SEMINAIRE AMURE

Jeudi 5 septembre 2013

10h00>12h30

Salle B211

Bâtiment B - UBO

Are Marine Reserves and Harvest Control Rules Substitutes or Complements for Rebuilding Fisheries?

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Abstract

Harvest control rules and no-take marine reserves are the two management approaches increasingly advocated as effective means of rebuilding depleted fish stocks and averting the collapse of fisheries. We incorporate the two approaches into a bioeconomic model to examine the extent to which they act as substitutes and/or complements when used together in fisheries stock recovery plans. Through simulations of our parameterized model, we find that the cost of adopting a harvest strategy of slow stock rebuilding, measured in terms of lengthening the stock recovery period, can be offset by designating a no-take reserve, suggesting that the two approaches are temporal substitutes. We also find that, for each of the harvest strategies explored, there is a range of reserve sizes that can act as a complement in a stock recovery plan, in the sense of improving both the economic and socio-economic performance in the fishery. Overall, our results demonstrate that a carefully designed recovery plan incorporating both harvest control rules and no-take reserves can simultaneously contribute to conservation, economic and socio-economic objectives of fisheries management.

Science supporting policy and management when we want full sustainability and information is incomplete

Jake Rice
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Abstract

Effective management must ensure both that the ecosystems are conserved and they provide desired social and economic benefits. Although the language used to discuss "sustainable use" has evolved over the past several decades, the core challenge of finding a balance that society will support and ecosystems can sustain across the ecological, social, and economic dimensions of sustainability has not. Few dispute that sound

policy benefits from sound science support, but our knowledge of the ecological, social, and economic aspects of specific fisheries (or any other ocean use) are usually incomplete on all dimensions yet also unequal across dimensions. Moreover, climate-change related drivers are adding to and interacting with the changes that our uses already impose on ecosystems, and governance processes for sectoral management and for conservation of biodiversity must act in coherent ways for either of them to achieve their objectives. All of these developments make the challenges of finding the right "balance" for sustainability greater. The pace of change in marine ecosystems due to climate forcing interacting with new and cumulative pressures from multiple uses also combines with the pace of change in increasingly global economies and social dynamics. Together these changing contexts bring into question the basic notion that any stable "balance" can even exist across the three dimensions of sustainability. The discrepancies among the objectives of separate sectoral management agencies, and between the risk tolerances of governance processes for sectors and processes for conservation of biodiversity bring into question the existence of any trade-offs that have universal support. Together this is a recipe for an unpromising policy and management context, supported by ecological, economic and social science knowledge that is always uncertain and incomplete. In this unpromising context I will try to isolate those things that we *can* manage, and types of knowledge we *can* provide to make wise, effective decisions about those things. This may provide useful insights for both what information we need most, and how we can best use it. The talk will use the Arctic Ocean, where climate change is driving particularly rapid ecosystem change and where interest in economic development is particularly high; to illustrate my points, but the ideas may be much more general in application.