



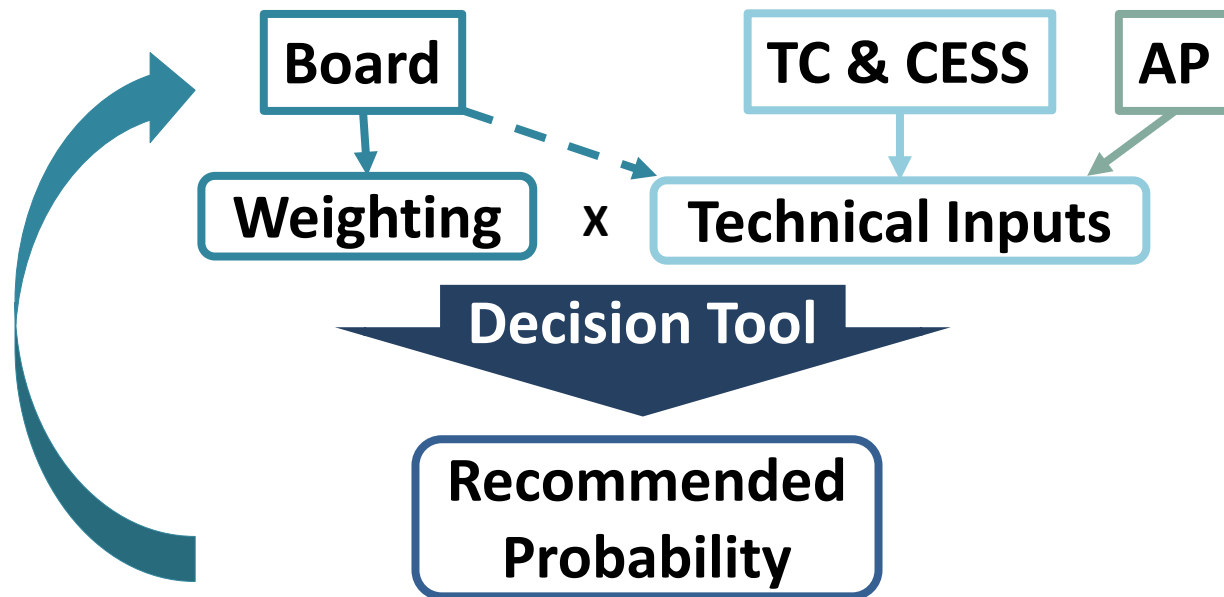
Risk & Uncertainty Policy: Red Drum

Presented to the Sciaenids
Management Board

R&U Decision Tool



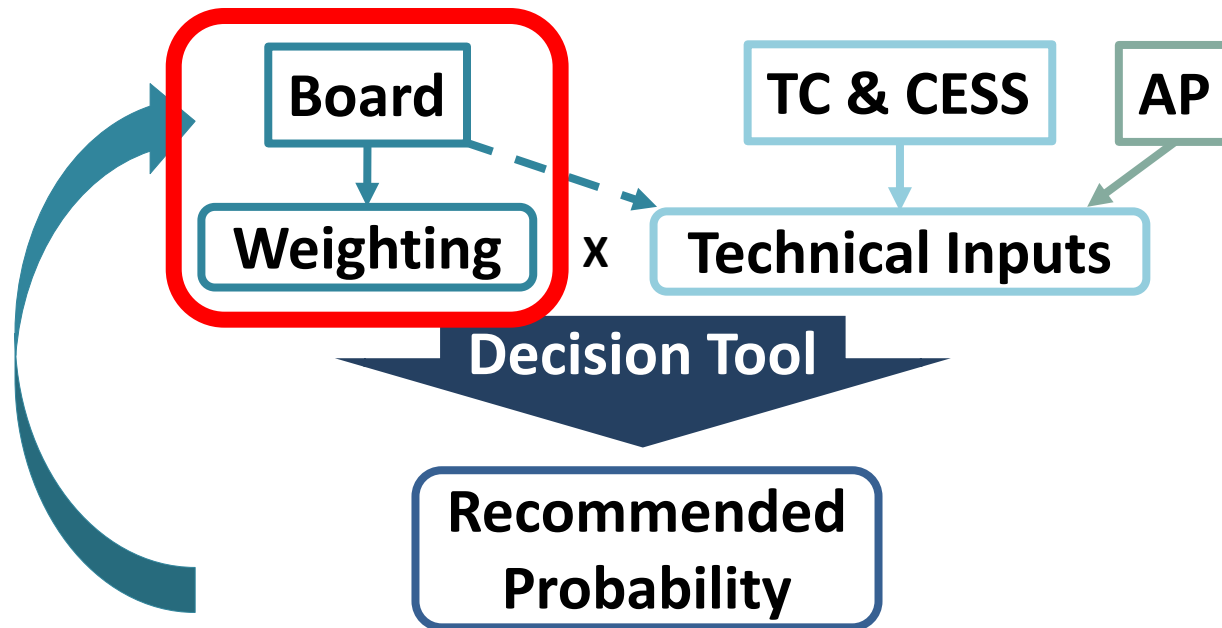
- The R&U Decision Tool incorporates a variety of information related to risk and uncertainty (technical inputs) and weights the information based on relative importance
- The weighted inputs are combined to produce a recommended probability of achieving a management target (e.g. F target)
- The recommended probability can then be used with projections to develop management options



R&U Decision Tool



- The weightings for the decision tool are the focus of today's discussion
- Board responses to the survey that will be sent out will be averaged to produce preliminary weightings for the Red Drum decision tools

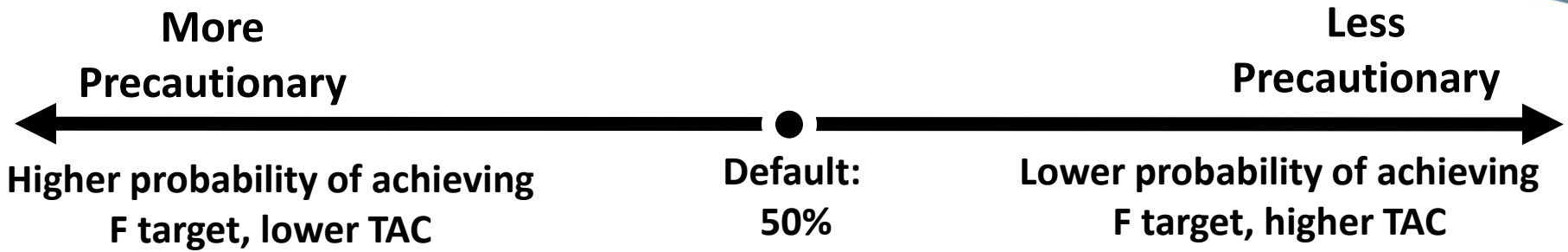


Technical Inputs vs. Weightings



- **Technical inputs:** the current status of a component of the biology, ecology, or fishery
 - Scored by the TC/CESS, with additional Board and AP input as needed
 - E.g., a stock status technical input would be the probability that overfishing is occurring
 - E.g., a management uncertainty technical input could be a score of 5 (very high) due to significant illegal fishing activities
- **Weightings:** how important each of the technical inputs are to Board risk considerations
 - Based on Board preferences
 - E.g., if the Board considered stock status to be twice as important as management uncertainty, stock status could be weighted twice as much as management uncertainty

R&U Decision Tool



← Stock Status

← Model Uncertainty

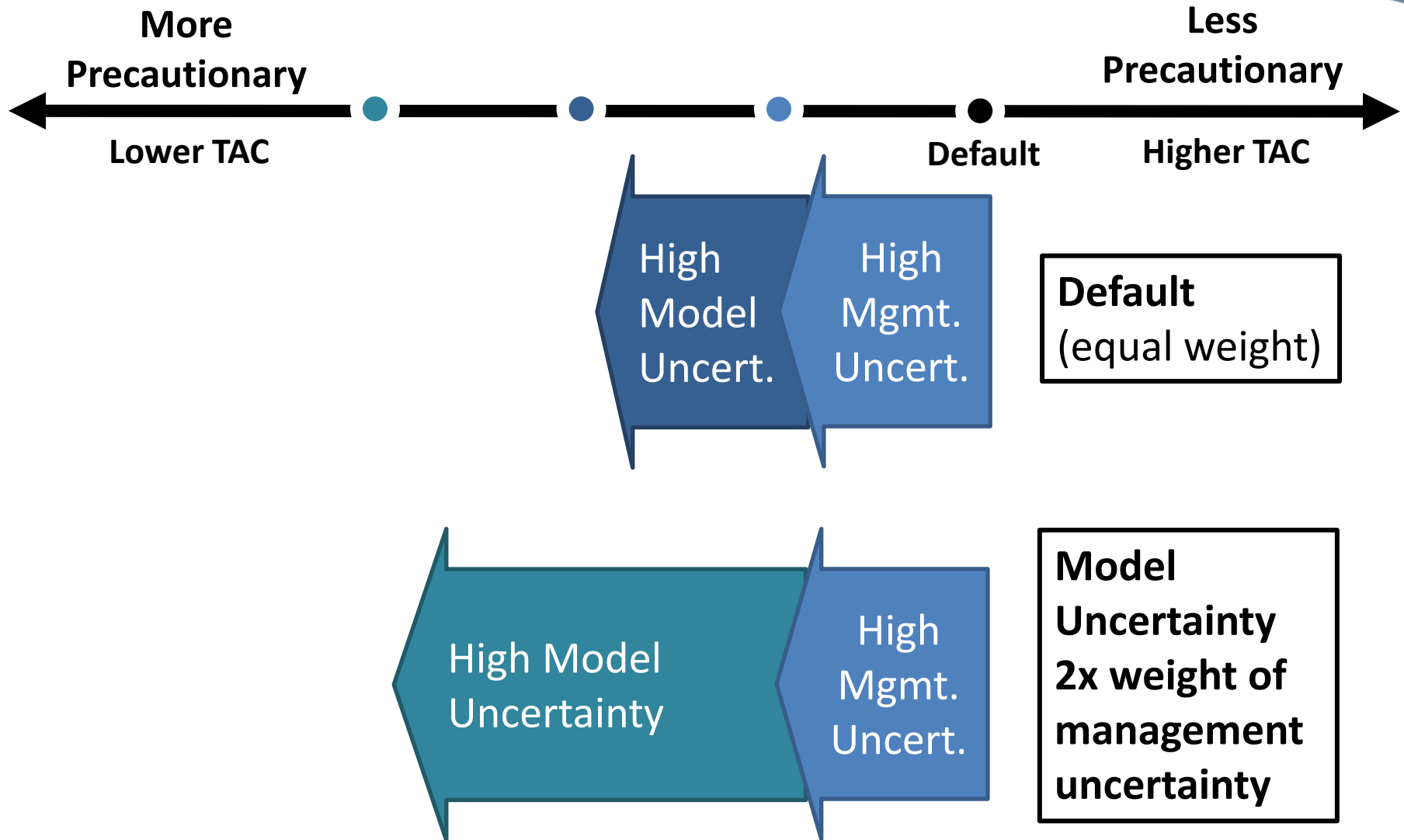
← Mgmt. Uncertainty

← Envir. Uncertainty

← Ecosystem Importance

← (LT) Socioeconomic (ST) Socioeconomic →

R&U Decision Tool Example



Weighting Input Process



- We will review the components of the decision tool one-by-one, following the process below:
 1. Review the type of information used for the technical input
 2. Answer Board questions about that component
 3. Survey will be sent following the meeting
- Each poll question will ask Board members to rate the importance of that component (e.g., management uncertainty) relative to the other components of the decision tool
 - If you would like all components of the decision tool to be weighted equally, answer all survey questions with **“Equally important” (3)**
- Scores will be averaged to produce preliminary weightings

6. Relative to the other components of the decision tool, how important is management uncertainty?

(1) Much less important

(2) Slightly less important

(3) Equally important

(4) Slightly more
important

(5) Much more important



R&U Decision Tool



Category	Decision Tool Component	Default Weight
Stock Status	SSB above or below the threshold	0.1
	SSB above or below target	0.1
	<i>F</i> above or below the threshold	0.1
	<i>F</i> above or below target	0.1
Additional Uncertainty	Model uncertainty	0.1
	Management uncertainty	0.1
	Environmental uncertainty	0.1
Additional Risk	Ecosystem/trophic importance	0.1
Socioecon.	Short-term commercial socioeconomic effects	0.1
	Long-term commercial socioeconomic effects	0.1
	Short-term recreational socioeconomic effects	0.1
	Long-term recreational socioeconomic effects	0.1



Preliminary Survey Review

Note: Survey questions repeat for two stock areas

Stock Status



- Technical Component: Is the stock below the biomass threshold?
 - Technical Input: the probability (from the stock assessment) that the stock is below the biomass threshold
- Weighting Question: Relative to the other components of the decision tool, **how important is whether or not the stock is below the biomass threshold?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3
- Additional note, the survey asks why you scored in the way you did so we can understand the Boards logic better as we continue to improve the tool

Stock Status



- Technical Component: Is the stock below the biomass target?
 - Technical Input: the probability (from the stock assessment) that the stock is below the biomass target
- Weighting Question: Relative to the other components of the decision tool, **how important is whether or not the stock is below the biomass target?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Stock Status



- Technical Component: Is fishing mortality above the threshold?
 - Technical Input: the probability (from the stock assessment) that fishing mortality is above the threshold
- Weighting Question: Relative to the other components of the decision tool, **how important is whether or not fishing mortality is above the threshold?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Stock Status



- Technical Component: Is fishing mortality above the target?
 - Technical Input: the probability (from the stock assessment) that fishing mortality is above the target
- Weighting Question: Relative to the other components of the decision tool, **how important is whether or not fishing mortality is above the target?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Model Uncertainty



- Technical component: how much model uncertainty is there?
 - Technical input: qualitative score based on information such as retrospective patterns, sensitivity runs, model fits, model parameter precision, and sensitivity to starting values
- Weighting question: relative to the other components of the decision tool, **how important is model uncertainty?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Management Uncertainty



- Technical component: how much management uncertainty is there?
 - Technical input: qualitative score based on information such as past management performance, illegal fishing activities, ability to regulate removals, ability to monitor the fishery, compliance
- Weighting question: relative to the other components of the decision tool, **how important is management uncertainty?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Environmental Uncertainty



- Technical component: how much environmental uncertainty is there?
 - Technical input: qualitative score based on information such as environmental drivers of recruitment, habitat loss, climate change vulnerability, predator/prey dependence, and natural mortality not accounted for in the assessment model
- Weighting question: relative to the other components of the decision tool, **how important is environmental uncertainty?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Ecosystem/Trophic Importance



- Technical component: how important is tautog to the ecosystem or other key species?
 - Technical input: qualitative score based on tautog's role in maintaining other key species (e.g., other important fished species or threatened or endangered species), ecosystem services, and ecosystem function
- Weighting question: relative to the other components of the decision tool, **how important is ecosystem/trophic importance?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Short-term Commercial Socioecon.



- Technical component: what is the short-term socioeconomic effect of the proposed management change on the commercial fishery?
 - Technical input: score based on total ex-vessel value, community dependence indicator, the scale of the potential management change (% change to harvest produced by other components of the decision tool), and the anticipated effect on the community
 - typically, harvest reduction = a ST negative effect
 - Typically “pushes back” on the recommended probability
- Weighting question: relative to the other components of the decision tool, **how important are short-term socioeconomic effects on the commercial fishery?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Long-term Commercial Socioecon.



- Technical component: what is the long-term socioeconomic effect of the proposed management change on the commercial fishery?
 - Technical input: score based on total ex-vessel value, community dependence indicator, the scale of the potential management change (% change to harvest produced by other components of the decision tool), and the anticipated effect on the community
 - typically, harvest reduction = a LT positive effect
 - Typically adds to the recommended probability
- Weighting question: relative to the other components of the decision tool, **how important are long-term socioeconomic effects on the commercial fishery?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Short-term Recreational Socioecon.



- Technical component: what is the short-term socioeconomic effect of the proposed management change on the recreational fishery?
 - Technical input: score based on total directed trips, community dependence indicator, the scale of the potential management change (% change to harvest produced by other components of the decision tool), and the anticipated effect on the community
 - typically, harvest reduction = a ST negative effect
 - Typically “pushes back” on the recommended probability
- Weighting question: relative to the other components of the decision tool, **how important are short-term socioeconomic effects on the recreational fishery?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Long-term Recreational Socioecon.



- Technical component: what is the long-term socioeconomic effect of the proposed management change on the recreational fishery?
 - Technical input: score based on total directed trips, community dependence indicator, the scale of the potential management change (% change to harvest produced by other components of the decision tool), and the anticipated effect on the community
 - typically, harvest reduction = a LT positive effect
 - Typically adds to the recommended probability
- Weighting question: relative to the other components of the decision tool, **how important are long-term socioeconomic effects on the recreational fishery?**

(1) Much less important	(2) Slightly less important	(3) Equally important	(4) Slightly more important	(5) Much more important
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- Note: to indicate that you would like all components to be weighted equally, score all components as a 3

Next Steps



- Board will take the online survey with these questions
- We will average scores from Board members to produce preliminary weightings
 - To be reviewed by the Board for discussion and potential approval at the Annual Meeting
- Compile preliminary R&U report with technical inputs from the TC/CESS
 - To be reviewed by the Board at the Annual Meeting



Any questions?