1145-92-1604 **Azmy Ackleh**, **Hal Caswell**, **Ross Chiquet** and **Tingting Tang\*** (`ttang@nd.edu`), Notre Dame, Notre Dame, IN 46556, and **Amy Veprauskas**. *Sensitivity analysis of the recovery time for a population under the impact of an environmental disturbance.*

Wildlife populations are often affected by natural or artificial disasters which reduce their vital rates leading to drastic fluctuations in population dynamics. We use a stage-structured matrix model to study the recovery process of a population given an environmental disturbance. We focus on the time it takes the population to recover to its pre-event level and develop general formulas to calculate the sensitivity and elasticity of the recovery time to changes in the initial population, vital rates, and event severity. Our results suggest that the recovery time is independent of the initial population size but it is sensitive to the initial structure. Moreover, the recovery time is more sensitive to reductions in vital rates than to the duration of the impact of the event. We explore an application of the model to the sperm whale population in Gulf of Mexico following a disturbance such as the Deepwater Horizon oil spill. (Received September 23, 2018)