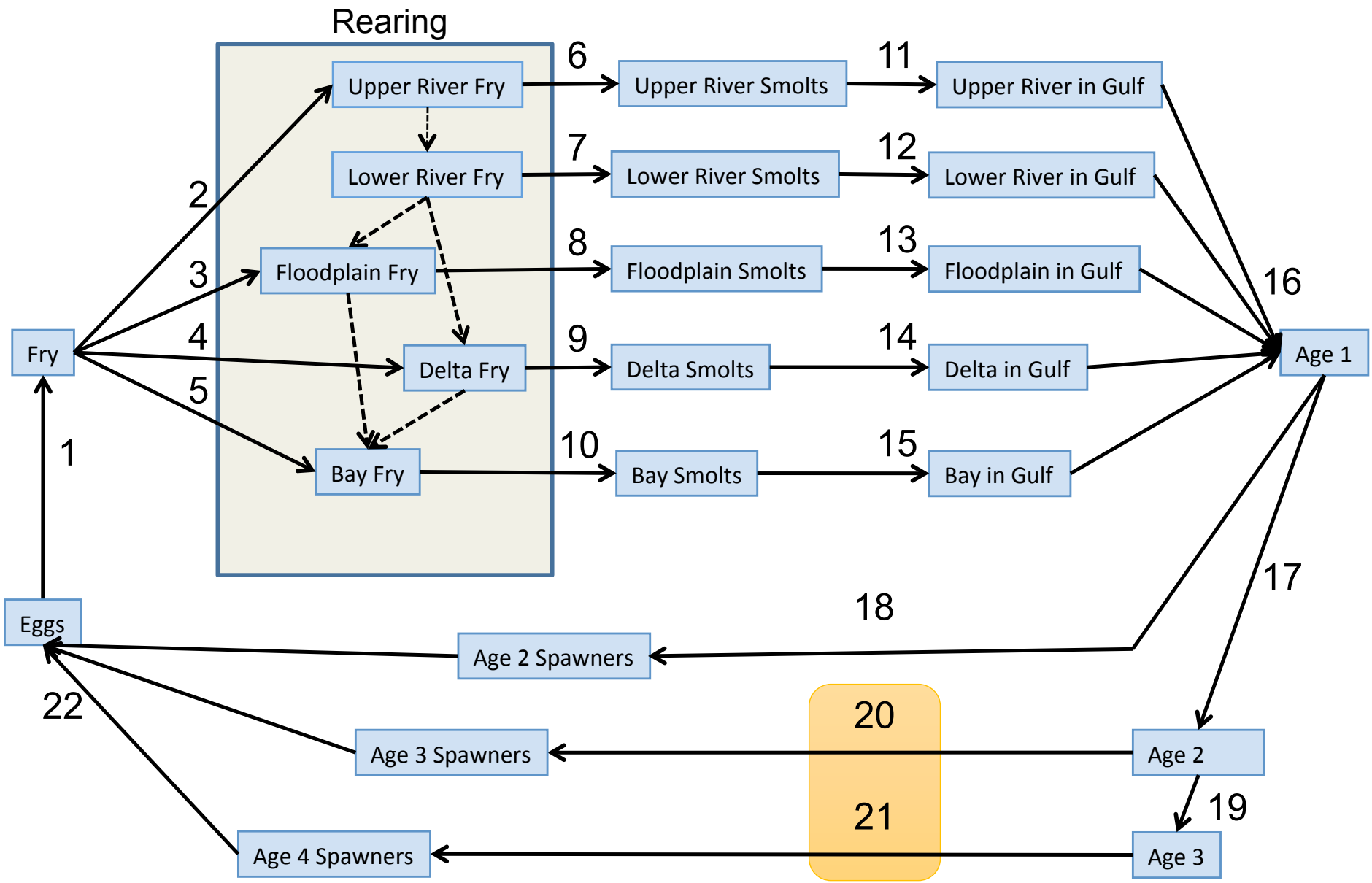
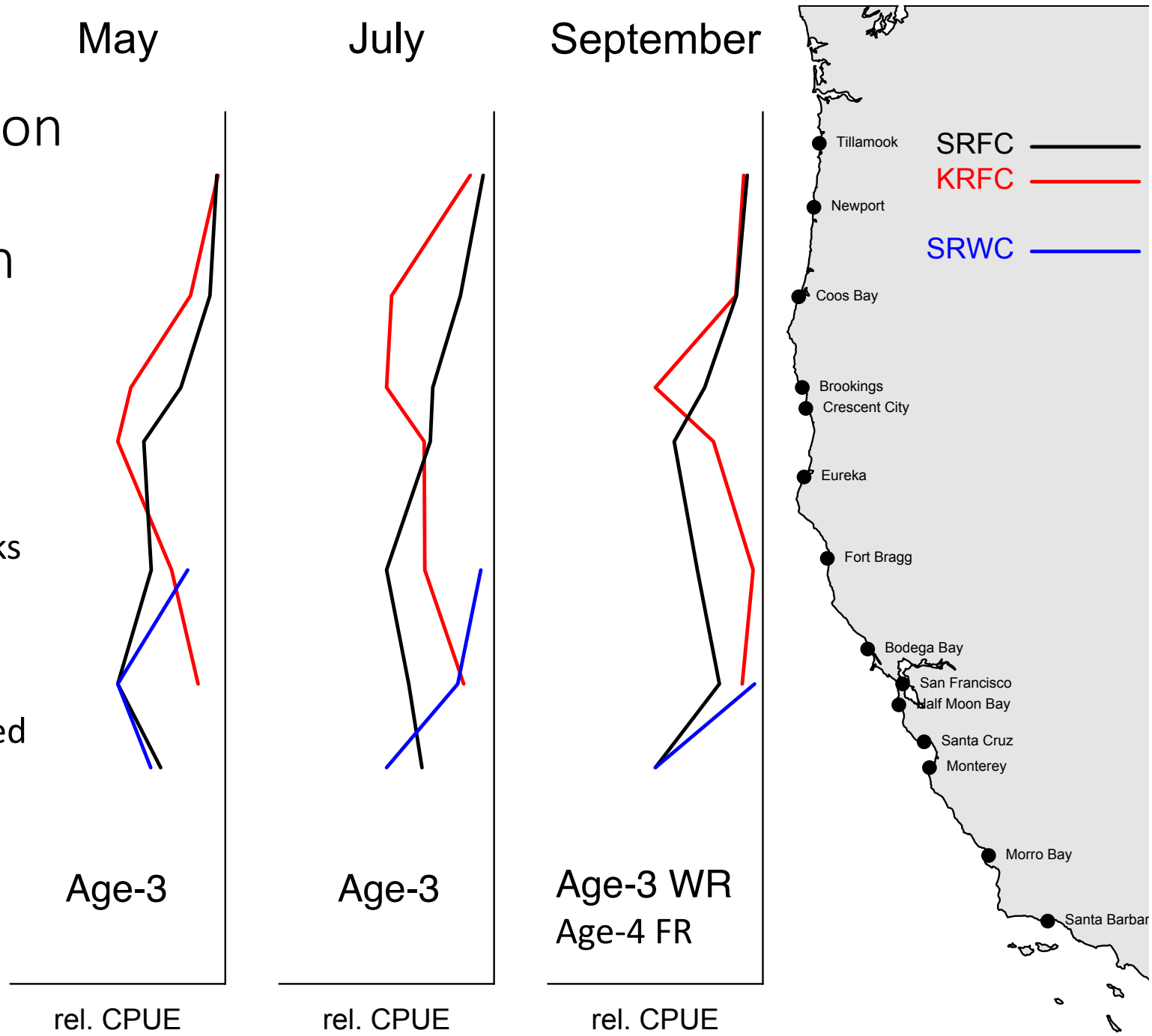
WRLCM Diagram



Where CA Chinook salmon stocks are caught: ocean CPUE

Sacramento R. stocks based on sport fishery recoveries

Klamath stocks based on commercial fisheries



From Will Satterthwaite, SWFSC

MAY 2012

THE WINTER-RUN HARVEST MODEL (WRHM)

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NOAA-TM-NMFS-SWFSC-489

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center

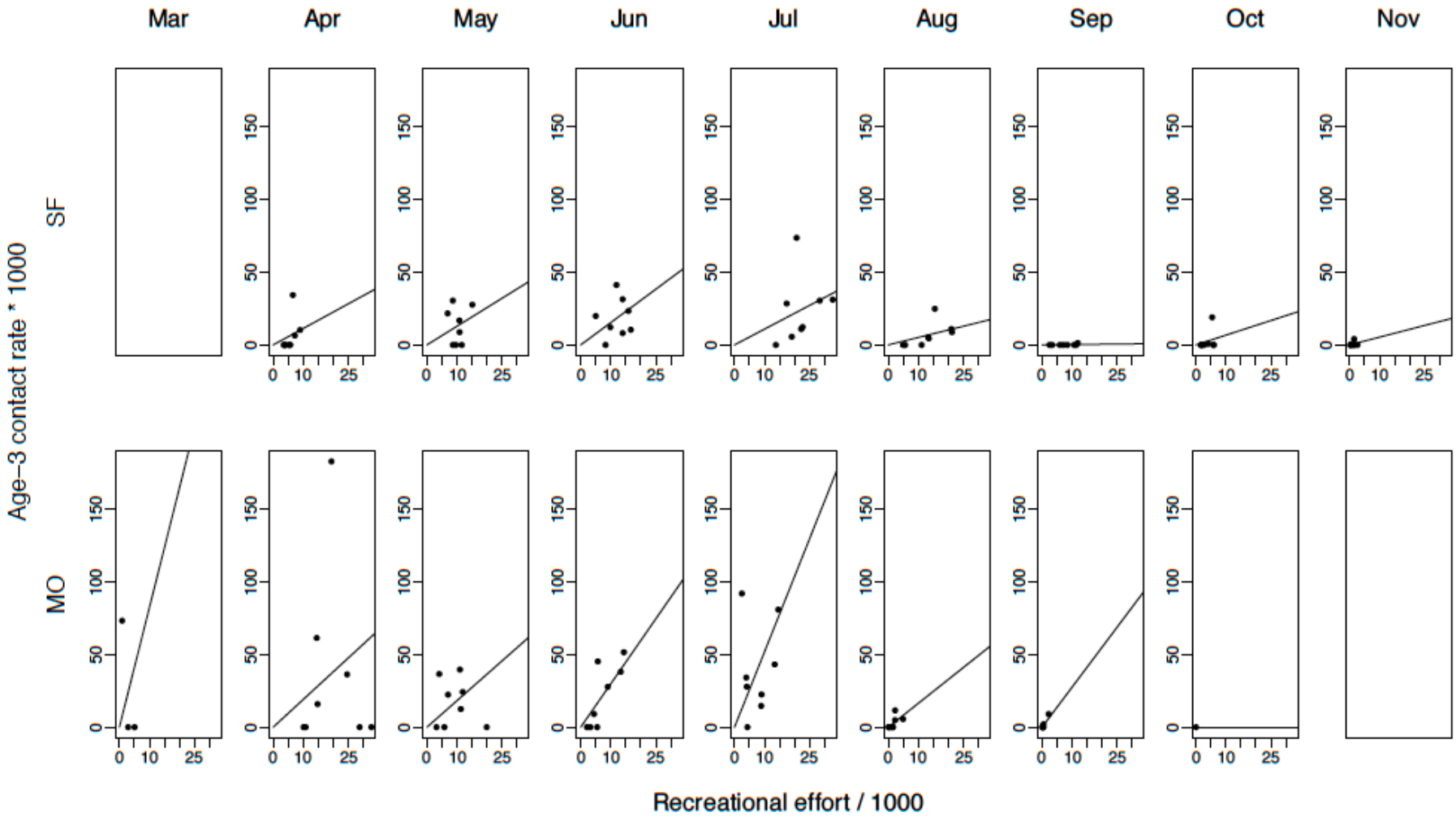


Figure 4. Recreational sector age-3 contact rates, plotted as a function of fishing effort, by month and management area. Empty cells indicate strata with no data.

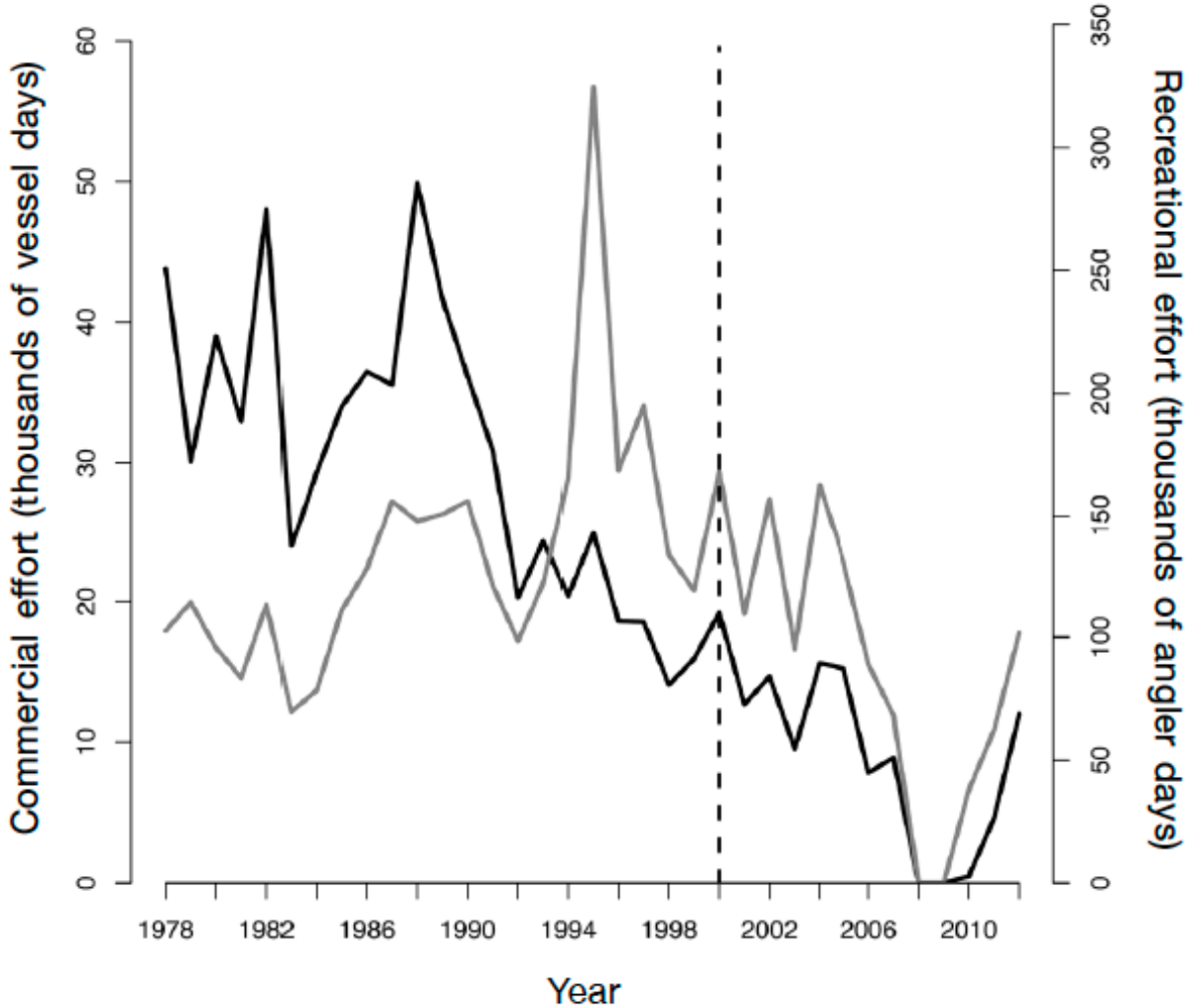


Figure 2

Estimates of commercial (black line) and recreational (gray line) sector fishing effort for the years 1978–2012 in ocean areas south of Point Arena, California. Direct estimates of the Sacramento River winter Chinook salmon (*Oncorhynchus tshawytscha*) impact rate have been made with cohort reconstruction methods for the years to the right of the dashed line (post-2000). Note that fishing effort units differ between the commercial and recreational fisheries and are not directly comparable.

O'Farrell and Satterthwaite, Fish Bull 113:341. 2015.

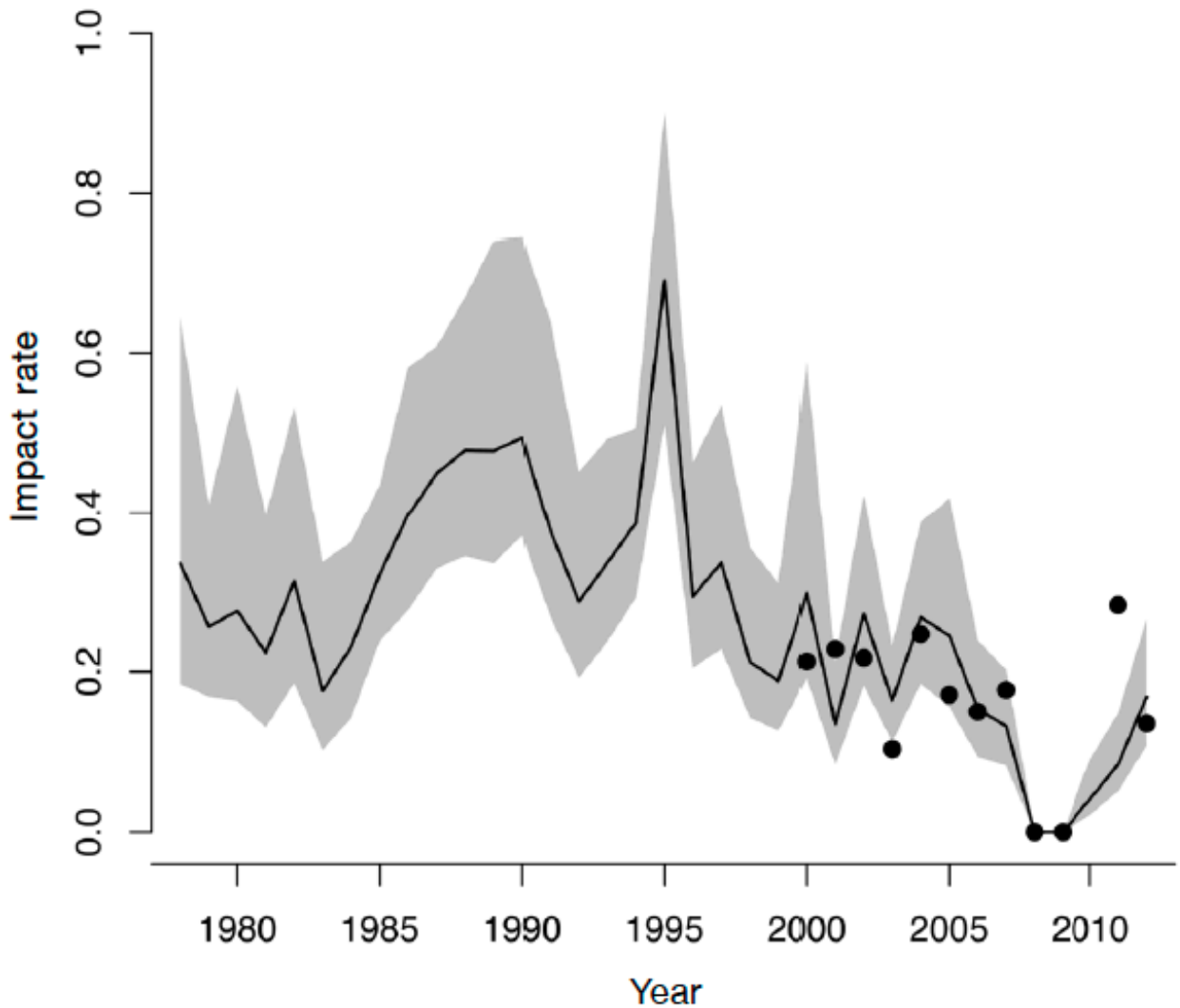


Figure 3

Time series of hindcast impact rates for the years 1978–2012 for Sacramento River winter Chinook salmon (*Oncorhynchus tshawytscha*) south of Point Arena, California. The black line represents the median, and the shaded area indicates the 0.68 percentile interval of the bootstrap distribution. The dots indicate estimates of the impact rate derived with cohort reconstruction methods.

O'Farrell and Satterthwaite, Fish Bull 113:341. 2015.

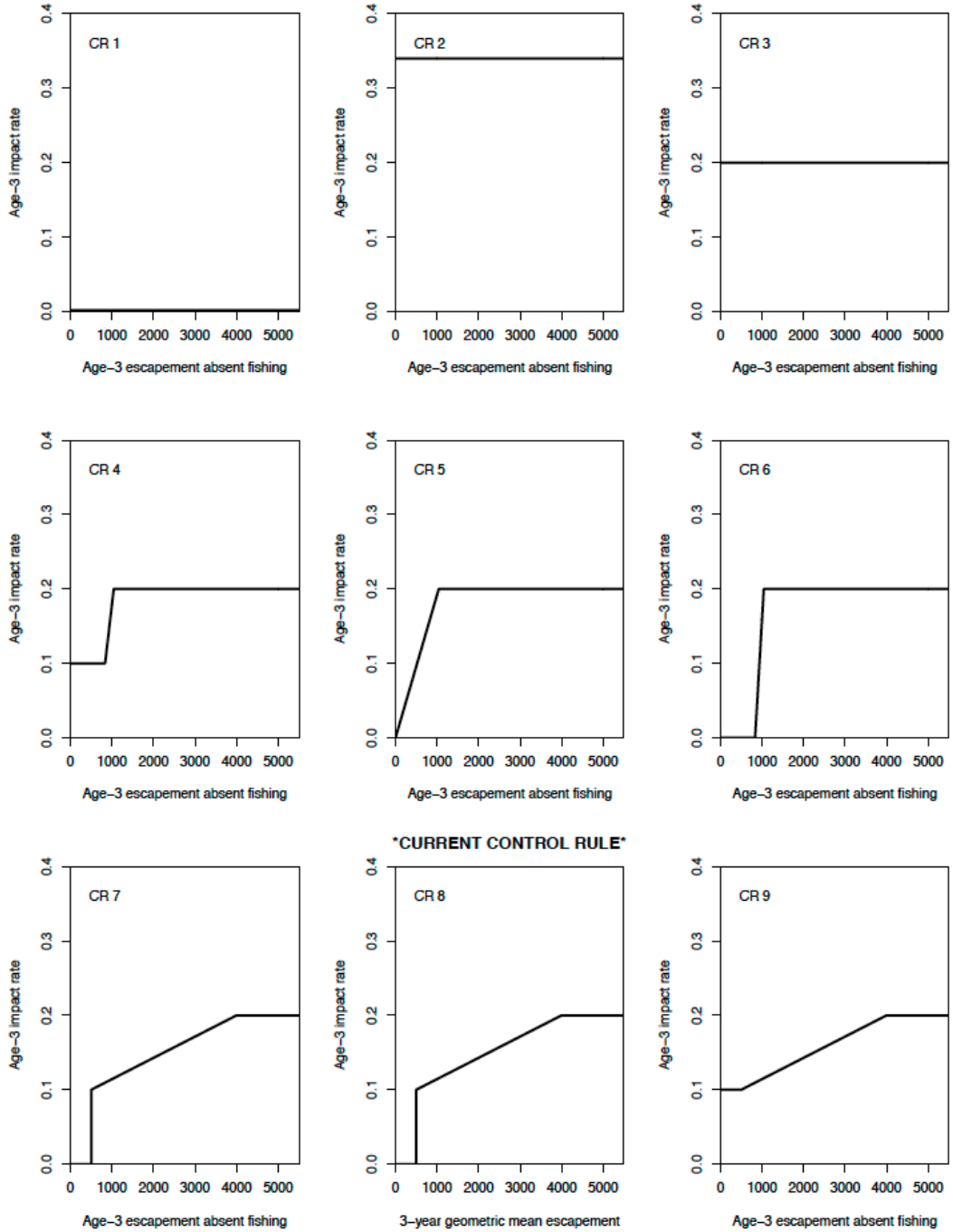


Figure 1. Control rules evaluated through management strategy evaluation. Control rule 8 represents the status quo control rule, which specifies the allowable age-3 impact rate as a function of the three-year geometric mean of spawners. All other control rules specify the allowable impact rate as a function of the predicted age-3 escapement in the absence of fisheries.

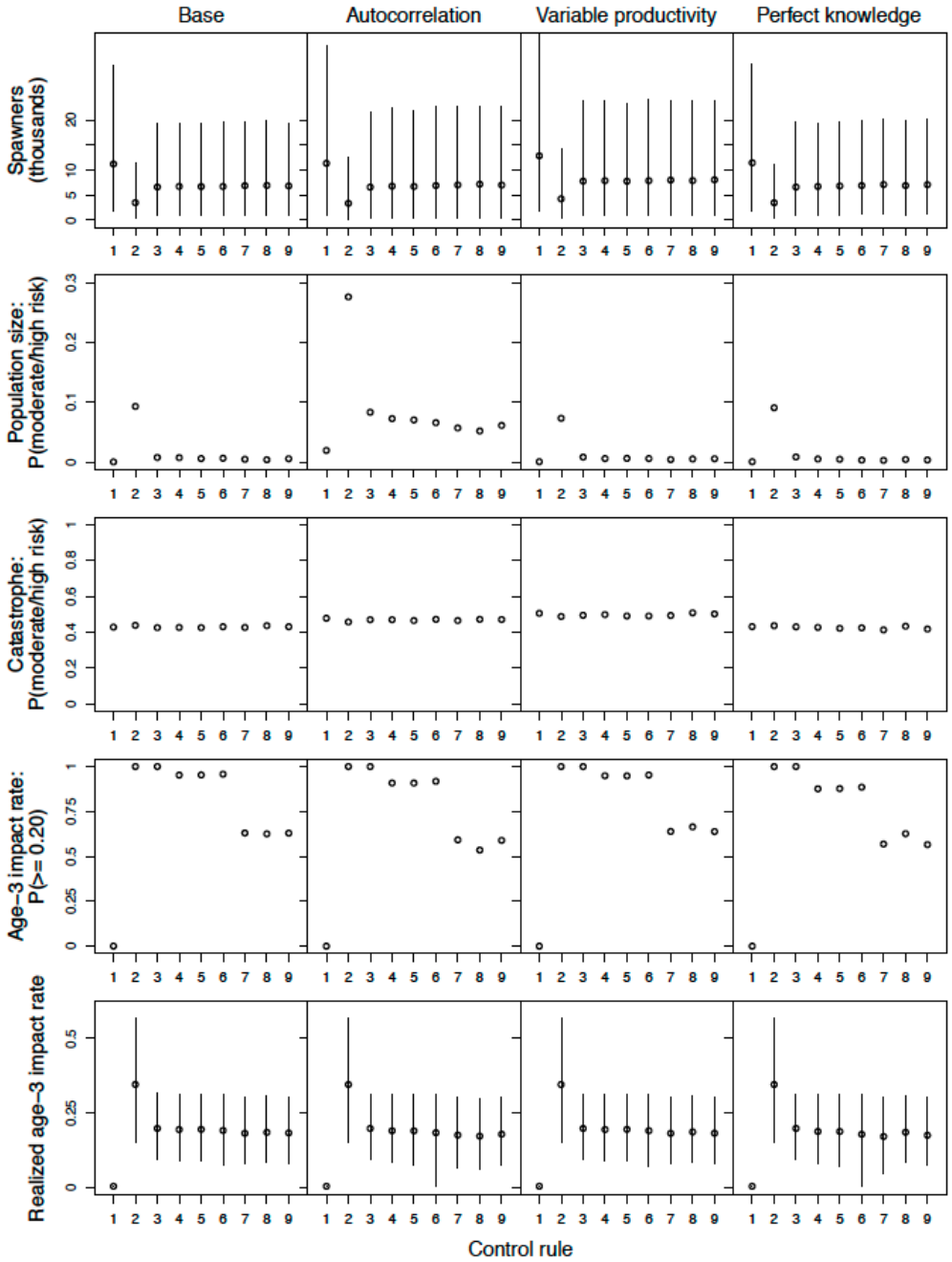
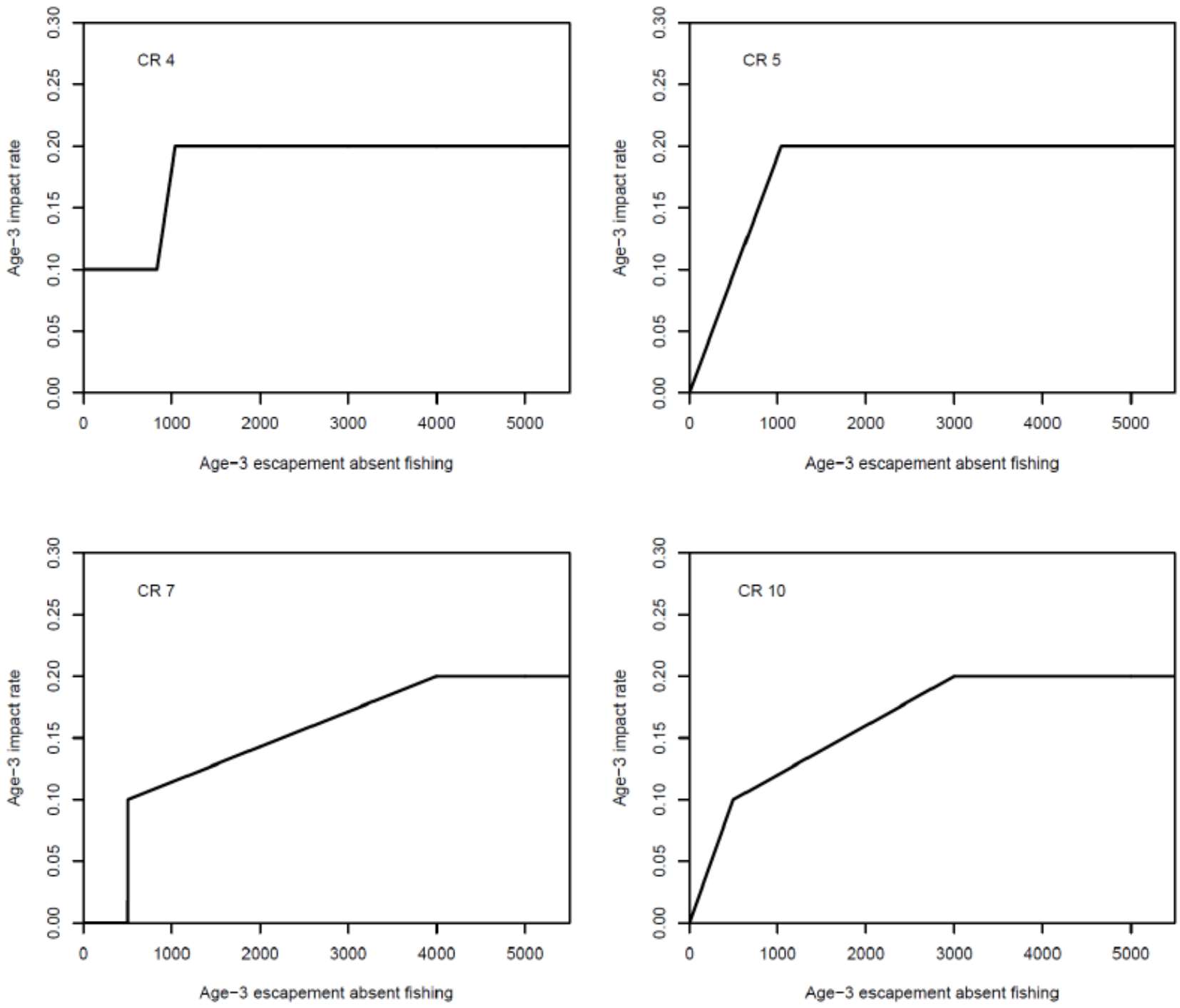
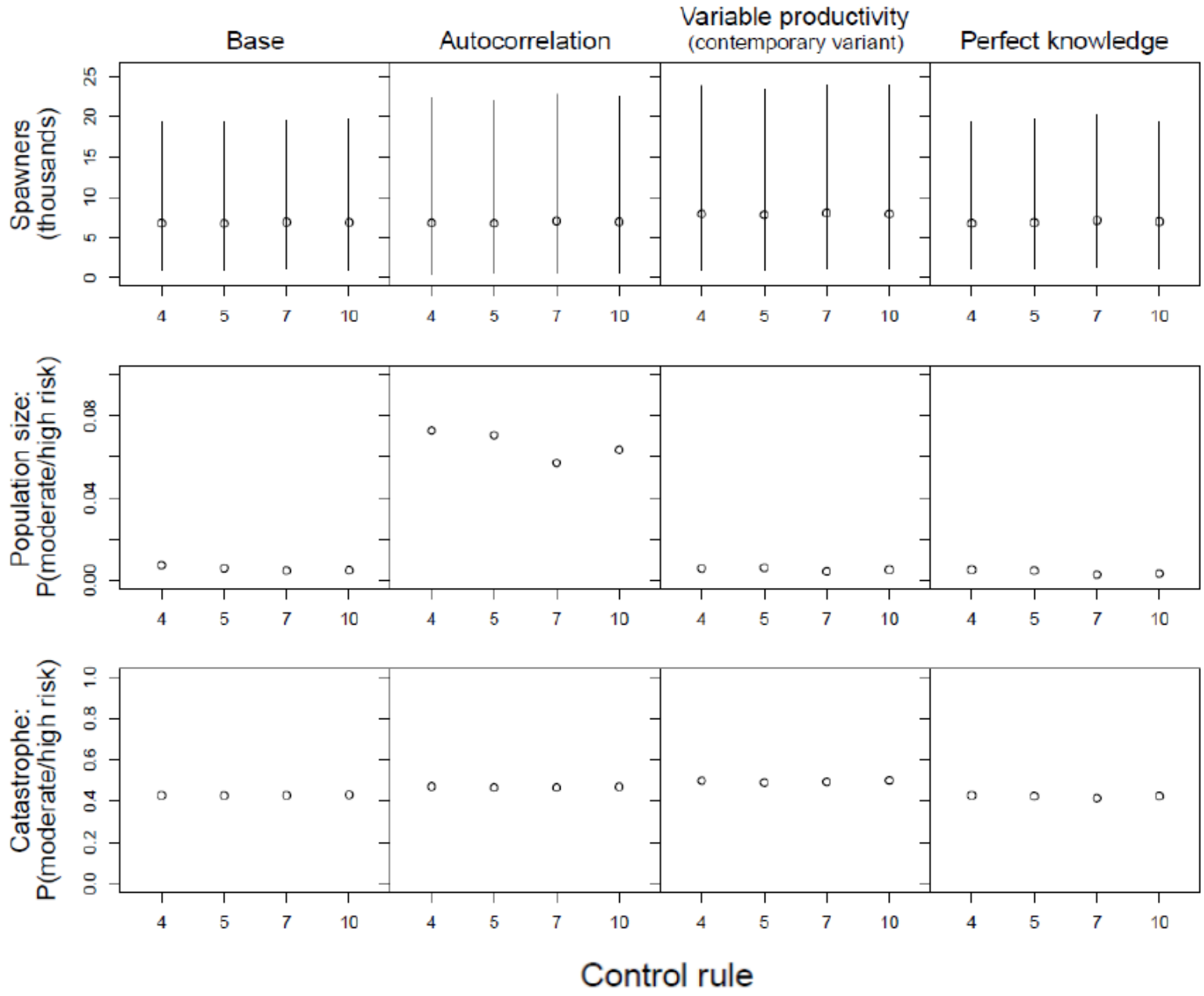


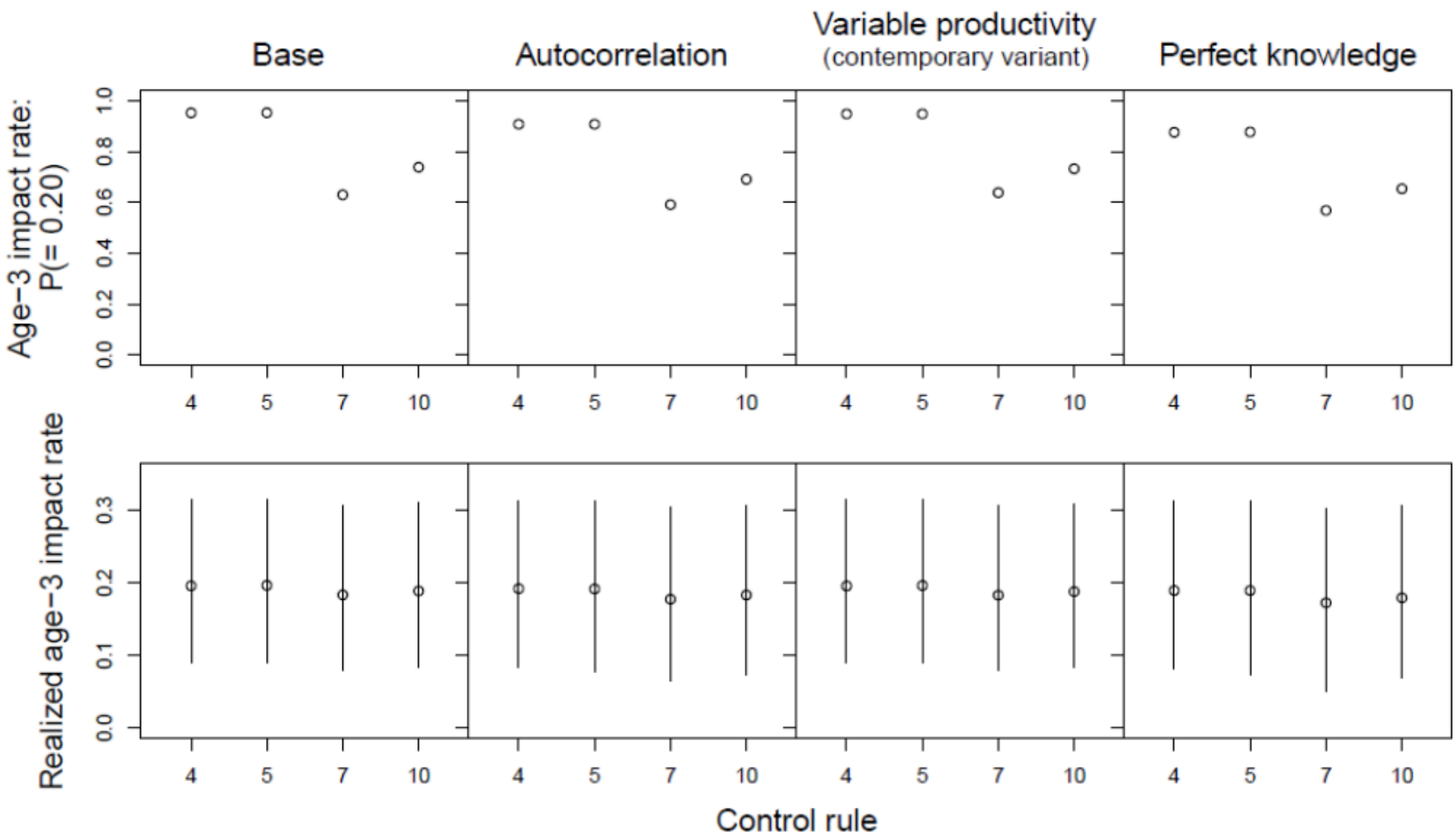
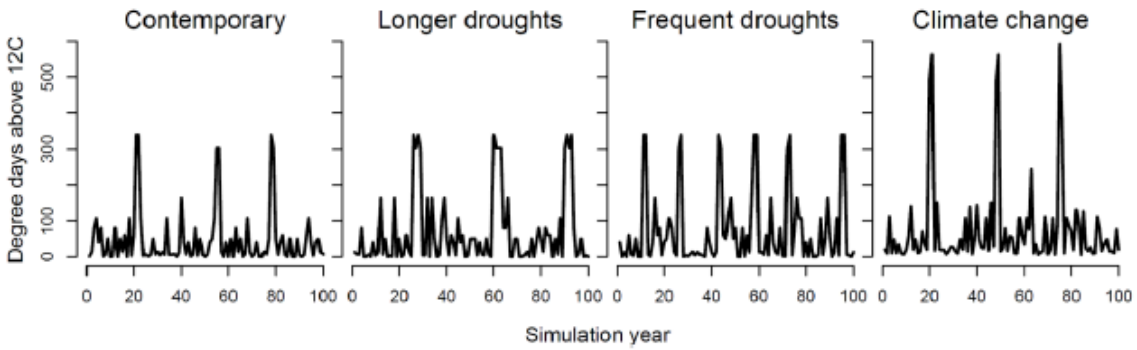
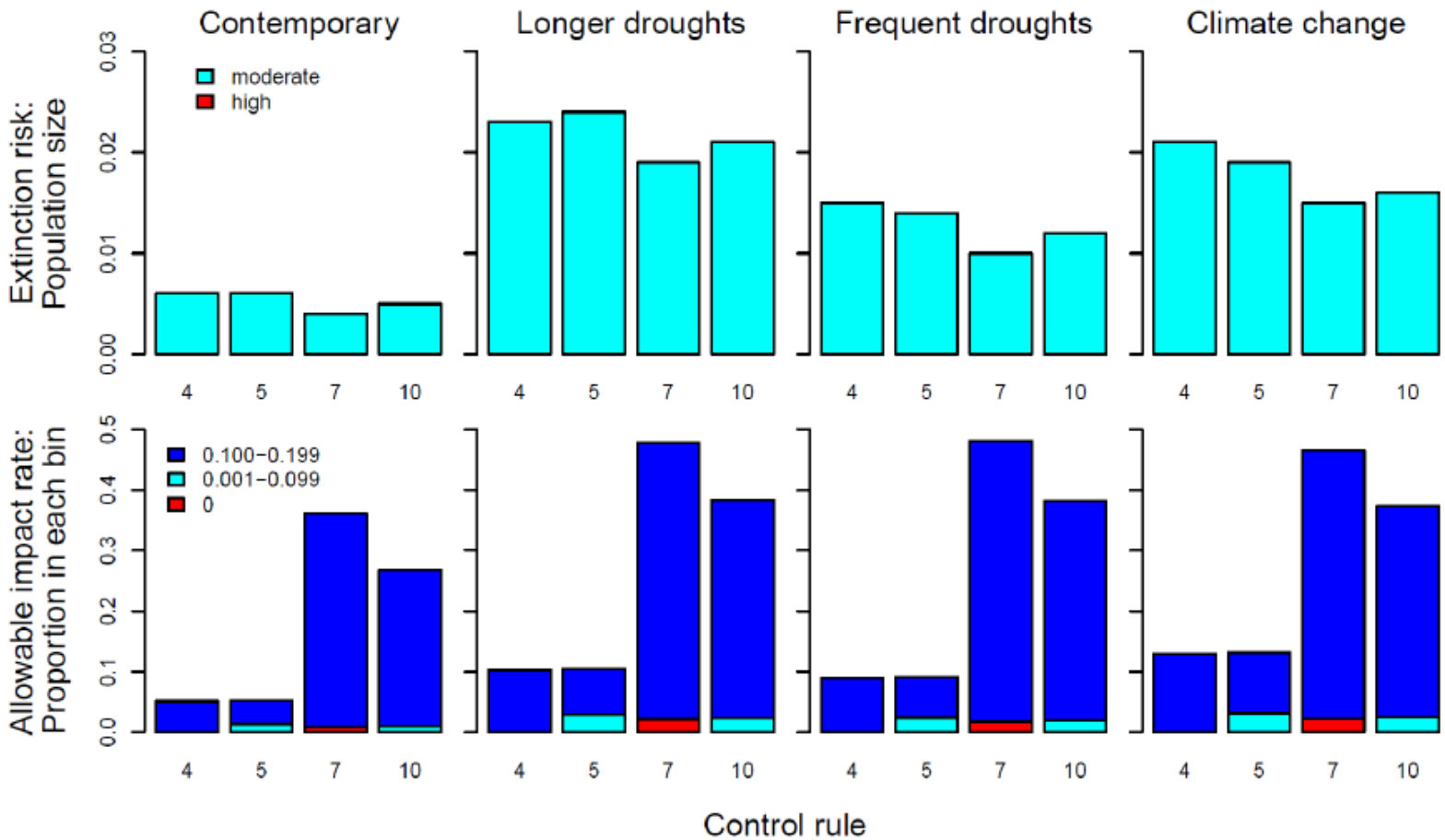
Figure 3. Performance measures evaluated for each of the nine control rules and four alternative scenarios. For the "Spawners" and "Realized age-3 impact rate" results the circles represent mean values and the vertical lines denote the 95 percent intervals of the distribution. Circles for the other performance measures denote point estimates. The "Age-3 impact rate" performance measure denotes the allowable impact rate specified by the control rule.


CR 4
CR 5
CR 7
CR 10
Age−3 impact rate
Age−3 escapement absent fishing
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0
1000
2000
3000
4000
5000

Population results



Fishery results



Variable productivity