

# Alaska Department of Fish and Game

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Funk, F. 1990. Harvest policy implications of yield per recruit models for Pacific herring in Alaska. Pages 453-462 [In] Proceedings of the international herring symposium, 1990. Alaska Sea Grant College Program Report AK-SG-91-01, University of Alaska Fairbanks.

**Abstract:** A yield per recruit model is used to explore how  $F_{0.1}$  and other aspects of growth mortality tradeoffs relate to existing harvest policies for the Togiak herring stock in the Bering Sea and for the Prince William Sound herring stock in the Gulf of Alaska. Exploitation rates corresponding to  $F_{0.1}$  at Togiak (36%) and at Prince William Sound (46%) are considerably higher than the current 20% maximum exploitation rate applied to both stocks. Although  $F_{0.1}$  is an arbitrary reference point, growth-mortality tradeoffs indicate that optimal exploitation rates for herring stocks in the Bering Sea are less than those for stocks in the Gulf of Alaska. 'Banking' harvest policies, whereby exploitation rates are reduced for one year to increase cohort longevity and sustain egg production over a longer period of time, are shown to cause only minimal reductions in yield from a cohort over its fishable lifespan. Although targeting fishing effort on a newly recruited strong year class can increase the yield from the year class as much as 14%, the disadvantages associated with reduced egg production, reduced roe quality, and uncertainty in first-year biomass assessments likely counteract this benefit.

**Keywords:** None.

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