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2014, and represents a commonly applied method for dealing with populations showing evidence of spatial structure, but without explicitly modelling recruitment distribution and migration rates among areas.

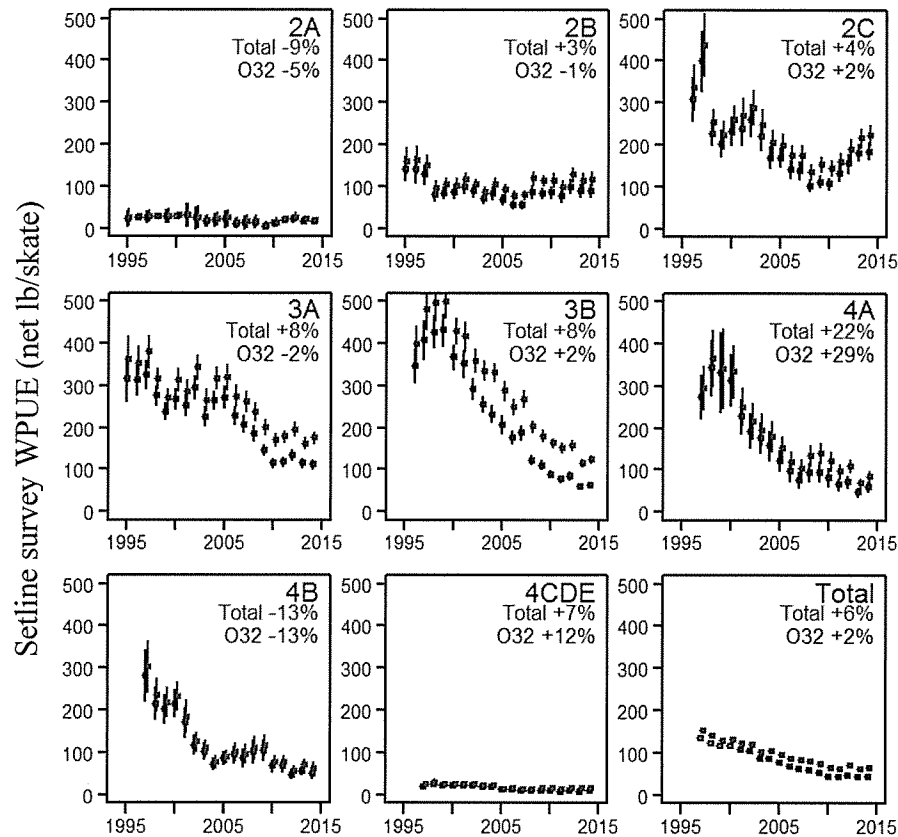


Figure 2. Trend in setline survey total and legal (O32) WPUE by regulatory area, 1995-2014.

As in 2012 and 2013, this stock assessment is based on the probability distributions derived from an ensemble of stock assessment models, thereby incorporating the uncertainty within each model as well as the uncertainty among models. This approach results in reduced potential for abrupt changes in management quantities as improvements and additional data are added to individual models, and a stronger basis for risk assessment. For 2014, the ensemble included both short and long time-series models based on both coastwide and AAF data structures. The short time-series model used in 2012 was not retained in the 2014 ensemble, due to its non-orthogonal and highly processed treatment of input data, as well as the redundancy with the alternative short time-series coastwide model developed in 2013. This combination of models included uncertainty in natural mortality rates (estimated in the long time-series models, fixed in the short time-series models), environmental effects on recruitment (estimated in the long time-series models), and other model parameters. Each of the four models was equally weighted, and differences in uncertainty within models propagated in the integration of results. Point estimates reported in this assessment correspond to median values from the ensemble. Alternative models using Virtual Population Analysis and surplus production formulations were also investigated during 2014; these efforts generally corroborated the results obtained from models included in the ensemble, but are not explicitly included.

Table 2. Decision table of yield alternatives (rows) and risk metrics (columns). Values in the table represent the probability, in “times out of 100” of a particular risk.

| 2015 Alternative | Total removals (M lb) | Fishery CEY (M lb) | Fishing Intensity | Stock Trend | | | | | | Stock Status | | | | | | Fishery Trend | | | | Fishery Status Harvest rate In 2015 | | |
|-------------------|-----------------------|--------------------|-------------------|-------------------|----------------------|-------------------|----------------------|-------------------|--------|-------------------|--------|-------------------|------------------|-------------------|--------|-------------------------------------|--------|-------------------|---------|-------------------------------------|-----------------------|-------------------|
| | | | | Spawning biomass | | | Spawning biomass | | | Spawning biomass | | | Spawning biomass | | | Fishery CEY from the harvest policy | | | In 2015 | | | |
| | | | | In 2016 | | In 2018 | | In 2016 | | In 2018 | | In 2016 | | In 2018 | | In 2016 | | In 2018 | | | | |
| | | | | Is less than 2015 | Is 5% less than 2015 | Is less than 2015 | Is 5% less than 2015 | Is less than 2015 | Is 20% | Is less than 2015 | Is 30% | Is less than 2015 | Is 20% | Is less than 2015 | Is 30% | Is less than 2015 | Is 20% | Is less than 2015 | | | Is 10% less than 2015 | Is less than 2015 |
| No removals | 0.0 | 0.0 | F _{100%} | <1/100 | <1/100 | <1/100 | 5/100 | <1/100 | 1/100 | <1/100 | <1/100 | 1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | 0/100 | |
| FCEY = 0 | 13.1 | 0.0 | F _{73%} | <1/100 | <1/100 | <1/100 | 5/100 | 5/100 | 2/100 | <1/100 | <1/100 | 2/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | |
| | 20.0 | 7.7 | F _{64%} | <1/100 | 1/100 | <1/100 | 6/100 | 6/100 | 3/100 | <1/100 | <1/100 | 3/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | <1/100 | |
| | 30.0 | 16.5 | F _{54%} | <1/100 | 17/100 | 4/100 | 7/100 | 7/100 | 5/100 | <1/100 | <1/100 | 5/100 | <1/100 | <1/100 | 3/100 | 2/100 | 3/100 | 2/100 | 3/100 | 2/100 | 4/100 | |
| Blue Line | 38.7 | 25.0 | F _{46%} | 19/100 | 40/100 | 23/100 | 8/100 | 8/100 | 8/100 | <1/100 | <1/100 | 8/100 | <1/100 | 9/100 | 9/100 | 1/100 | 1/100 | 1/100 | 1/100 | 1/100 | 36/100 | 50/100 |
| status quo | 41.4 | 27.5 | F _{45%} | 26/100 | 47/100 | 30/100 | 8/100 | 8/100 | 8/100 | <1/100 | <1/100 | 8/100 | <1/100 | 9/100 | 10/100 | 1/100 | 1/100 | 1/100 | 1/100 | 1/100 | 37/100 | 51/100 |
| | 43.3 | 29.5 | F _{43%} | 31/100 | 56/100 | 36/100 | 8/100 | 8/100 | 8/100 | <1/100 | <1/100 | 8/100 | <1/100 | 9/100 | 10/100 | 1/100 | 1/100 | 1/100 | 1/100 | 1/100 | 73/100 | 51/100 |
| Maintain 2014 SPR | 50.0 | 36.0 | F _{39%} | 44/100 | 75/100 | 51/100 | 9/100 | 9/100 | 9/100 | 1/100 | 1/100 | 13/100 | 1/100 | 1/100 | 13/100 | 1/100 | 1/100 | 1/100 | 1/100 | 1/100 | 99/100 | 91/100 |
| | 60.0 | 45.8 | F _{34%} | 65/100 | 96/100 | 82/100 | 11/100 | 11/100 | 11/100 | 1/100 | 1/100 | 23/100 | 2/100 | 2/100 | 23/100 | 2/100 | 2/100 | 2/100 | 2/100 | 2/100 | 99/100 | 84/100 |