

Analyses of 2002 Stock Assessment Results

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Introduction

As part of the work towards understanding ecosystem dynamics of Alaska groundfish, the purpose of this study is to provide some standard measures among different stocks to compare with identified and potential regime shifts.

Recruits-per-spawning biomass calculations

This simply divides the abundance estimates of each year class of recruits by the spawning biomass in that year. This value (R/S) is based on the abundance estimates of recruits and spawning biomass as presented in the stock assessment documents in 2002 SAFE.

The recruitment estimates per spawning biomass is only calculated for years where there is a reliable estimate of abundance, as determined by stock assessment scientists. i.e., ratios were not calculated in years where recruitment estimates had a high coefficient of variation or were otherwise lacking data.

Recruits-per-spawning biomass anomalies

These are simply normalized (estimate minus the average of years 1977-2001) values of the logged ratios of recruit abundance per unit mass of spawning biomass. The different shaded areas of these figures represent identified “regime changes” (Hare and Francis 1995, Hare and Mantua 2000; Mantua and Hare 2001).

Abundance of recruits and spawning biomass estimates are from the November 2002 SAFE.

References

- Hare, S.R., and R.C. Francis. 1995. Climate change and salmon production in the northeast Pacific Ocean, p. 357-372. In R.J. Beamish [ed.] *Climate Change and Northern Fish Populations*. Canadian Special Publication Fisheries and Aquatic Sciences. 121.
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- Mantua, N.J., and S.R. Hare. 2001. Empirical evidence for a 1998/1999 North Pacific regime shift, p. 11-13. In P.A. Livingston [ed.] *Ecosystem Considerations for 2002. Stock Assessment and Fishery Evaluation*, November 2001.