

No paper
available

Theme: Special Sessions

Session: TuG2 - Economic effects of climate change on fisheries 2

Title: **Climate Change, ENSO Frequency and Intensity, and the Gulf of Mexico Headboat Fishery**

Author(s): David Carter , David Letson

Abstract: Recent results from a vector error correction (VEC) analysis indicate that El Niño-Southern Oscillation (ENSO) events appear to affect both red snapper landings and effort in the Gulf of Mexico headboat fishery (Carter and Letson 2005). A key finding is that the outcome of policy changes can vary depending on ENSO conditions. This suggests that climate change could have an impact on the effectiveness of fishery regulations. To examine this assertion, we use a VEC model to simulate the changes in headboat effort and red snapper landings expected from potential ENSO frequency and strength shifts. The assumptions regarding the ENSO scenarios are based on work by Chen et al. (2001) and Timmermann et al. (1999). Specifically, we assume the frequency of both the El Niño and La Niña phases would increase, while the Neutral phase frequency would be reduced, and that stronger events such as 1982 and 1997 would become more likely. We construct a Markov chain of ENSO years consistent with these assumptions and use it to simulate changes in the fishery. The ENSO scenarios are simulated with and without regulatory changes to evaluate the sensitivity of policy outcomes to climate change.

Carter, D.W. and D. Letson. 2005. 'Effort Response, Harvest, Climate, and the Economy in the Gulf of Mexico Recreational Red Snapper Fishery.' NOAA/SEFSC SSRG Working Paper Series, Miami, Florida USA.

Chen, C.C., B.A. McCarl, and R.M. Adams. 2001. 'Economic Implications of Potential ENSO Frequency and Strength Shifts.' Climatic Change 49:147-159.

Timmermann, A., J. Oberhuber, A. Bacher, M. Each, M. Latif, and E. Roeckner. 1999. 'ENSO Response to Greenhouse Warming.' Nature 398: 694-697.