Title

Authors

Abstract:

**Introduction**

* Marine protected areas / marine reserves
* Marine fish species age distribution
  + Effect of marine reserve implementation
  + Explanation of transient dynamics
    - Importance of M and k values for describing transient dynamics
  + Importance of variability about population trajectory
* Designation of marine reserves off coast of Oregon
  + Goals of marine reserves
  + Upcoming assessment in 2023
* Description of study species
* Overview of methods
  + Reconstruction of base model, based off of (Babcock and MacCall 2011)

**Methods**

* Reconstruction of base model
  + Breakdown of sub-models into various functions
  + For more detailed equations and parameters, see Appendix A.

Table 1. Study species parameters

Table 2. Control rules

**Results**

**Discussion**

**Acknowledgements**

Thanks to Dr. Elizabeth Babcock for help reconstructing the base model in R.

**Appendix A**

**References**

Babcock, E.A., and MacCall, A.D. 2011. How useful is the ratio of fish density outside versus inside no-take marine reserves as a metric for fishery management control rules? Can. J. Fish. Aquat. Sci. **68**(2): 343–359. doi:10.1139/F10-146.