSY) is often considered to be a default target. This is the biomass that should result in the long term when fishing at Fmsy – the harvest rate that maximizes long term yield (i.e. catches). While determining MSY reference points is relatively straight-forward when all of the processes affecting stock productivity (i.e. birth and death rates, growth and maturation rates) are stable, there have been large changes in various aspects of productivity for many NL stocks (e.g. cod, shrimp, and snow crab) over the last 20-30 years and this has been a major challenge and impediment in producing scientifically defendable MSY reference points.

I focus on a pragmatic strategy to account for variability in productivity processes when calculating Fmsy and Bmsy. I propose that statistical models be developed and fitted to available productivity data with a focus to forecast the range of productivity conditions one can expect in the future for MSY calculations. Illustrations of this will be provided. I also briefly mention other statistical research that addresses problems when estimating MSY reference points.

Teaching Demonstration:

Monday, November 19, 2012, 3:00p.m., HH-3026

Topic: "Hypothesis testing -- Most powerful test", Section 8.3.2 of Casella and Berger's book 'Statistical Inference', 2nd ed.

Everyone is welcome to both events.