

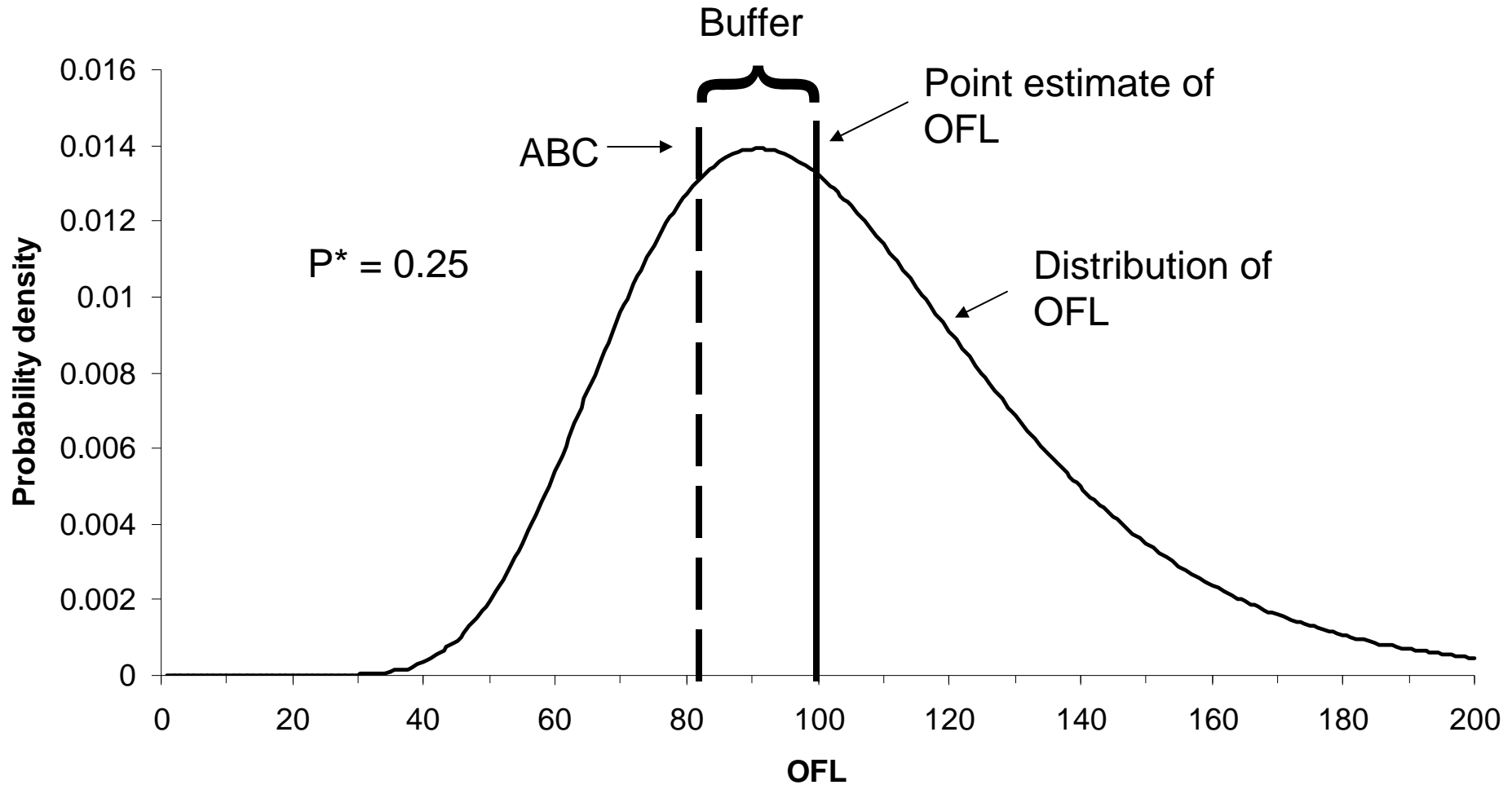
Uncertainty of Stock Assessments and Consequences for P* Methods

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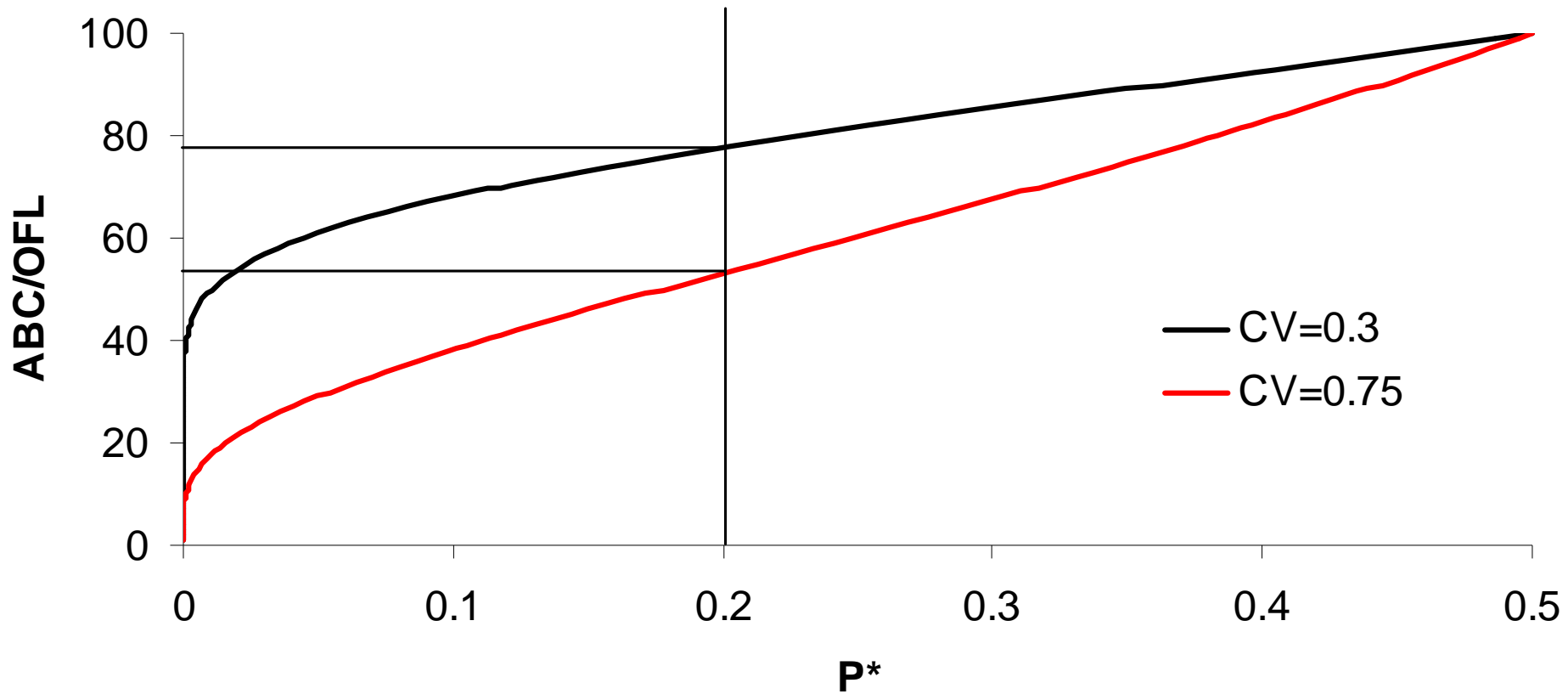
Uncertainty in Management

- Revised Magnuson-Stevens Act requires
 - ABC recommendations should avoid overfishing by incorporating scientific uncertainty
 - Relies on the Council Risk Policy
 - ABCs constrain the catch limit recommended by the Council

Probabilistic Approach



CV of OFL



Mid-Atlantic Proposed Approach

1. Level 1 – Distribution of OFL fully represented in precision of estimate
 - Probabilistic approach
2. Level 2 – Distribution of OFL determined by ad hoc approach – SSC accepted
 - Probabilistic approach
3. Level 3 – Distribution of OFL determined by ad hoc approach by the SSC
 - Probabilistic approach
4. Level 4 – No accepted point estimates or distribution of OFL
 - Index-based method

Determining expected distribution of OFL

- Majority of the stock assessments in the Mid-Atlantic are age-structured or length and age-structured
- Many simulations studies of performance of SCA models have been conducted
- Provide “best-case” estimates of accuracy and distribution of estimates

Accuracy Estimates

- Bence et al. 1993 CV = 60% (14, 183)
- Yin and Sampson 2004 CV = 35% (9, 94)
- Wilberg and Bence 2006 CV = 64% (17, 407)
- Wilberg and Bence 2008 CV = 31% (14, 48)

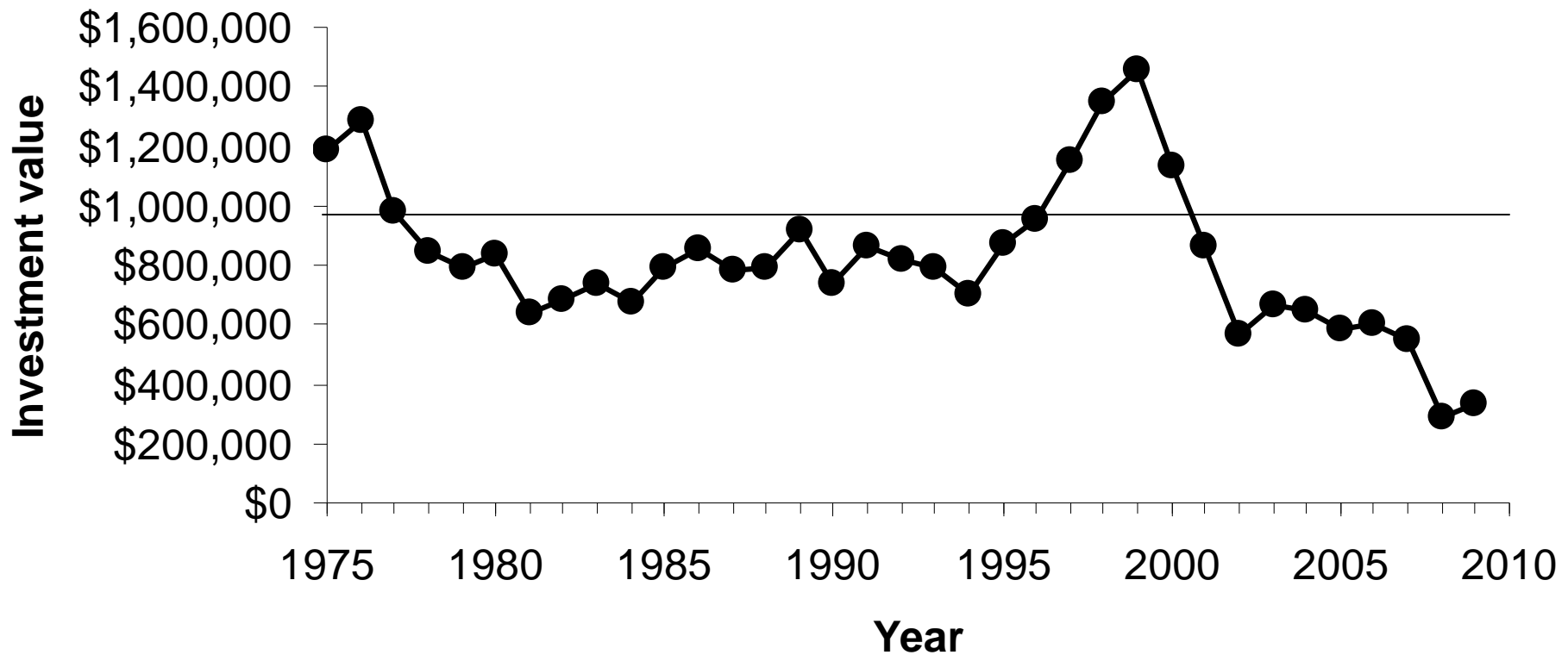
Presentation and Consequences

- As long as we are buffering away from OFL is getting the uncertainty correct important?
 - We are asking the Council to choose P^* on the basis that it represents the acceptable probability of overfishing
 - If we know we are under (or over) estimating the uncertainty in OFL, the meaning of P^* changes

Presentation and Consequences

- Overemphasis on what is being “Given up”
- Are financial examples a way to express the desire for precaution?

Value of \$1M investment in S&P 500 withdrawing 10% per year



Acknowledgments

- Thanks to the Mid-Atlantic SSC, SUN committee, MAFMC staff, and participants in the National SSC workshop, and SEDAR uncertainty workshop