A15.0 FIGURES

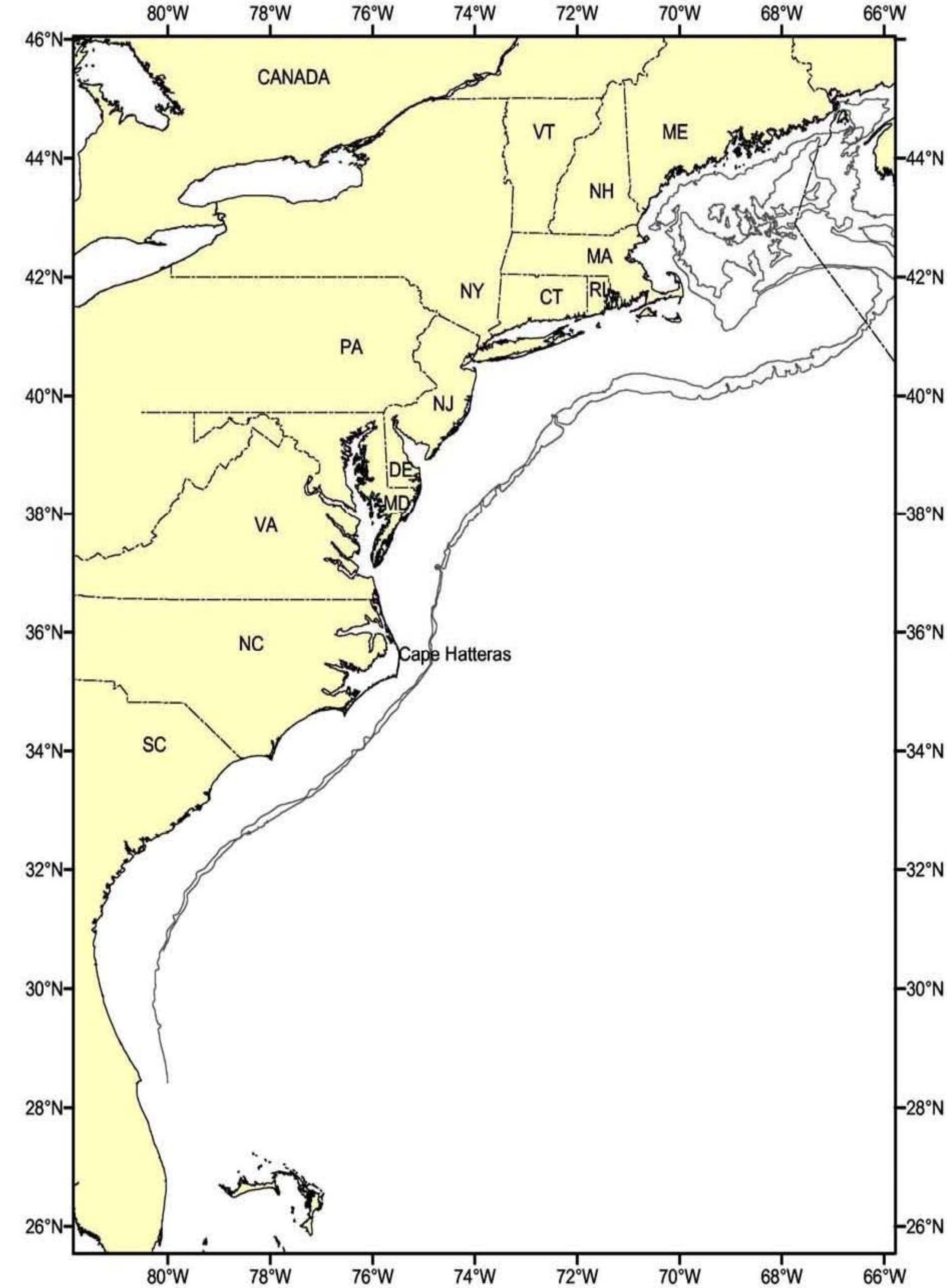


Figure A4.1 Map of the east coast of the United States.

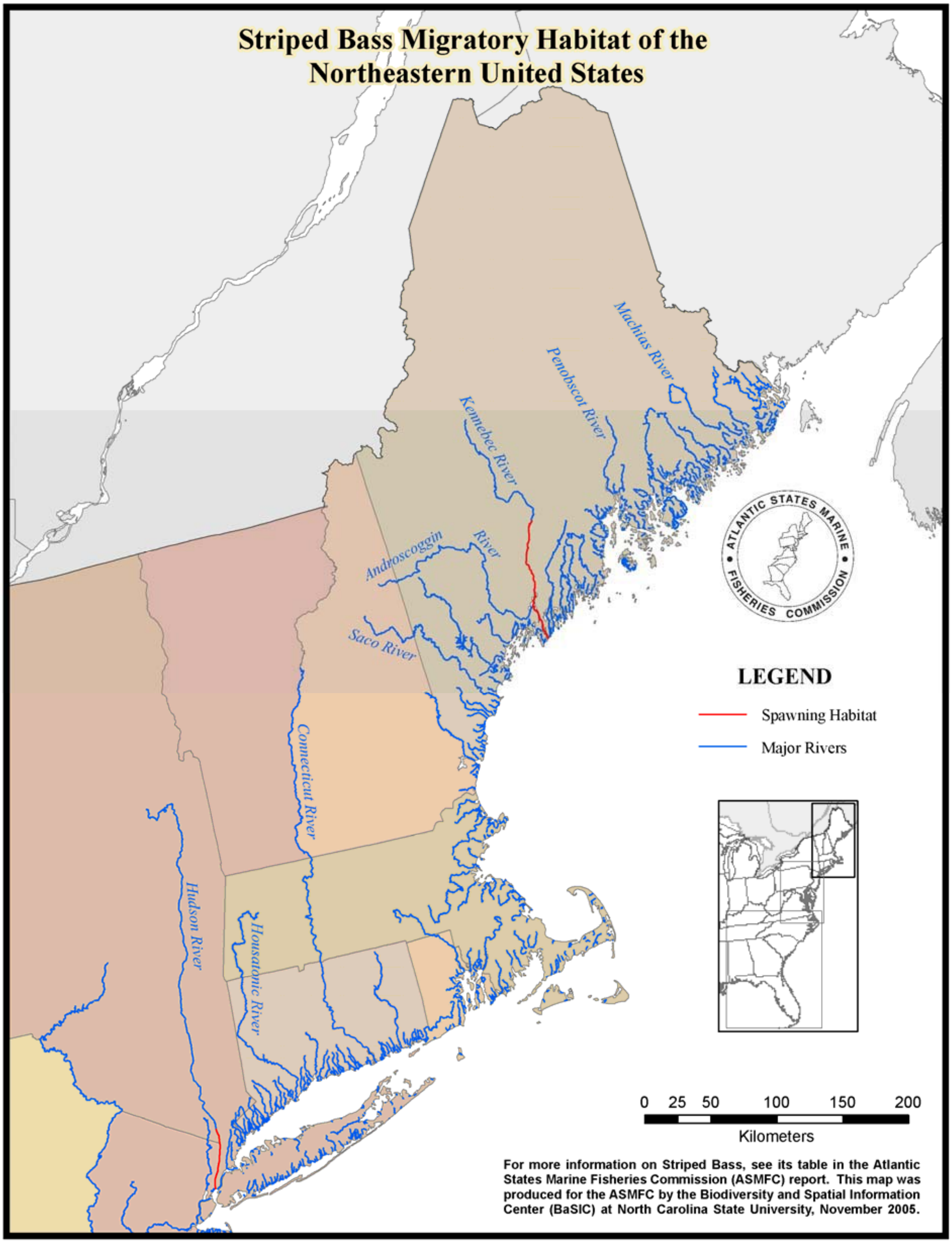


Figure A4.2. Striped Bass Spawning Habitat of Northeastern United States

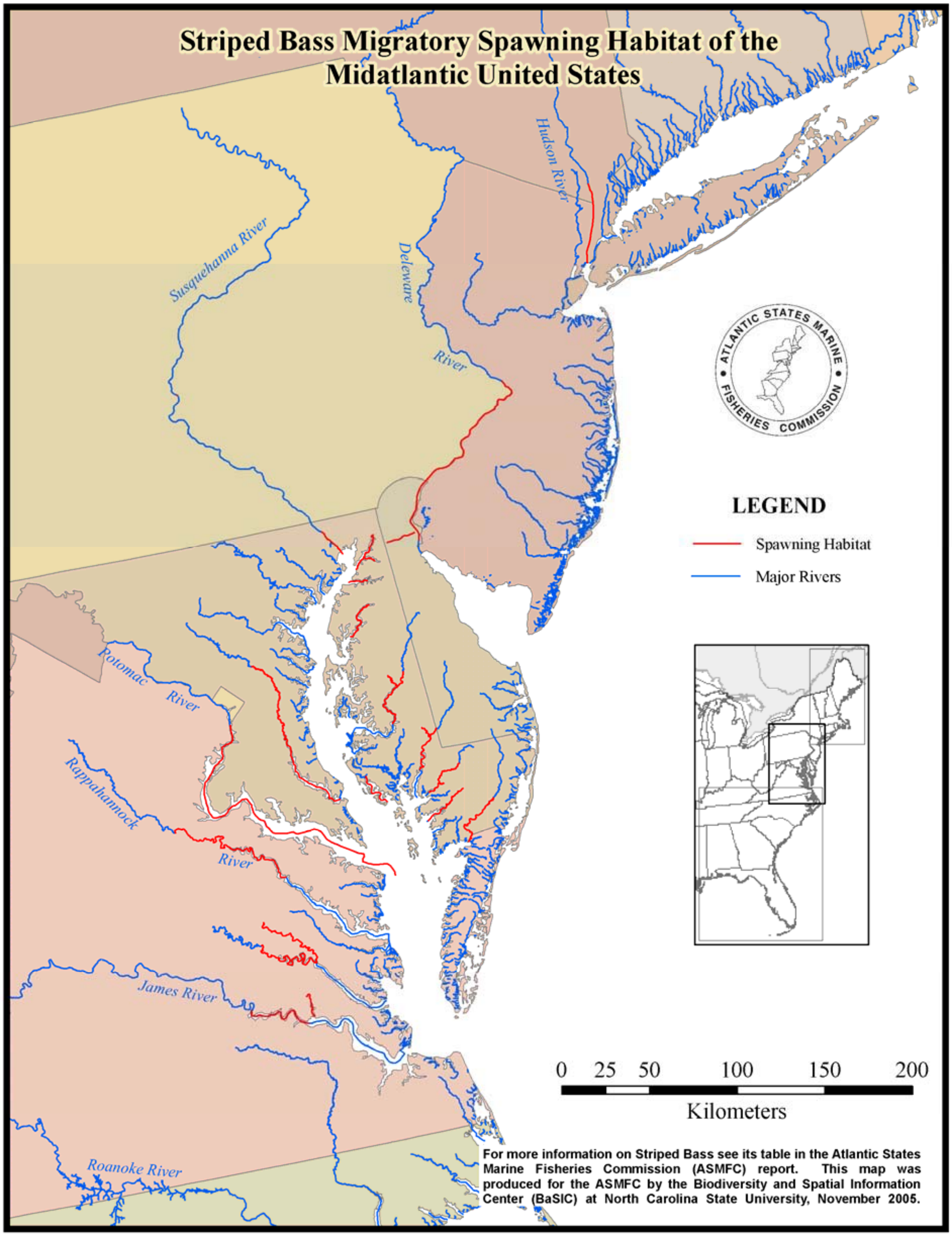


Figure A4.3. Striped Bass Spawning Habitat of Mid-Atlantic United States

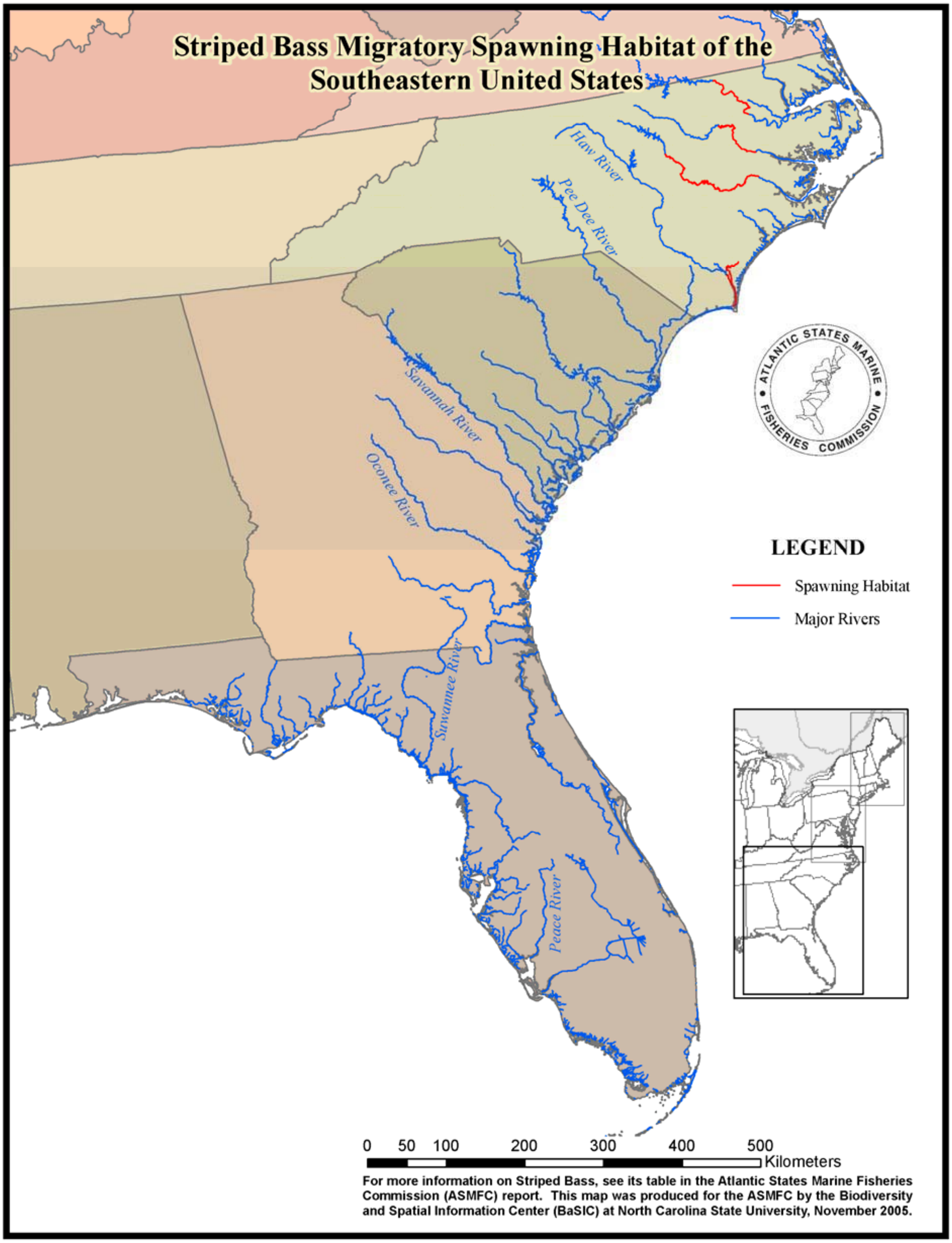


Figure A4.4 Striped Bass Spawning Habitat of Southeastern United States

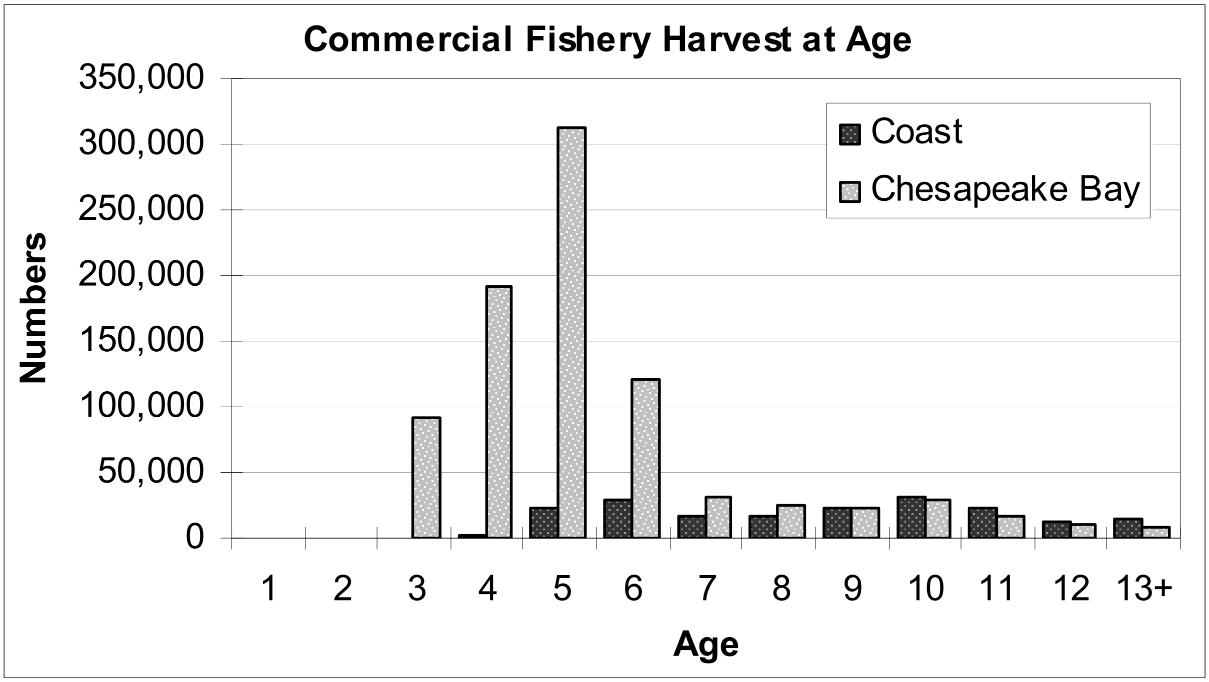


Figure A5.1. Age structure of 2006 commercial harvest by region

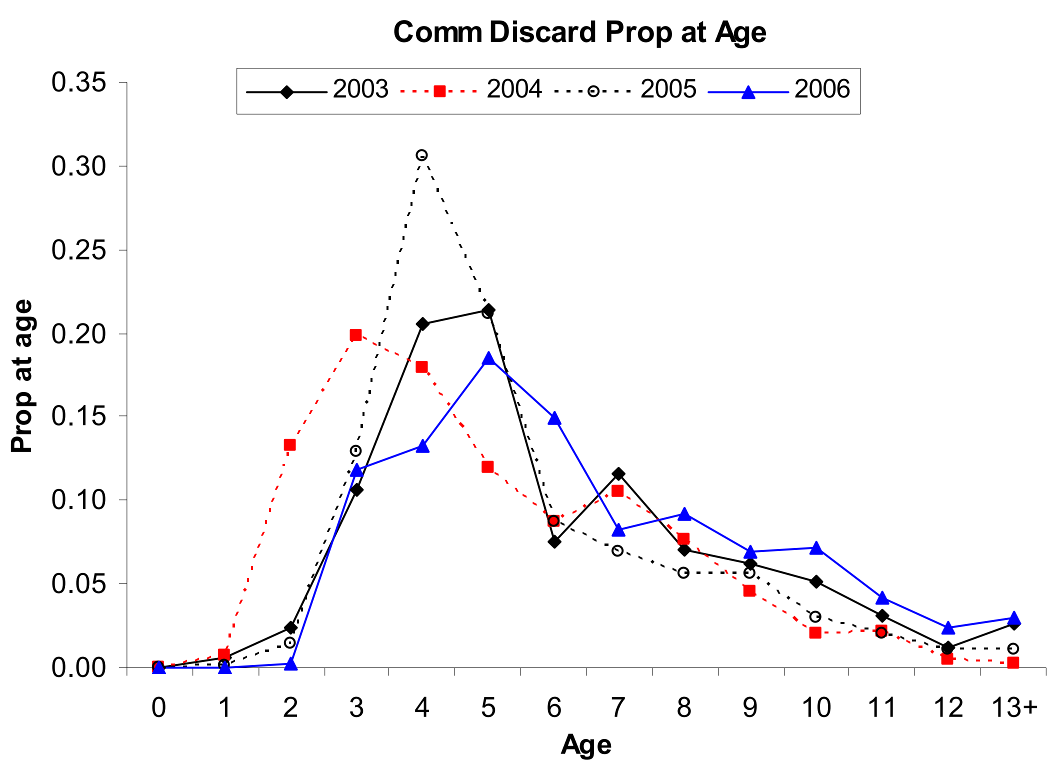


Figure A5.2. Commercial discard proportions at age, 2003-2006

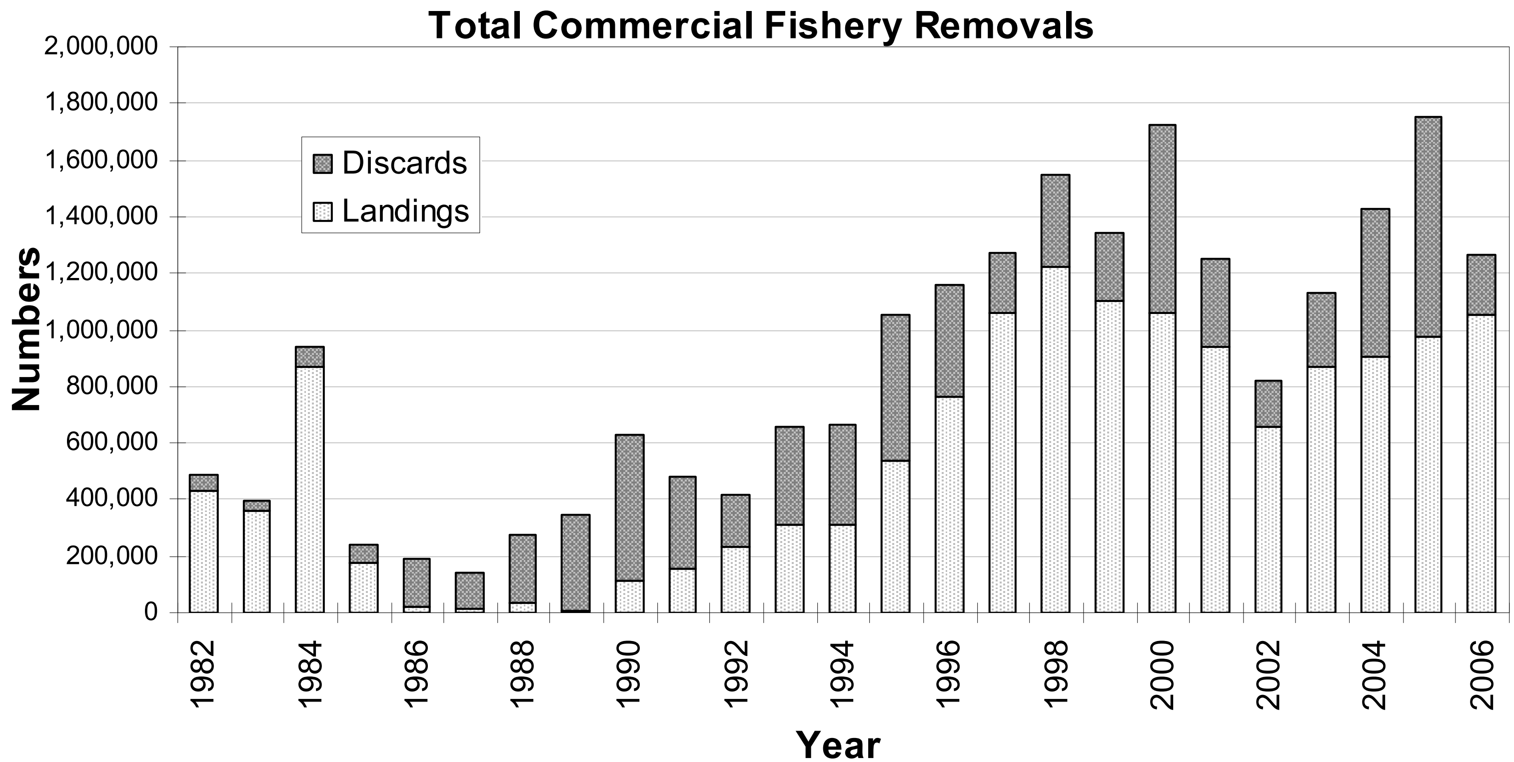


Figure A5.3. Total commercial removals (harvest and dead discards) of Atlantic striped bass, 1982-2006

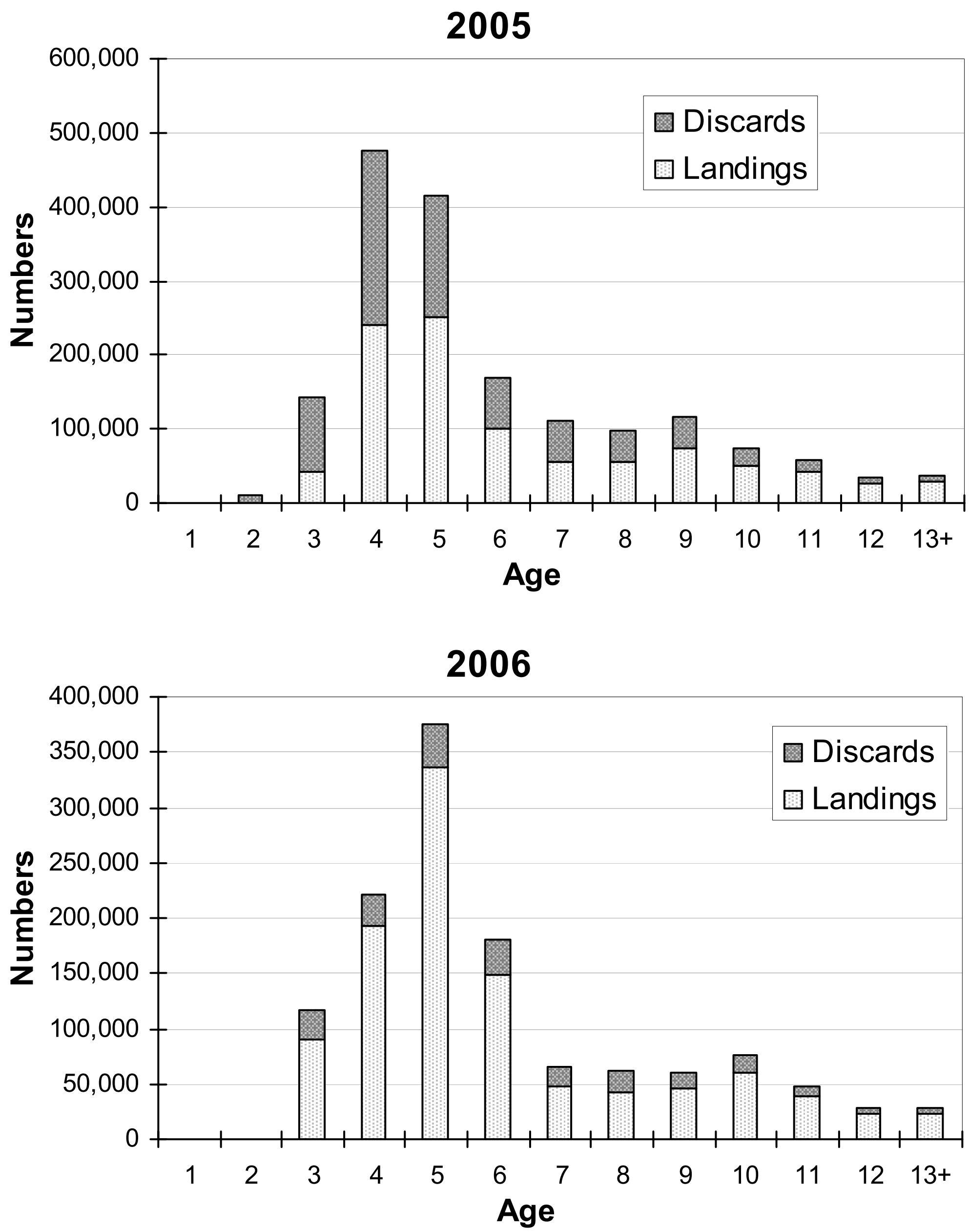


Figure A5.4. Total commercial removals (harvest and dead discards) by age of the Atlantic striped bass, 2005 and 2006

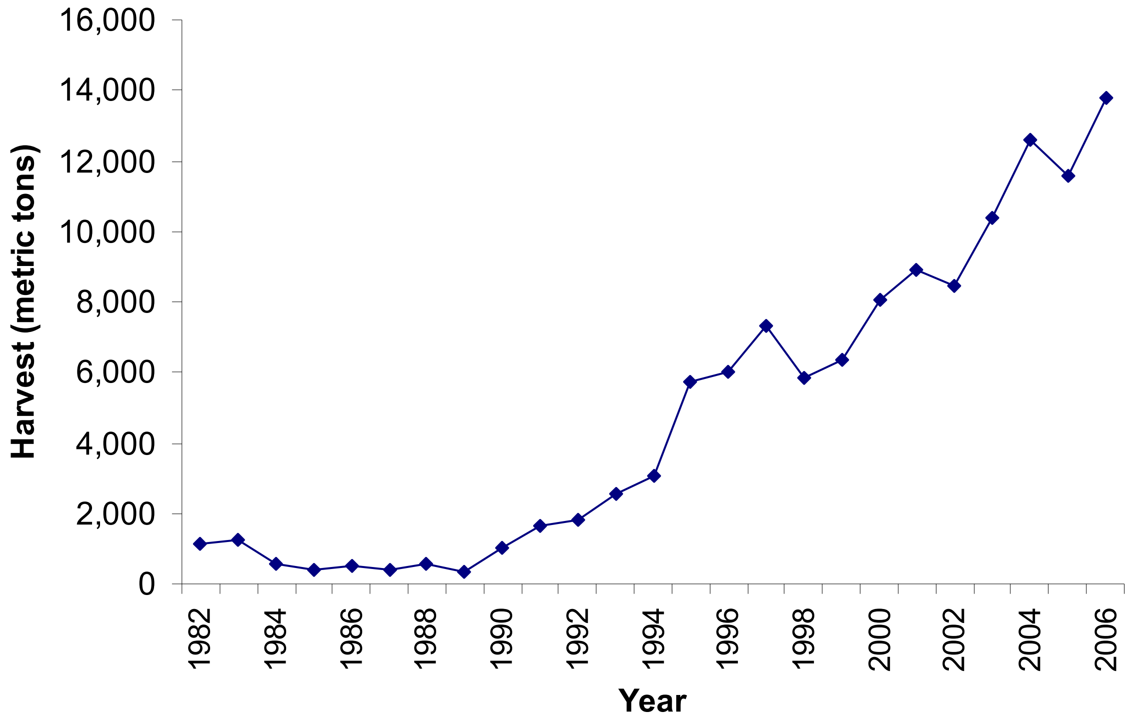


Figure A5.5. Total recreational harvest (metric tons) of striped bass along the US Atlantic coast (ME-NC), 1982-2006.

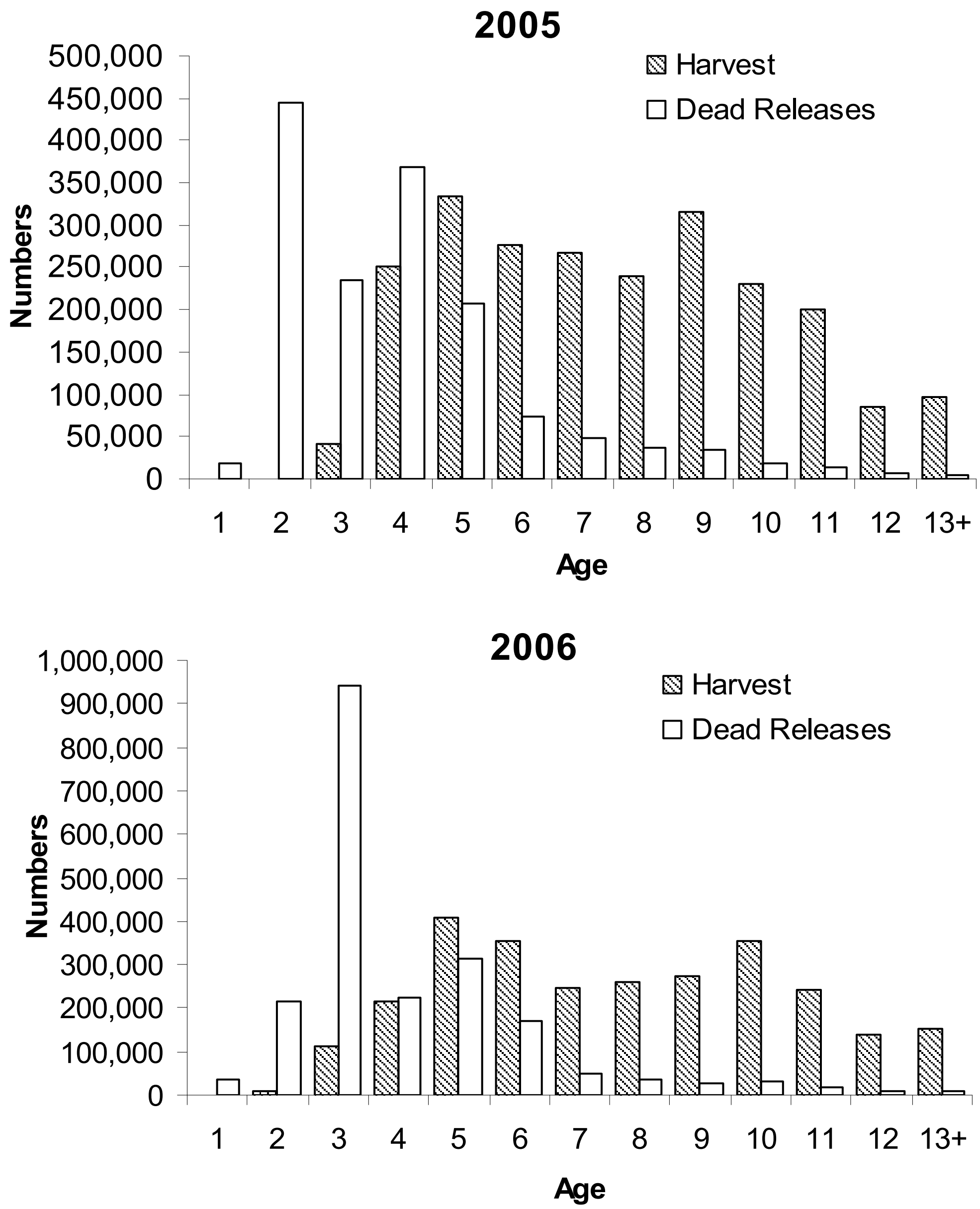


Figure A5.6. Comparison of age compositions from recreational harvest and dead release, 2005 and 2006.

A.

B.

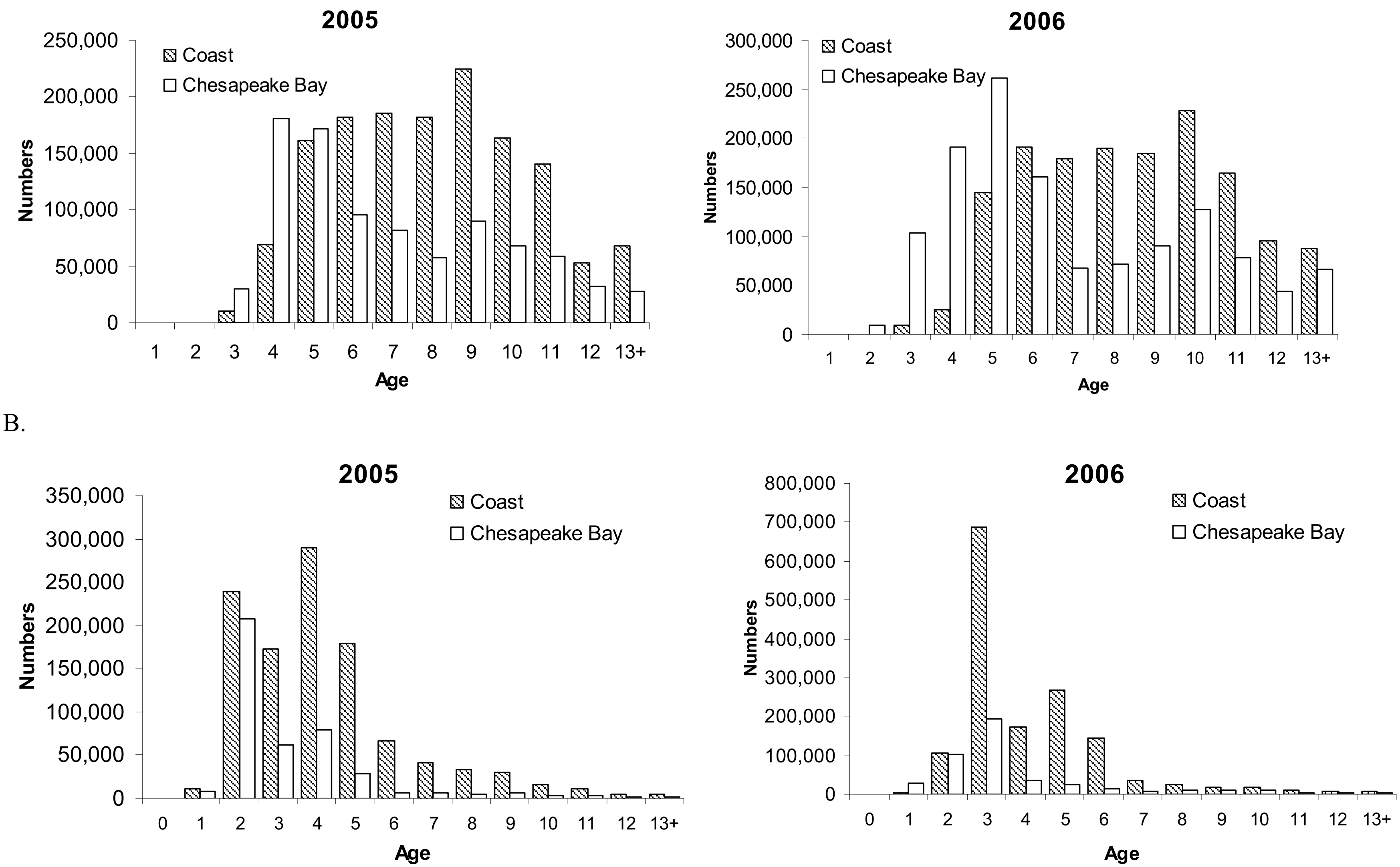


Figure A5.7. Comparison of age compositions between coast and Chesapeake Bay for A) harvested fish and B) dead releases in 2005 and 2006

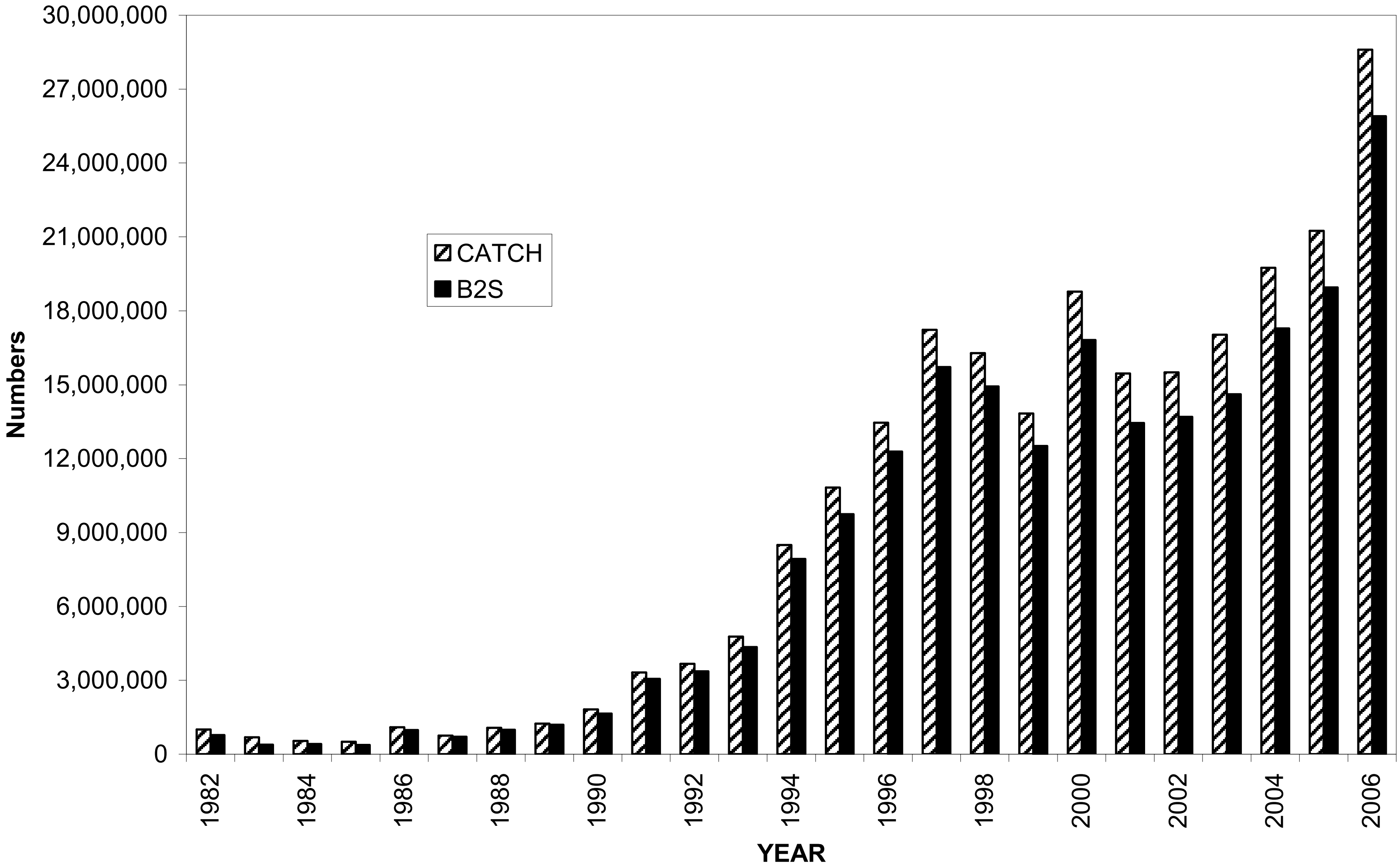


Figure A5.8. MRFSS estimates of catch and live releases (B2) for the US Atlantic coast (ME-NC), 1982-2006.

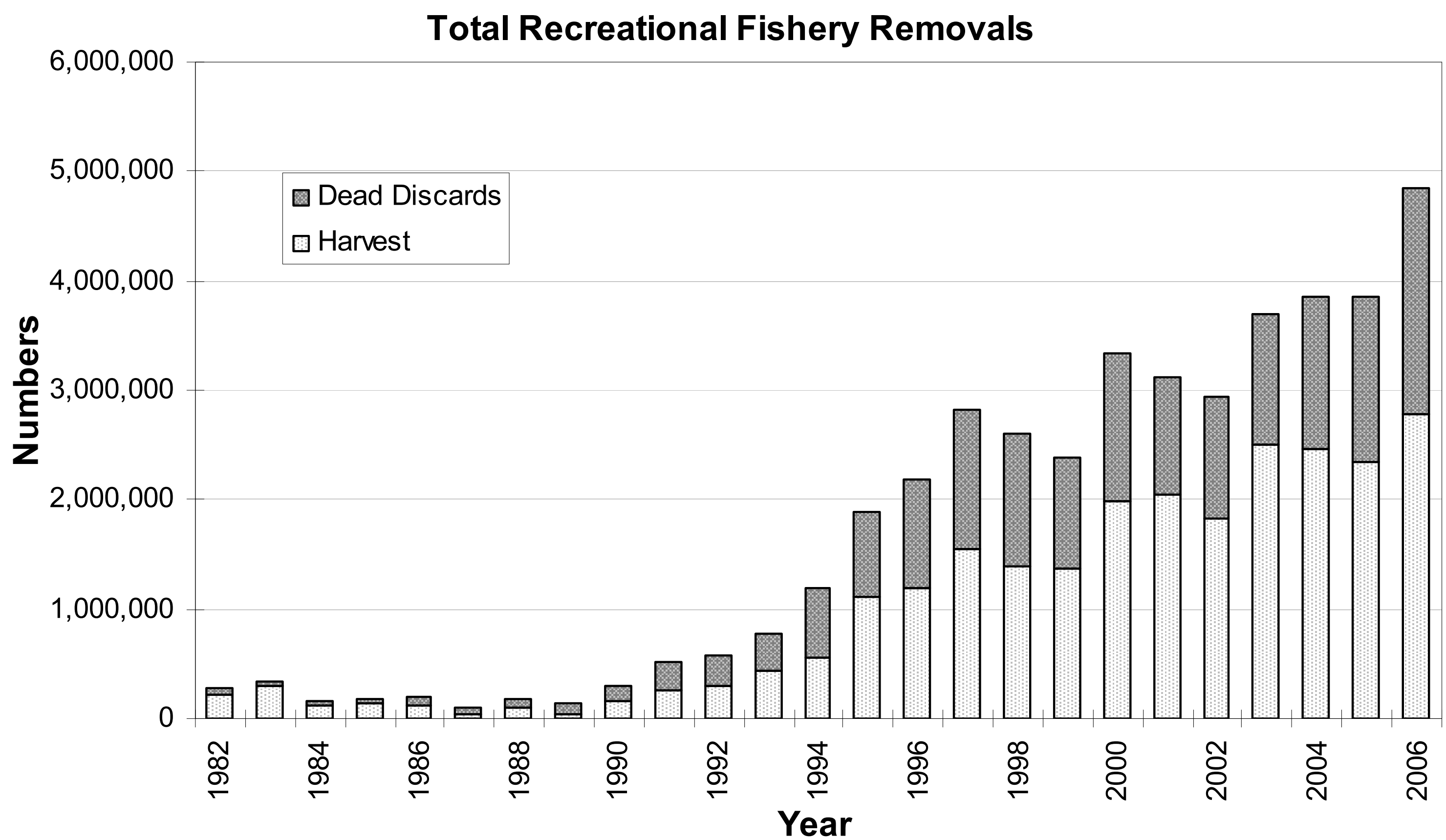


Figure A5.9. Total removals (harvest and dead discards) by the recreational fishery for striped bass, 1982-2006

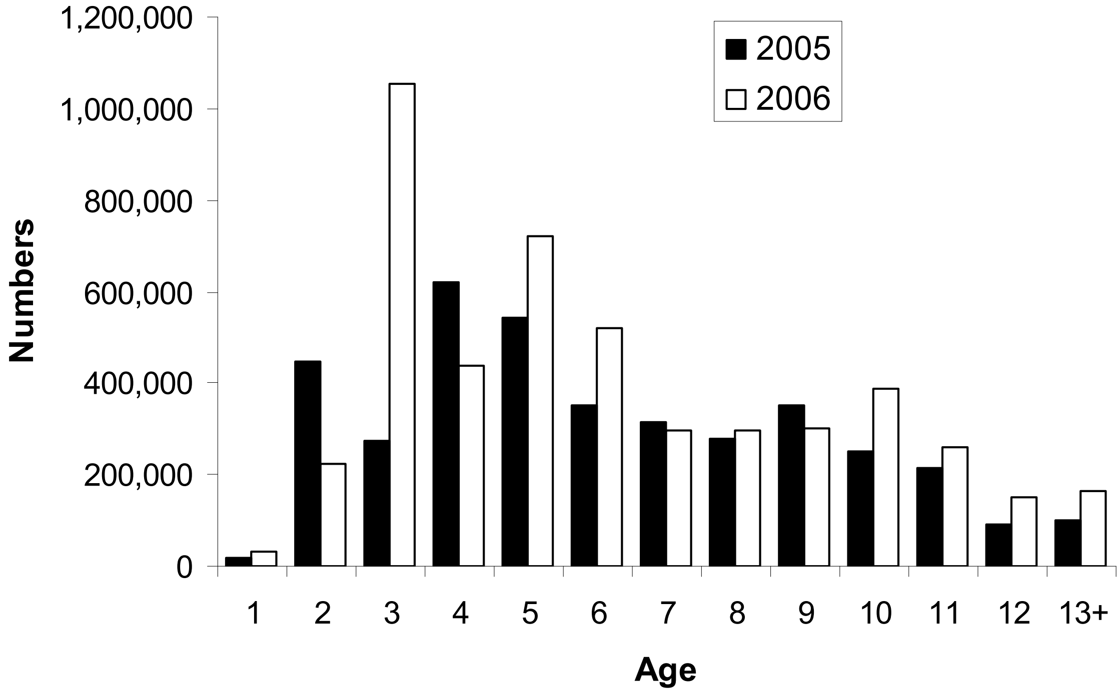


Figure A5.10. Total recreational removals (harvest and dead discards) by age, 2005-2006.

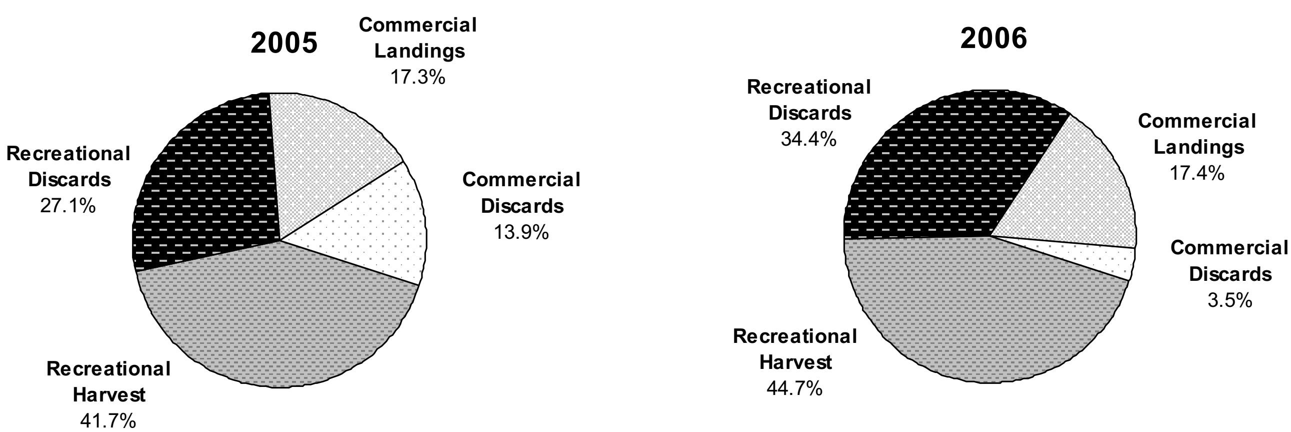


Figure A5.11. Percentage of 2005 and 2006 striped bass mortality by fishery component

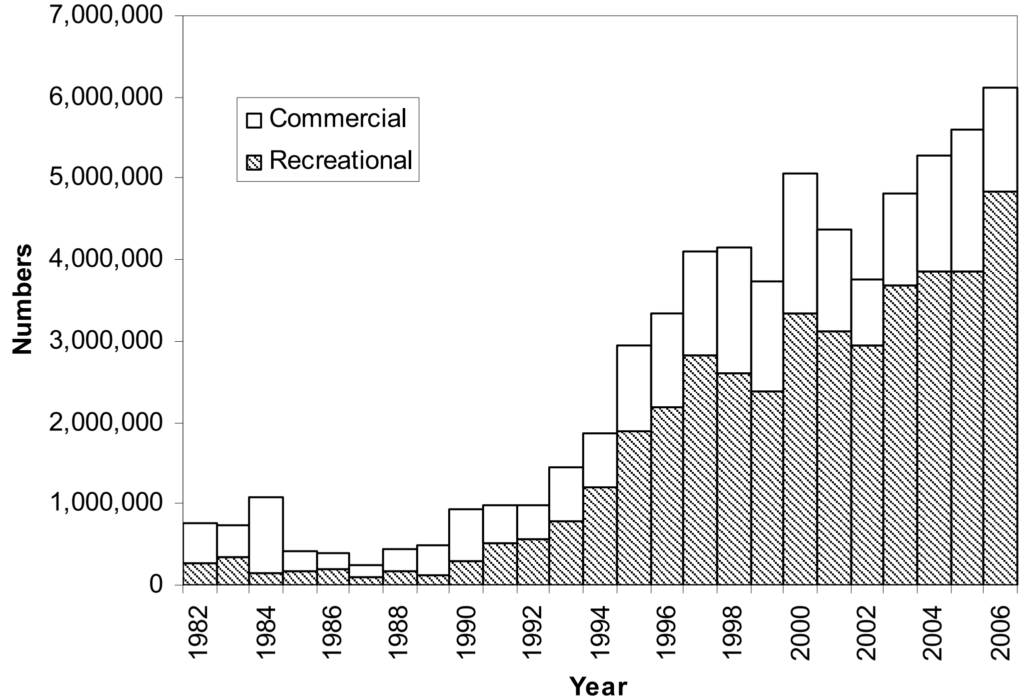


Figure A5.12. Total removals of striped bass partitioned into commercial and recreational contributions, 1982-2006.

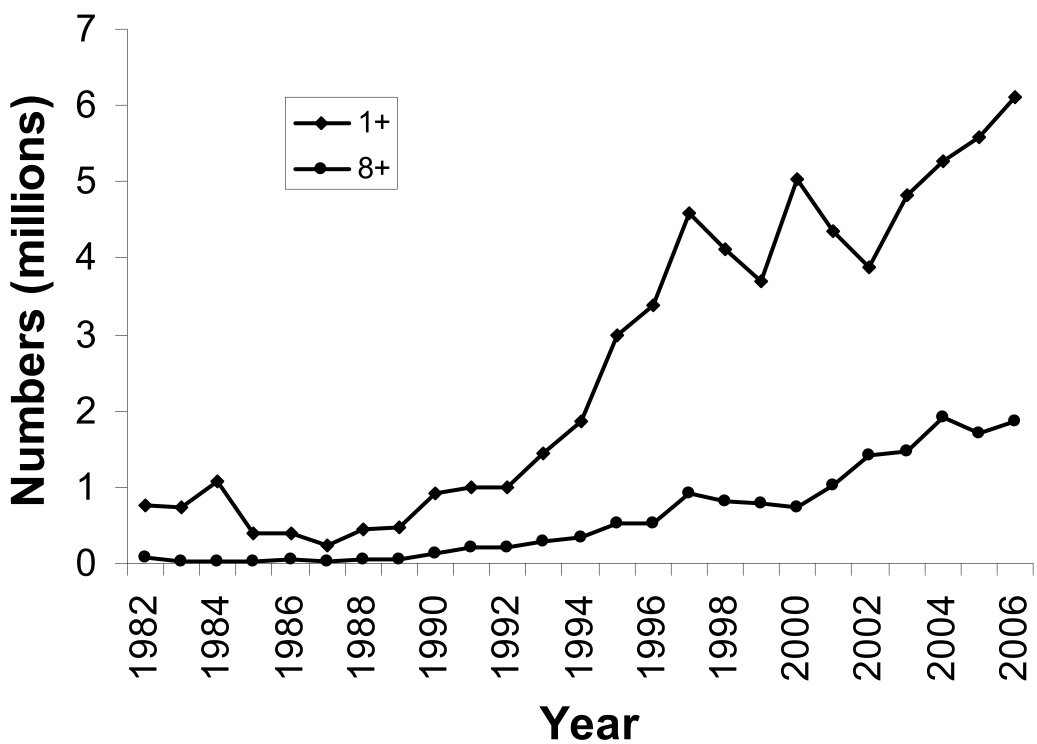


Figure A5.13. Total removals of striped bass by age group, 1982-2006

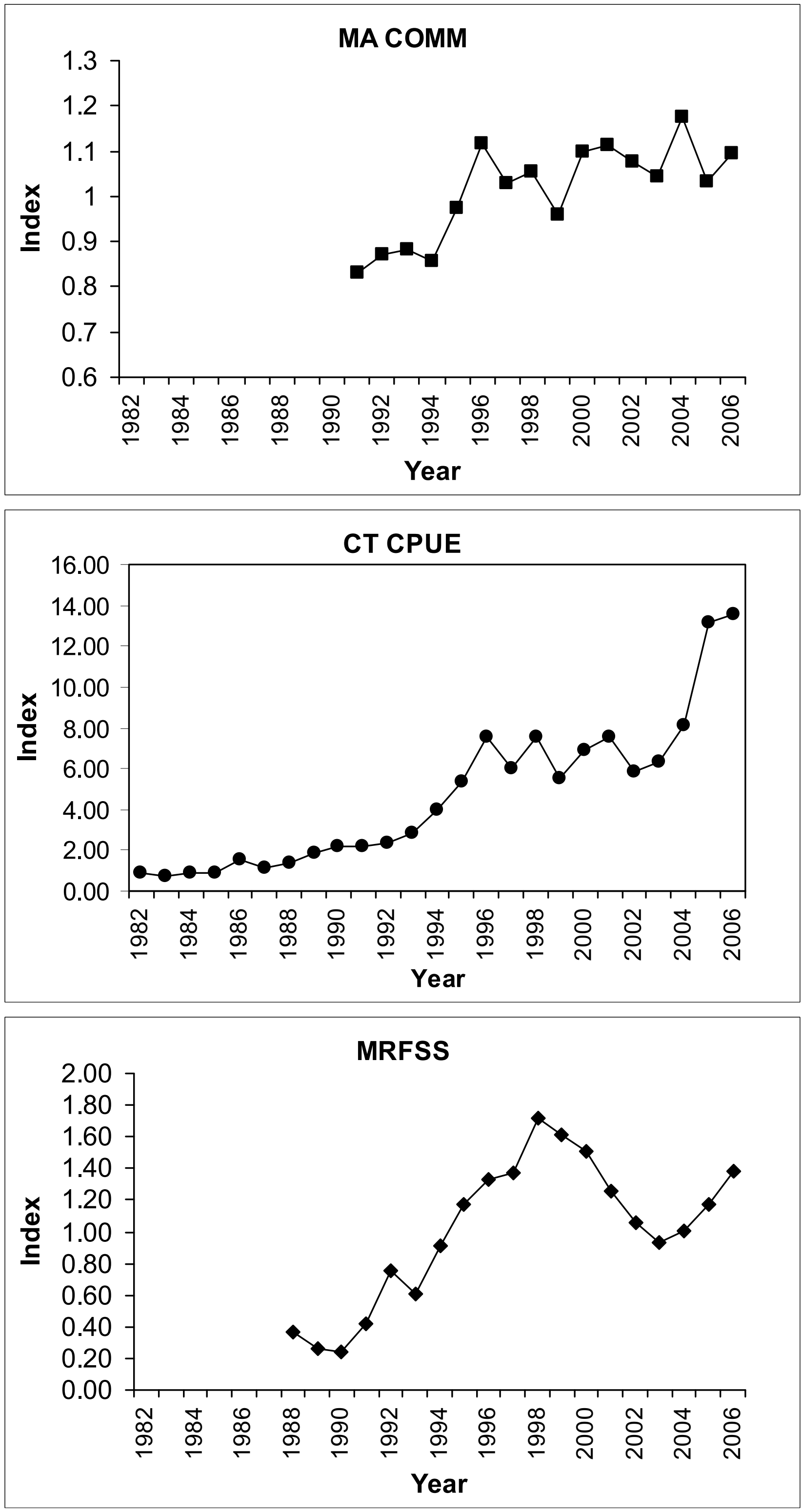


Figure A6.1. Fishery-dependent indices of relative abundance (aggregated), 1982-2006

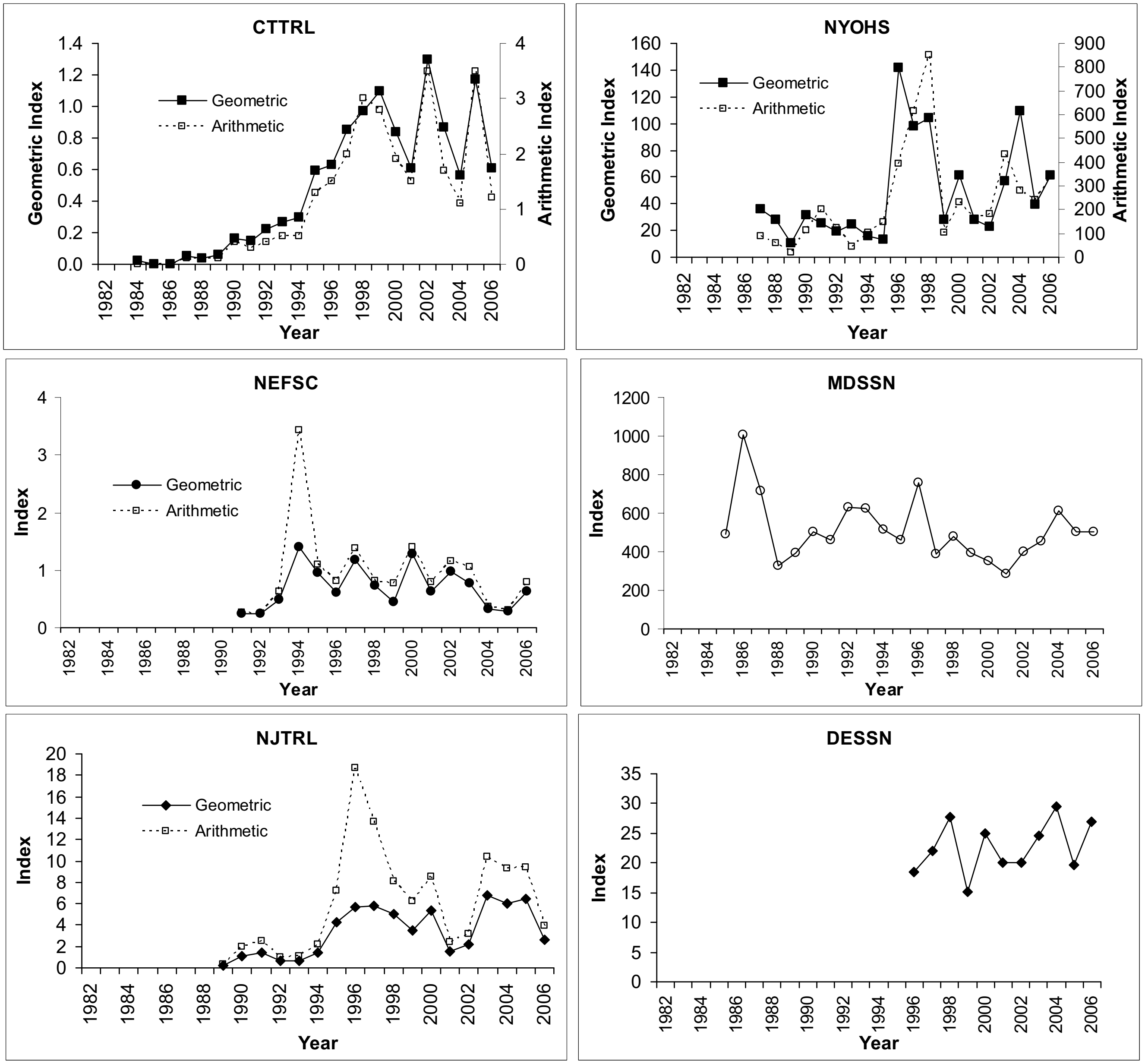


Figure A6.2. Fisheries-independent indices of relative abundance for ages 2-13+(aggregated), 1982-2006.

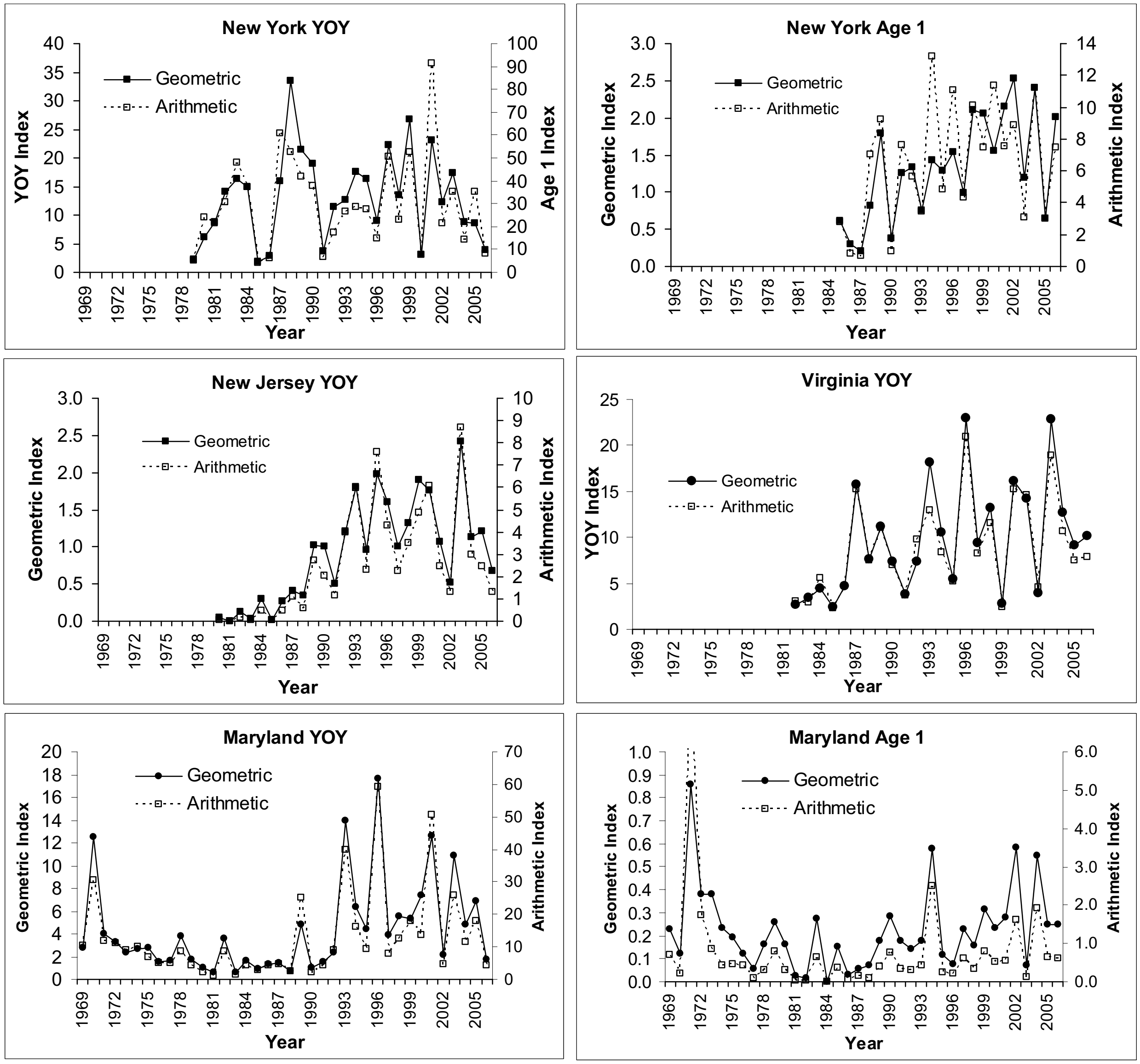


Figure A6.3. Young-of-the-year and age 1 indices of striped bass relative abundance

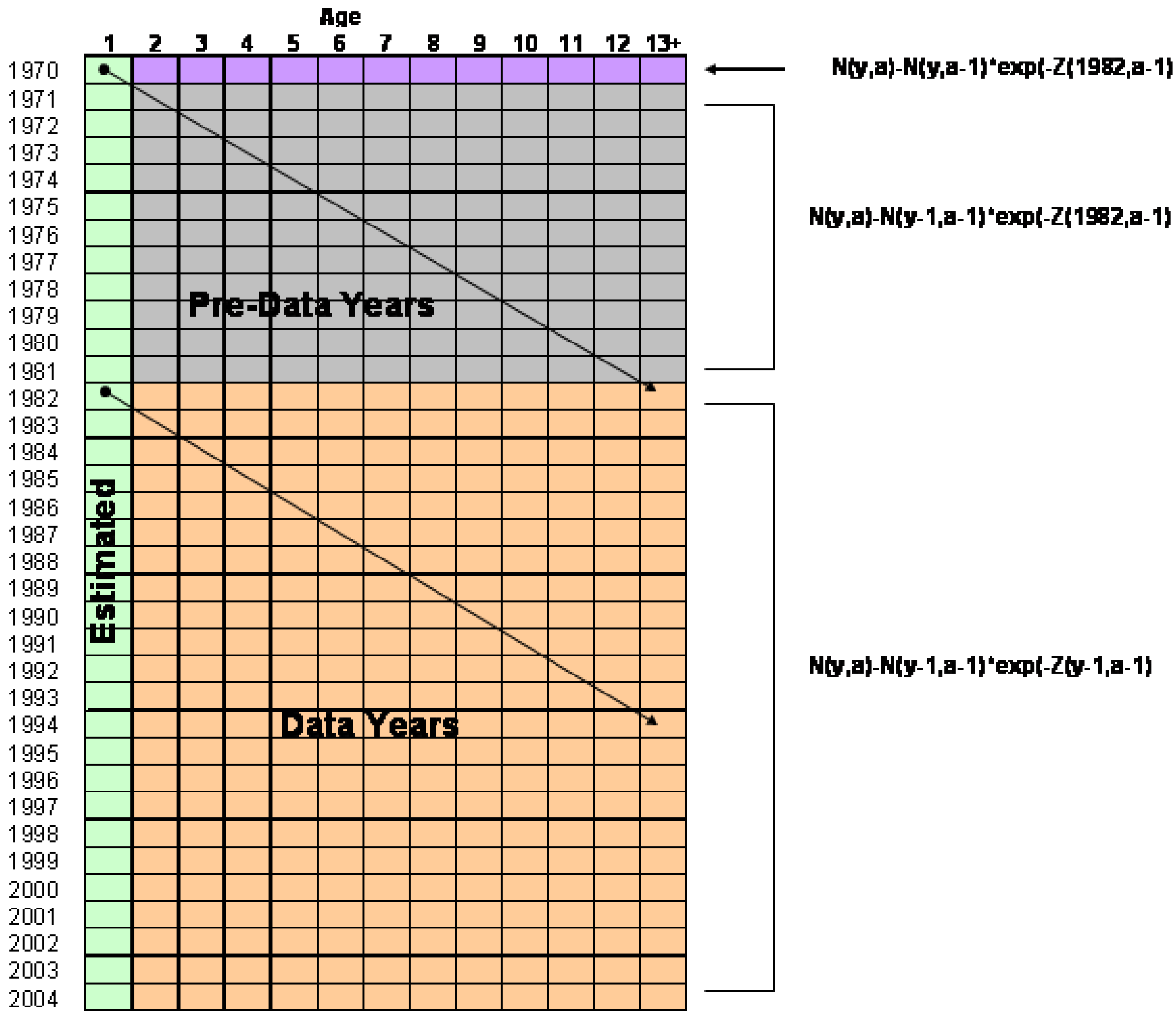


Figure A7.1. Schematic of population abundance-at-age

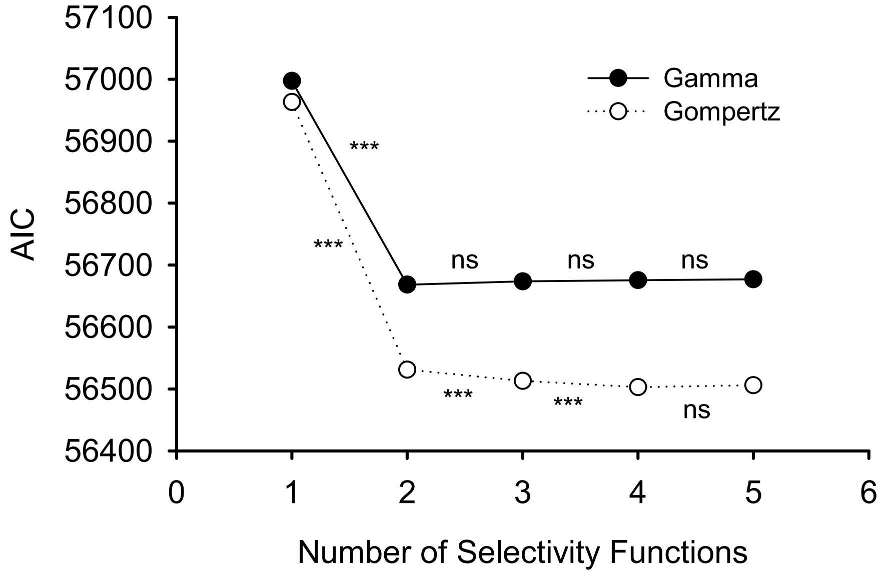


Figure A7.2. Plot of resulting AIC values from SCA model runs in which the number and type of selectivity function varied. Asterisks indicate the likelihood ratio tests' level of significance (*** p<=0.001) of comparisons between successive models.

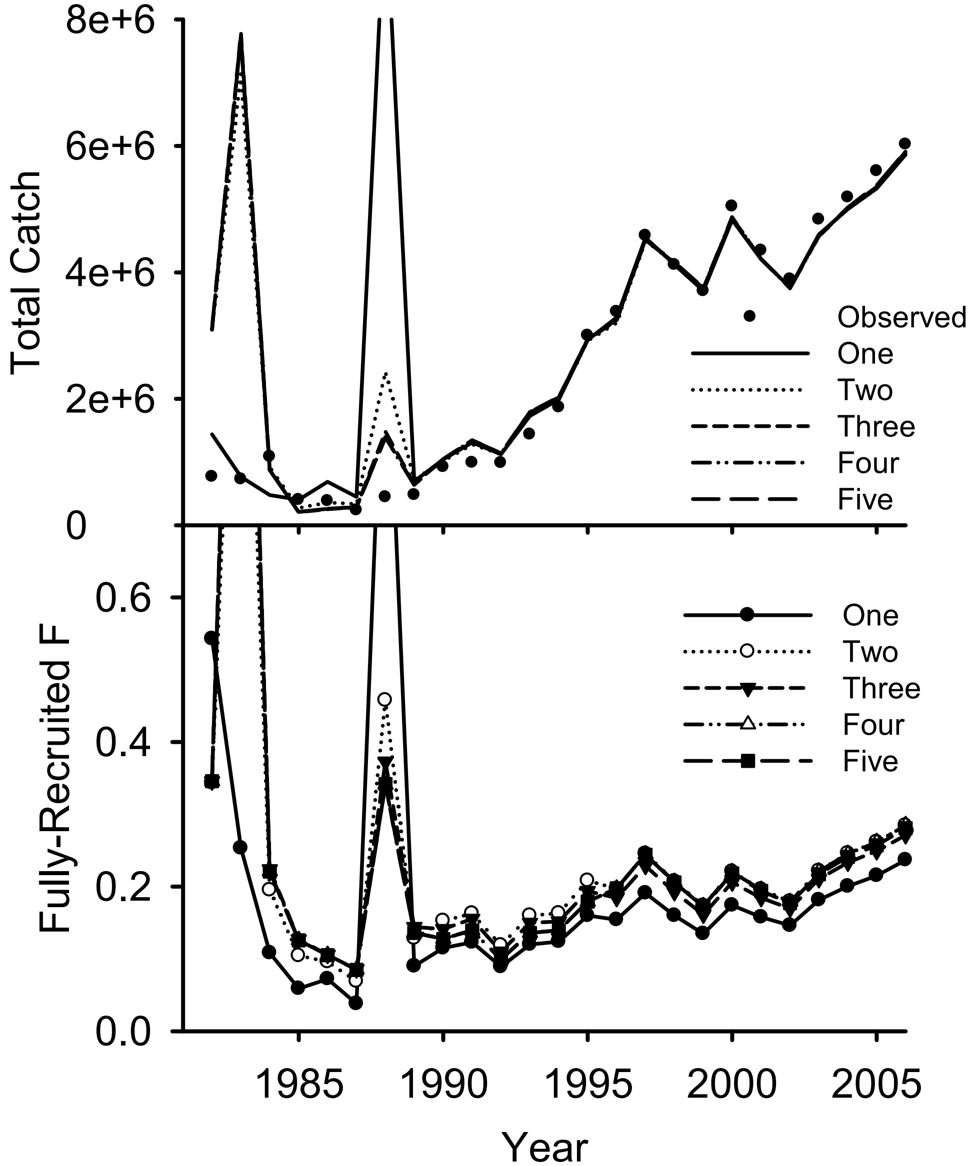


Figure A7.3. Observed and predicted total catch predictions from SCA and estimated fully-recruited fishing mortality by number of selectivity periods under equal weighting of all components.

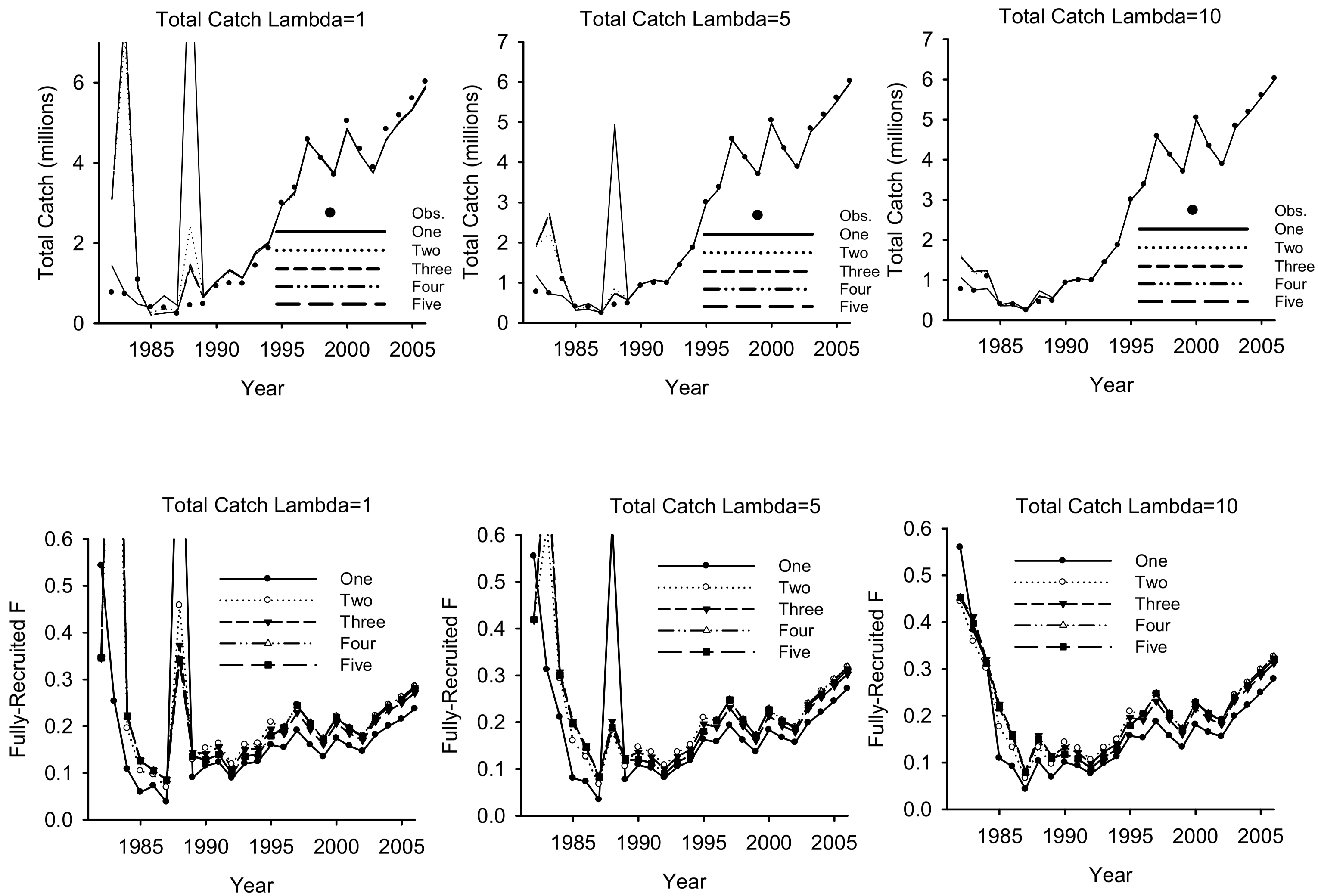


Figure A7.4. Comparison of observed and predicted total catch and fully-recruited F estimates from SCA model runs in which total catch lambda weights and number of selectivity periods (with Gompertz functions) were varied.

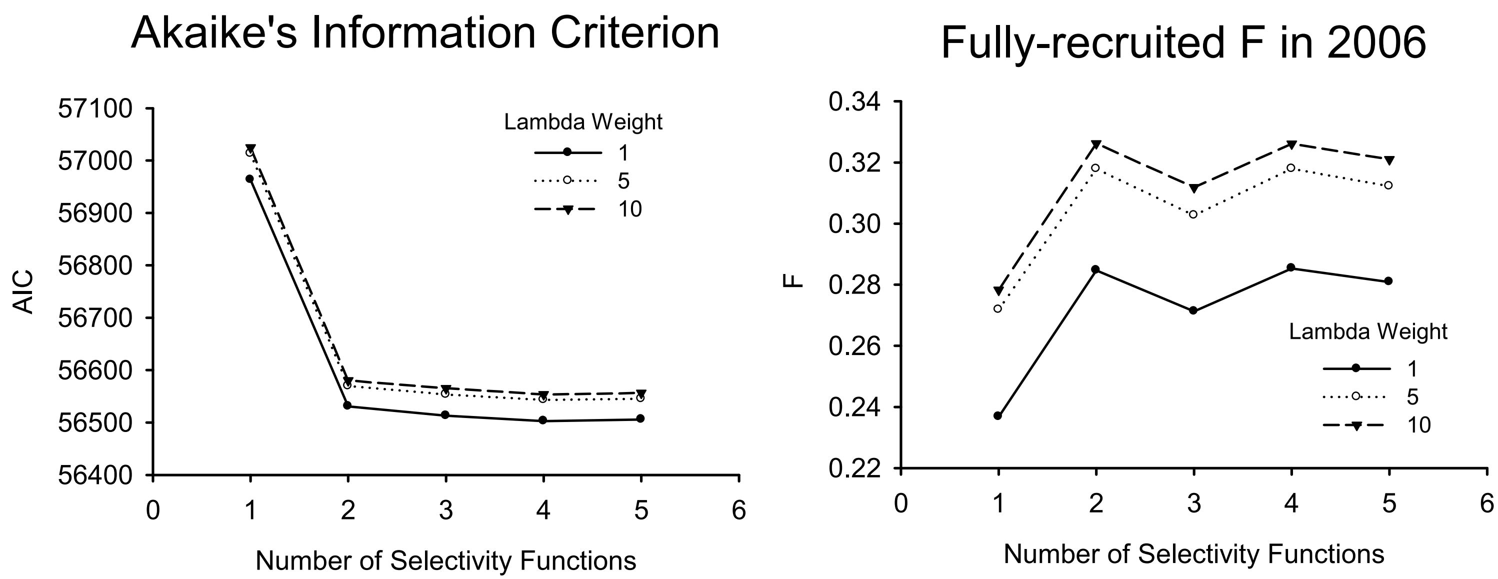


Figure A7.5. Comparison of Akaike's Information Criterion and fully-recruited F in 2006 from SCA model runs in which total catch lambda weights and number of selectivity periods (with Gompertz functions) were varied.

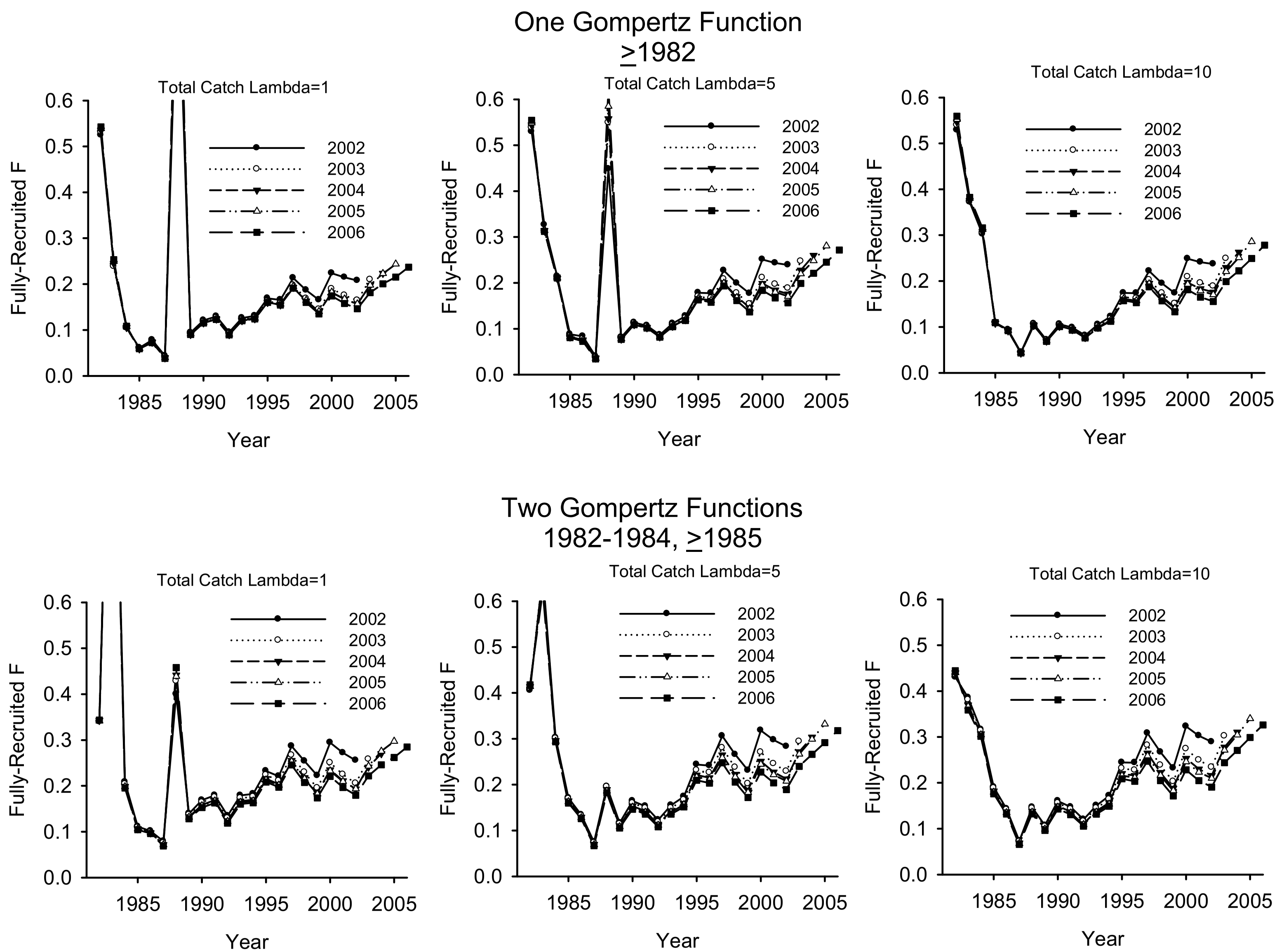


Figure A7.6. Retrospective plots for SCA model runs in which the number of selectivity periods and total catch lambda weights were varied.

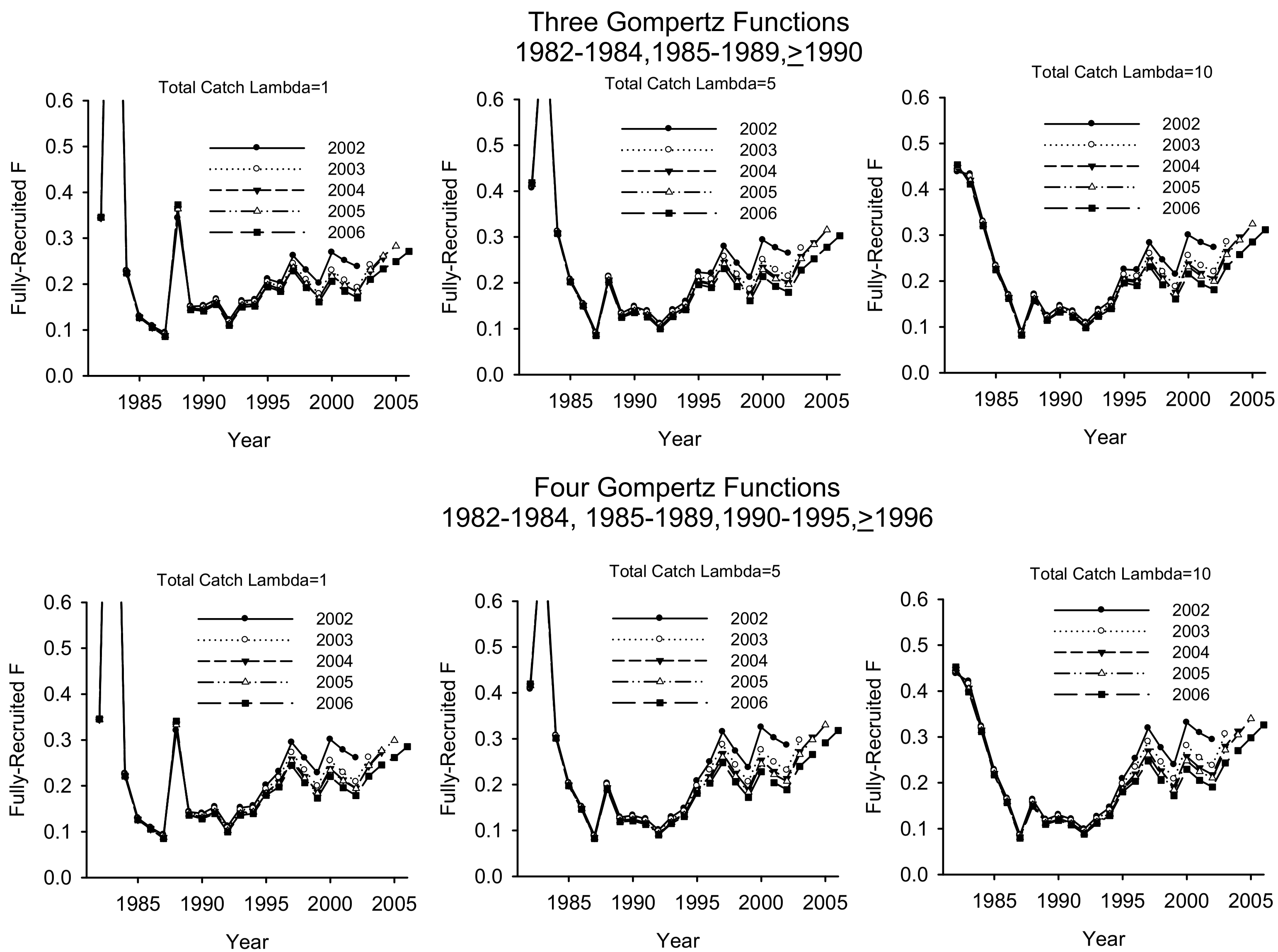


Figure A7.6 cont.

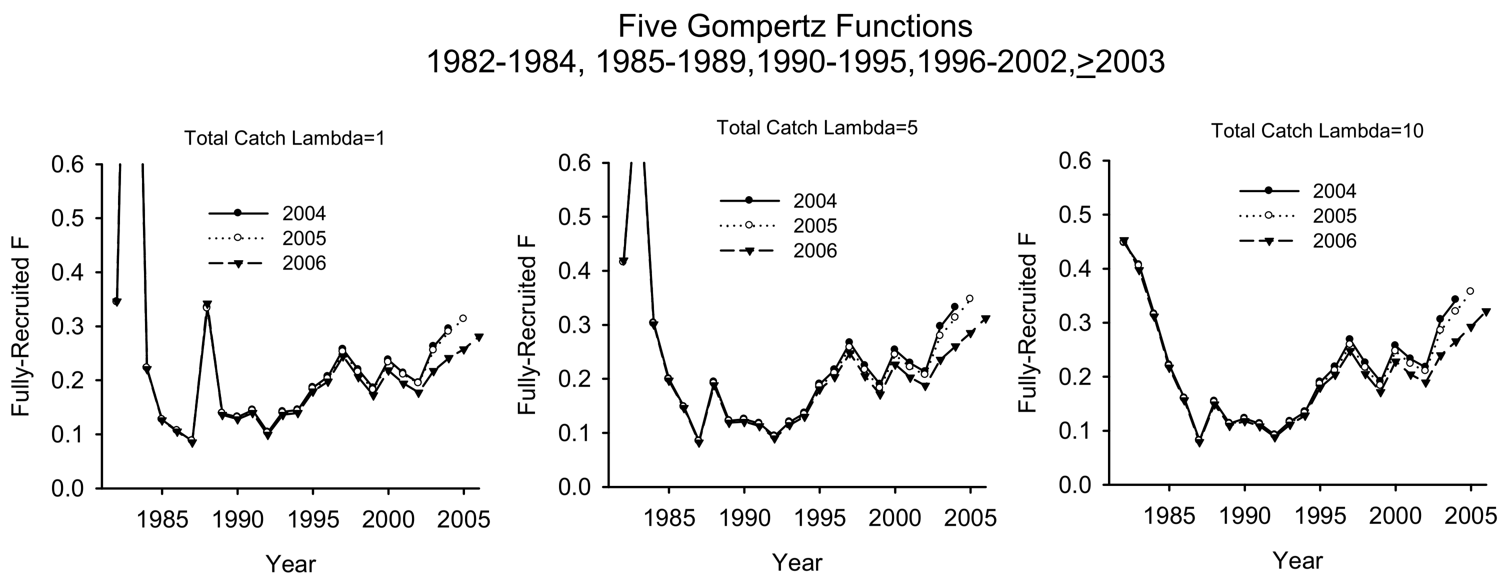


Figure A7.6 cont.

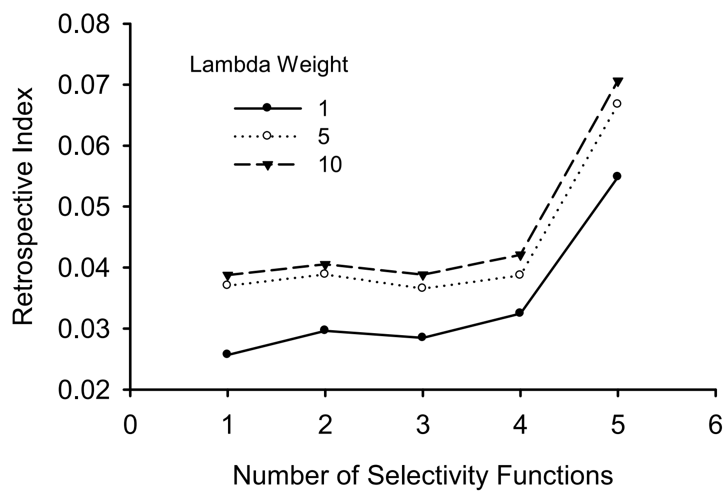


Figure A7.7. Comparison of the retrospective index among SCA model runs.

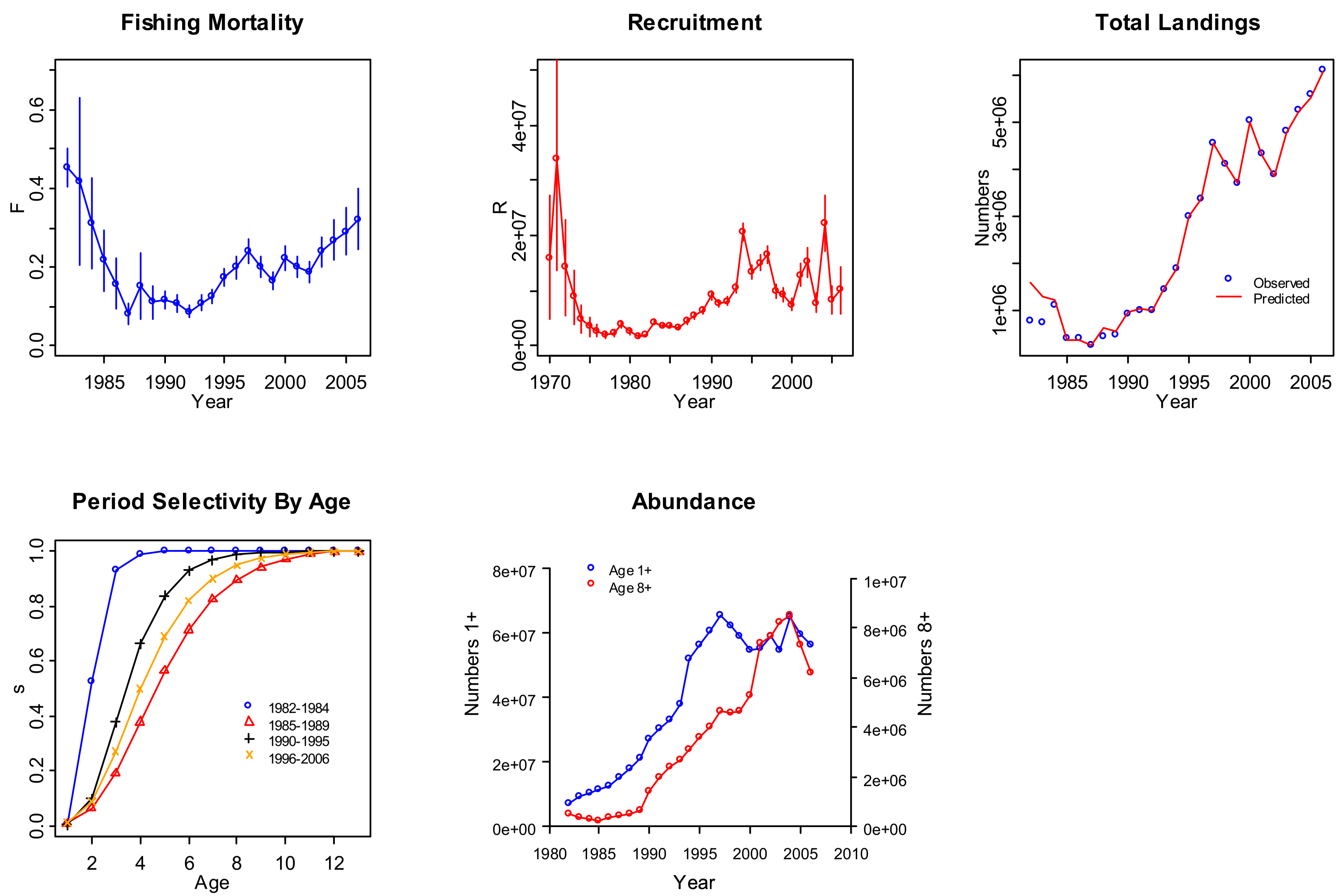


Figure A7.8. Estimates of fishing mortality (±95%CI), recruitment (±95%CI), total landings, period selectivity patterns, and abundance of ages 1+ and 8+ from the final configuration SCA model run.

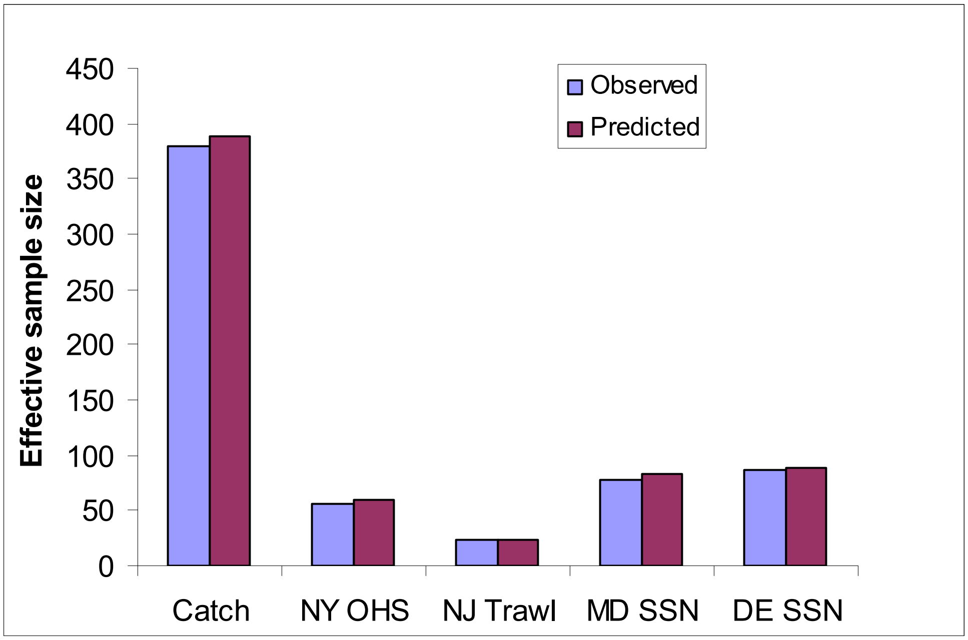


Figure A7.9. Comparison of observed (from equal weighting) and predicted effective sample sizes under the SCA final model run with total catch lambda=10.

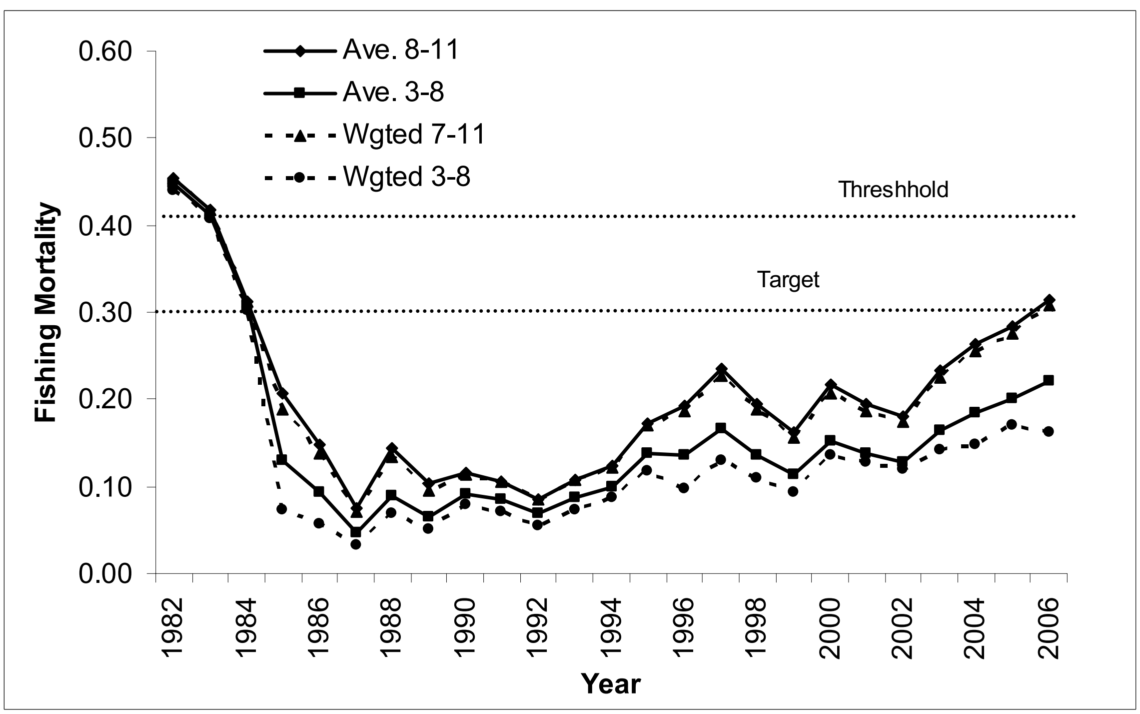


Figure A7.10. Comparison of fishing mortality estimates from the SCA model.

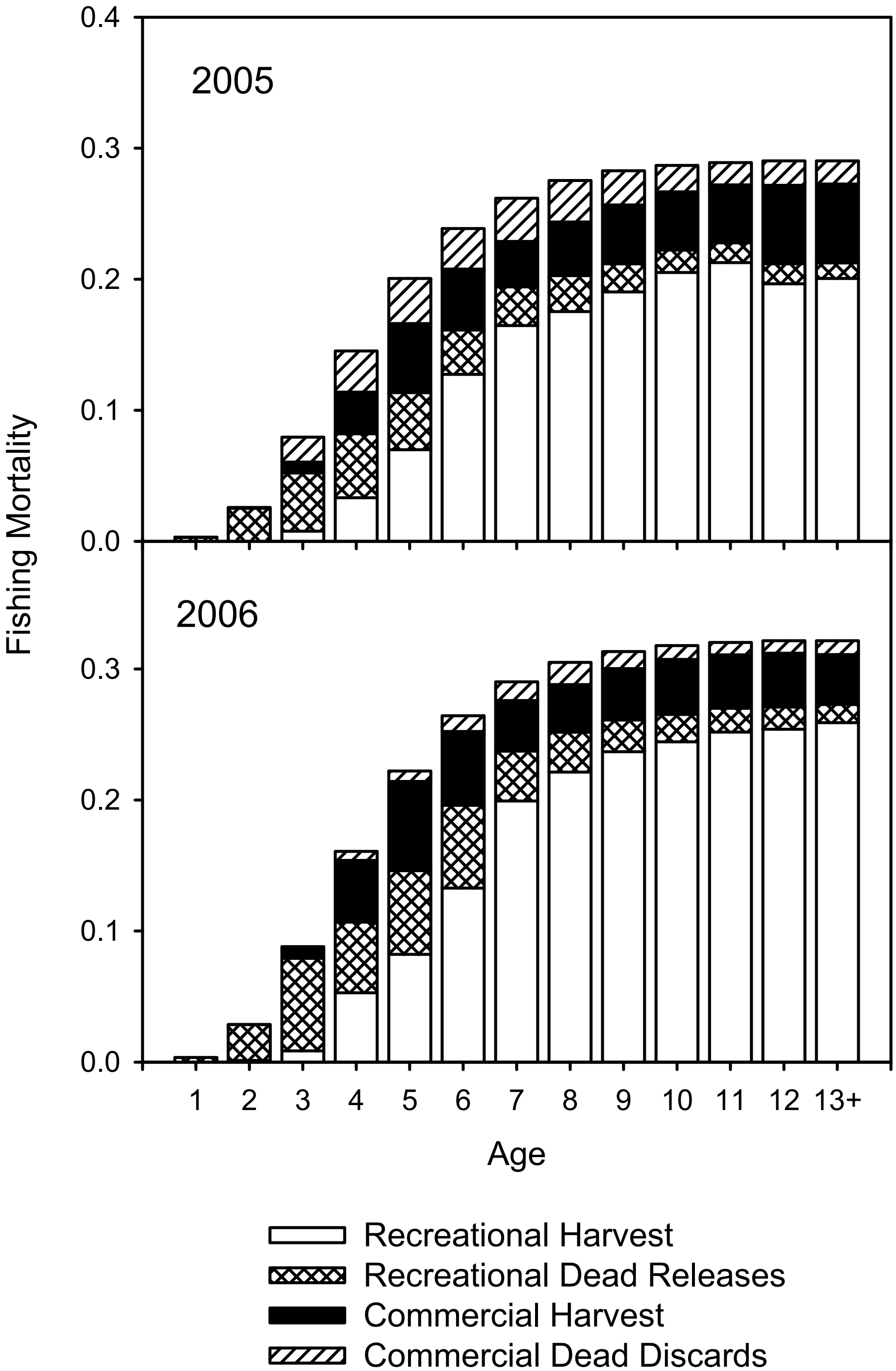


Figure A7.11. Comparison of fishing mortality in 2005 and 2006 from the SCA model partitioned into fishery components

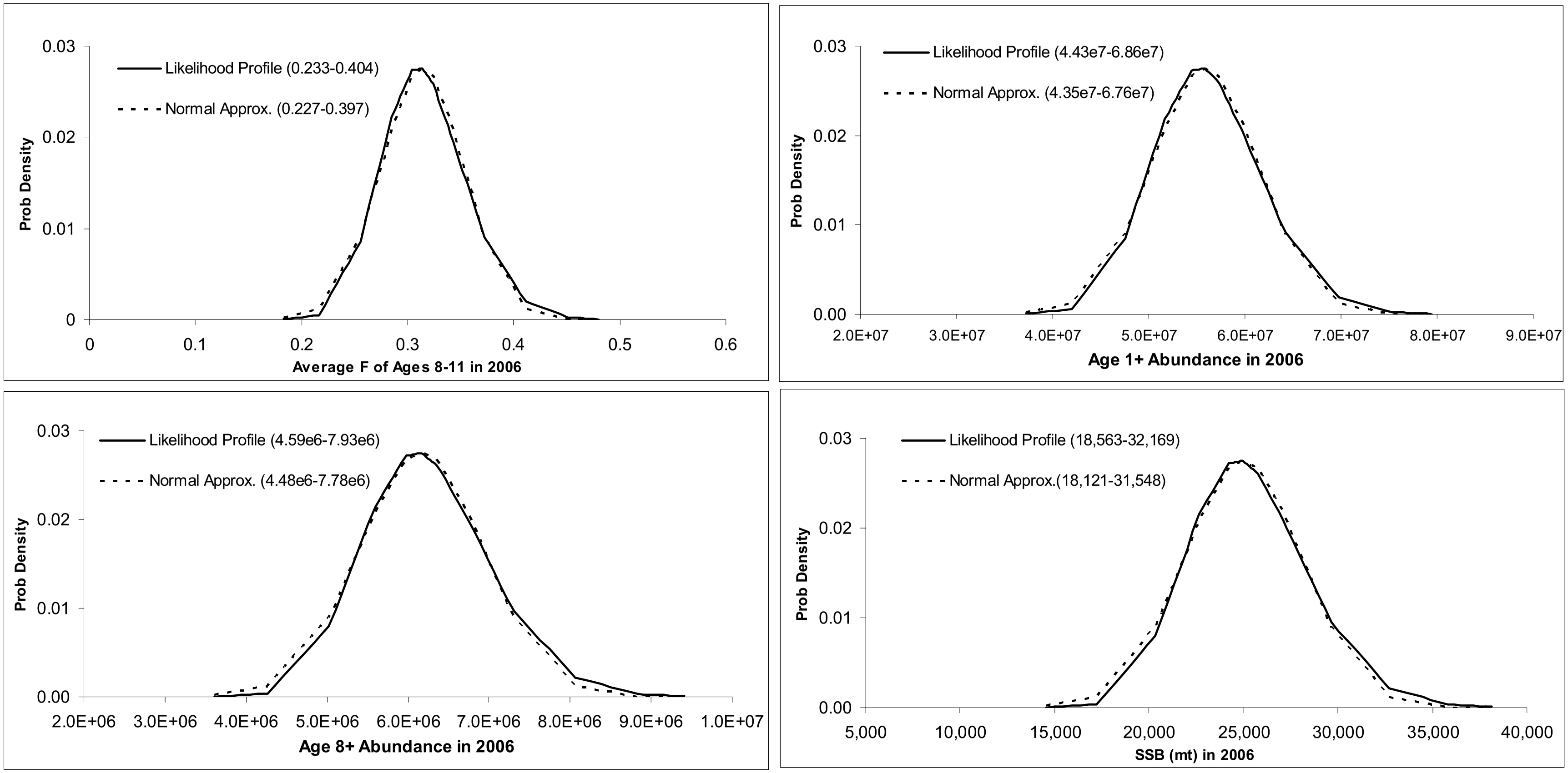


Figure A7.12. Comparison of likelihood profile and normal approximation methods for determining confidence intervals of estimates of average F of ages 8-11, age 1+ abundance, age 8+ abundance, and spawning stock biomass in 2006 from the SCA model. Lower and upper 95% confidence limits are shown in parentheses.

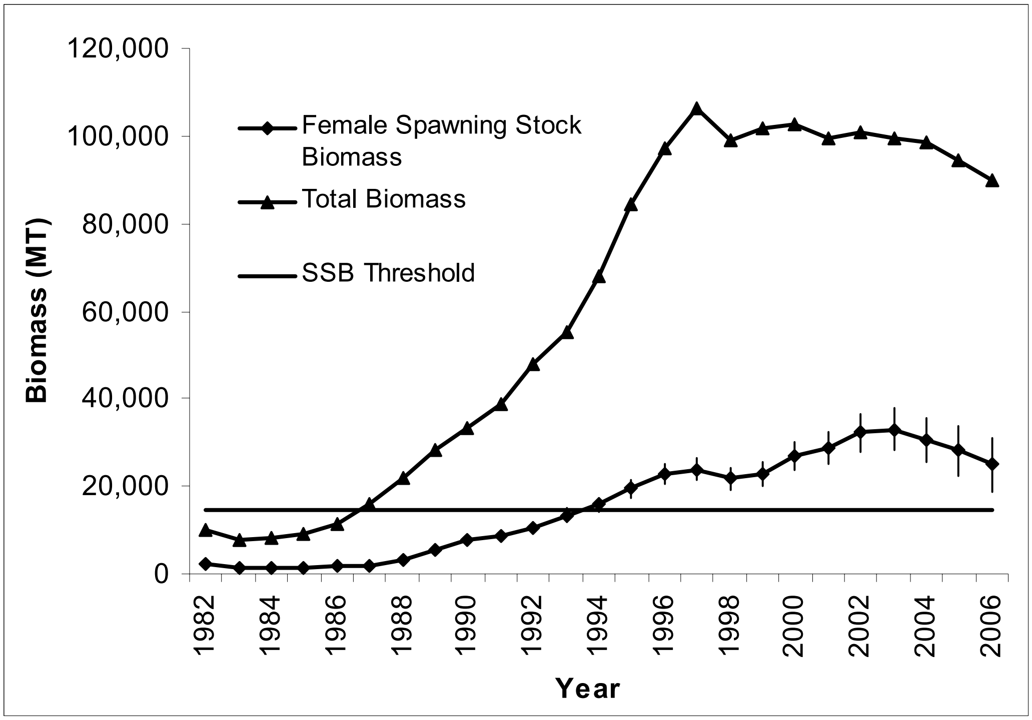


Figure A7.13. Striped bass female spawning stock biomass (mt) and Jan. 1 total biomass (mt) from the SCA model. 95% confidence intervals are shown for female spawning stock biomass.

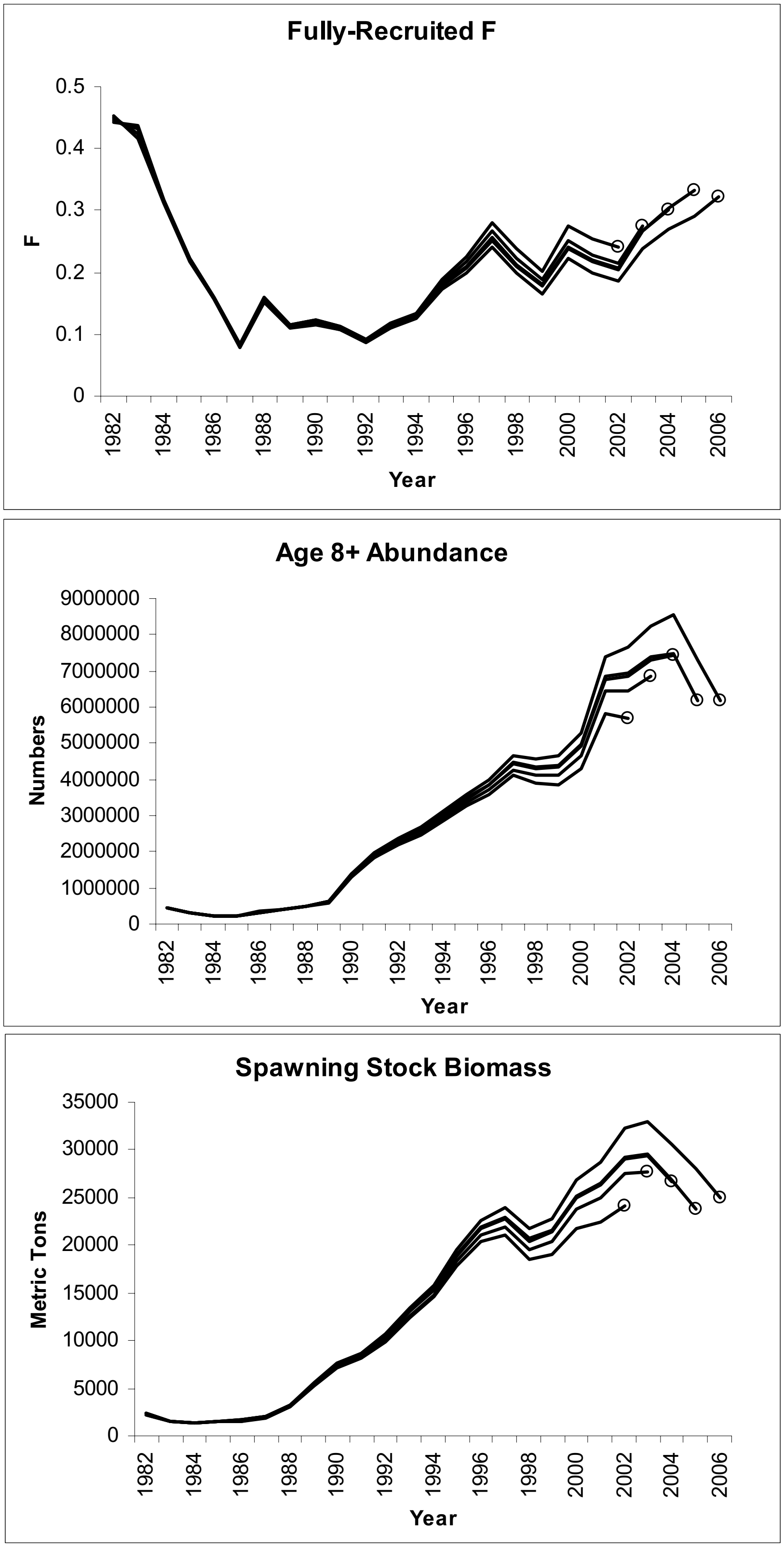


Figure A7.14. Retrospective analysis of fully-recruited fishing mortality, 8+ abundance, and spawning stock biomass from the SCA model.

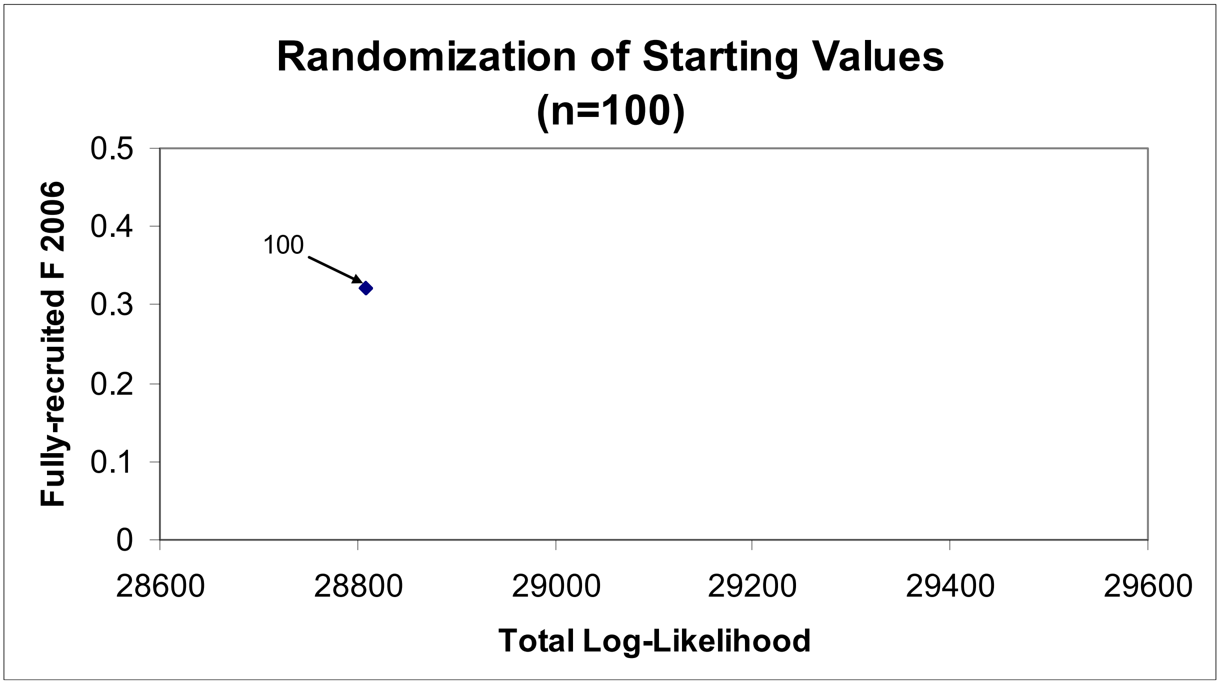


Figure A7.15. Results from 100 SCA model runs in which starting values were randomly permuted by ±50%.

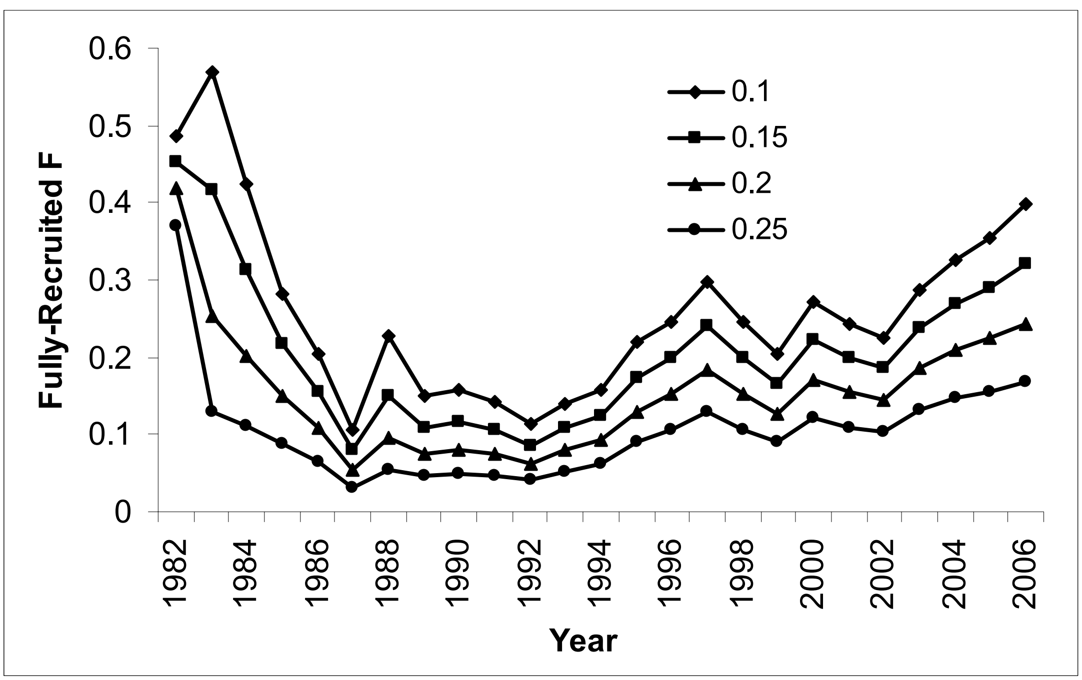
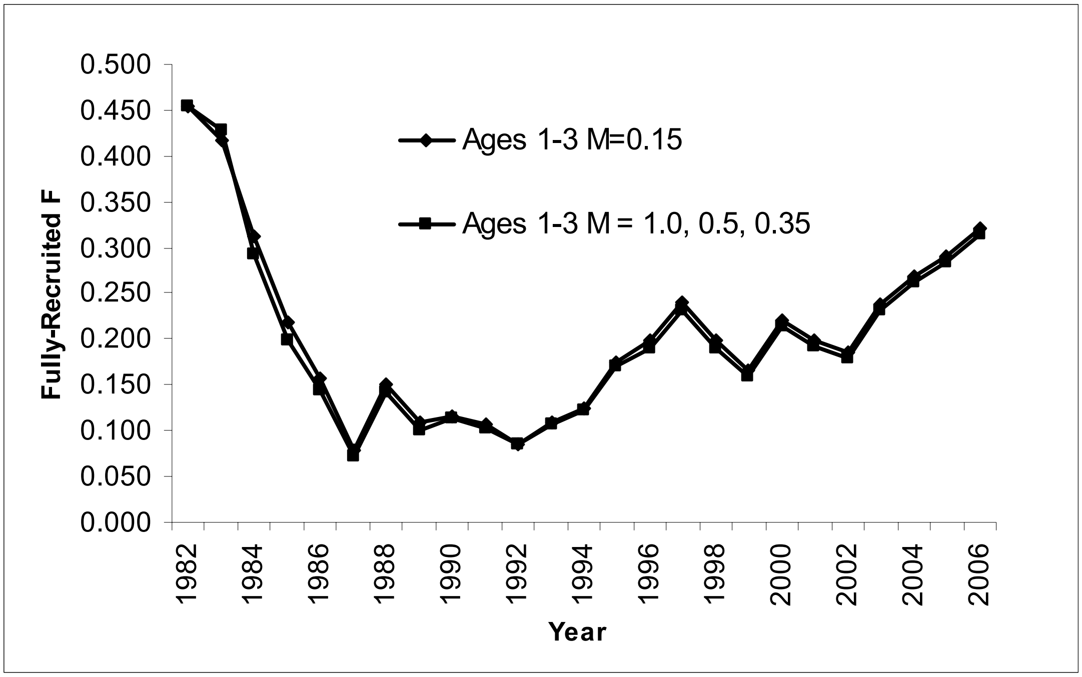


Figure A7.16. Effects of varying M on estimates of fully-recruited fishing mortality from the SCA model



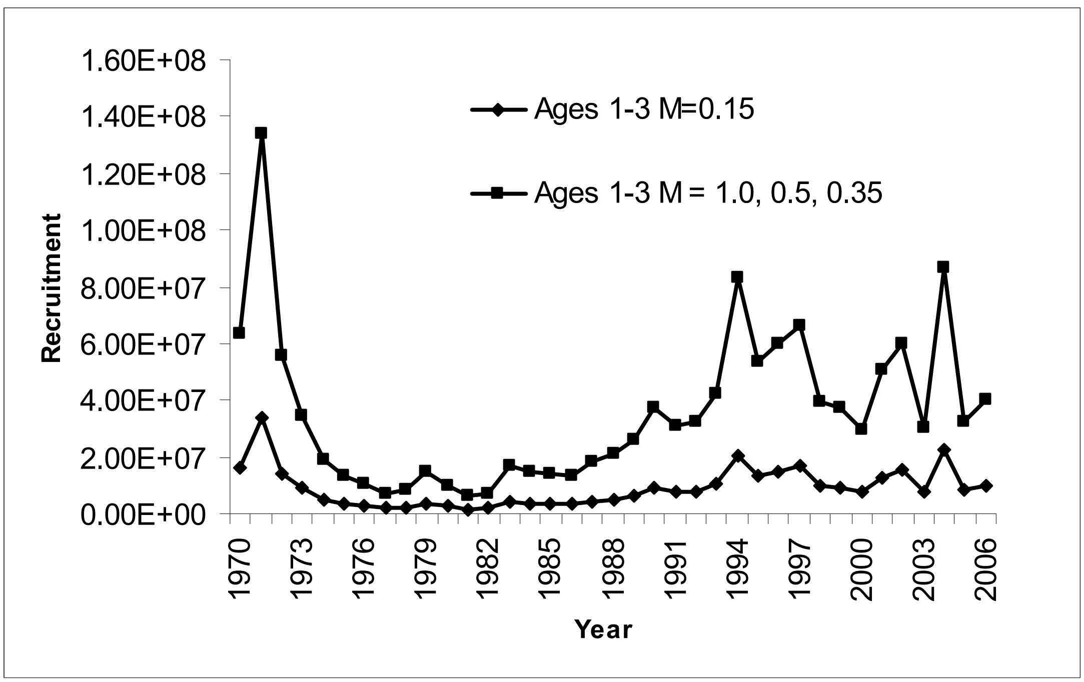


Figure A7.17. Effects of higher M for ages 1-3 on estimates of fully-recruited fishing mortality and recruitment from the SCA model.

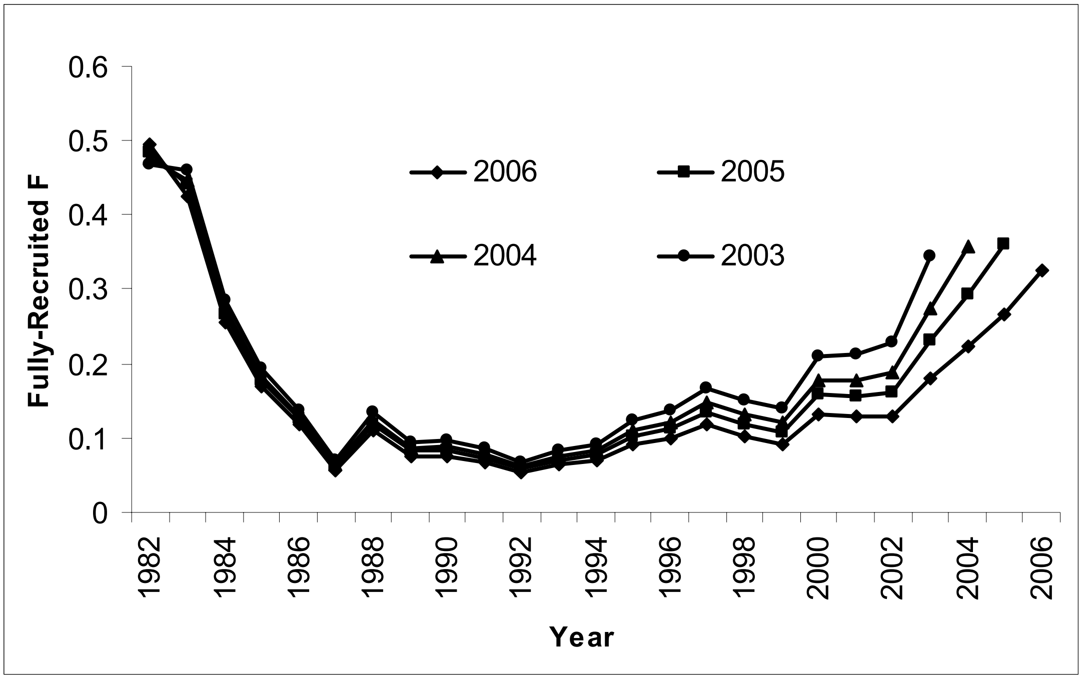


Figure A7.18. Comparison of retrospective pattern in fully-recruited F when M=0.30 after 1996

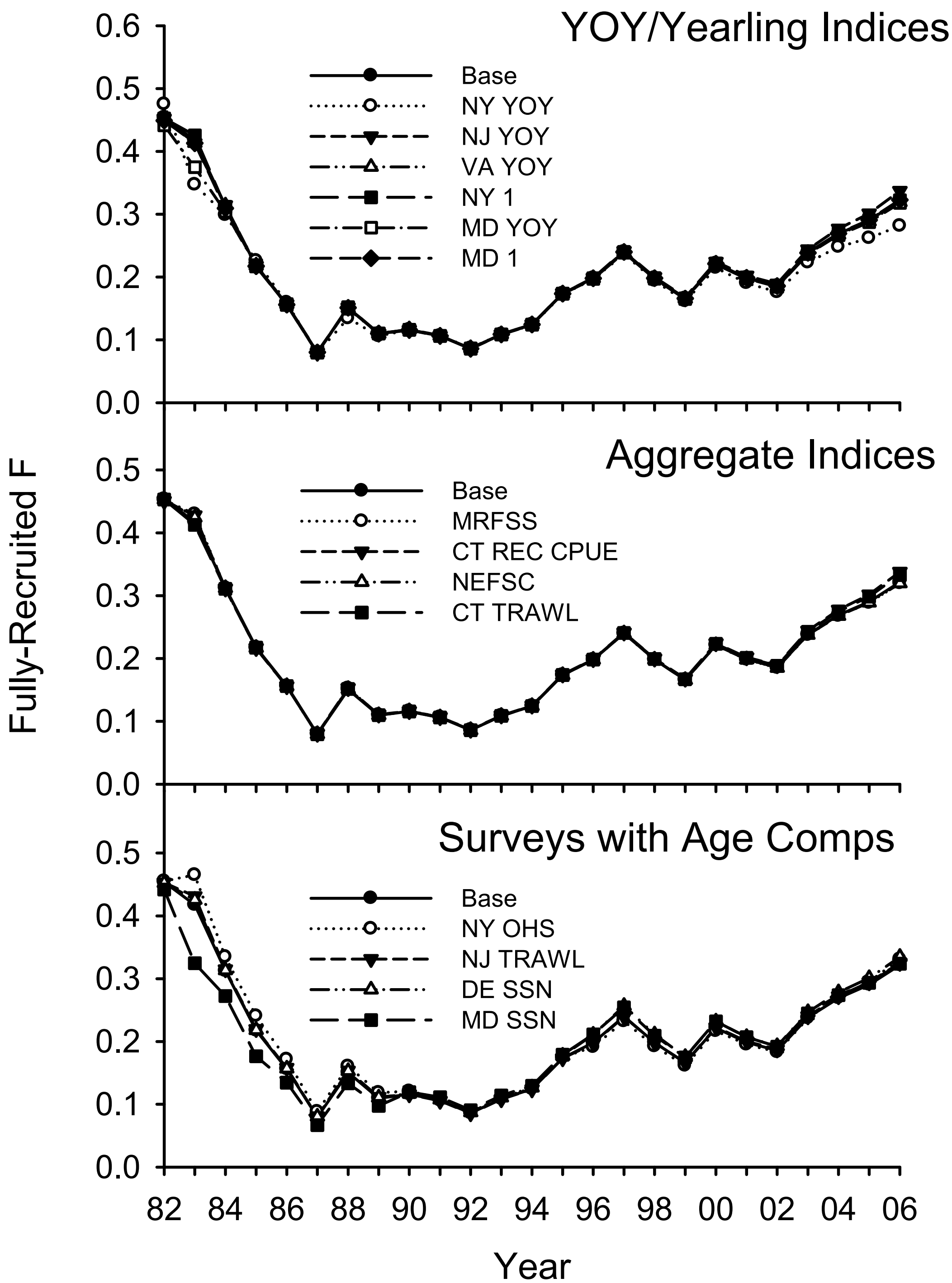
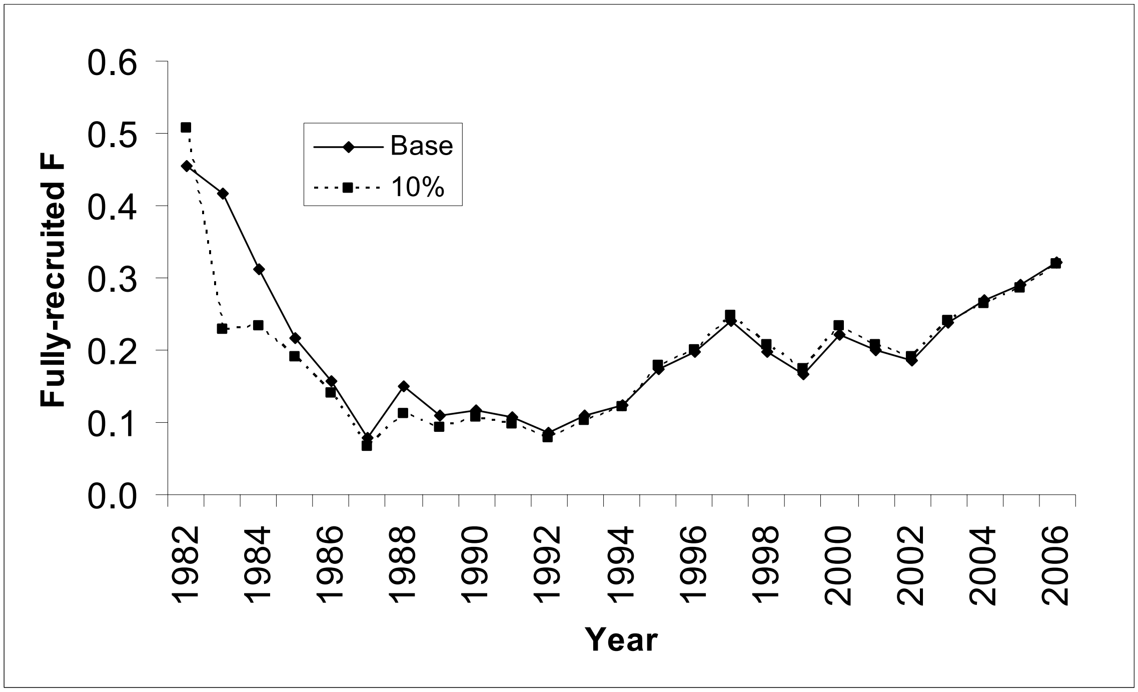


Figure A7.19. Comparison of fully-recruited F estimates when data from each survey were deleted one-at-a-time from the final SCA model configuration.

A.



B.

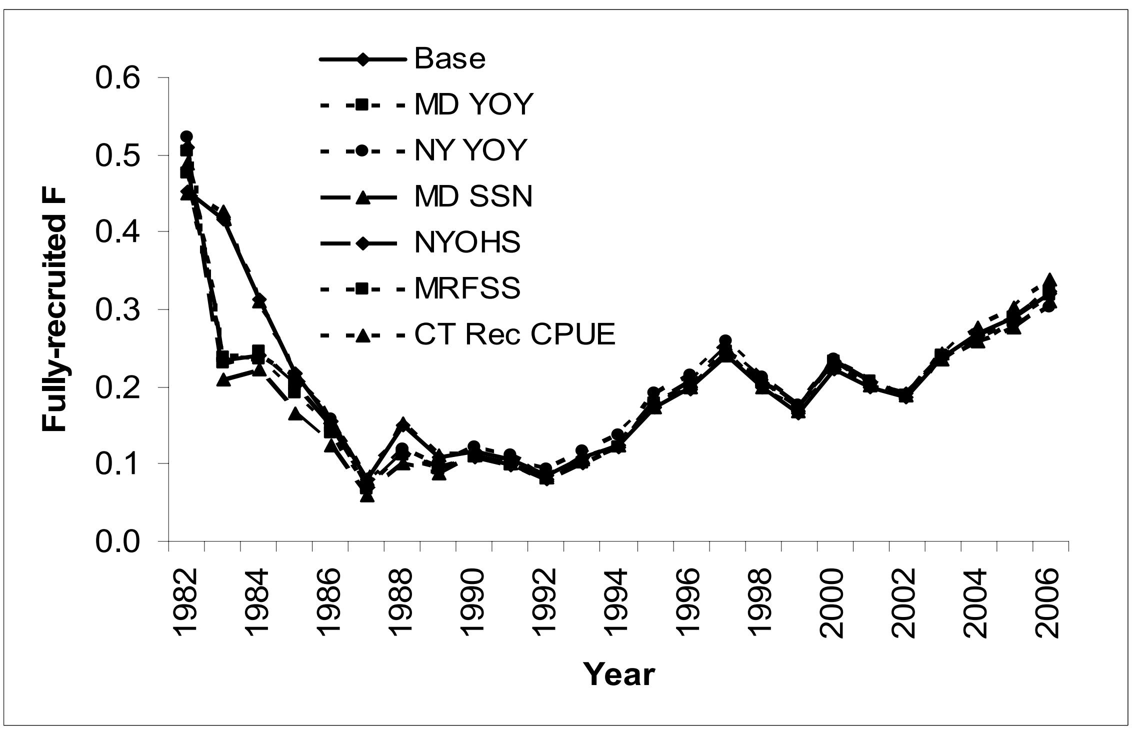
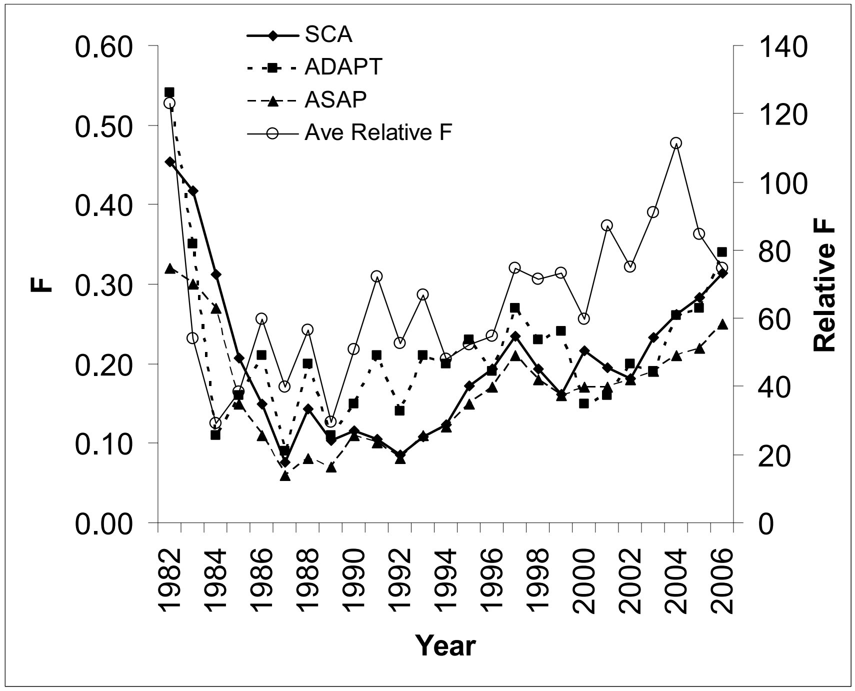


Figure A7.20. Comparison of fully-recruited F estimates from the SCA model when A) average effective sample sizes for the catch and survey multinomials were decreased to 10% of the original values and B) select surveys were deleted one-at-a-time when all average effective sample sizes were decreased to 10% of original values .

A.



B.

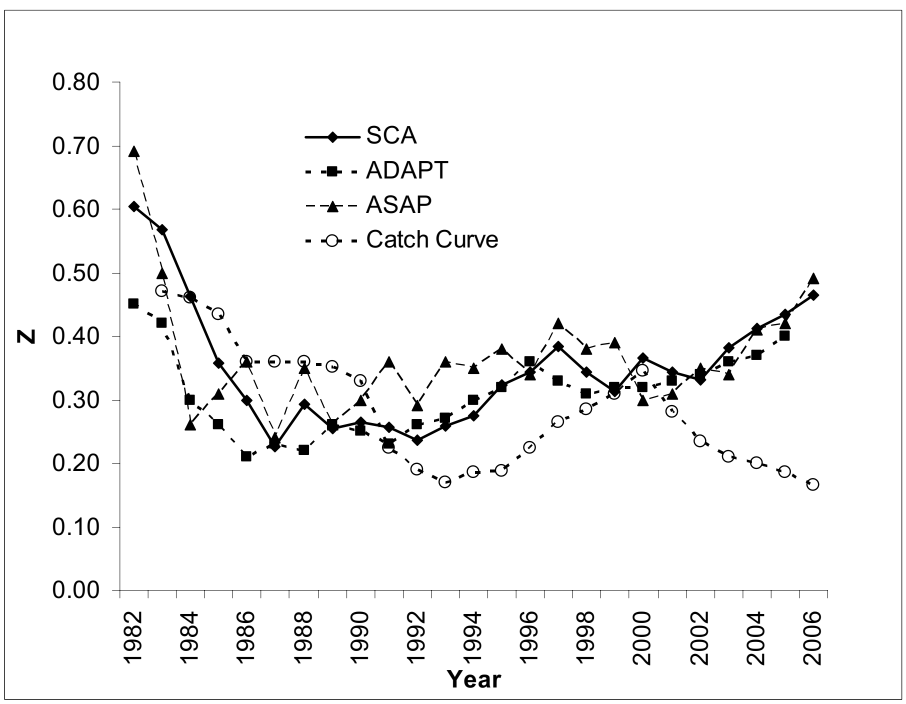


Figure A7.21. A) Comparison of SCA, ADAPT, ASAP, and relative F estimates of average fishing mortality of ages 8-11, and B) SCA, ADAPT, ASAP and catch curve analysis fully-recruited total mortality.

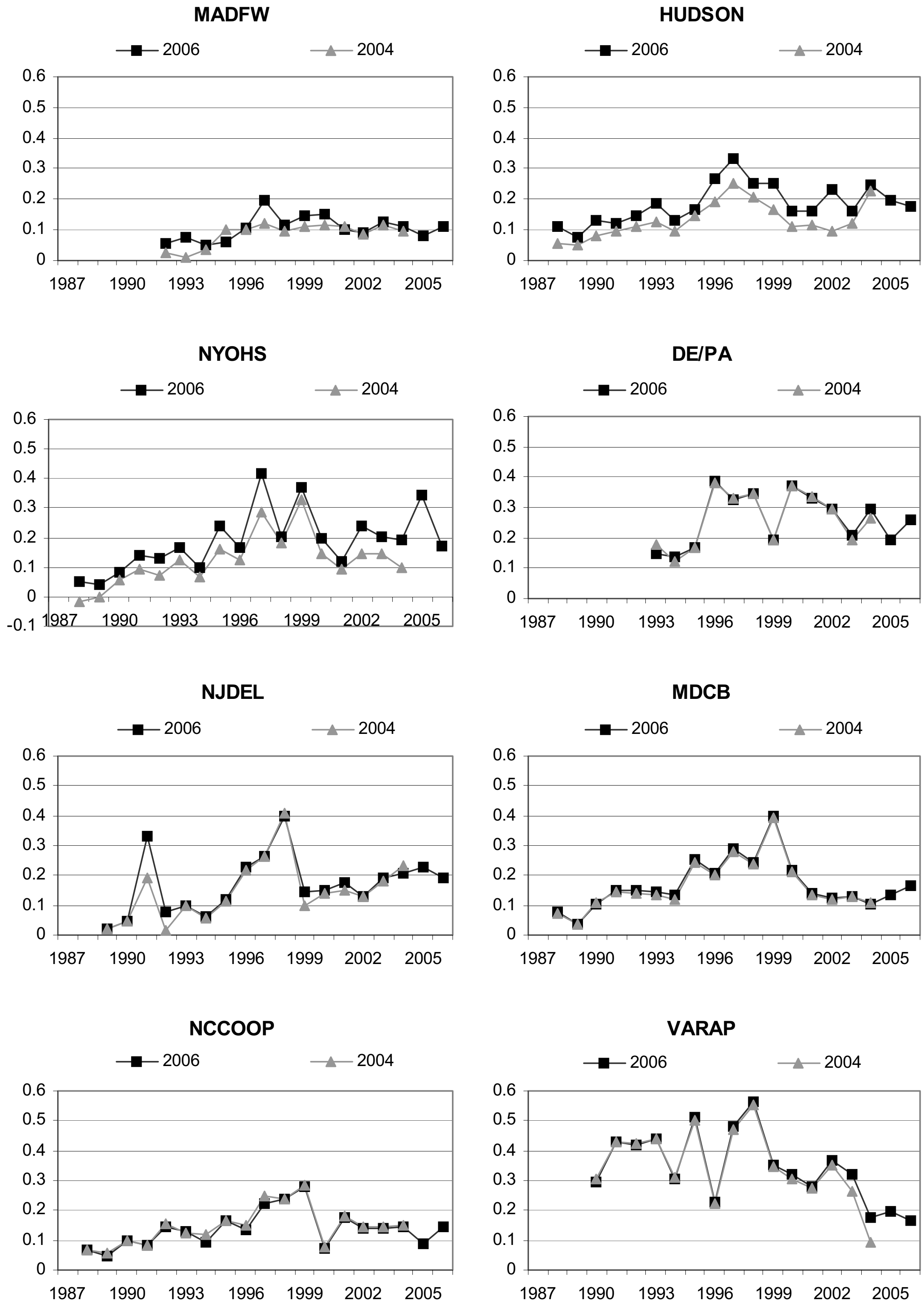


Figure A8.1. Retrospective analysis of fishing mortality estimates generated by the catch equation method for fish >28”. Data shown are from the previous stock assessment in 2004 and the current in 2006.

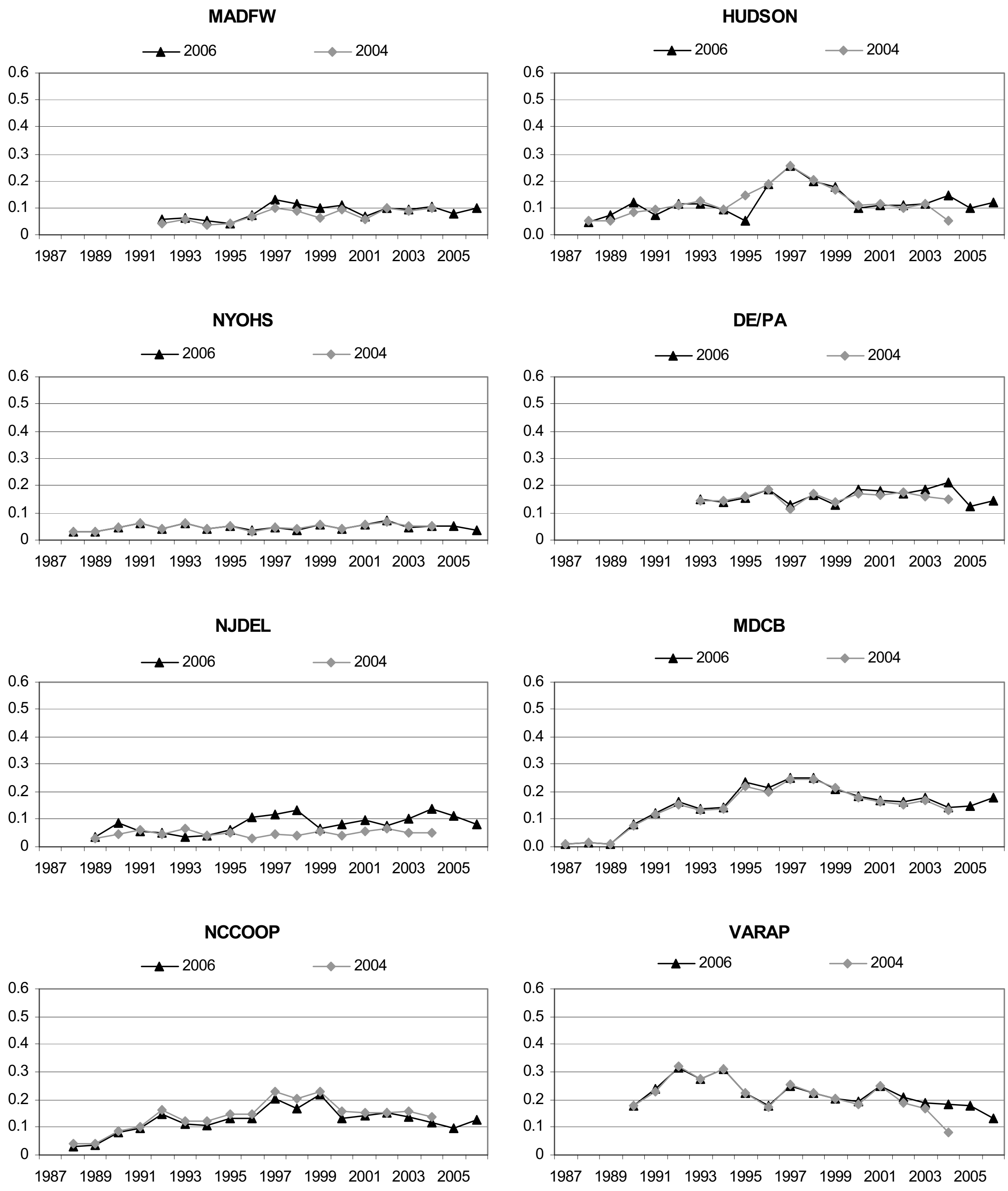
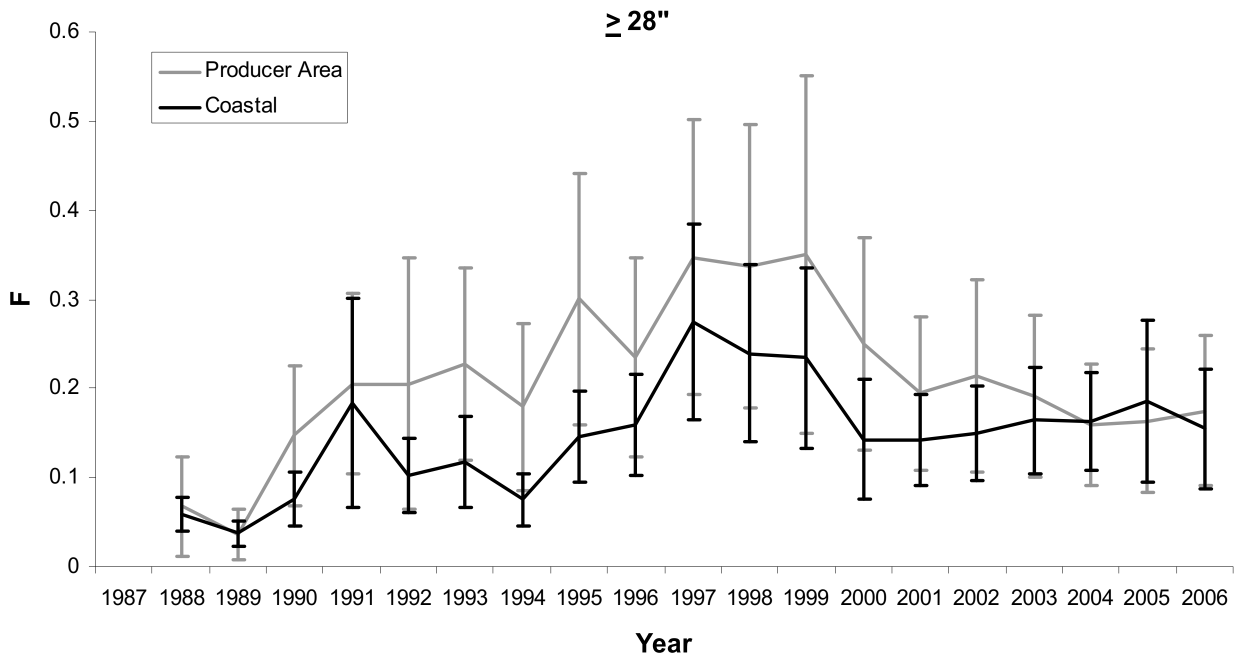


Figure A8.2. Retrospective analysis of fishing mortality estimates generated by the catch equation method for fish >18". Data shown are from the previous stock assessment in 2004 and the current in 2006.



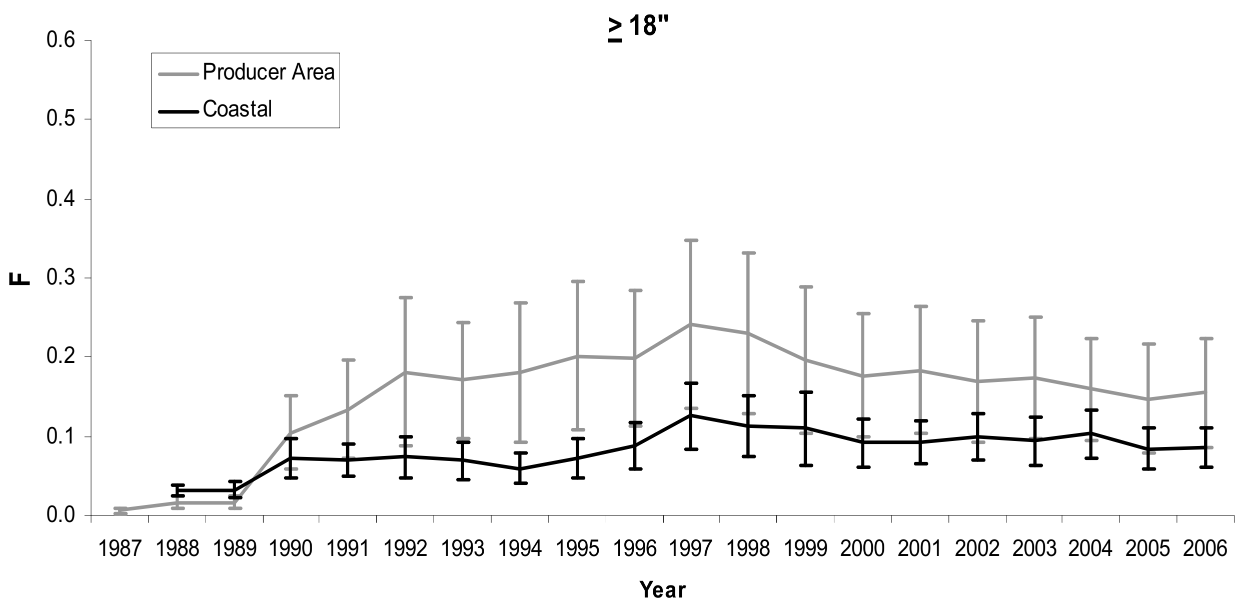
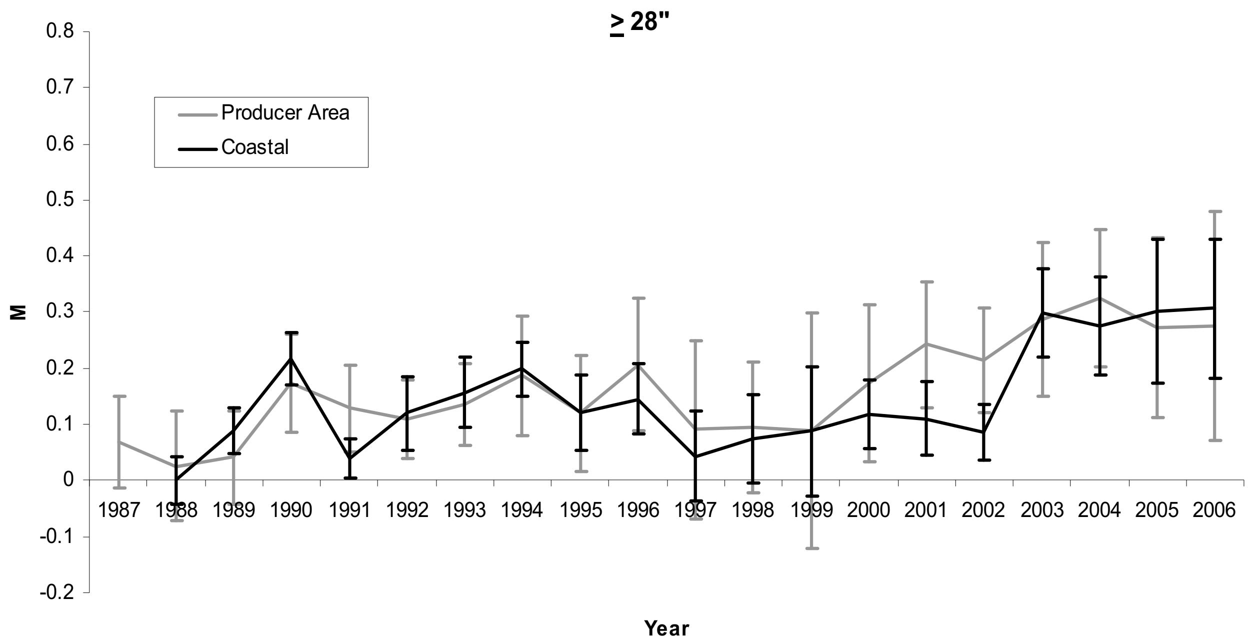


Figure A8.3. Coastal and producer area mean fishing mortality estimates and their 95% confidence intervals generated from the catch equation method for striped bass ≥ 28" and ≥ 18".



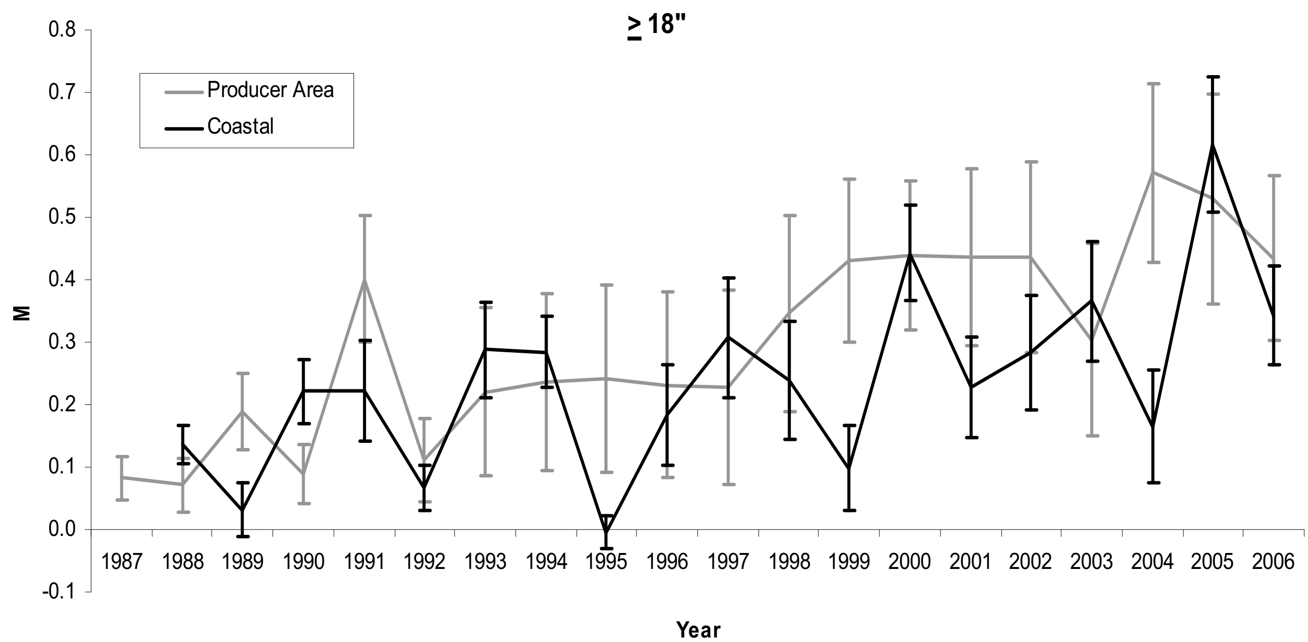


Figure A8.4. Coastal and producer area mean natural mortality estimates and their 95% confidence interval, generated from the catch equation method for striped bass ≥ 28" and ≥ 18".

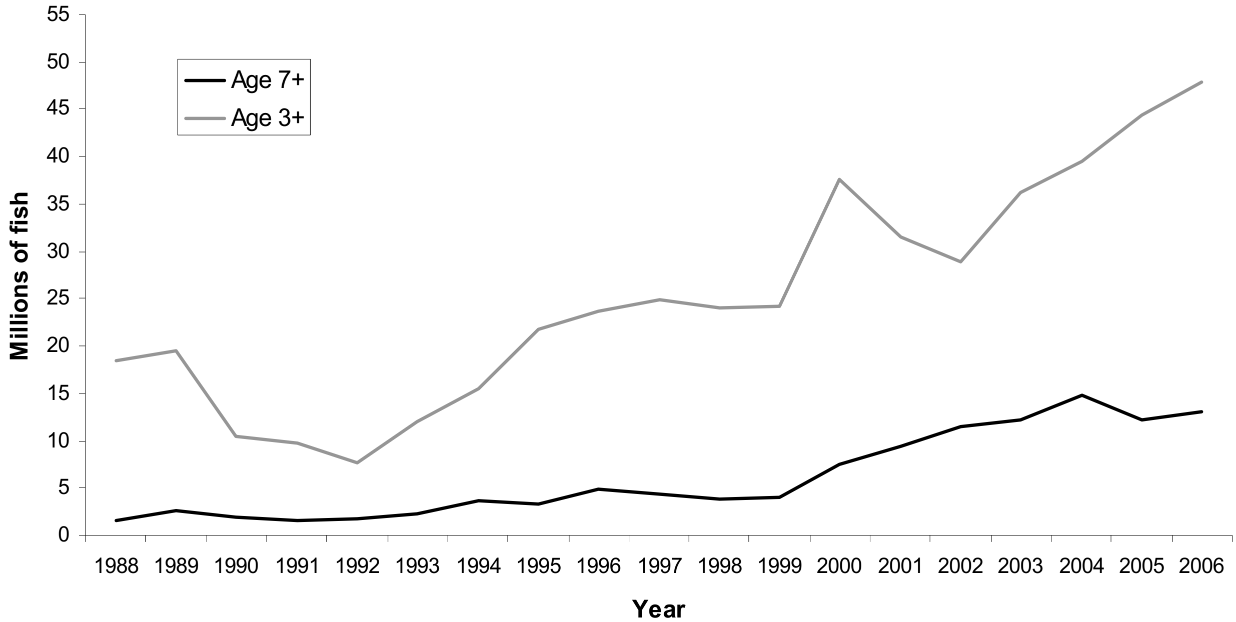


Figure A8.5. Stock size estimates generated from the catch equation method for fish age seven and older (comparable to fish > 28 inches) and fish age three and older (comparable to fish > 18 inches). Stock size obtained via "Kill (in numbers of fish) = F * Stock Size".

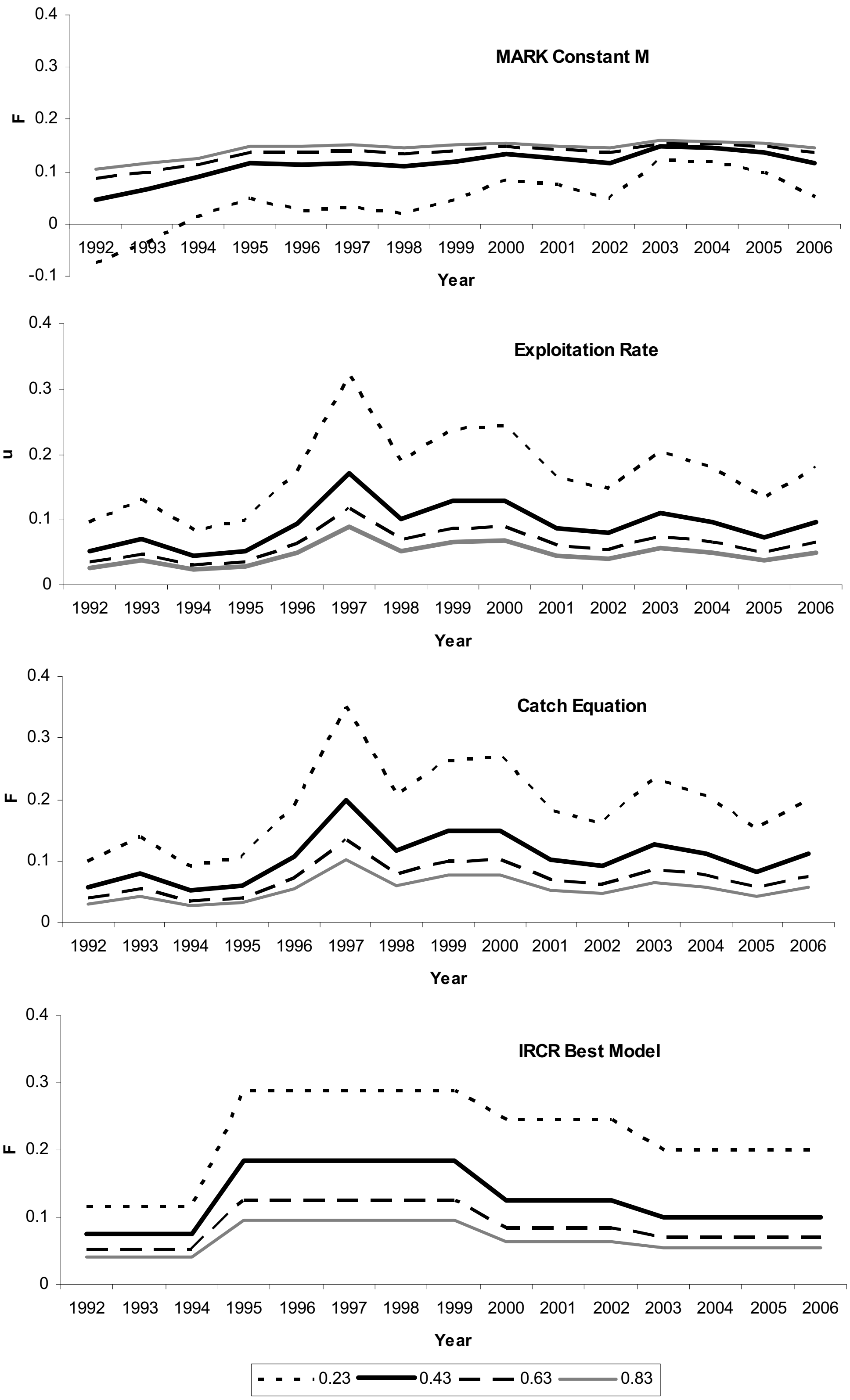


Figure A8.6. Sensitivity analysis showing effects of reporting rate values on exploitation rate and fishing mortality from different methods. Data shown are from MADFW.

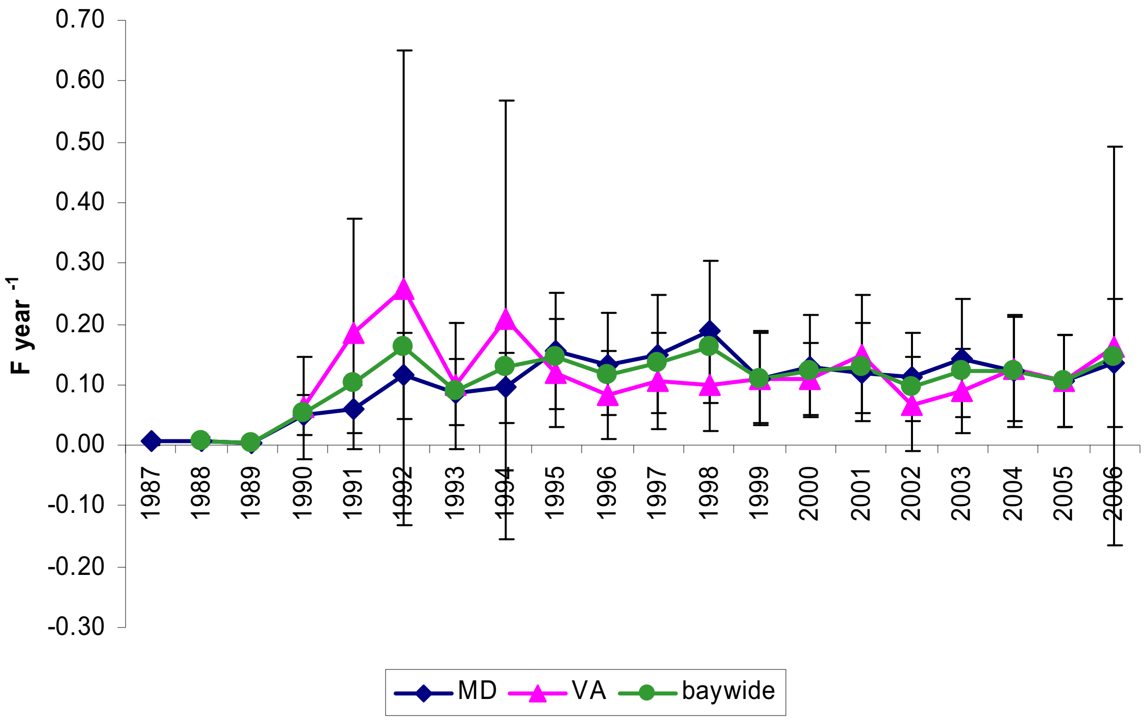


Figure A8.7. Fishing mortality of resident striped bass estimated using catch equation approach from MD and VA tagging data. Vertical bars represent 95% confidence limit intervals.

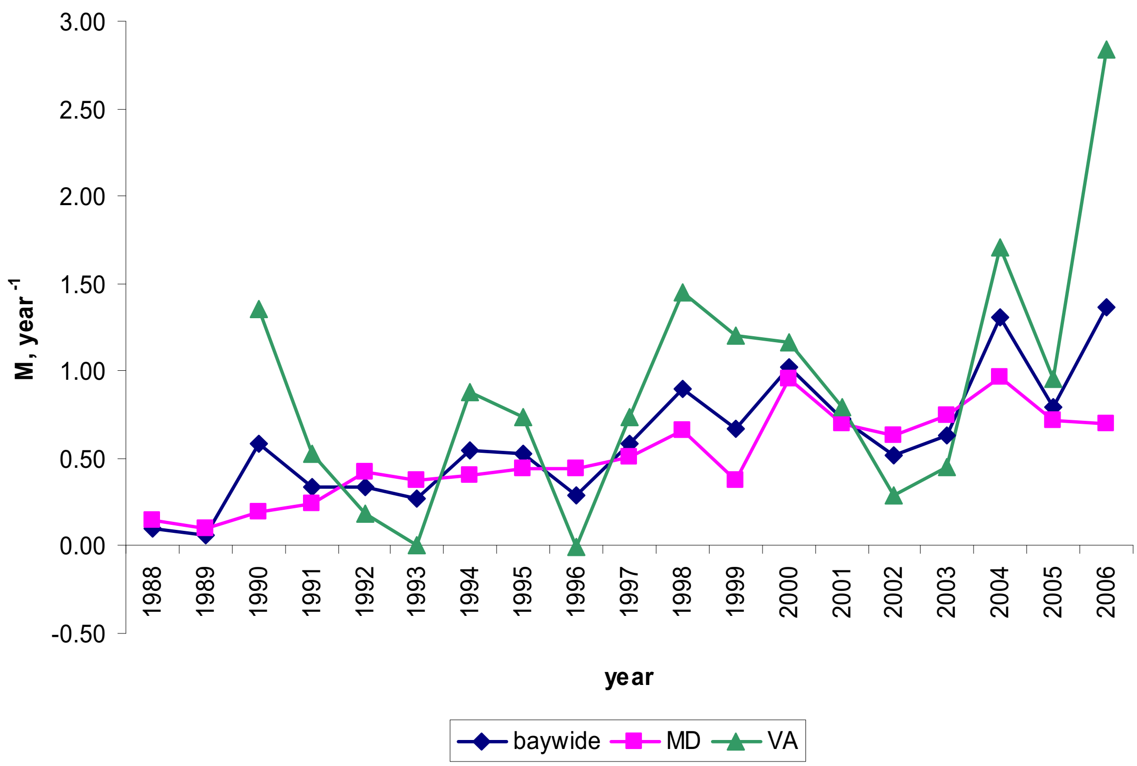


Figure A8.8. Natural mortality of resident striped bass estimated using catch equation approach from MD and VA tagging data.

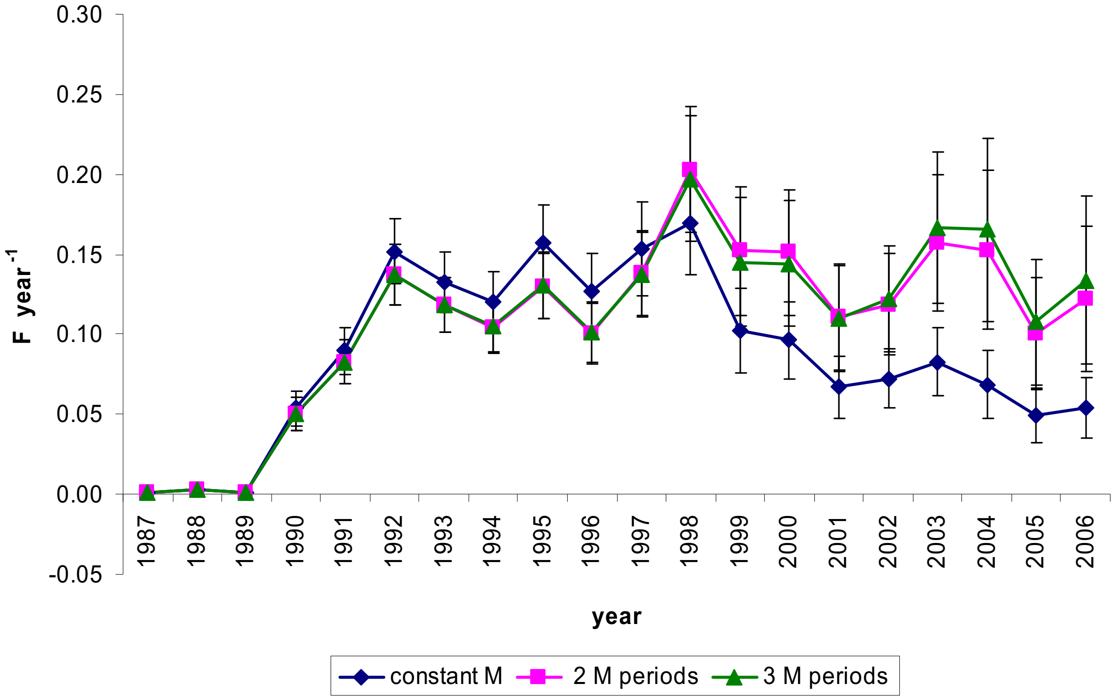


Figure A9.1. Fishing mortality of resident striped bass estimated from MD data using instantaneous rates model, assuming one, two and three different periods of natural mortality. Vertical bars represent 95% confidence limit intervals.

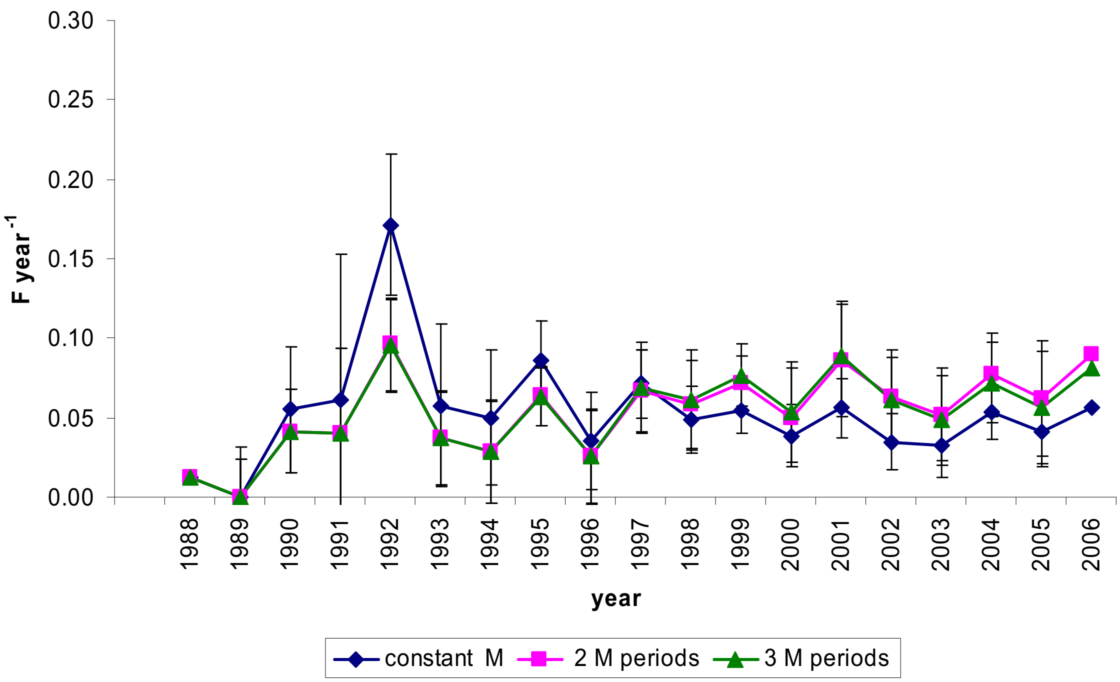


Figure A9.2. Fishing mortality of resident striped bass estimated from VA data using instantaneous rates model, assuming one, two and three different periods of natural mortality. Vertical bars represent 95% confidence limit intervals.

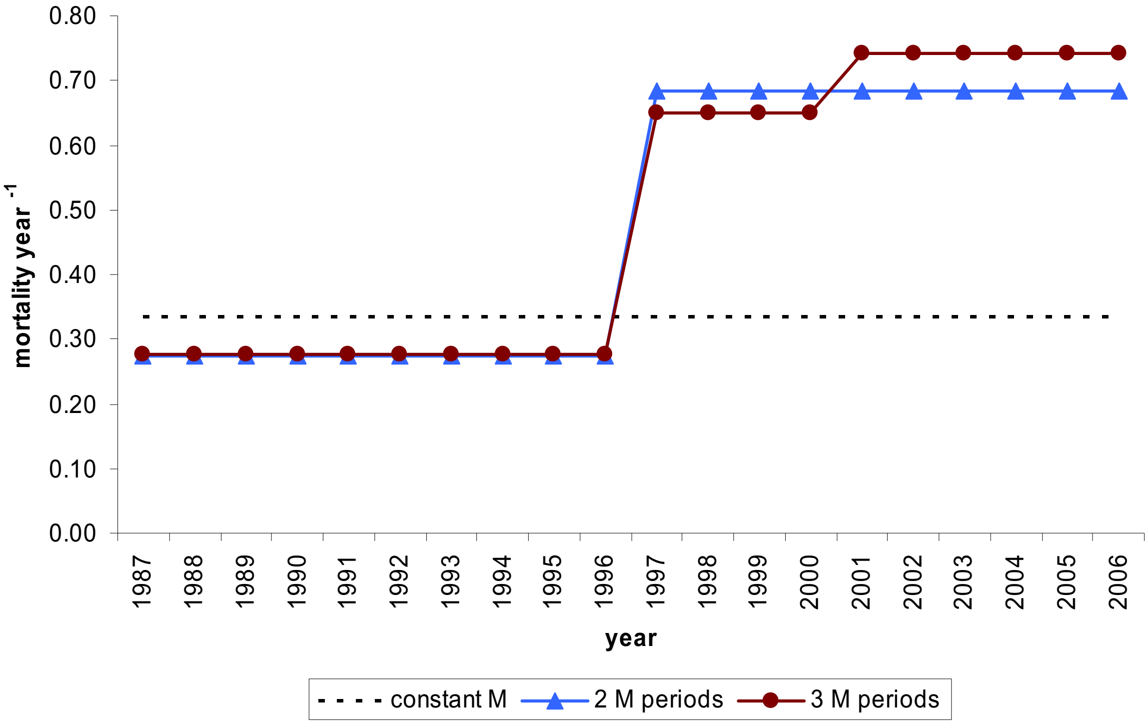


Figure A9.3. Instantaneous rates model estimates of natural mortality from MD data assuming constant M, two and three periods of different M.

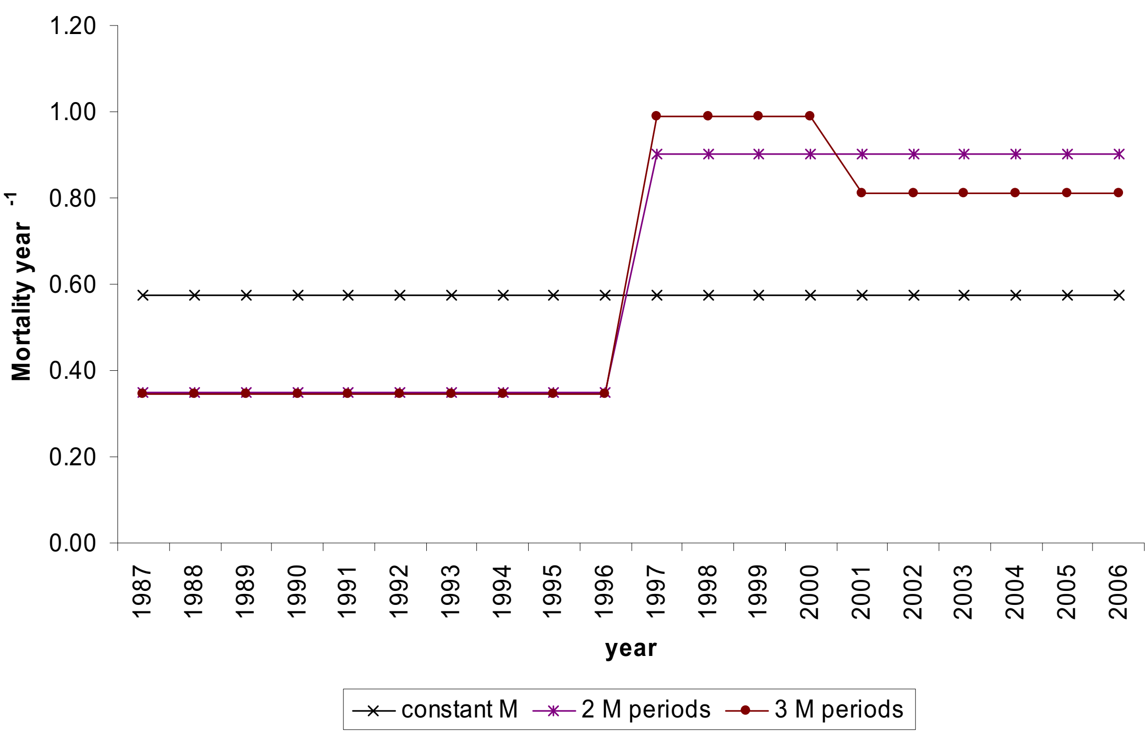


Figure A9.4. Instantaneous rates model estimates of natural mortality from VA data assuming constant M, two and three periods of different M.

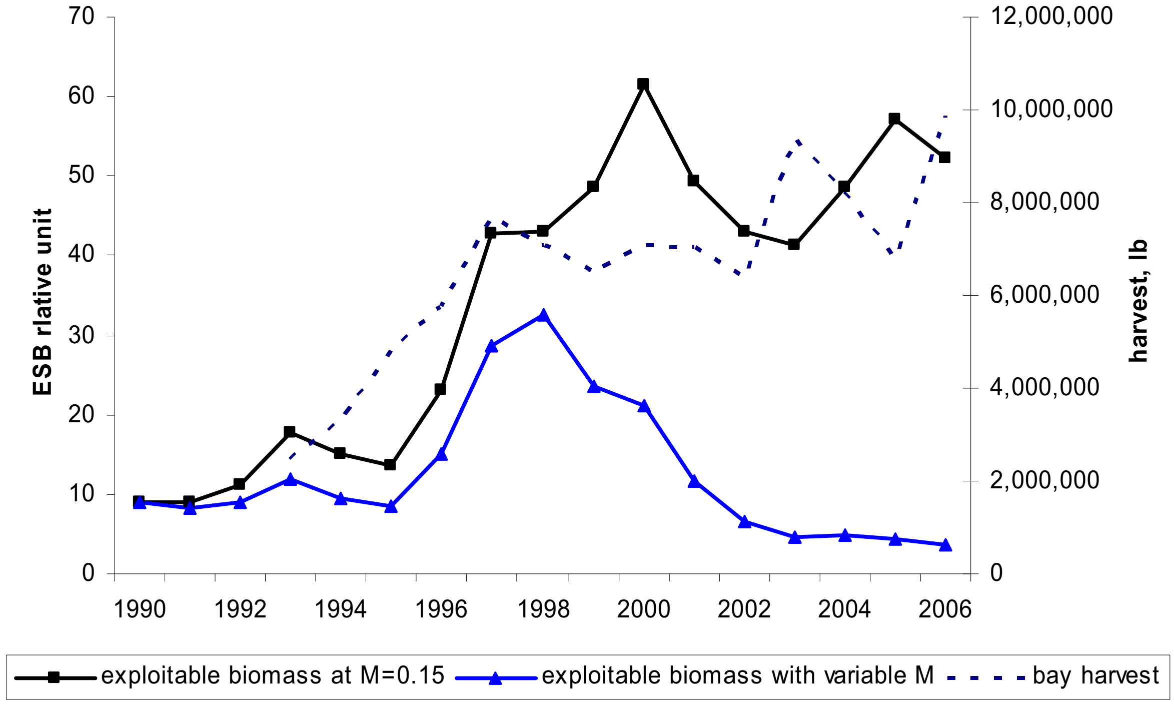


Figure A9.5. Projected Chesapeake bay exploited biomass assuming constant natural mortality M=0.15, period specific natural mortality from instantaneous model and bay-wide harvest.

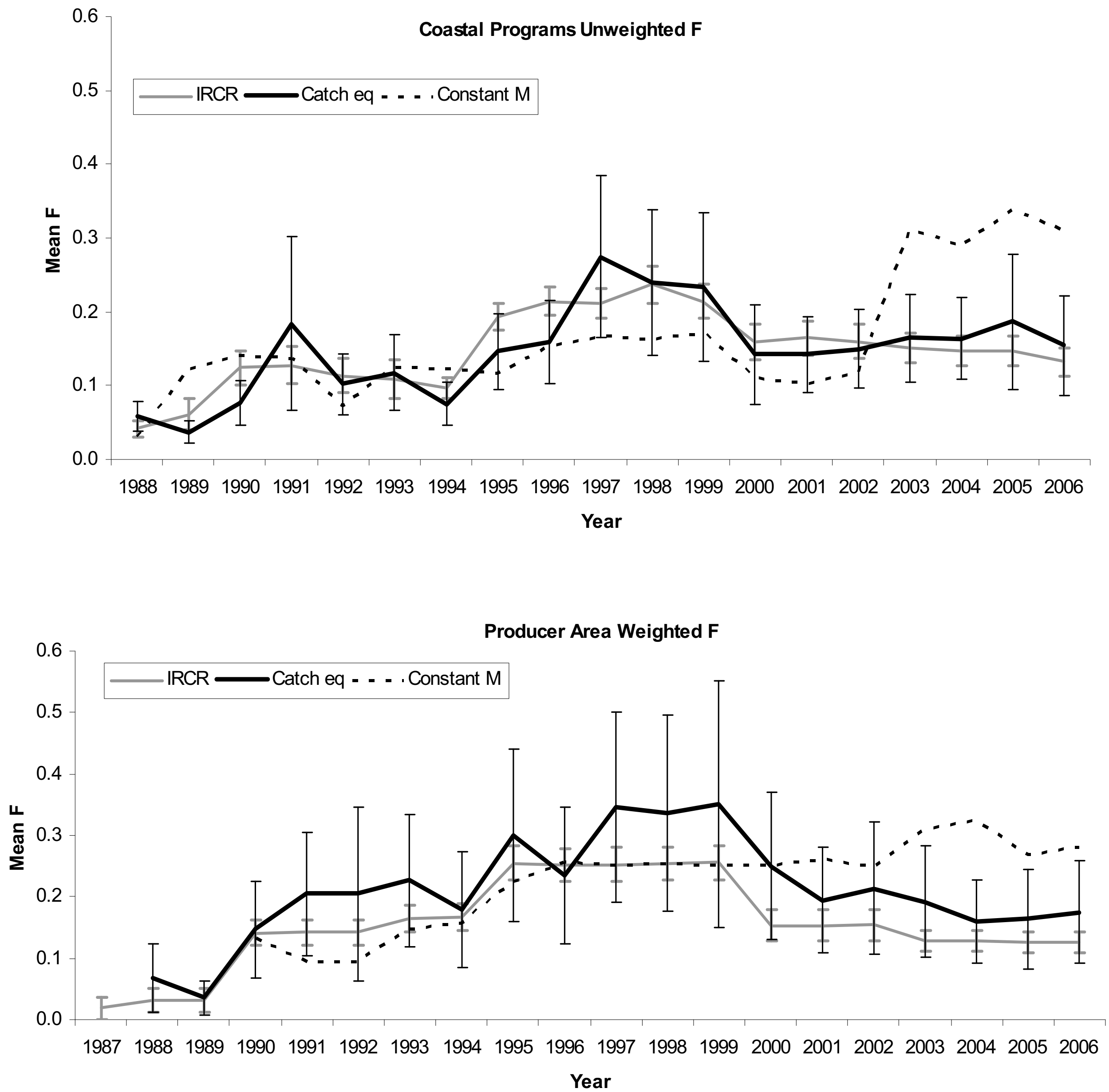
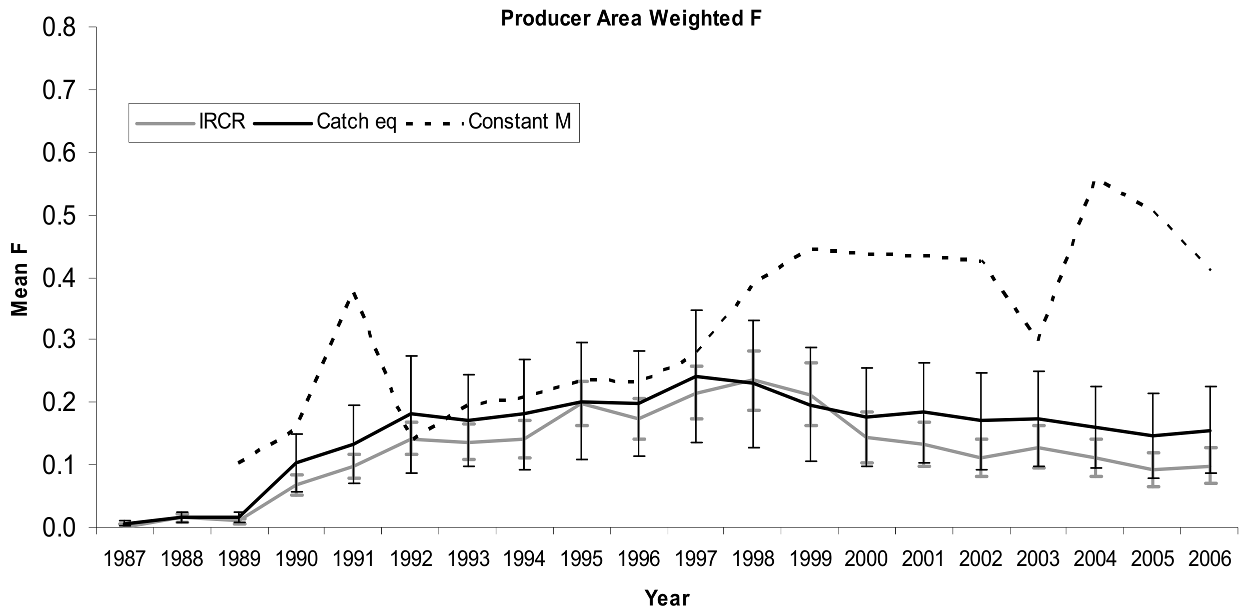


Figure A9.6. Comparison of coast program and producer area mean fishing mortality estimates from the IRCR model to the current and previous methods, for fish > 28 inches. 95% confidence intervals are shown for the catch equation and IRCR methods.



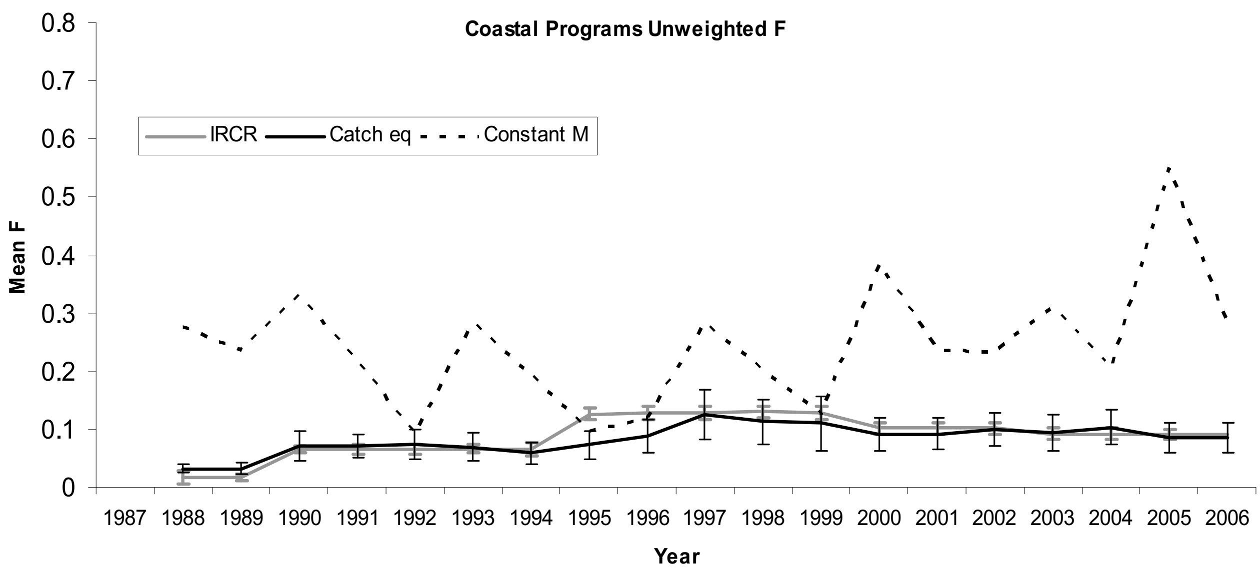


Figure A9.7. Comparison of coast program and producer area mean fishing mortality estimates from the IRCR model to the current and previous methods, for fish > 18 inches. 95% confidence intervals are shown for the catch equation and IRCR methods.

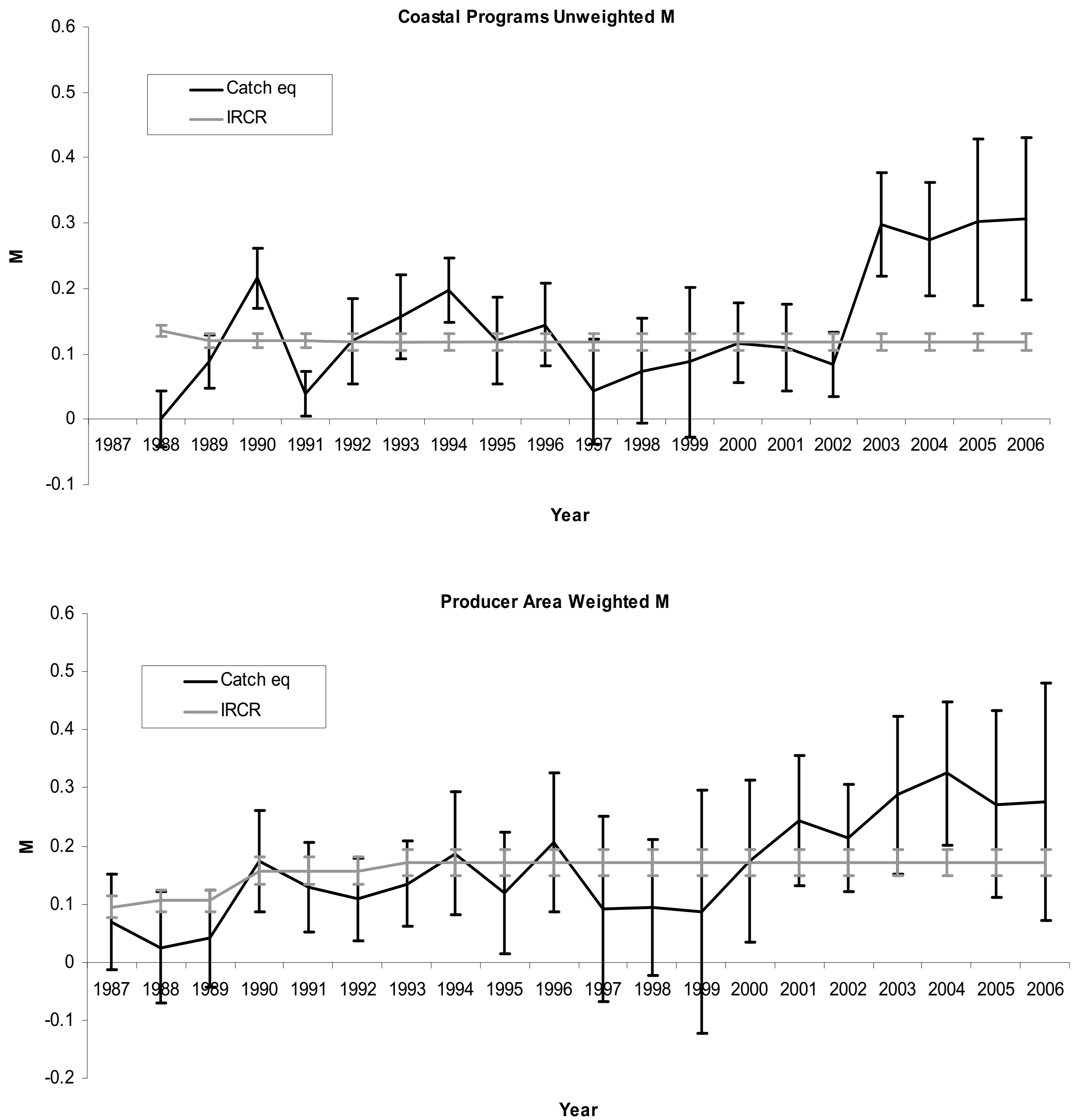
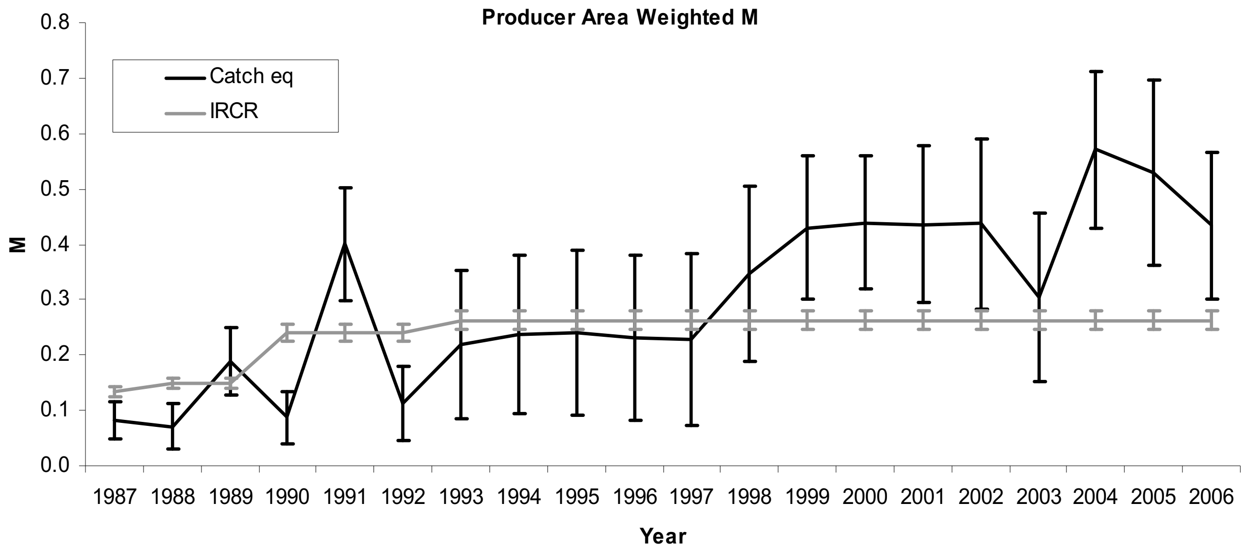


Figure A9.8. Comparison of coast program and producer area mean natural mortality estimates from the IRCR model the catch equation method, for fish > 28 inches. 95% confidence intervals are shown for both methods.



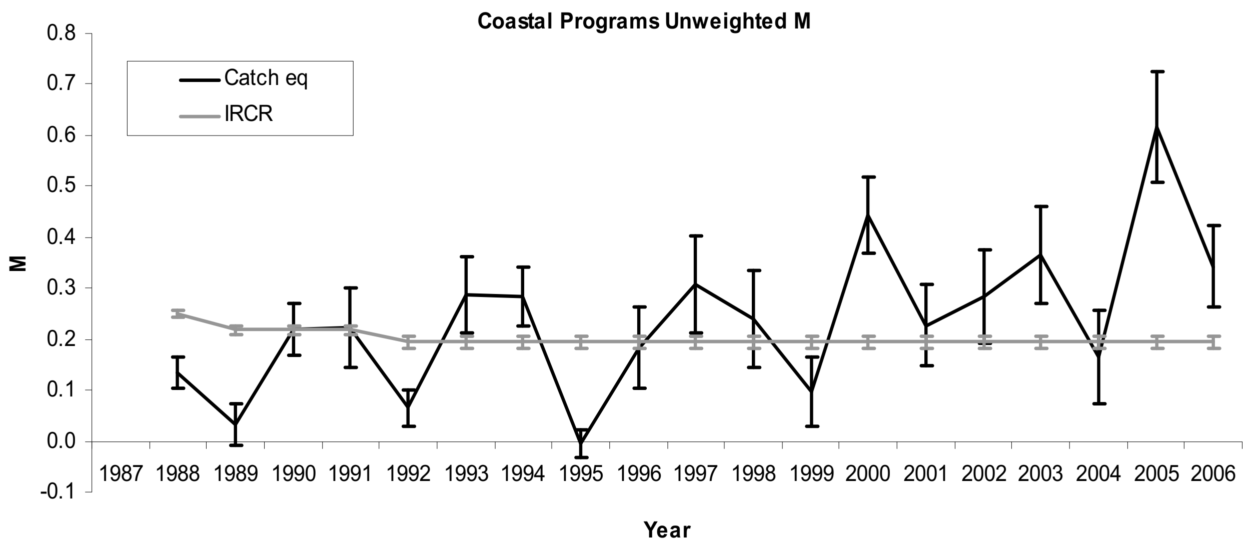


Figure A9.9. Comparison of coast program and producer area mean natural mortality estimates from the IRCR model and the catch equation method, for fish > 18 inches. 95% confidence intervals are shown for both methods.

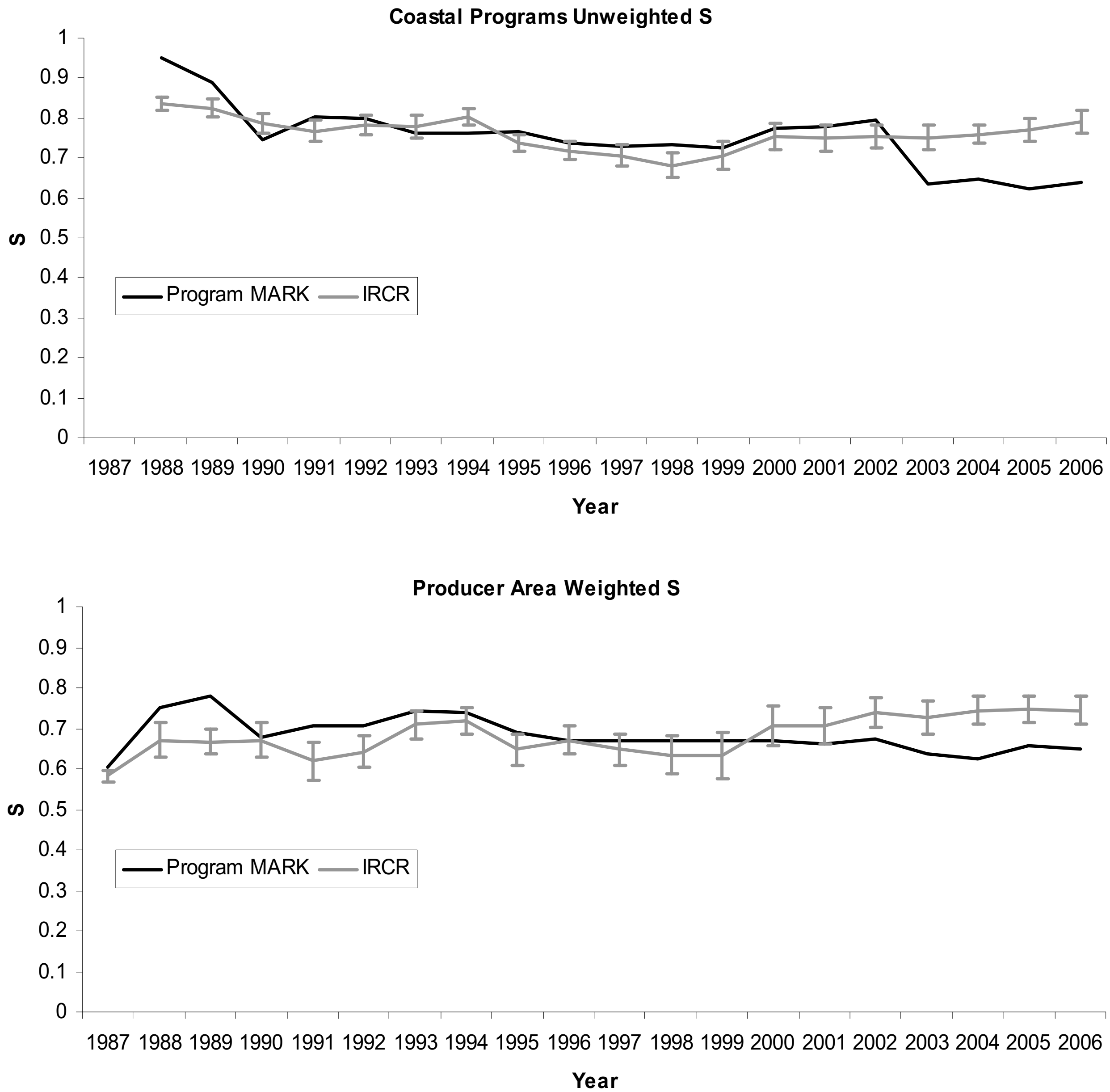
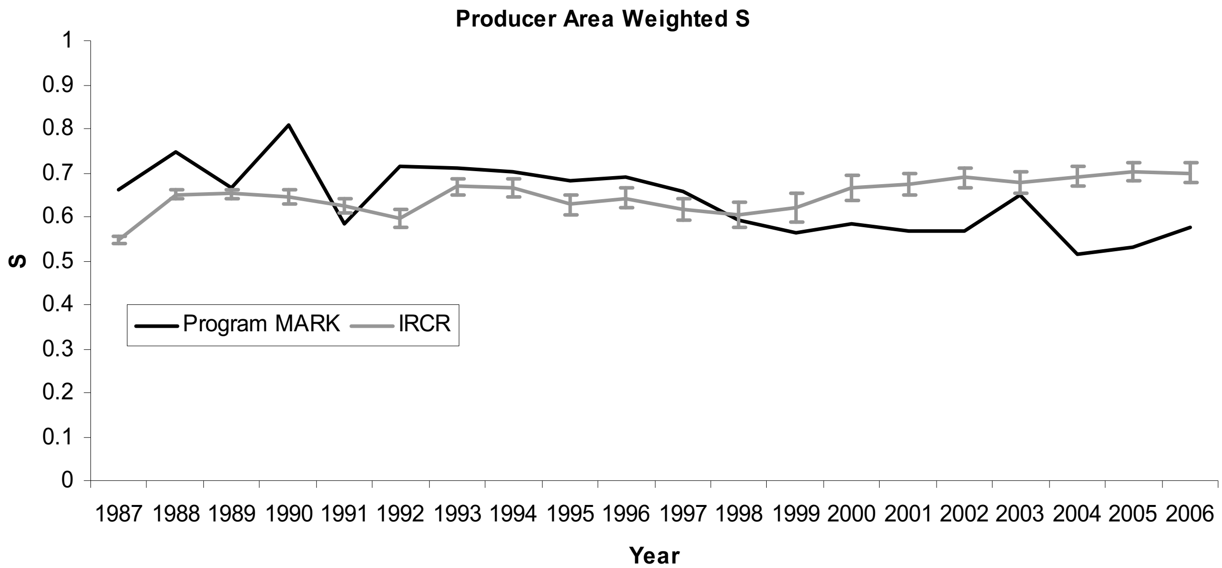


Figure A9.10. Comparison of coast program and producer area mean survival estimates from the IRCR model and Program MARK, for fish > 28 inches. 95% confidence intervals are shown for the IRCR model.



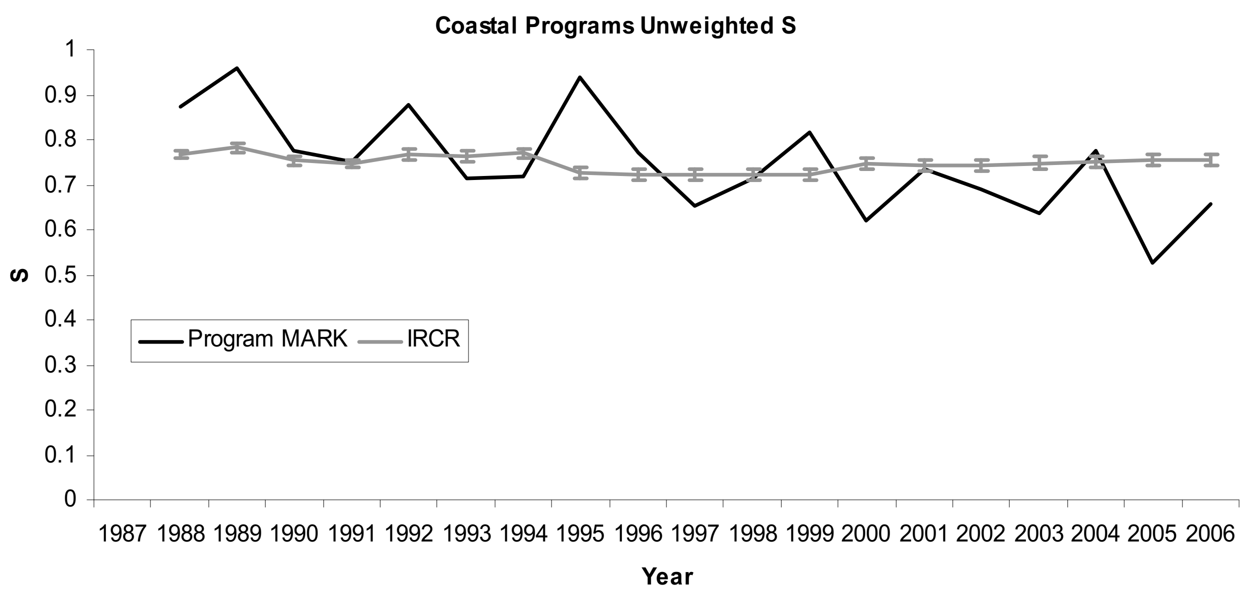
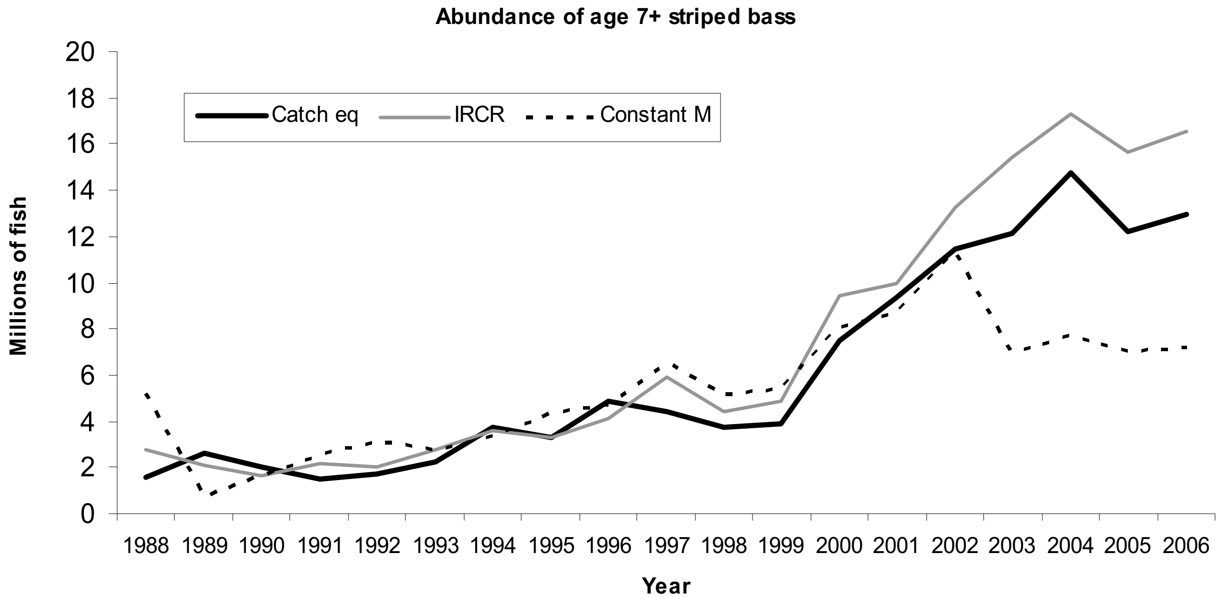


Figure A9.11. Comparison of coast program and producer area mean survival estimates from the IRCR model and Program MARK, for fish > 18 inches. 95% confidence intervals are shown for the IRCR model.



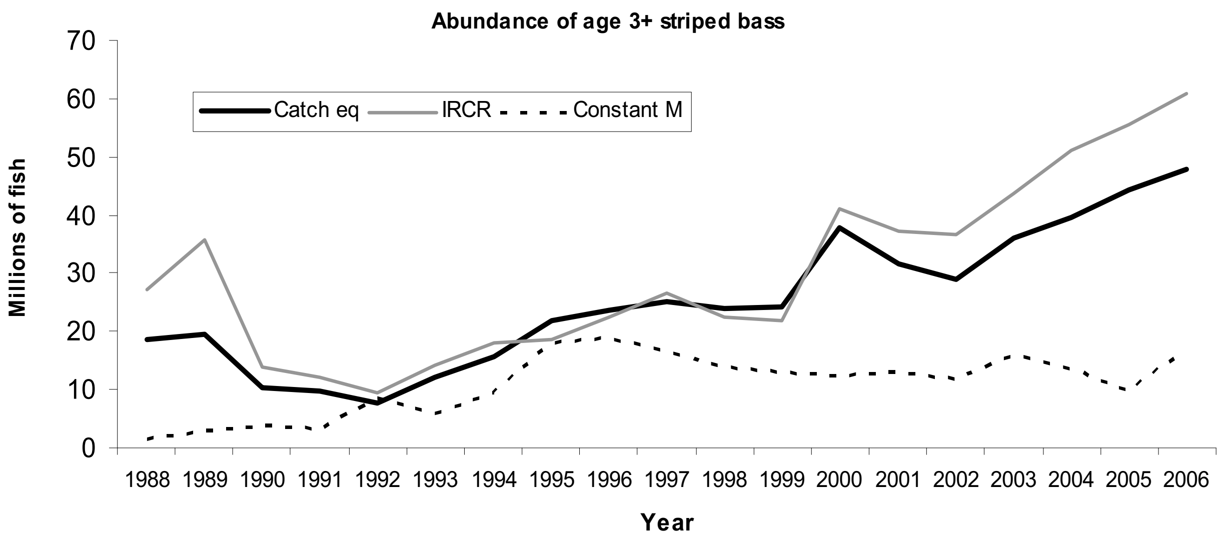


Figure A9.12. Stock size estimates generated from the IRCR model compared to the catch equation method, for fish age seven and older (comparable to fish > 28 inches) and fish age three and older (comparable to fish > 18 inches). Stock size obtained via "Kill (in numbers of fish) = F * Stock Size".

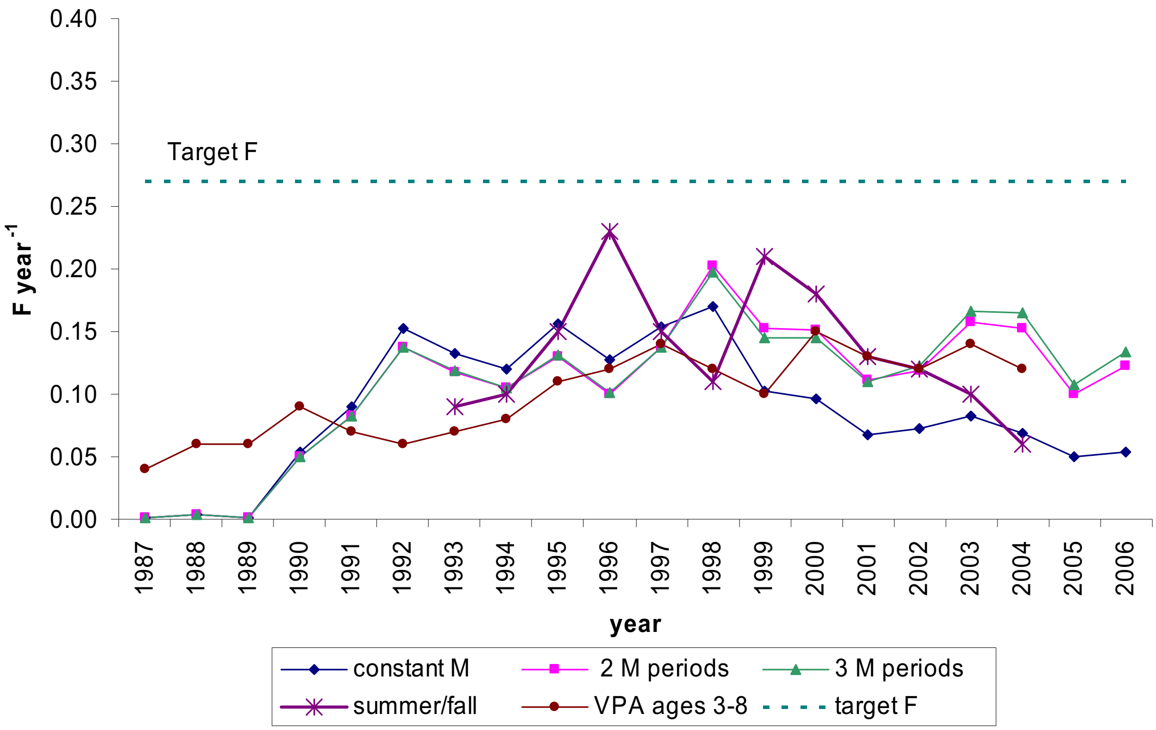


Figure A9.13. Comparison of fishing mortality estimates for MD data set from instantaneous rates model assuming constant M, two periods of M and three periods of M, with F estimates from bay-wide summer fall tagging study and coastwide VPA weighted by number F for ages 3-8.

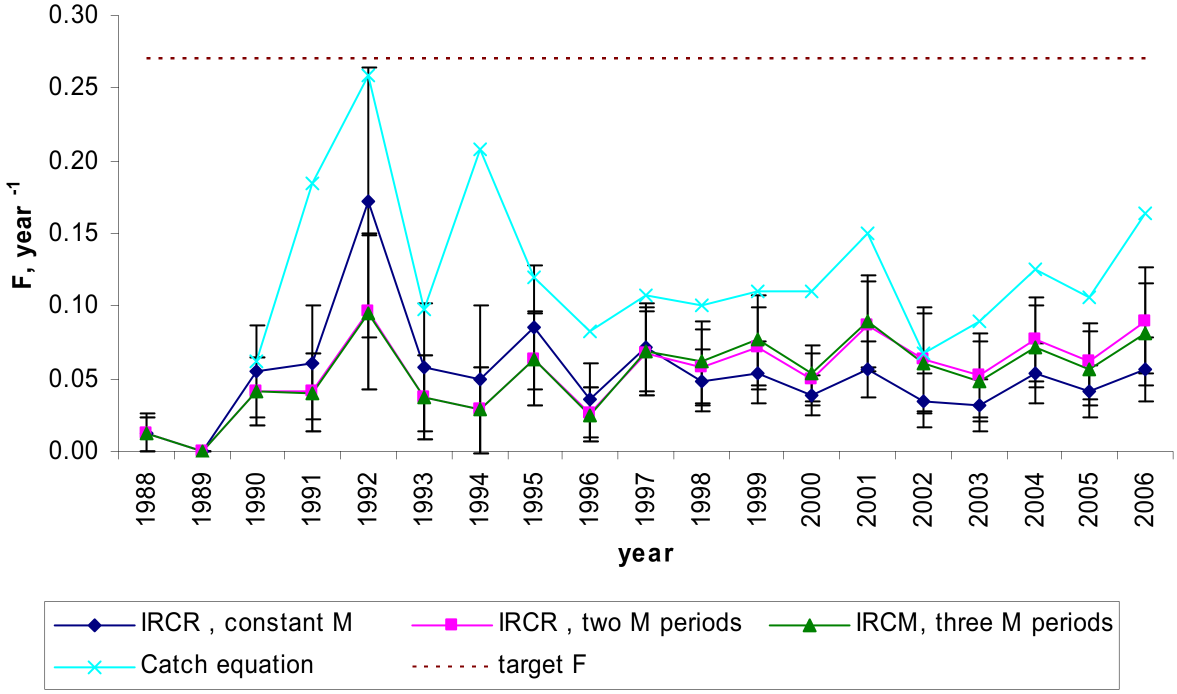


Figure A9.14. Fishing mortality estimates for VA data set from instantaneous rates model, summer fall tagging study and VPA weighted by number fishing mortality for ages 3-8.

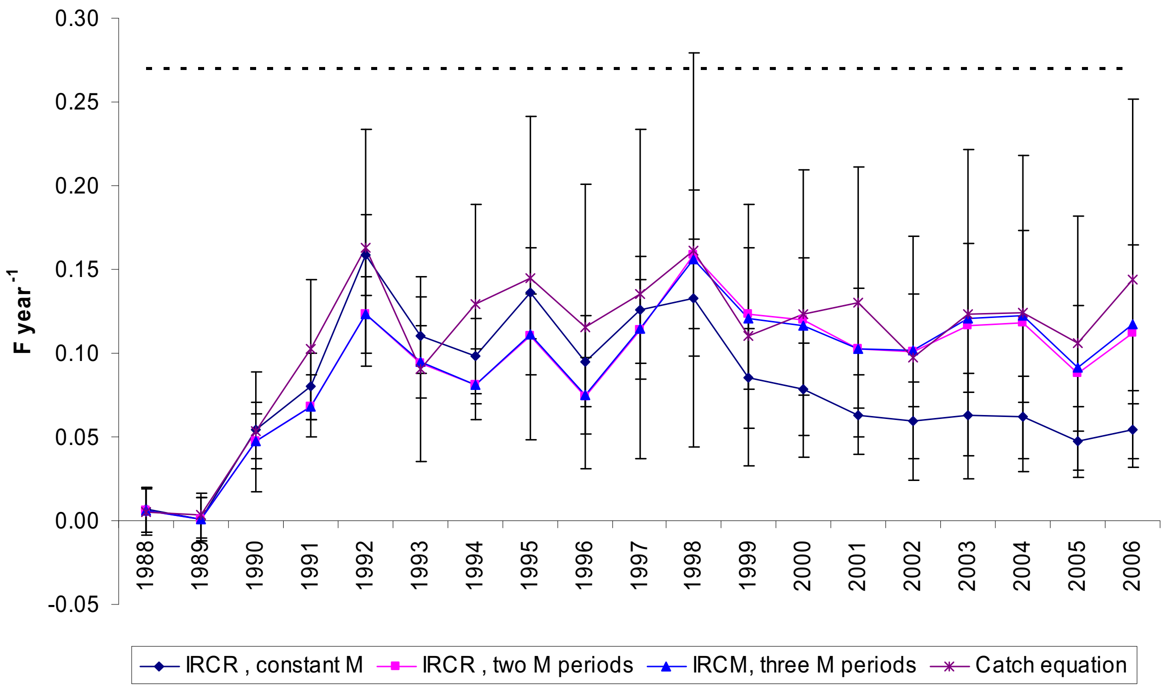


Figure A9.15. Comparison of bay-wide fishing mortality estimates from catch equation model and instantaneous rates model assuming constant M, two and three periods of M.

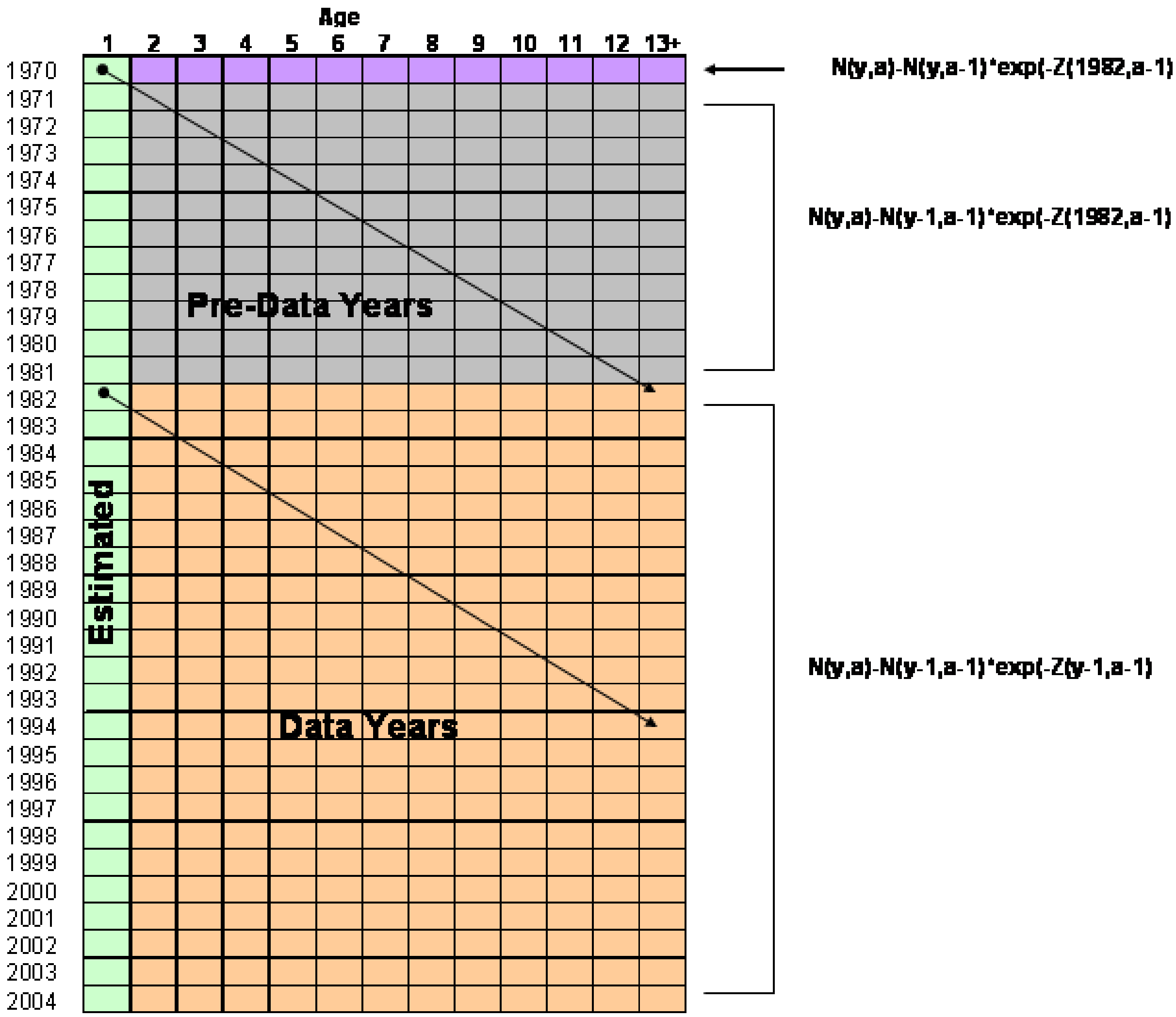


Figure A10.1. Schematic of population abundance-at-age

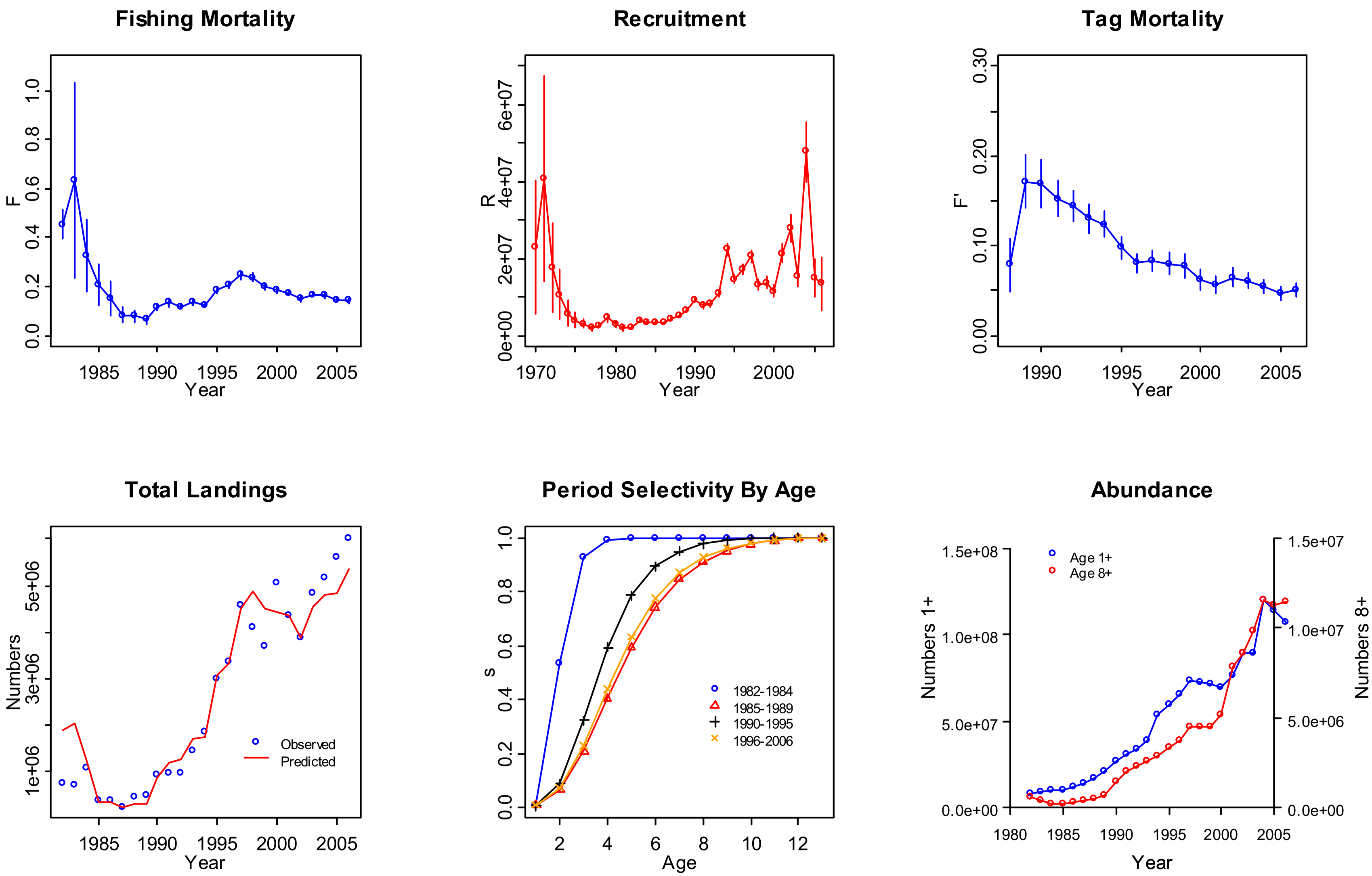


Figure A10.2. Estimates of fishing mortality (±95%CI), recruitment (±95%CI), fishing mortality on the tags, total landings, period selectivity patterns, and abundance of ages 1+ and 8+ from the SCATAG model run with equal weighting across all components.

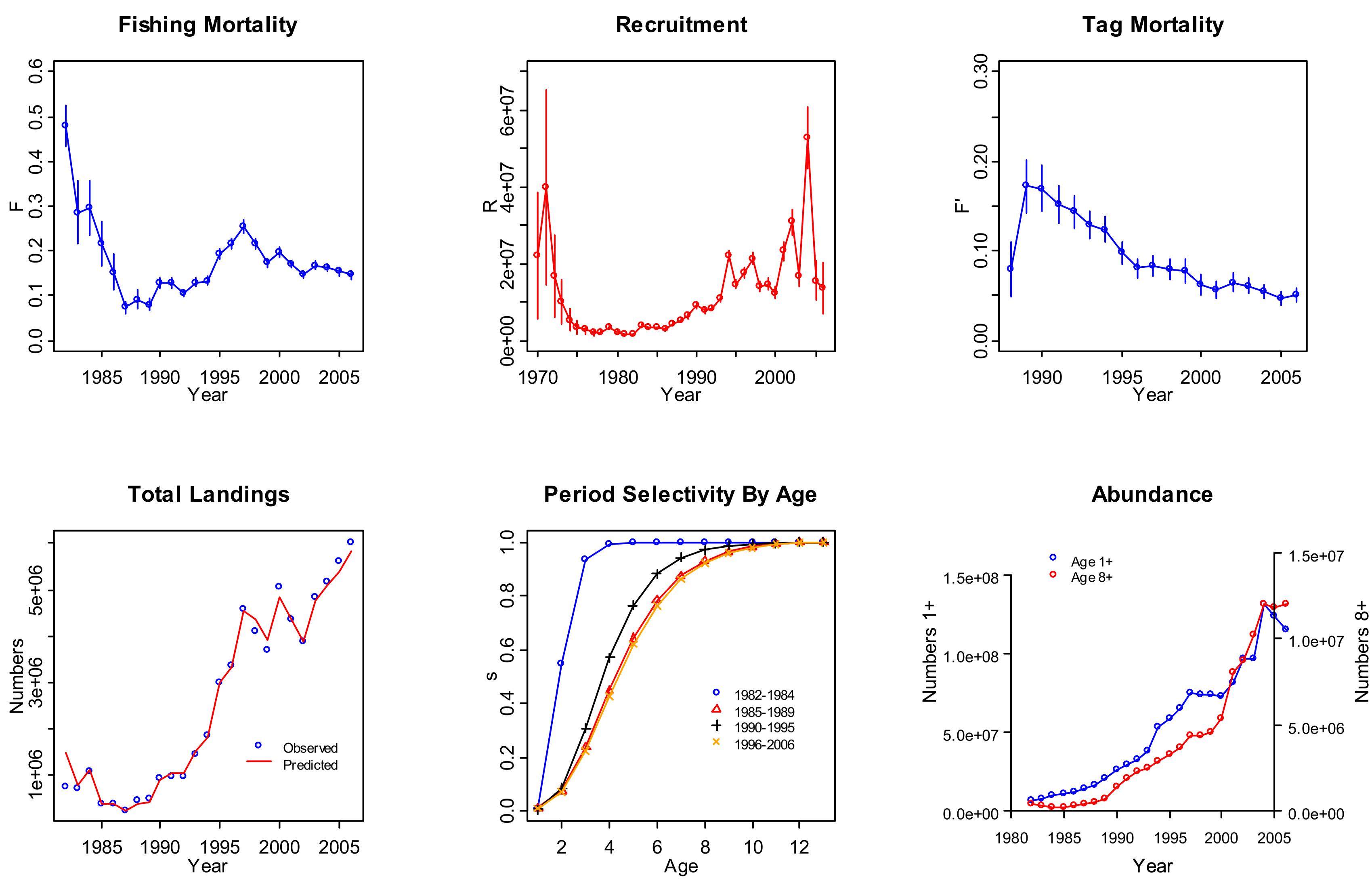


Figure A10.3. Estimates of fishing mortality (±95%CI), recruitment (±95%CI), total landings, period selectivity patterns, and abundance of ages 1+ and 8+ from SCATAG model run with total catch lambda =50.

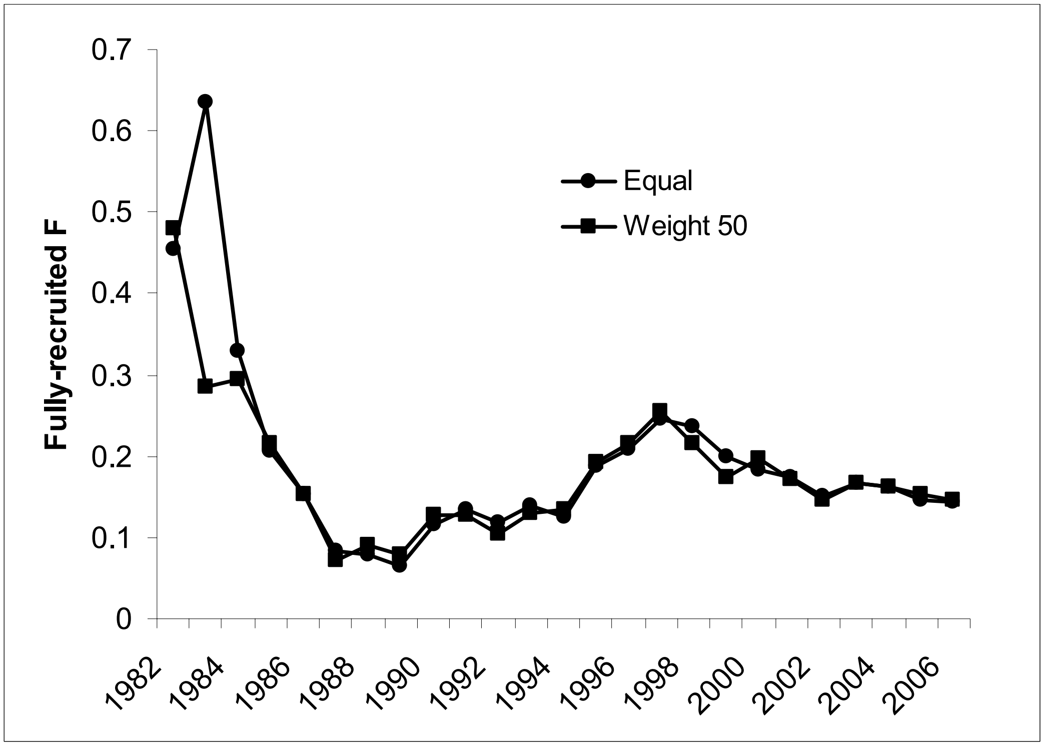


Figure A10.4. Comparison of fully-recruited fishing mortality estimates from the SCATAG model runs with equal weighting across all components and with total catch weight =50.

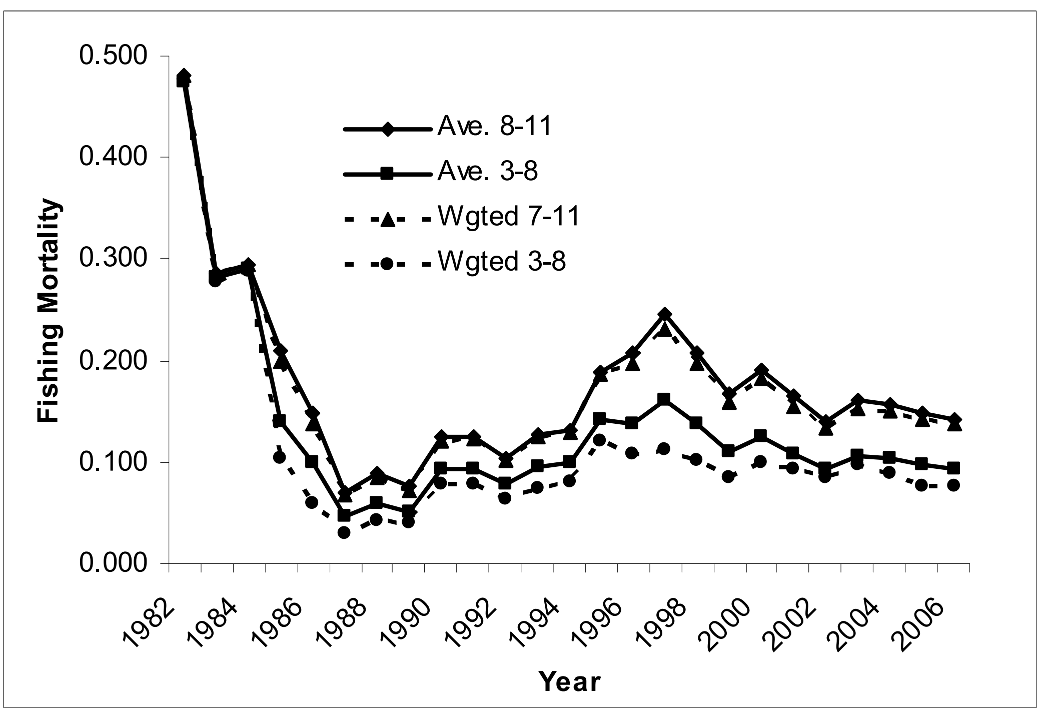


Figure A10.5. Estimates of average and abundance weighted fishing mortality from the SCATAG model under the total catch weight lambda=50.

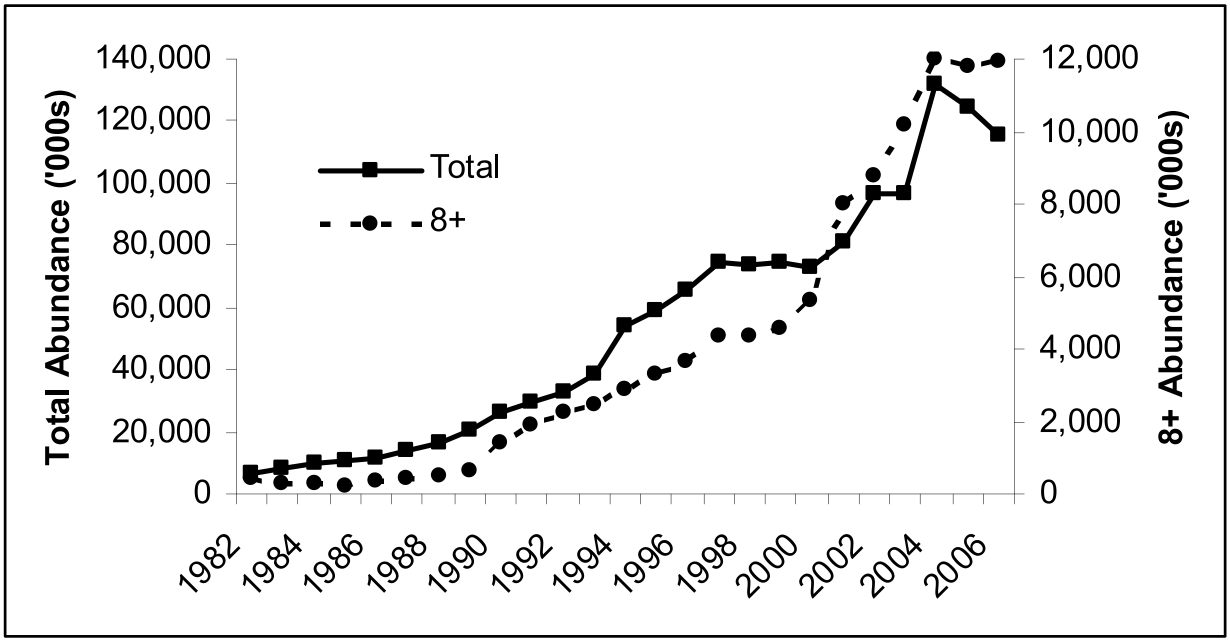


Figure A10.6. Estimates of total and 8+ abundance from the SCATAG model.

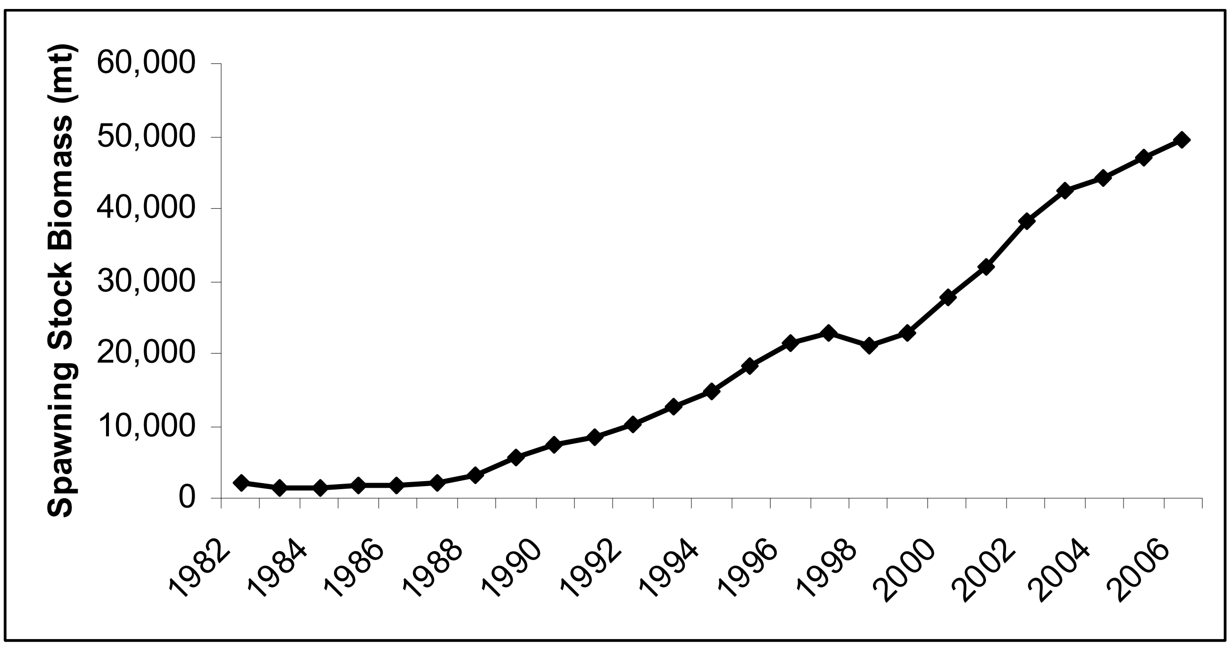


Figure A10.7. Estimates of female spawning stock biomass from the SCATAG model.

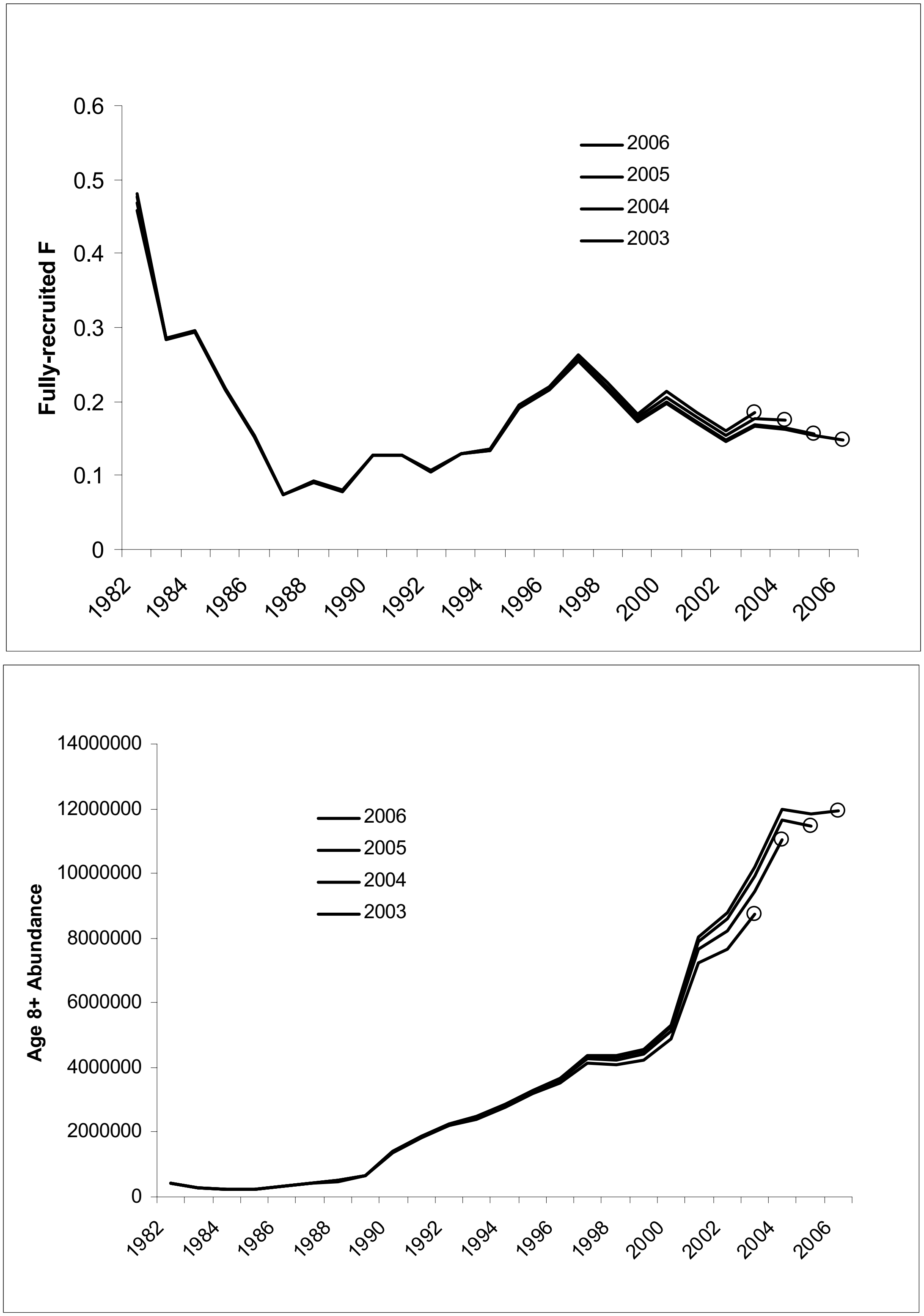


Figure A10.8. Retrospective analysis of fully-recruited fishing mortality and 8+ abundance from the SCATAG model.

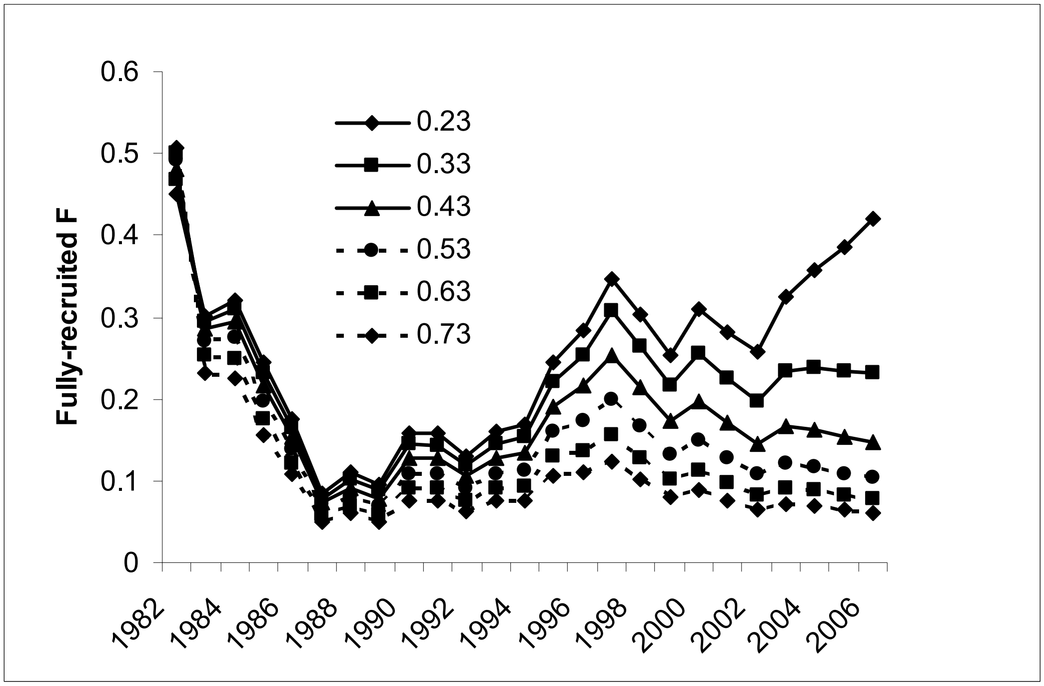


Figure A10.9. Effects of varying reporting rate on the estimates of fishing mortality from the SCATAG model.

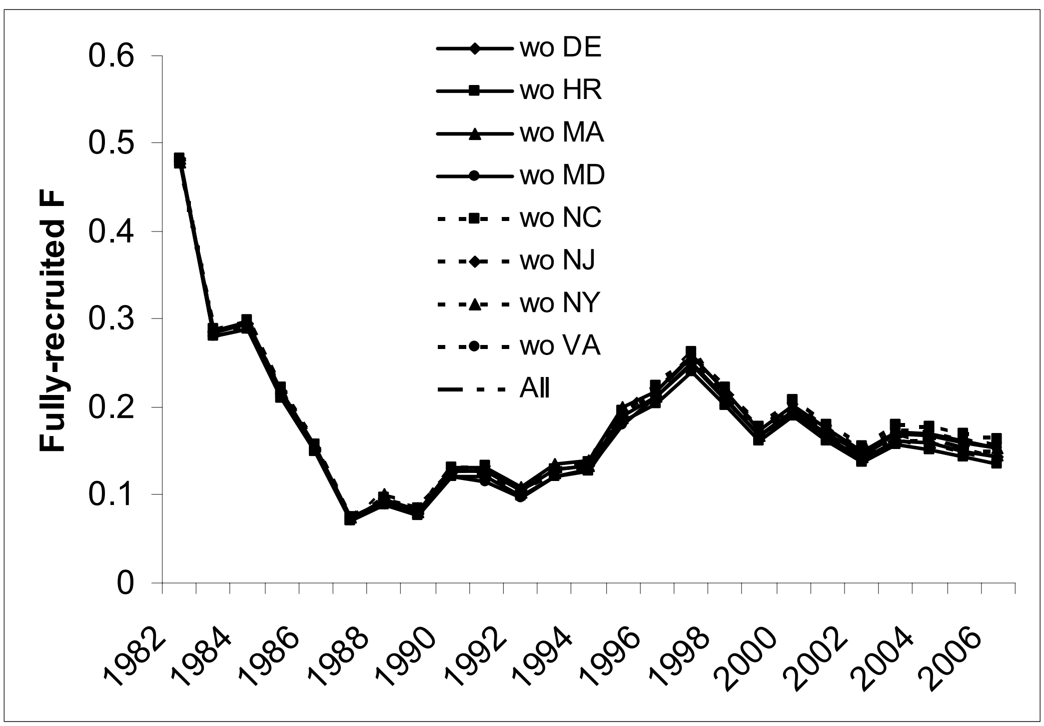


Figure A10.10. Estimates of fishing mortality when data from each tagging program are deleted from the SCATAG model.

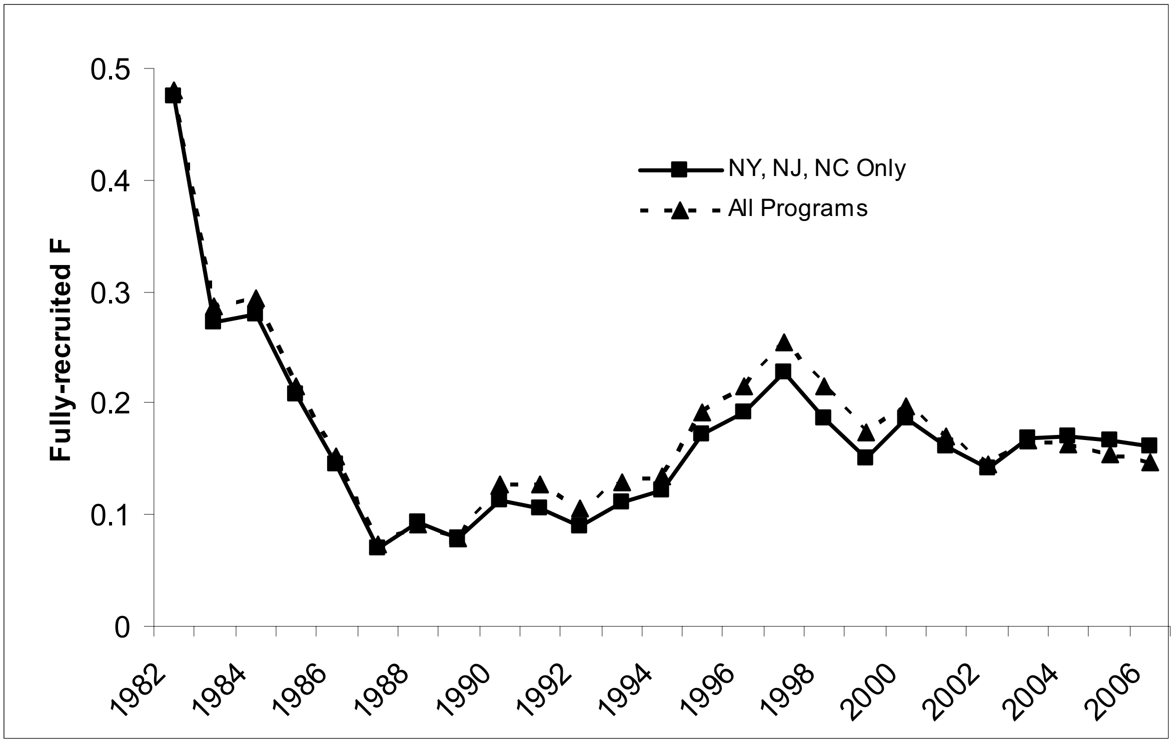


Figure A10.11. Comparison of estimates of fully-recruited fishing mortality from the SCATAG model with all programs and when only data from NYOHS, NJ, and NC COOP were used.

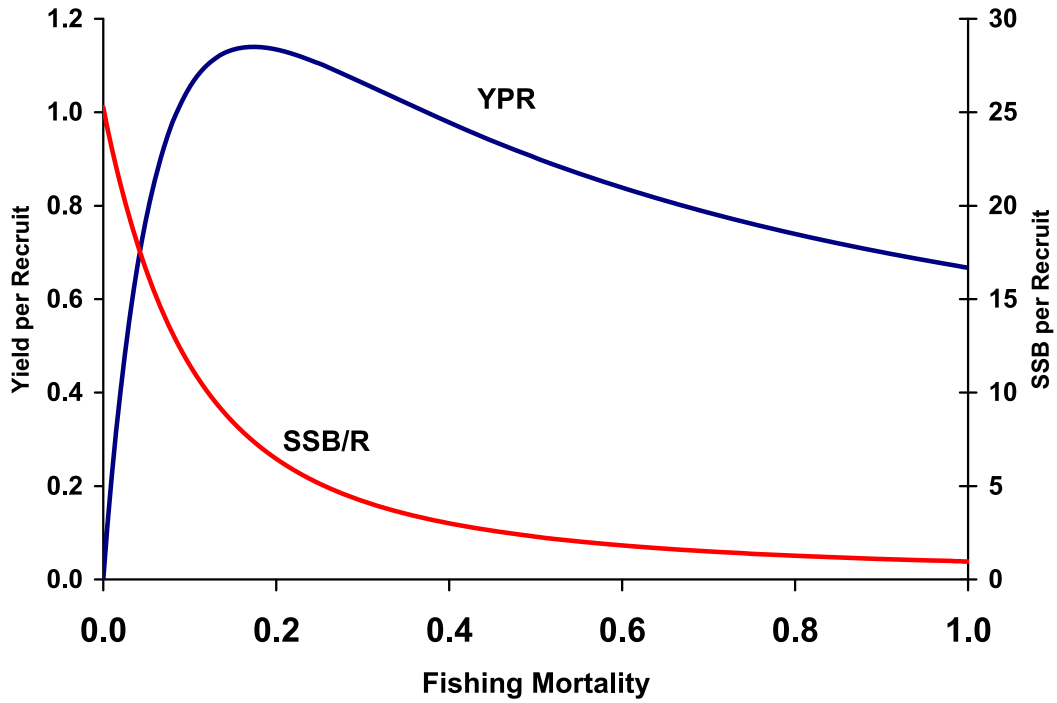


Figure A11.1. Thompson-Bell yield per recruit model for Atlantic striped bass fitted with a natural mortality equal to 0.15 and a maximum age of 25.

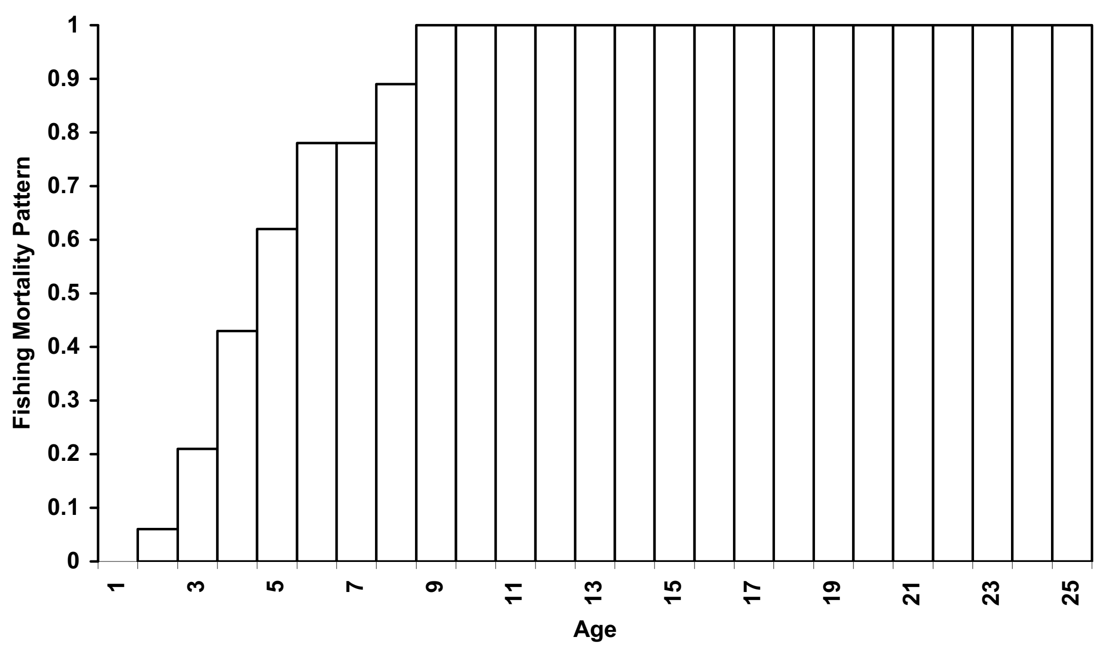


Figure A11.2. Age specific partial recruitments for Atlantic striped bass assuming a 50:50 sex ratio.

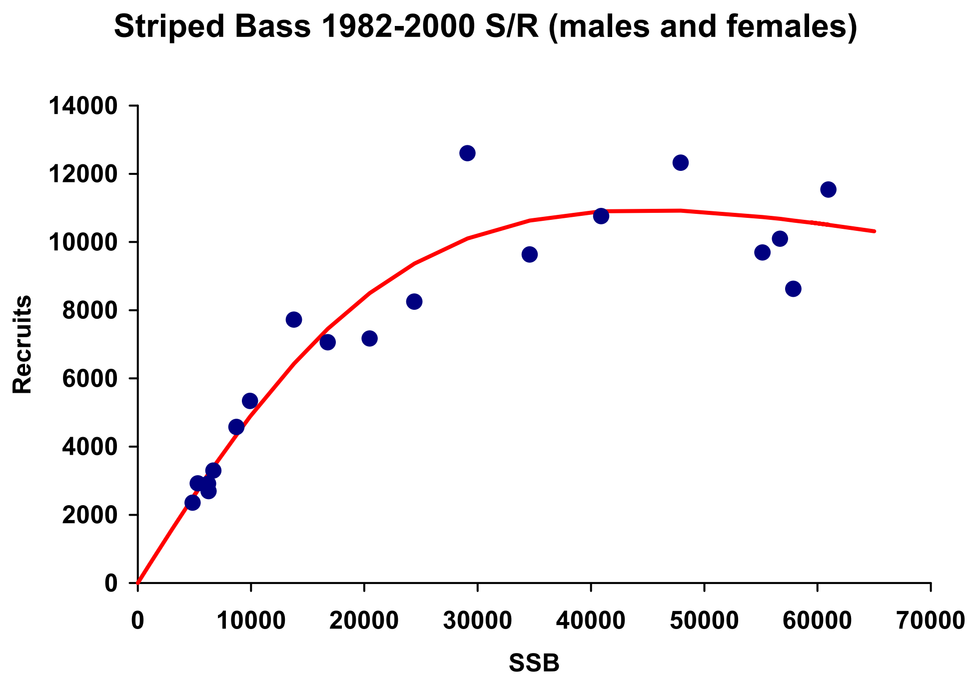


Figure A11.3. Shepherd stock-recruitment curve for Atlantic striped bass using data from the years 1982-1999

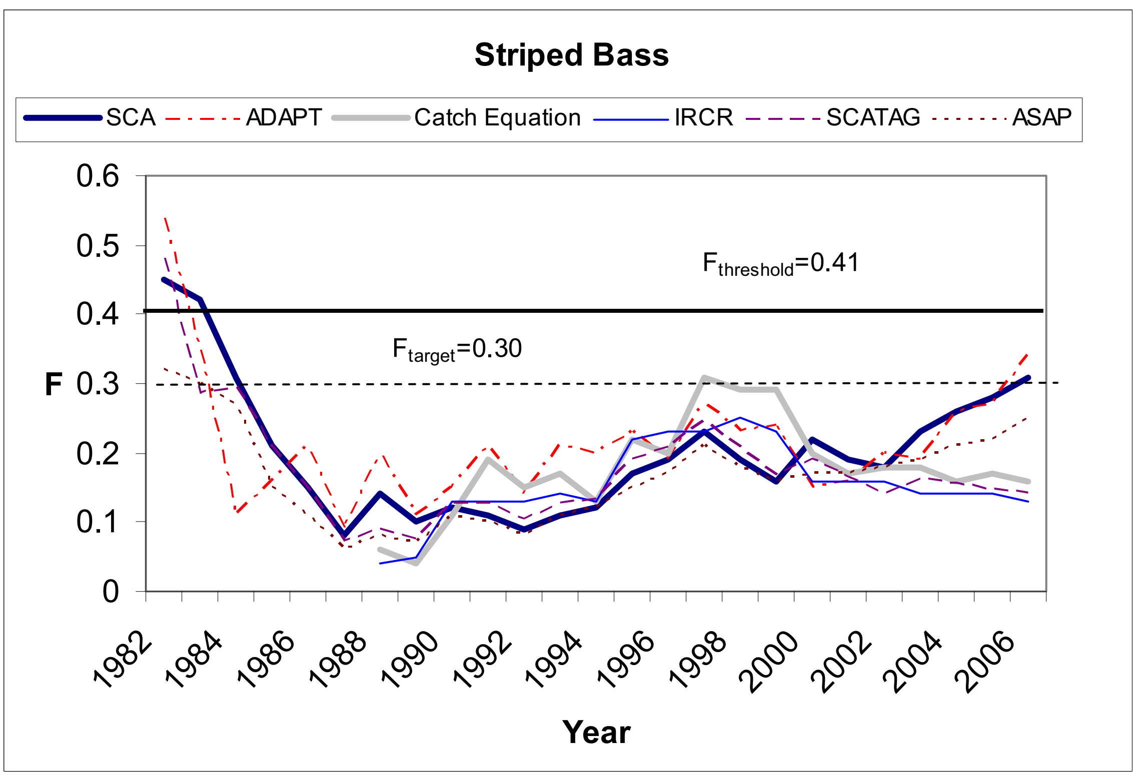


Figure A11.4. Estimates of instantaneous fishing mortality (F) from Catch Equation method, SCA, and supporting models