When the going gets tough, the tough get going: effect of extreme climate on an Antarctic seabird life history

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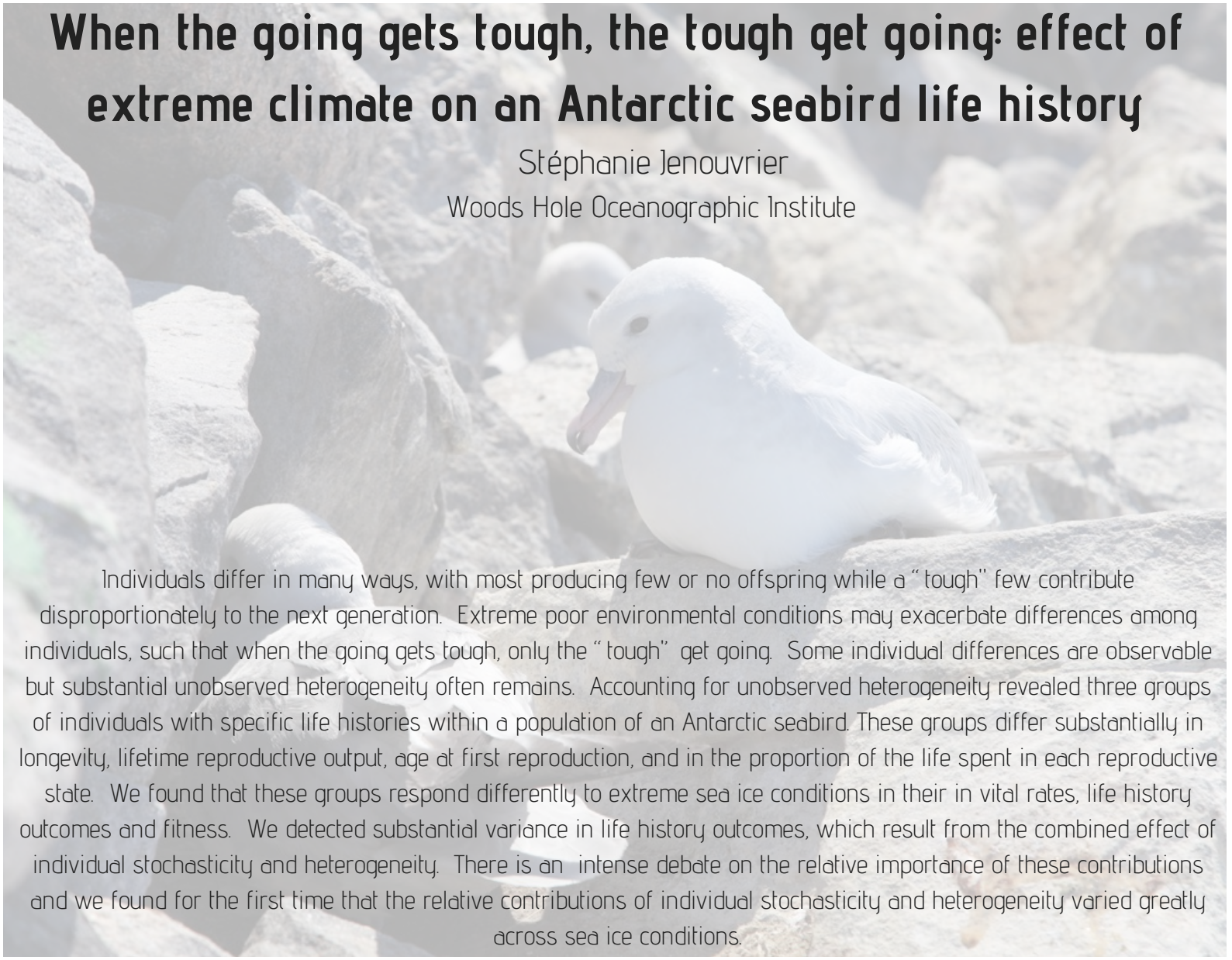

Individuals differ in many ways, with most producing few or no offspring while a " tough" few contribute disproportionately to the next generation. Extreme poor environmental conditions may exacerbate differences among individuals, such that when the going gets tough, only the " tough" get going. Some individual differences are observable but substantial unobserved heterogeneity often remains. Accounting for unobserved heterogeneity revealed three groups of individuals with specific life histories within a population of an Antarctic seabird. These groups differ substantially in longevity, lifetime reproductive output, age at first reproduction, and in the proportion of the life spent in each reproductive state. We found that these groups respond differently to extreme sea ice conditions in their in vital rates, life history outcomes and fitness. We detected substantial variance in life history outcomes, which result from the combined effect of individual stochasticity and heterogeneity. There is an intense debate on the relative importance of these contributions and we found for the first time that the relative contributions of individual stochasticity and heterogeneity varied greatly across sea ice conditions.

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Lewis Hall 304

3:30-4:30pm

Stéphanie Jenouvrier is an associate scientist at the Woods Hole Oceanographic Institution (USA) and Centre d' études Biologiques de Chizé (France). She is an ecologist interested in understanding and predicting the effect of climate change on life history and population dynamics, especially for seabirds in the Southern Ocean. Her work combines long-term longitudinal data with demographic, statistical and mathematical models coupled with climates models participating in the Intergovernmental Panel on climate change assessment.