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Woods Hole Oceanographic Institution  
**Biology Department Seminar**



Thursday, December 8, 2022 – 12:00 Noon

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**Causes and Consequences of Pair-Bond Disruption and  
Implications for Population Dynamics in Monogamous Seabirds**

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Many animals, from crustaceans to humans, form socially monogamous pair-bonds which are maintained during one or more consecutive reproductions. However, the ecological consequences of social monogamy for population dynamics have rarely been addressed because it is difficult to comprehend the rates, causes, and consequences of pair-bond disruption (divorce or widowhood) and to explicitly include males and females, as well as mating processes into a demographic model. In this talk, I will present our recent work investigating the effects of global changes and individual heterogeneity on pair-bond disruption (divorce or widowhood) and their consequences for vital rates, life-history outcomes, population growth rate, and structure for socially monogamous species. Analyses of long-term demographic datasets of Wandering Albatross (WA, *Diomedea exulans*) and the Snow Petrel (SP, *Pagodroma nivea*) reveal that staying single after a pair-bond disruption resulted in a reduction in individual lifetime reproductive success due to missed breeding seasons. We also found a link between individual personality and divorce in WA demonstrating the important implications of individual heterogeneity for the dynamics of social relationships. Specifically, shyer male WA exhibited higher divorce rates than bolder males but no such relationship was found in females. In SP, results support that environmental fluctuations can both indirectly and directly modulate the prevalence of pair-bond relationship. At population level, we evaluated the impacts of pair-bond disruption on population dynamics by performing sensitivity analysis in a novel general non-linear two-sex structured model including long-term partnership. Population growth rates decrease dramatically when mortality is sex-biased. As a whole, our results suggest that the impacts of pair-bond disruption on demography should not be ignored when providing guidelines for conservation and management of endangered species.

HYBRID! **In person:** Redfield Auditorium **Zoom:** <https://whoi-edu.zoom.us/j/96365116832> Meeting ID: 963 6511 6832 **By phone:** Find your local number: <https://whoi-edu.zoom.us/u/aekx0Sbb6A>