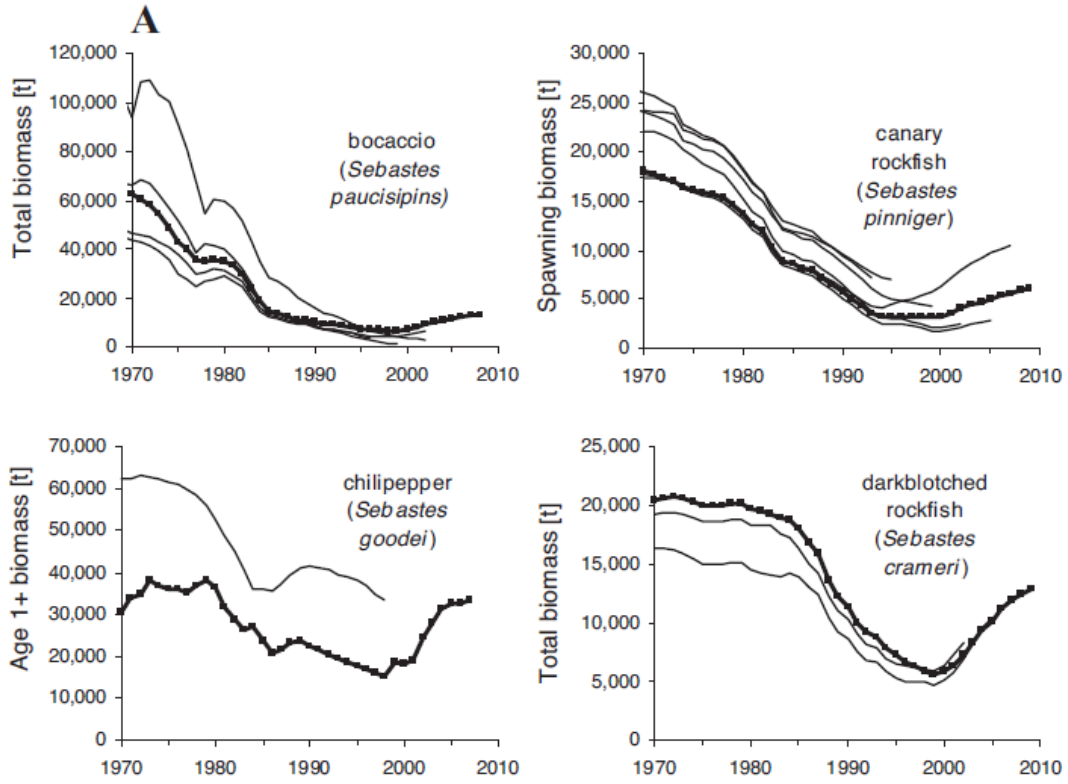
Previously adopted sigma is the average among-assessment standard deviation (in log space) of pooled variation over Groundfish and CPS stock assessments



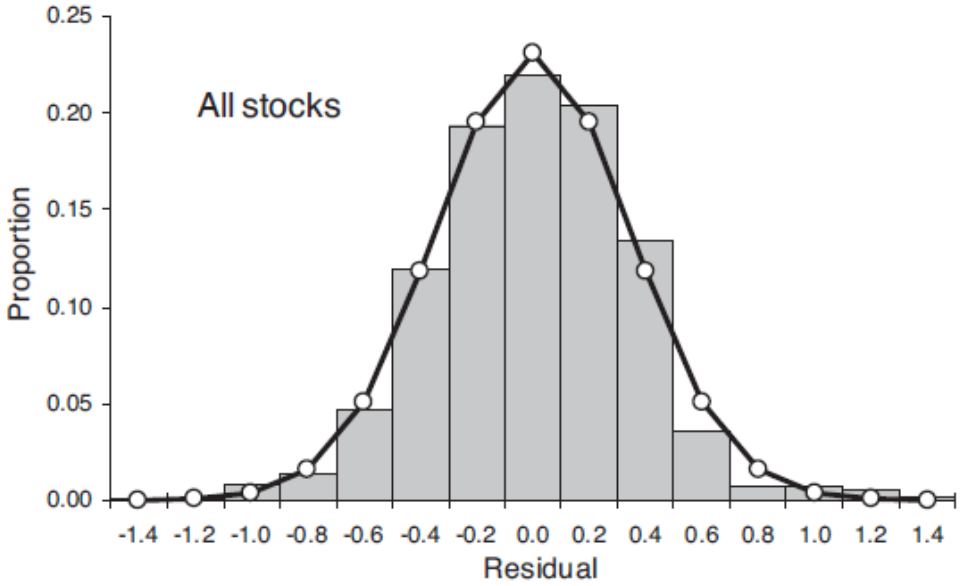
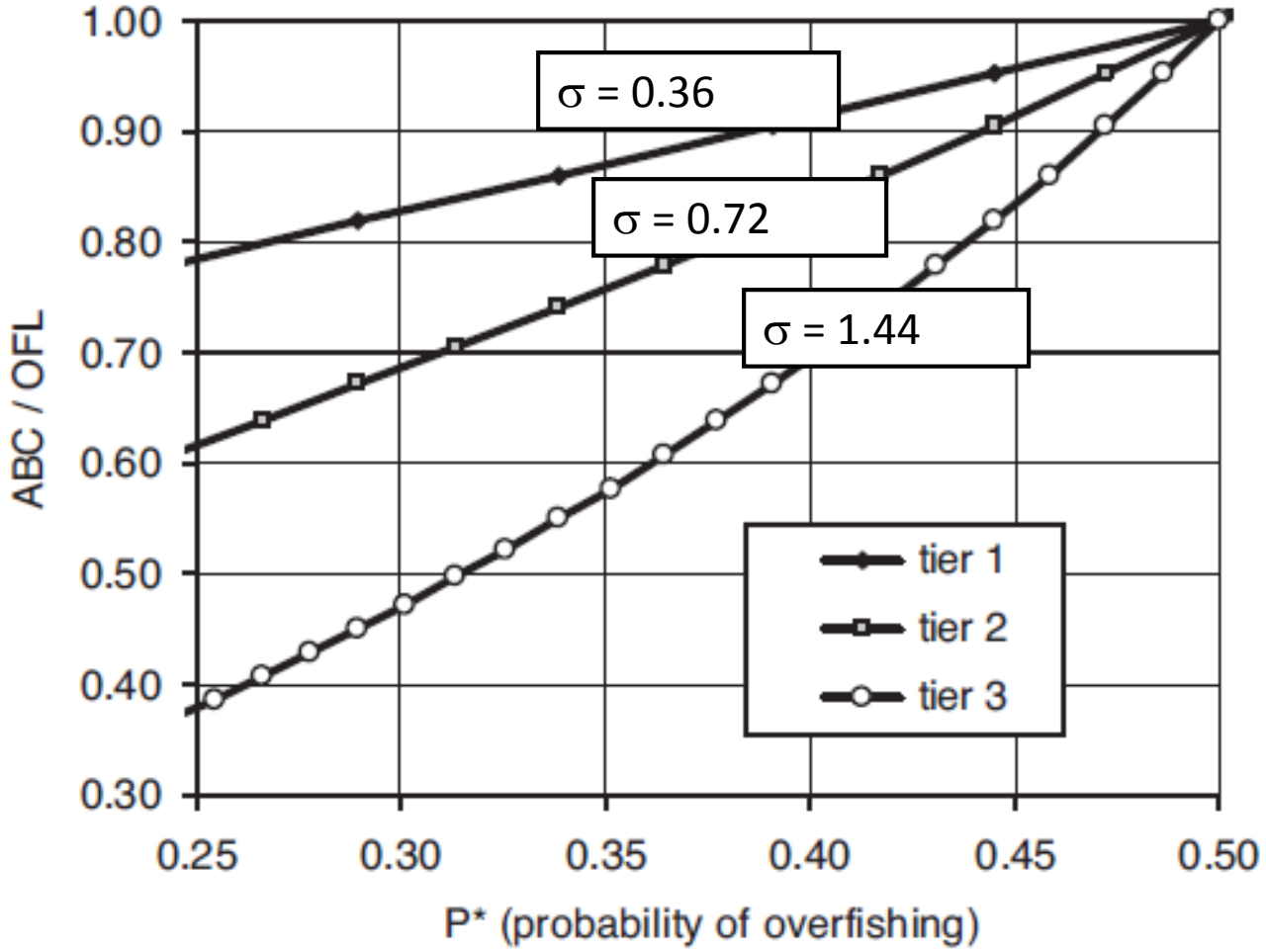


Figure 6

Aggregate distribution of log-deviations pooled over all 17 stocks with the fit of a normal distribution shown as the line with symbols ($\sigma = 0.36$).

2010 sigma was 0.36, the combination of that and the policy decision of what probability of overfishing to allow determined the actual buffer fraction

Uncertainty for Tier-2 and Tier-3 stocks was doubled and quadrupled, respectively



Step 1: Update 2010 analysis

Key differences- forecast rather than hindcast, error in OFL rather than spawning output, and include recruitment variability.

Projection-based approach (OFL)

1 projection year
15 start years

Deterministic	Stochastic Method A	Stochastic Method B
0.562	0.439	0.439

Historical biomass approach

2010 sigma:
0.357

Update sigma:
0.389

Sensitivity sigma:
0.342

Resulting baseline sigma = 0.439 * (0.389/0.342) = 0.50

Step 2: Account for increased uncertainty with assessment age

Based on the divergence of model biomass projections derived from base model and low state of nature in decision table

Result is linear increase of 0.075 in sigma each year

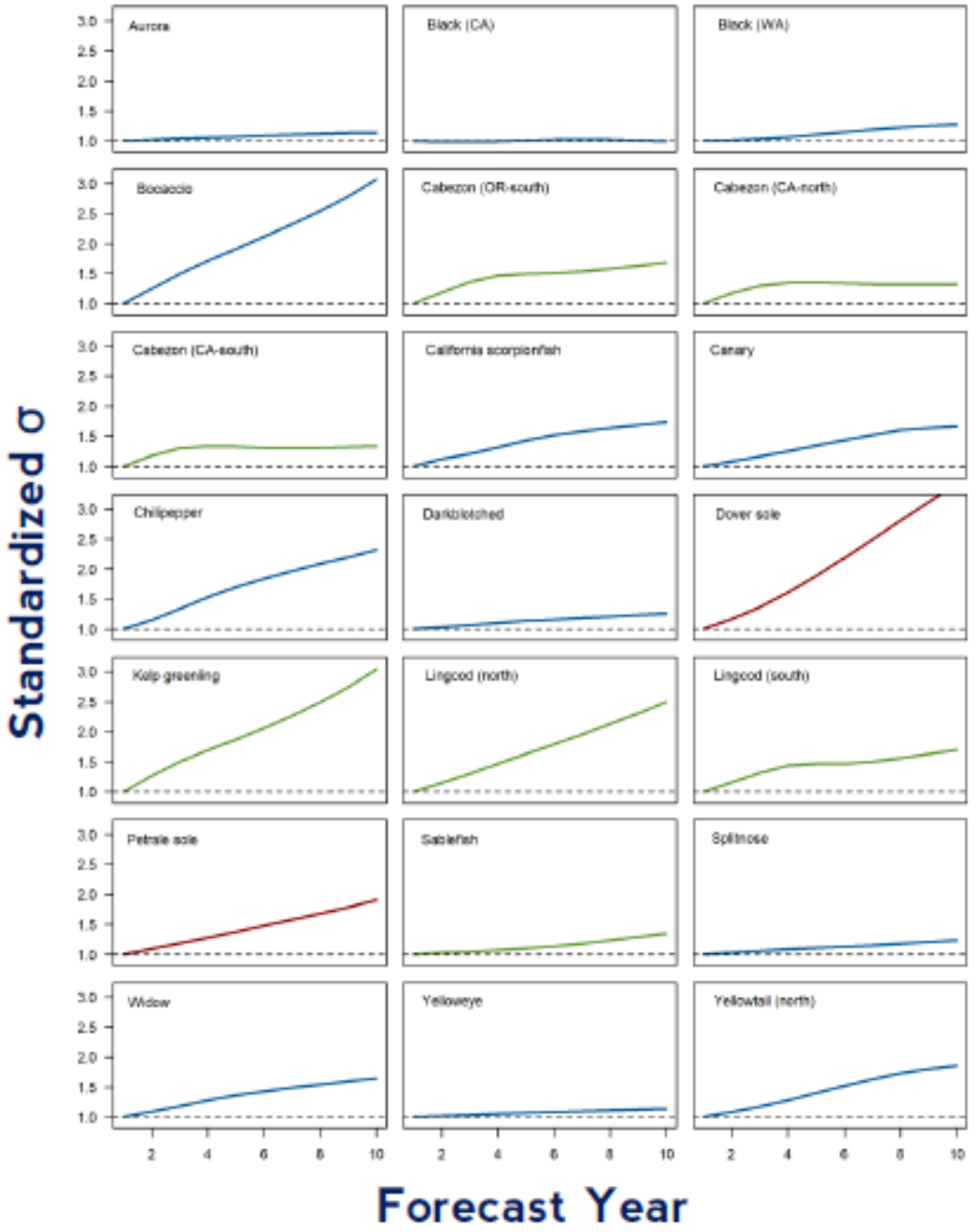


Table 2. A comparison of the old and new sigma values for category 1, 2, and 3 groundfish and CPS stocks

	Category 1 σ		Category 2 σ		Category 3 σ	
Year	Old	New	Old	New	Old	New
1	0.36	0.50	0.72	1.0	1.44	2.00
2	0.36	0.5375	0.72	1.075	1.44	2.00
3	0.36	0.575	0.72	1.15	1.44	2.00
4	0.36	0.6125	0.72	1.225	1.44	2.00
5	0.36	0.65	0.72	1.30	1.44	2.00
6	0.36	0.6875	0.72	1.375	1.44	2.00
7	0.36	0.725	0.72	1.45	1.44	2.00
8	0.36	0.7625	0.72	1.525	1.44	2.00
9	0.36	0.80	0.72	1.60	1.44	2.00
10	0.36	0.8375	0.72	1.675	1.44	2.00

Table 3. A comparison of the old and new scientific uncertainty reductions for P* = 0.45.

P*=0.45	Category 1		Category 2		Category 3	
Year	Old	New	Old	New	Old	New
1	4.4%	6.1%	8.7%	11.8%	16.6%	22.2%
2	4.4%	6.5%	8.7%	12.6%	16.6%	22.2%
3	4.4%	7.0%	8.7%	13.5%	16.6%	22.2%
4	4.4%	7.4%	8.7%	14.3%	16.6%	22.2%
5	4.4%	7.8%	8.7%	15.1%	16.6%	22.2%
6	4.4%	8.3%	8.7%	15.9%	16.6%	22.2%
7	4.4%	8.7%	8.7%	16.7%	16.6%	22.2%
8	4.4%	9.1%	8.7%	17.4%	16.6%	22.2%
9	4.4%	9.6%	8.7%	18.2%	16.6%	22.2%
10	4.4%	10.0%	8.7%	19.0%	16.6%	22.2%