Title: **Welfare Effects of Random Fishery Closures**

Authors: Michele Baggio, ETH Zürich - Institute for Environmental Decisions (Switzerland)  
         Erik Lichtenberg, University of Maryland (USA)

Abstract: This paper investigates the welfare effects of random closures in a fishery operating under open access. At each point in time, a fishery is facing the probability of an extreme event that impairs fishing activities but has no direct impact on the fish population. Examples include massive blooms of dinoflagellates that render fish or shellfish toxic to humans, massive algal blooms that foul motors and thus prevent fishing activity, and invasions of aquatic plants that spread rapidly in eutrophied waters and prevent fishing activity in the same way as algal blooms. We analyze long run equilibrium in such fisheries under the assumption that when such events occur fishing becomes infeasible for a period. We show that in the long run the fish population converges to a stable distribution. We show that random fishery closures of this kind can increase social welfare by allowing the fish population to recover from the overfishing due to open access and discuss conditions that render improvements in social welfare more likely. We examine those conditions empirically using an econometric model of population dynamics and fishing productivity in the Italian anchovy/sardine fishery in the northern Adriatic.