Rockfish Removals in Alaska Sport Fisheries 1977 through 2023

Philip Joy

2025-05-23

# Abstract

Fishery stock assessments require defensible estimates of total extractions (commercial, sport, subsistence, personal use, and bycatch) throughout the history of exploitation and at appropriate spatial scales for management. This study provides updated estimates of total sport harvest and releases for black and yelloweye rockfishes as well as demersal shelf, slope and non-black pelagic rockfish in southeast, in geographic units consistent with commercial fishery management units (CFMUs), such that total fishing mortality could be estimated. Estimates were originally produced in Howard et al. (2020) covering the period between 1999 and today and the Bayesian methods used here allow for estimations back through 1977, correct faulty assumptions in the Howard methodolgy, and correct for survey bias. Sport harvest and release information is available from Alaska Department of Fish and Game saltwater guide logbooks and the Alaska Sport Fishing Survey (commonly known as the statewide harvest survey or SWHS). Guide logbooks have provided a census of guided sport harvest and release by statistical reporting areas and by pelagic and nonpelagic rockfish assemblages since 1998/1999, and a census of yelloweye rockfish harvest and release since 2006. The SWHS has provided estimates of harvest and catch by guided and unguided anglers, but at a coarser geographic scale, and not by species or assemblages (e.g., pelagic–nonpelagic) of rockfish. Port sampling data provides estimates of species composition in the harvest as well as length and weight data. The bayesian model used here calculates harvests very similar to the methods used in Howard et al. (2020) but differs in how releases are estimated. Bias in the SWHS harvest and release numbers are corrected in the model and the Bayesian model does not make the Howard et al. (2020) assumption that the species composition of the harvest is equal to that of the released fish. The Bayesian model also uses a hierarchichal approach such that information is more appropriately shared across areas within regions and more appropriately propogates error. Assumptions about key parameters and estimates before data collection began are made using logistic curves to estimate trends. Harvest estimates from the Bayesian model are very similar to the Howard et al. (2020) estimates but release estimates differ considerably as a result of bias correction and more informed estimates of release probability by species and species assemblage as evident in the logbook data. Sport black and yelloweye rockfishes harvests and releases provided by this methodology are recommended for use in stock assessments of these species statewide, and the methodology could be useful for other marine finfish species where stock assessment models are needed.

Keywords: sport fish, harvest, release, fishing mortality, black rockfish, yelloweye rockfish, demersal shelf rockfish, slope rockfish, pelagic rockfish, Gulf of Alaska, *Sebastes*, *Sebastes melanops*, *Sebastes ruberrimus*, rockfish

# Introduction

| 1. Equation |  |
| --- | --- |

| (1) |

Why won’t my equation render?