

Saving the Florida Manatee: The Effectiveness of Boating Speed Limits as a Conservation Tool
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After fifty years of being classified as endangered the Florida manatee was downlisted to the status of threatened in 2017. While it is generally believed that setting boating speed limits in manatee protection zones has been the primary factor behind this success, direct quantitative evidence is limited. This study undertakes a comprehensive analysis of whether speed regulations intended to reduce boating related manatee deaths have indeed been effective. To this end a county level annual data set of manatee boating related deaths was combined with geo-referenced measures of the change of boating speed restriction zones over nearly 20 years. Regression analysis shows that setting maximum speed limits reduced manatee deaths in a non-linear manner, with greater effects at lower speed limits. Using a stochastic age-structured population model the impact on manatee population dynamics is explored under different scenarios. This suggests that regulating boating speed significantly reduced the risk of extinction. Using existing economic valuation measures for manatee conservation demonstrates that boaters could be more than monetarily compensated to accept a speed limit that would be marginally most effective.