Improving the GMFMC Tier 1 ABC Control Rule: A Perspective

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The problem

- The ABC control rule is used to set the ABC at defined level of risk of overfishing, based on scientific uncertainty (σ) and the council's risk policy (P*)
- Most assessments underestimate scientific uncertainty (σ) and therefore, the true risk of overfishing at a given ABC is higher than implied by our application of the ABC control rule
- The purpose of the revision is to better characterize true scientific uncertainty and risk of overfishing

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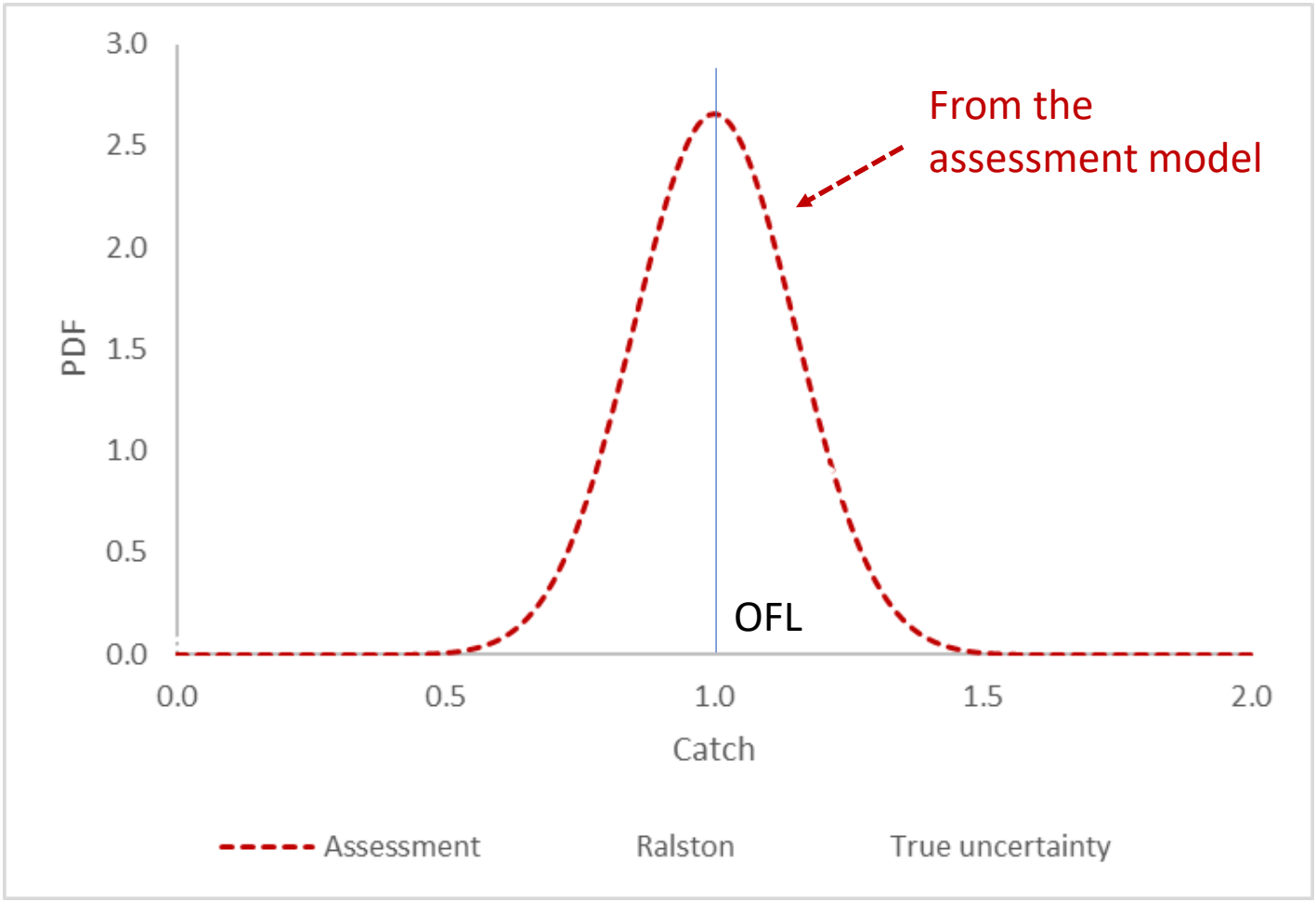
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True uncertainty

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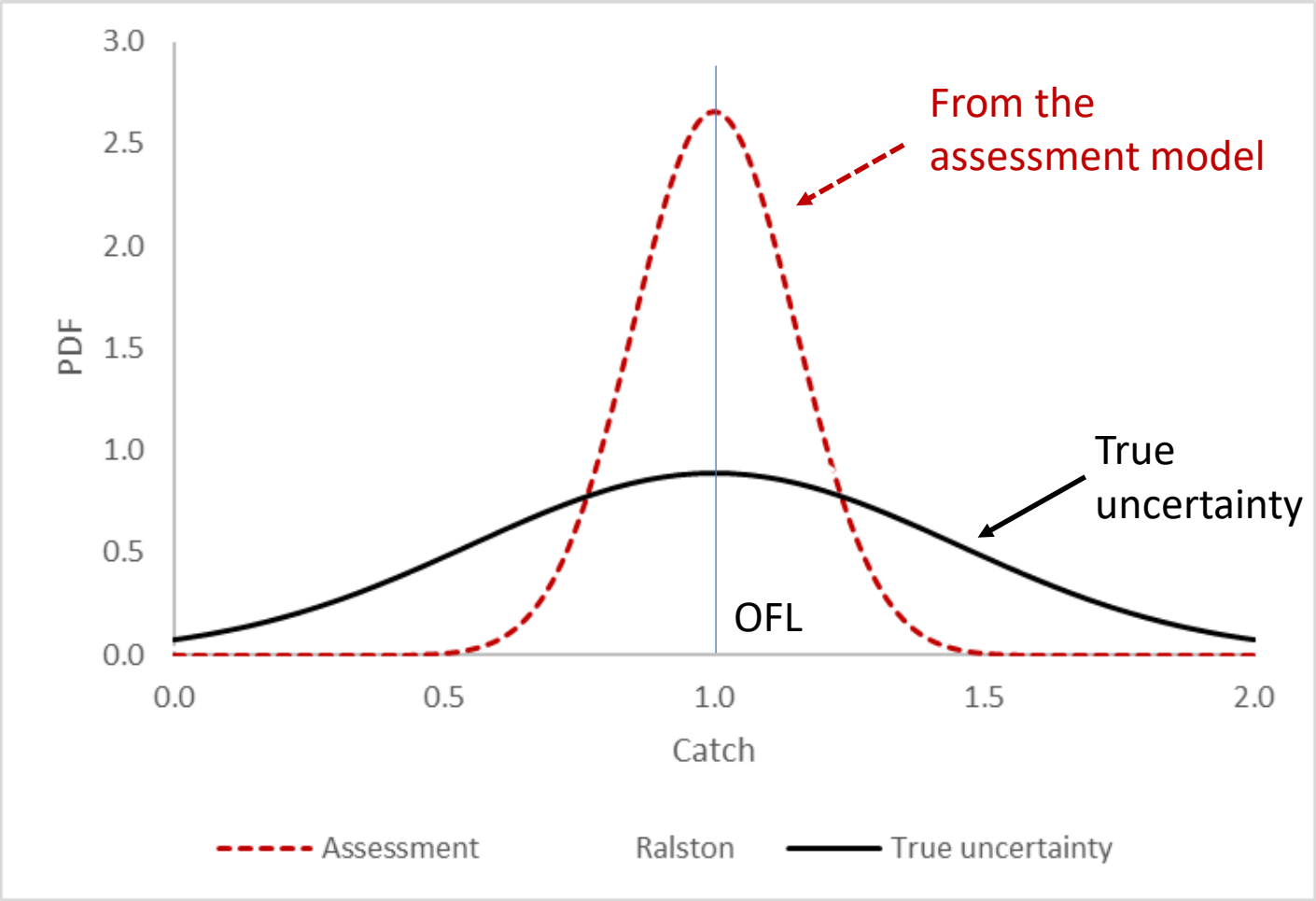
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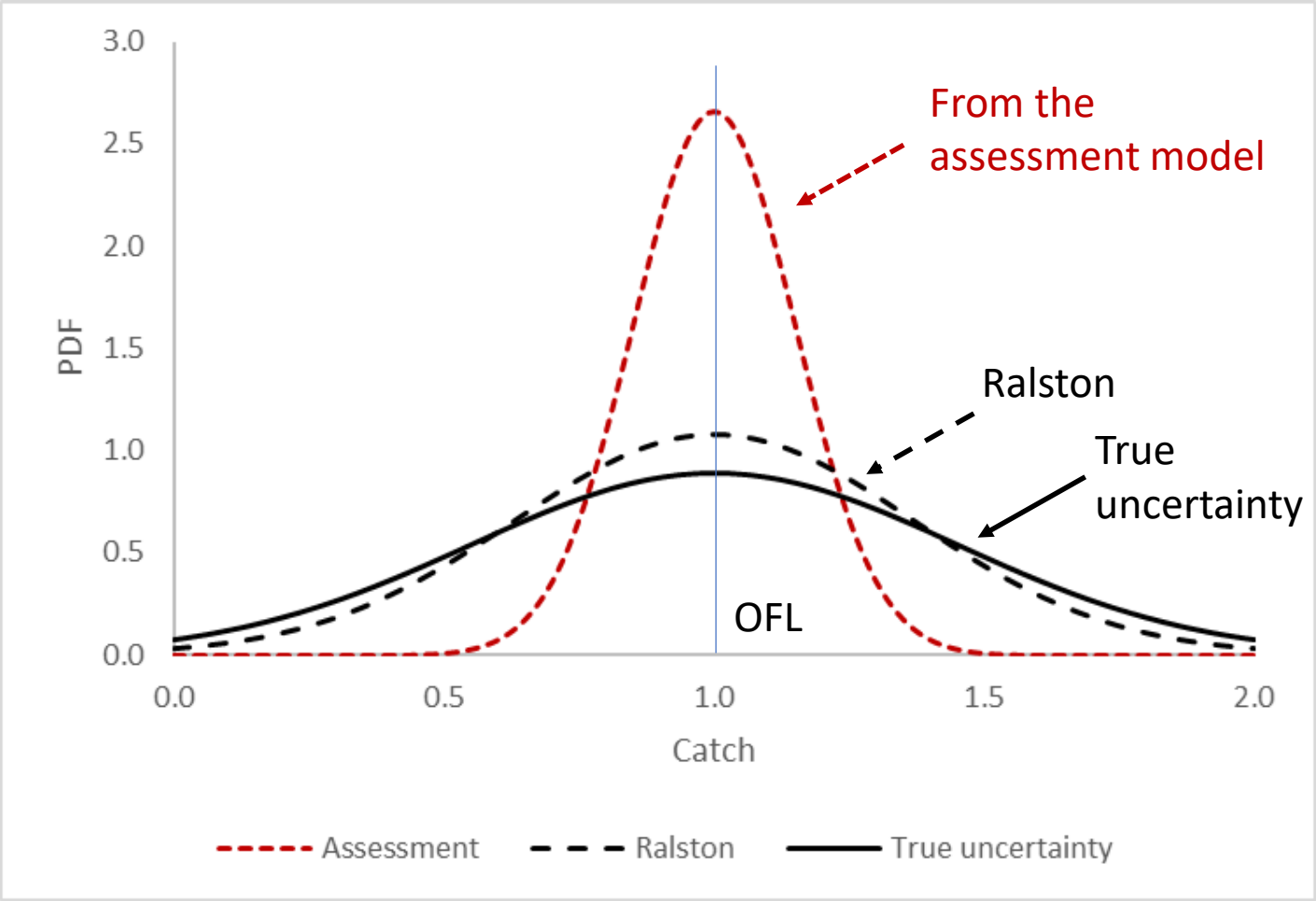
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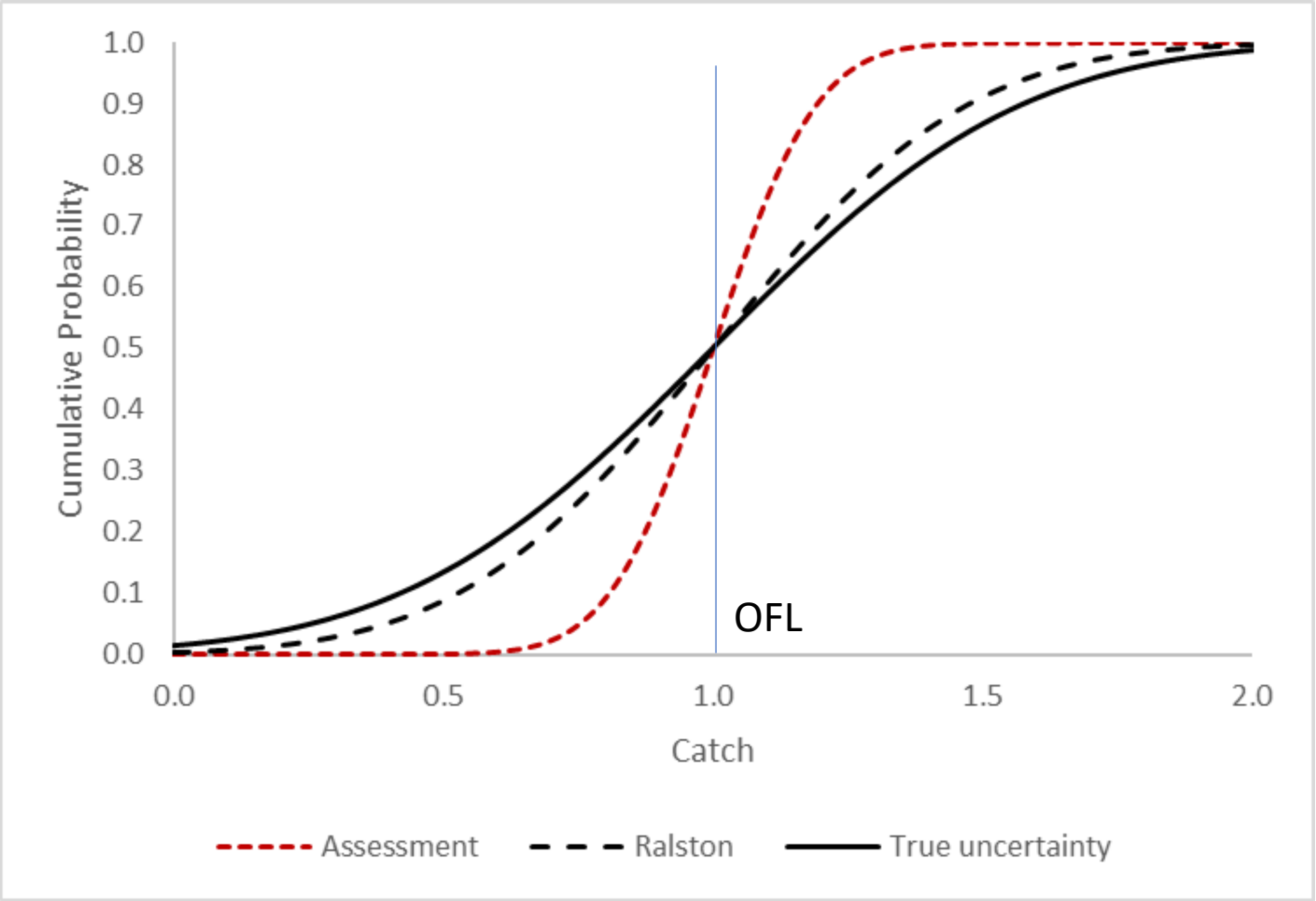
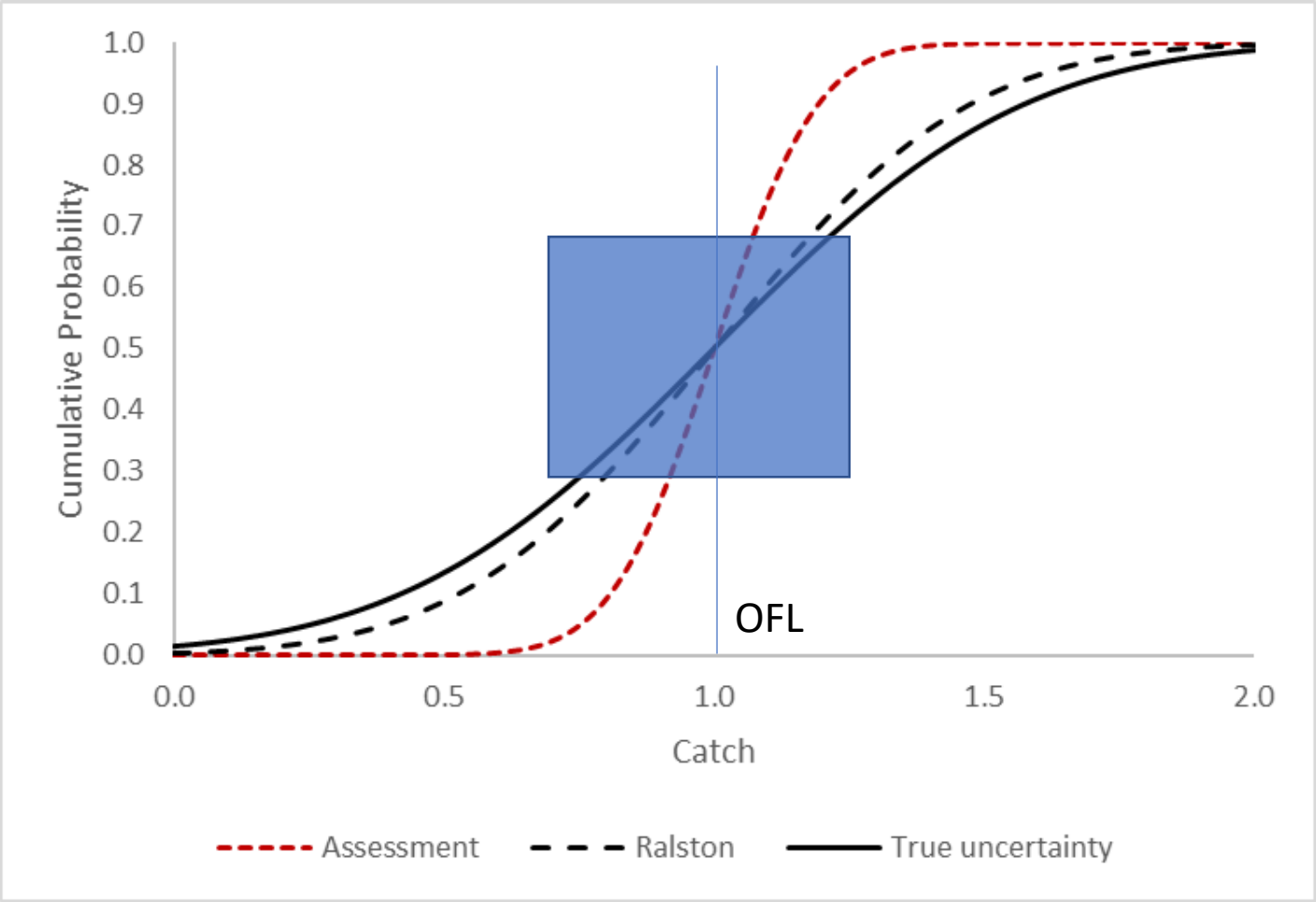
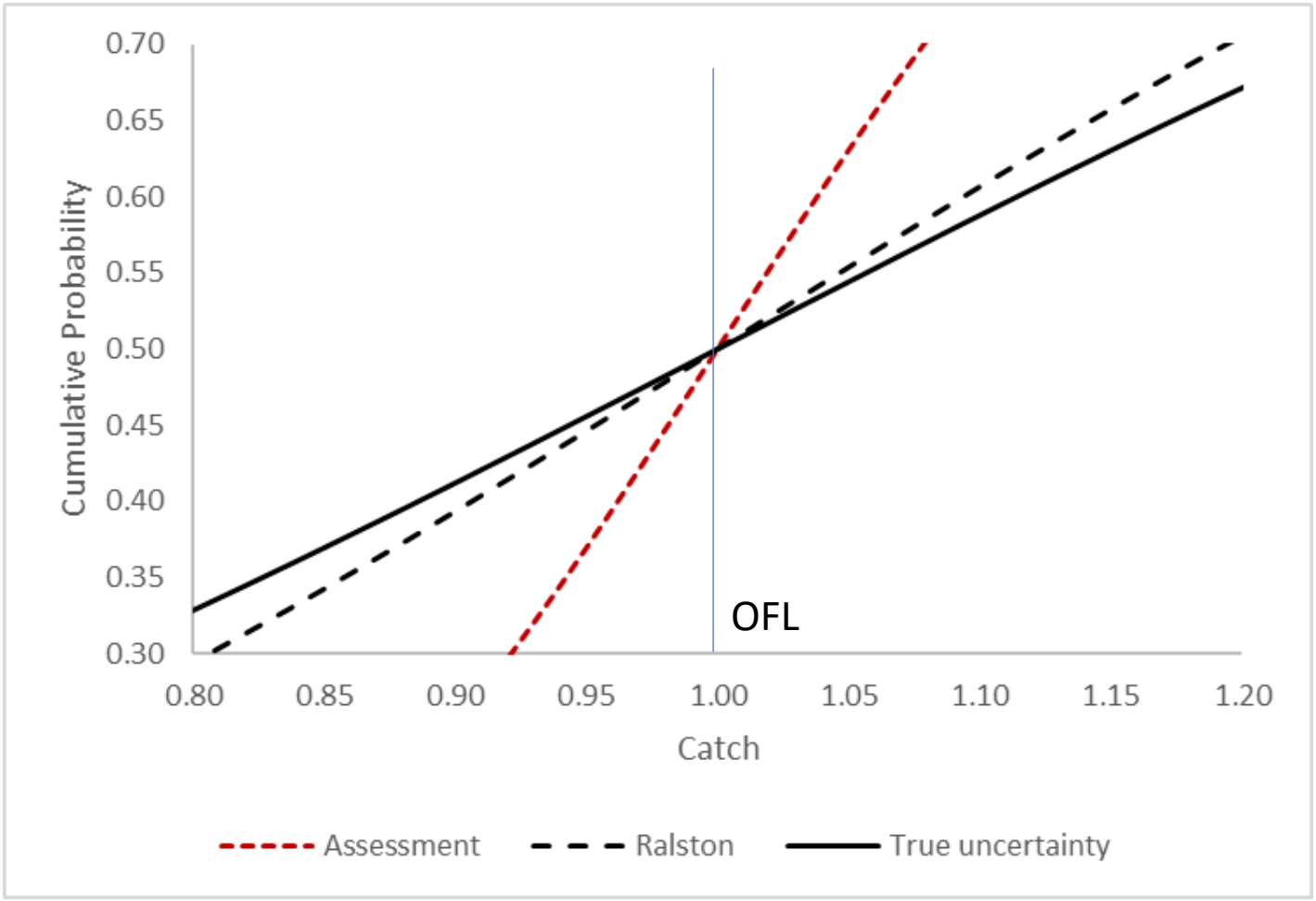
Probability of overfishing



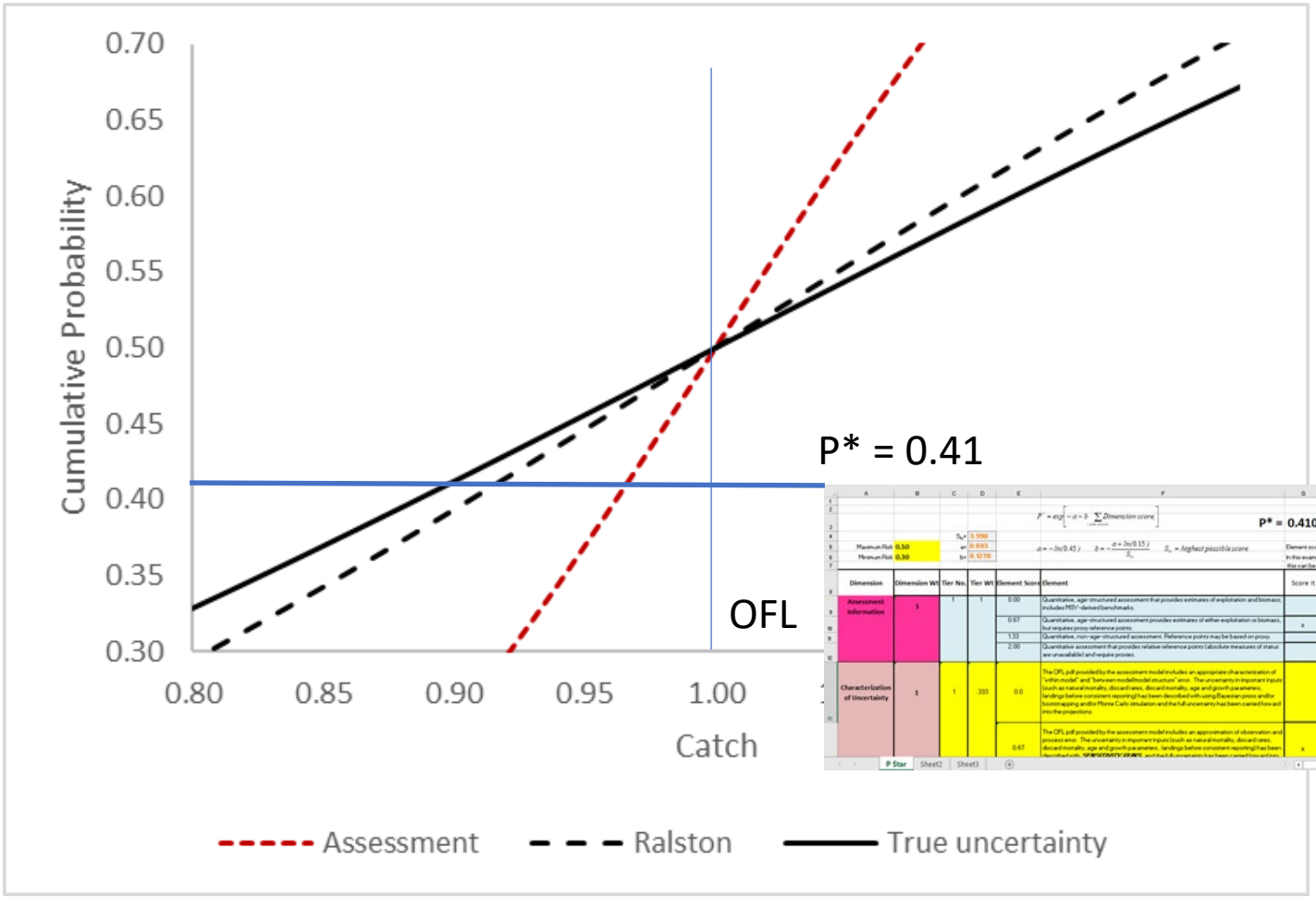
Probability of overfishing



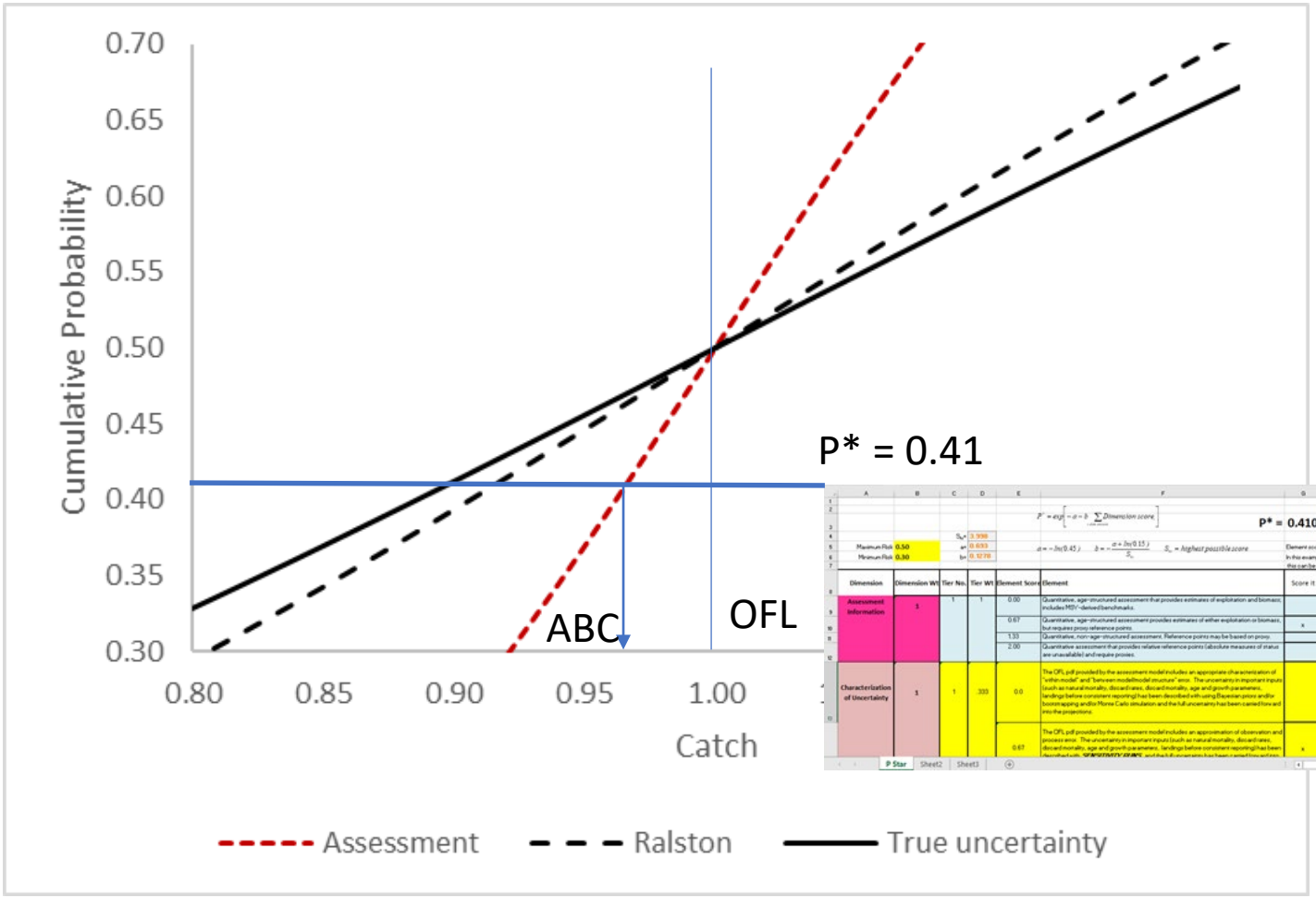
Probability of overfishing



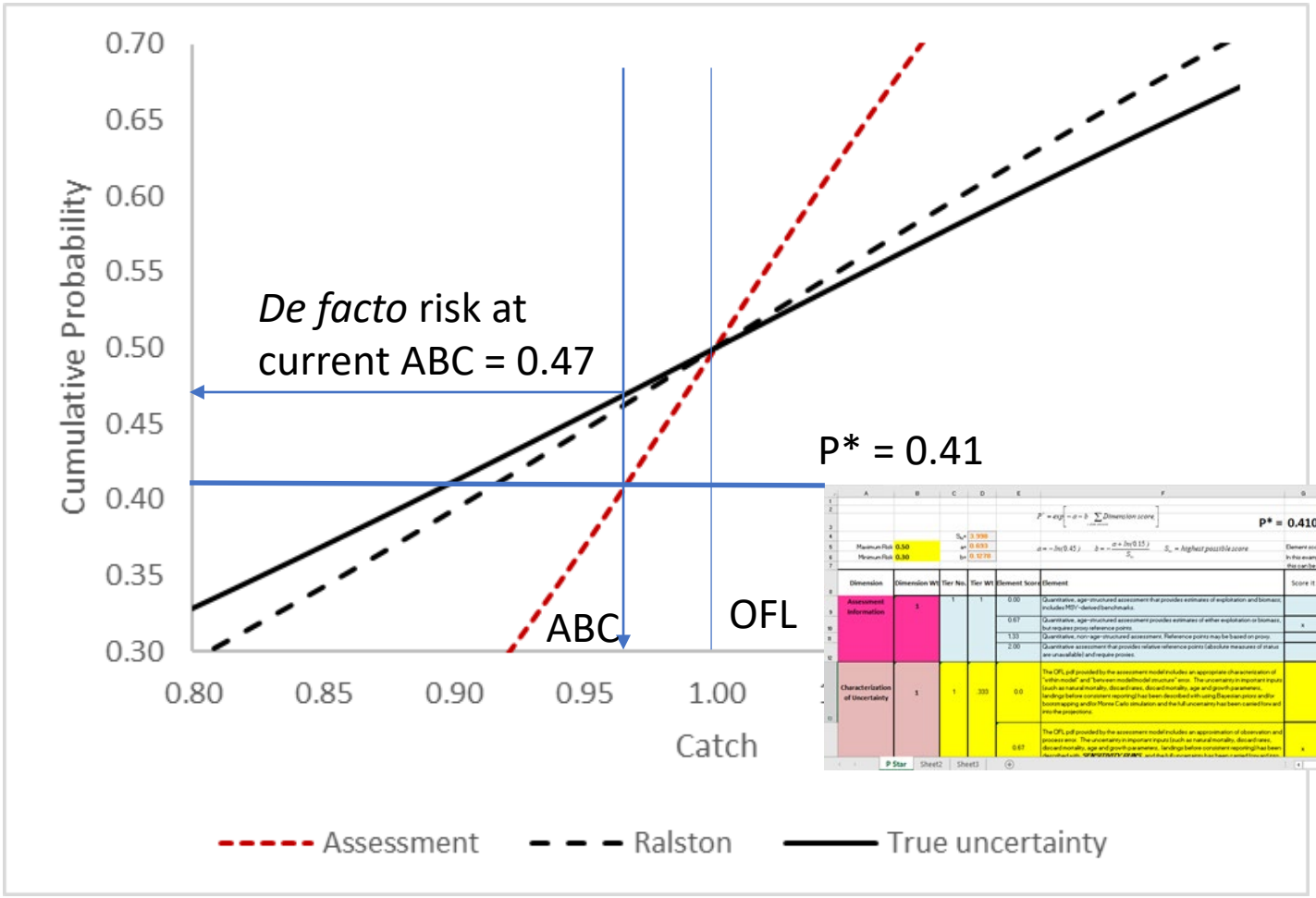
Applying current ABC control rule



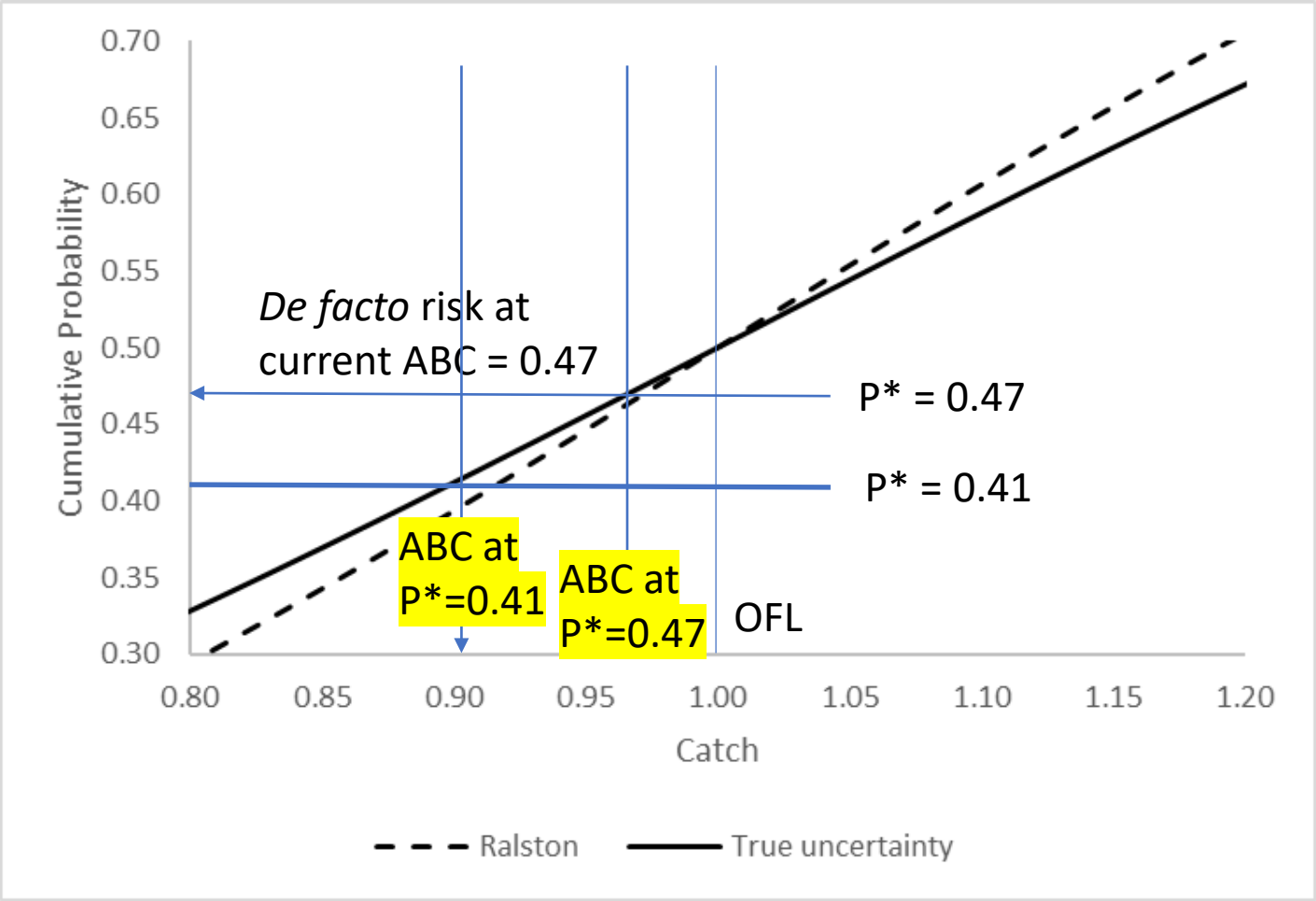
Applying current ABC control rule



Applying current ABC control rule



Applying new ABC control rule



Options

1. Keep the ABC control rule as it is. **Consequence:** Because the uncertainty estimate is unrealistically low, the risk level greater than formally assumed.
2. Transition to new ABC control rule with Ralston σ as proxy for true uncertainty and keep current formal risk policy in place. **Consequence:** ABC is set approximately correctly for the intended risk level, but ABC will be lower than under the current control rule. (Better science and reduced risk in management)
3. Transition to new ABC control rule with Ralston σ as proxy for true uncertainty and make current *de facto* risk policy the formal risk policy. **Consequence:** ABC will remain approximately the same, but we will formally acknowledge the associated *de facto* risk levels. (Better science and no change in management)
4. Of course, the risk policy could can be amended now or later towards an intermediate solution (Better science and a compromise between reduced risk and maintaining catch levels)