
Woods Hole Oceanographic Institution
Marine Policy Center Seminar



Thursday, April 7, 2022 10:30 am

Registration Required:

<https://whoiedu.zoom.us/j/6uqjwHNMkfxcr8UoWezlBEG717VTr>

*Stability of international fisheries agreements
under stock growth uncertainty*

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Scientific evidence reveals that renewable resource stock dynamics are subject to uncertainty due to changes in environmental conditions. Despite its critical impacts on management, little is known about the effects of such uncertainty on the formation of regional fisheries management organizations (RFMOs). In this paper, we design a dynamic stock recruitment framework to examine this issue in a common pool setting. We find that stock growth uncertainty critically affects equilibrium behaviors under both open loop membership and dynamic membership. For instance, we delineate conditions under which uncertainty induces full non-cooperation in equilibrium. Strategic behaviors may also shift equilibrium outcomes from full non-cooperation under deterministic conditions to full cooperation under uncertainty when countries anticipate a small environmental variability. Moreover, strategic interactions to extract the resource stock may lead to higher individual payoffs under uncertainty. We also outline the differences in equilibrium responses of membership, harvest, and payoff to mean preserving spreads under both open loop membership and dynamic membership.