

### **34 Visitor satisfaction and crowding at the Florida Keys National Marine Sanctuary**

**Melissa Hurtado<sup>1</sup>, Robert C. Burns<sup>1</sup>, Ross G. Andrew<sup>1</sup>, Danielle Schwarzmann<sup>2</sup>, Jasmine Cardozo Moreira<sup>3</sup>,**

<sup>1</sup>West Virginia University, USA. <sup>2</sup>NOAA Office of National Marine Sanctuaries, USA. <sup>3</sup>Ponta Grossa State University, Brazil

Understanding the human benefits and pressures on ocean and coastal environments is critical to keep managing these areas in a sustainable way. Outdoor recreation in marine protected areas has been increasing over the years. The increasing popularity of marine areas presents a paradox. On one hand, people seek to recreate in unique natural coastal environments with settings that match their needs and desires, and at the same time, millions of people depend on coral reefs and their income from tourism. On the other hand, the same increased recreational attention has resulted in negative impacts on the physical and social environment. Unfortunately, the literature indicates that sandy coastal areas are naturally more vulnerable to recreation impacts due to interactions between wind, waves and sediments. This is the main reason why an effective management and monitoring of visitor use is fundamental in marine protected areas. Carrying capacity is a term that emerged within the environmental and outdoor recreation fields of study and can be used as a potential management tool. A background on social carrying capacity leads to two important terms, which are satisfaction and crowding.

The primary purpose of this study is to examine the satisfaction and crowding of visitors at the Florida Keys National Marine Sanctuary. There are different variables that can influence overall satisfaction and crowding levels, this study will compare these variables across recreation users, such as snorkelers and divers, and other demographic variables in the Florida Keys National Marine Sanctuary. This study is part of a larger scale project called National Marine Sanctuaries Visitor Counting Process (NMS-COUNT) and it will be used

to aid NOAA management decisions regarding visitor use in National Marine Sanctuaries. The Florida Keys National Marine Sanctuary (FKNMS) is part of the National Marine Sanctuary System and is administered by the National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries (ONMS). It was designated on November 16, 1990 and it comprises 2,900 square nautical miles of waters. This sanctuary protects a coral barrier reef, extensive seagrass beds, mangrove-fringed islands, more than 6,000 species of marine life, as well as historical and archeological heritage such as shipwrecks.

Online surveys were sent via Qualtrics to email addresses contacts of the Fishing License Database from the state of Florida during the summer of 2019 (n = 790). The total number of effective survey contacts was 1,986 and the total number of completed surveys was 790. The survey included questions related to visitor's satisfaction and crowding levels, expectation and performance, and basic socio-demographics. The survey instrument also sought information about the visitor's recreation patterns in the Florida Keys and intended to help managers understand important social, natural and economic information associated with these areas. It is clear that the FKNMS is a touristic destination that offers to the visitors several recreational activities such as world-class diving, swimming, snorkeling, and fishing. Therefore, an understanding combination of social and natural resource carrying capacity can help managers to create better policies that will maximize human benefits from and minimize human pressures on ocean and coastal environments.