PhD Dissertation
Department of Environmental Science and Policy
George Mason University

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Defense Date and Time: October 12, 2016 at 9:30 a.m.
Defense Location: Johnson Center 325 - Meeting Room A at the Fairfax campus

Title: Assessing Reef Expert's Baseline and Values Regarding the Florida Keys Coral Reef Ecosystem: Implications for Historical Ecological Knowledge of the Region

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ABSTRACT

The coral reef ecosystem of the Florida Keys has experienced significant and rapid decline over the past several decades. This study was designed to test the shifting baselines hypothesis, a phrase first coined by Daniel Pauly in 1995. This study also examined expert's views on key marine affairs involving the reef, as well as their observations of habitat change over time.

Baselines for the Florida Keys bank reef ecosystem were established based on respondent testimony. Independent of age, experience or affiliation, respondents generally agree that the baseline for the Florida Keys bank reef was approximately 33% cover, and 44 YBP.

The majority of experts interviewed (96%) were scientists. Seventy percent of respondents interviewed in this study that were under the age of 40 reported never witnessing a reef dominated by *Acropora sp,* while 96% of respondents over the age of 60 did report experiencing an *Acropora sp.* dominated reef. This demonstrates a dramatic difference in interaction with the reef from one generation of experts to the next, though a high level of consensus regarding baselines. This demonstrates a lack of evidence for shifting baselines syndrome among experts.

In regard to expert's views on important marine affairs concerning the Florida Keys, MPA's were seen to have been effective for fish, though not for corals. This was not to say experts did not think MPA's were important, though acknowledge MPA's alone would not solve the problem of reef decline. Perhaps more surprising was the lack of optimism among experts regard man's ability to manage and restore coral, as nearly one third of respondents suggested reef management are not able to influence percent coral cover.

In assessing respondents' perceptions of species change over time, respondents reported a general decline among species inhabiting the reef with the exception of invasive lionfish, opportunistic invertebrates, macroalage, some large shark species, and the protected goliath grouper.