

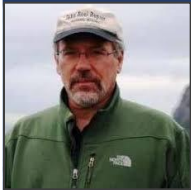
RISK TABLE SYNTHESIS

SSC WORKSHOP, FEBRUARY 2021

MARTIN DORN, KALEI SHOTWELL, STEPHANI ZADOR



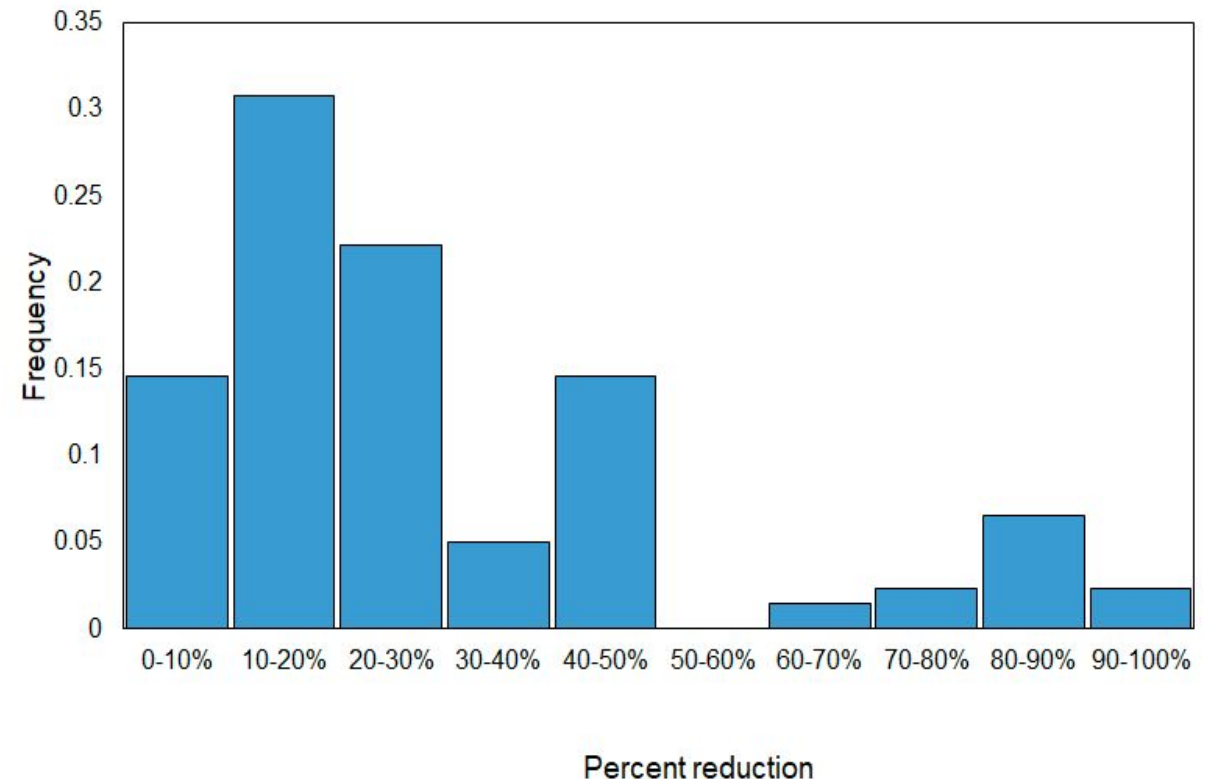
Historical overview of risk tables, synthesis of stock responses with summary tables, lessons learned, discussion points



PREHISTORY OF RISK TABLES

- Setting ABC below the maximum permissible:
 - Long-standing practice for NPFMC groundfish
 - Written into the BSAI and GOA groundfish FMPs
- ~5 ABCs reduced per year
- But no record of deliberations when no reduction was made

Histogram of historical percent reductions 2003-2017



BSAI and GOA FMP: Acceptable Biological Catch

“Specification of ABC is similar to specification of OFL, in that both involve harvest control rules with six tiers relating to various levels of information availability. However, somewhat more flexibility is allowed in specifying ABC, in that the control rule prescribes only an upper bound.”

The fourth step in specifying ABC:

“Determine whether conditions exist that warrant setting ABC at a value lower than the maximum permissible value (such conditions may include--but are not limited to--data uncertainty, recruitment variability, and declining population trend) and, if so:

- a. document those conditions,
- b. recommend an ABC lower than the maximum permissible value, and
- c. explain why the recommended value is appropriate.

The above steps are undertaken first by the assessment authors in the individual chapters of the SAFE report. The Plan Team then reviews the SAFE report and makes its own recommendation. The SSC then reviews the SAFE report and Plan Team recommendation, and makes its own recommendation to the Council. The Council then reviews the SAFE report, Plan Team recommendation, and SSC recommendation; then makes its own recommendation to the Secretary, with the constraint that the Council’s recommended ABC cannot exceed the SSC’s recommended ABC.”



RISK TABLE TIMELINE

- Oct 2017: Following the GOA cod decline, SSC specified the need for a formal way to evaluate ecosystem conditions within the stock assessment.

“The SSC also recommends explicit consideration and documentation of ecosystem and stock assessment status for each stock ... to aid in identifying stocks of concern.”

- Summer 2018: Ad Hoc working group formed in response to an SSC request to develop a consistent approach to recommending ABC reductions.



RISK TABLE TIMELINE

- Fall 2018: ABC adjustment workshop recommendations presented to PT/SSC, draft risk tables developed for 5 stocks with assessment, population dynamics, and ecosystem columns.
- Dec 2018: SSC/AP/Council recommended that risk tables be done for all assessments in 2019.

“Additional environmental, ecosystem or other species specific biological concerns that the Plan Team identifies that are not addressed in the stock assessment model should be clearly documented and provided to the SSC for consideration...The Council supports the SSCs recommendation of adding a fishery performance column.” - Council motion Dec 2018



RISK TABLE TIMELINE

“The combined efforts of developing ESPs for key species, the planned fall and spring meetings of the Ecosystem Status Report team to assess ecosystem change, and the development of risk tables should provide the information needed to inform the NPFMC of relevant ecosystem change...In addition, risk tables only need to be produced for groundfish assessments that are in a “full” year in the cycle.” SSC June 2019

- Fall 2019: risk tables completed for all full assessments, SSC recommends dropping the overall risk score and provided direct responses to 10 requests raised by PT
- Fall 2020: risk tables completed for all full assessments, dedicated risk table discussion slated for Feb SSC 2021 and Sept Joint PT 2021



RISK TABLE FRAMEWORK

	Assessment-related considerations	Population dynamics considerations	Environmental/ecosystem considerations	Fishery Performance
Level 1: Normal	Typical to moderately increased uncertainty/minor unresolved issues in assessment.	Stock trends are typical for the stock; recent recruitment is within normal range.	No apparent environmental/ecosystem concerns	No apparent fishery/resource-use performance and/or behavior concerns
Level 2: Substantially increased concerns	Substantially increased assessment uncertainty/ unresolved issues.	Stock trends are unusual; abundance increasing or decreasing faster than has been seen recently, or recruitment pattern is atypical.	Some indicators showing an adverse signals relevant to the stock but the pattern is not consistent across all indicators.	Some indicators showing adverse signals but the pattern is not consistent across all indicators
Level 3: Major Concern	Major problems with the stock assessment; very poor fits to data; high level of uncertainty; strong retrospective bias.	Stock trends are highly unusual; very rapid changes in stock abundance, or highly atypical recruitment patterns.	Multiple indicators showing consistent adverse signals a) across the same trophic level as the stock, and/or b) up or down trophic levels (i.e., predators and prey of the stock)	Multiple indicators showing consistent adverse signals a) across different sectors, and/or b) different gear types
Level 4: Extreme concern	Severe problems with the stock assessment; severe retrospective bias. Assessment considered unreliable.	Stock trends are unprecedented. More rapid changes in stock abundance than have ever been seen previously, or a very long stretch of poor recruitment compared to previous patterns.	Extreme anomalies in multiple ecosystem indicators that are highly likely to impact the stock. Potential for cascading effects on other ecosystem components	Extreme anomalies in multiple performance indicators that are highly likely to impact the stock



RISK TABLE CONTENT

- No double counting
 - Information in the risk table should not already be addressed in the stock assessment model
- Specific to the year
 - Not meant to be a comprehensive evaluation such as an ESP
 - Information/observations that might inform the current ABC



RISK TABLES AT GROUND FISH PLAN TEAM

- Summary tables (see agenda for 2019 and 2020)
 - 53 Total risk tables: 5 (2018), 19 (2019), 29 (2020), ↑ over time
 - 6 Stocks with reduction: 4 (2018), 4 (2019), 3 (2020), ↓ over time
- Notables (see Plan Team and SSC minutes)
 - Over 40 pages of minutes on risk tables, plus 2-12 pages per SAFE
 - 3 stocks with levels >2 and 22 stocks with all levels = 1
 - 14 stocks with no reduction had at least one level >1



REDUCTION SUMMARY TABLE

Stock	Assessment related		Population Dynamics		Environment Ecosystem		Fishery Performance		Proposed Reduction	
	2018		2018		2018				2018	
Sablefish	2		4		2				45%	
EBS pollock	1		2		2				30%	
GOA pollock	2		2		2				15%	
GOA Pacific cod	2		Author 4, SSC 2		2				13.6%	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Sablefish	2	3	3	3	2	2	3	3	57%	57%
EBS pollock	1	1	2	1	2	2	2	2	43%	30%
EBS Pacific Cod	1	1	1	1	2	2	1	1	Ensemble	0%
GOA pollock	2	1	1	1	1	1	1	1	10%	0%
GOA Pacific cod	2	2	2	2	2	1	1	1	*	0%
GOA Dusky Rockfish		2		1		1		1		24%

*SSC set 2021 ABC same as 2020 ABC but no reduction to 2020



LESSONS LEARNED

■ Benefits

- Provides transparency in a consistent framework, documentation of concerns that led to reduction or no reduction, working together
- Documentation of novel observations, non-stationarity

■ Challenges

- Inconsistencies between risk levels and subsequent reductions or lack thereof
- How to complete for bycatch stocks, complexes, Tiers 5,6 not fully developed
- Difficult to know which information goes into what column



DISCUSSION POINTS

- SSC minutes Dec 2018: The author and PT do not have to recommend a specific ABC reduction, but should provide a complete evaluation to allow for the SSC to come up with a recommendation if they should fail to do so.
- The rational assessment author says, *“The SSC gave permission for assessment authors to not recommend an ABC reduction if they choose to. Why not punt to the SSC, and avoid any pushback from stakeholders?”*

Should the SSC have encouraged authors to recommend suitable responses to increased risk if at all possible? The SSC needs the authors and plan teams to generate options for consideration, even if the SSC chooses a different course.



DISCUSSION POINTS

- SSC minutes Dec 2019: ...that adjustment from maxABC in response to levels of concern should be left to the discretion of the author, the Team(s), and/or the SSC, but should not be mandated by the inclusion of a >I level in any particular category.
- The rational assessment author says, *“Catches for my stock will be far below ABC. Why should I bother reducing the ABC even if there are elevated risks?”*

The stated purpose of the risk table to support a decision whether or not a reduction in the maximum permissible is needed. What is the message if the table is filled out appropriately, and an increased risk is identified, but no reductions are recommended? That increased risk does not matter?



QUESTIONS TO CONSIDER IN THE WORKSHOP

- How to distinguish double-counting robustly?
- How to weigh multiple indicators time series?
- How to choose the level value? Current descriptions are not clear enough. How to balance prescriptive rules with new information?
- Can the same data be interpreted two ways or is this double counting?
- Is there value to adding an “unknown” level?
- Should we keep risk tables for tier 1-3 stocks only? Non-targets?
- Should there be an overall score? If so, how to weigh across categories?
- Should PT/SSC provide explicit risk scores and justifications? When?



QUESTIONS?



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RISK FORM SYNTHESIS

SSC WORKSHOP, FEBRUARY 2021

JIM IANELLI, KALEI SHOTWELL



Brief overview of pre-meeting questionnaire, synthesis of responses



OVERVIEW OF FORM

- Intended to collect feedback prior to SSC Workshop on risk tables
 - 6 overarching trigger questions
 - 4 breakout discussion questions
- Responses collected 2/4/2021
 - 21 responses out of 39
 - Can refine for GPT Sept meeting based on SSC recommendations at this workshop

SSC Workshop on Risk Tables for ABC advice to Council pre-meeting questionnaire

This form has been created to receive your feedback prior to the SSC Workshop on Risk Tables for ABC advice to Council on 2/5/21, held virtually. Please complete by COB 2/4/21, but earlier is always better. The information you provide will be used to guide discussions at the workshop, understand key issues that need to be addressed at the workshop, identify issues which already have widespread agreement, and generally make the most efficient use of our time together. As a reminder, the workshop objectives and structure are listed below. Thank you for your time filling this out and look forward to speaking with you on the 5th.

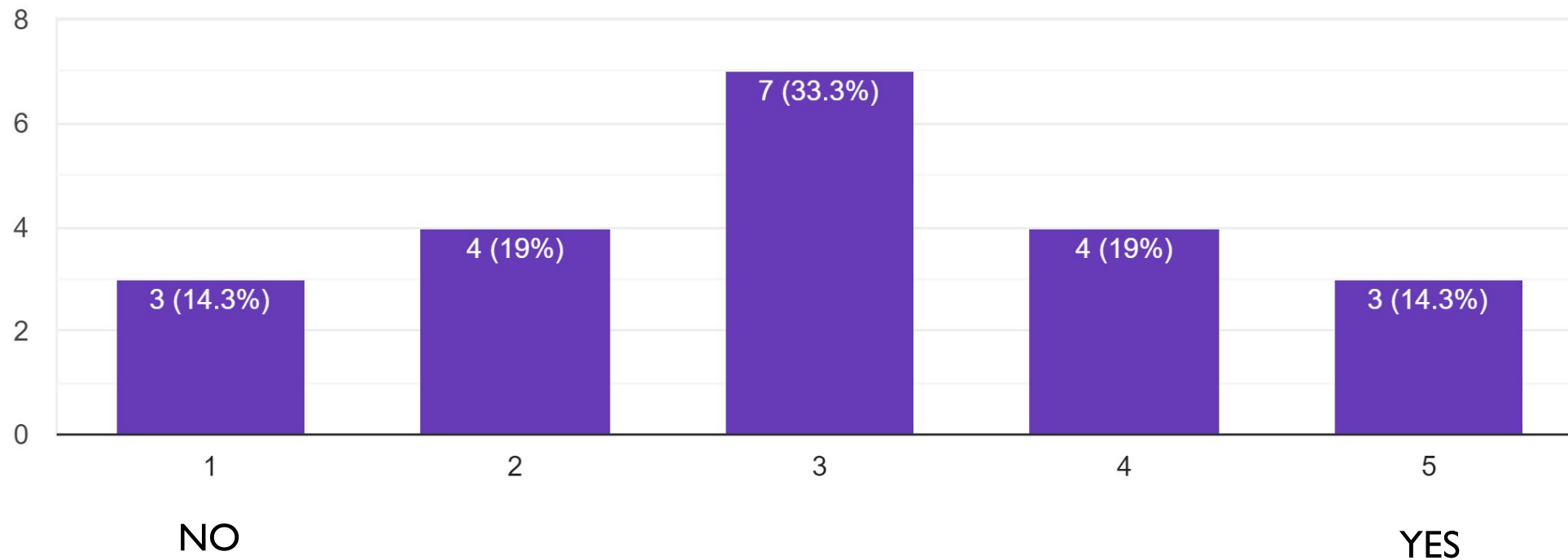
- Jim, Alan, and Steve



FORM SUMMARY

Should there be an overall score from the risk table?

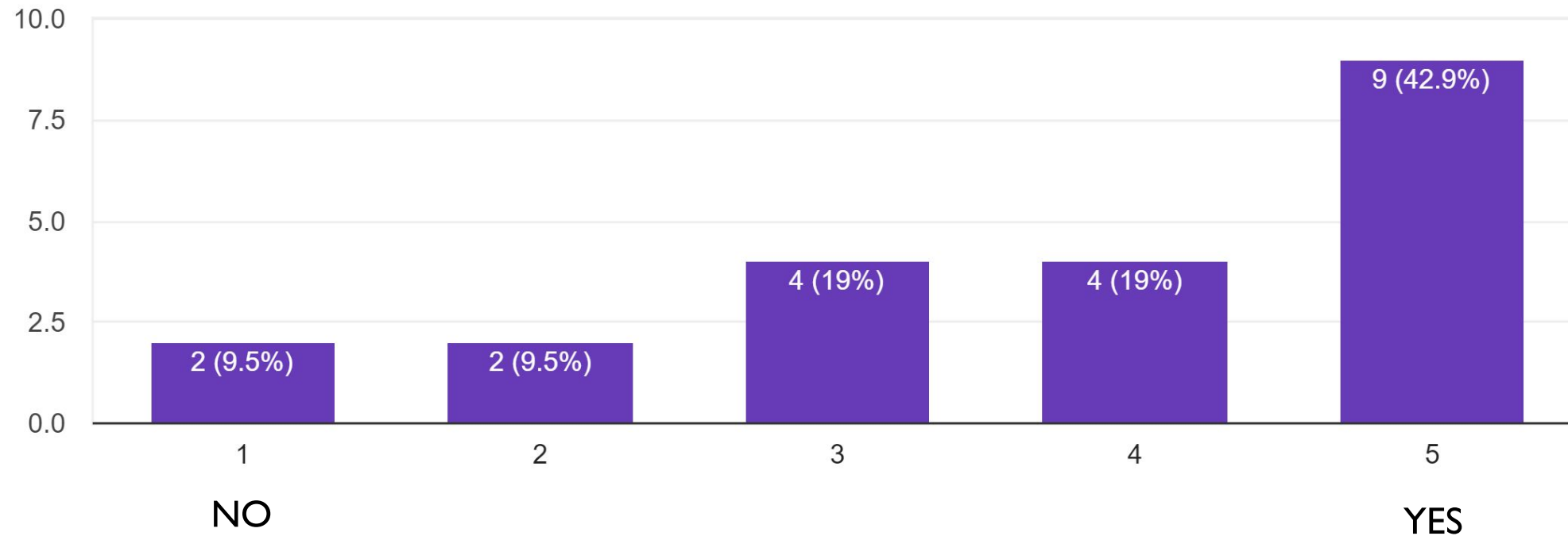
21 responses



FORM SUMMARY

Should we continue to produce risk tables for all full assessments?

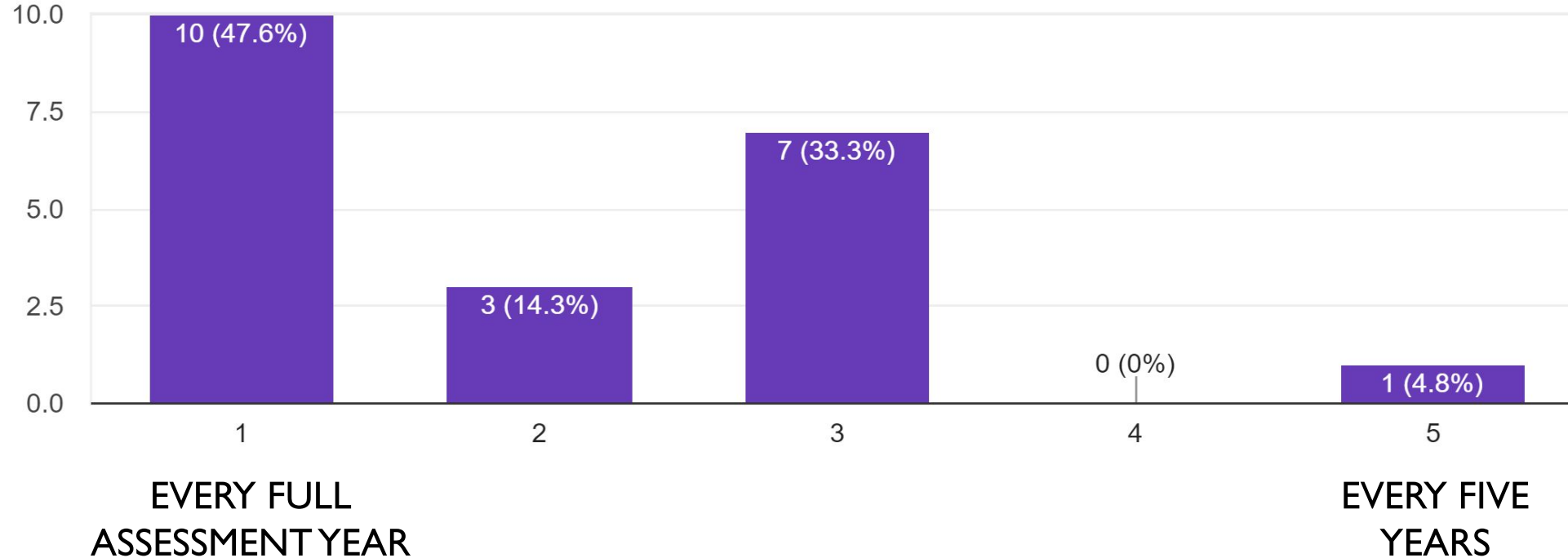
21 responses



FORM SUMMARY

What timeline should risk tables be produced (every full assessment year, every other full assessment, etc.)?

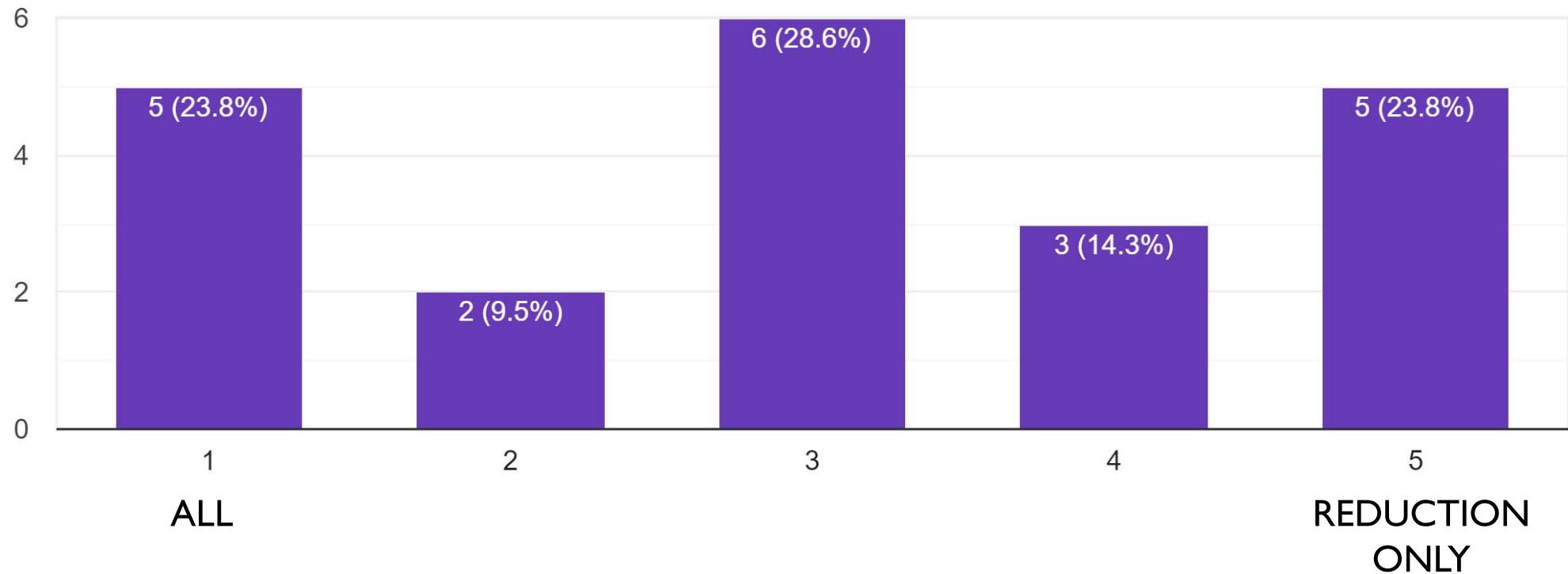
21 responses



FORM SUMMARY

Should Plan Teams review all of them, or only when a reduction is recommended?

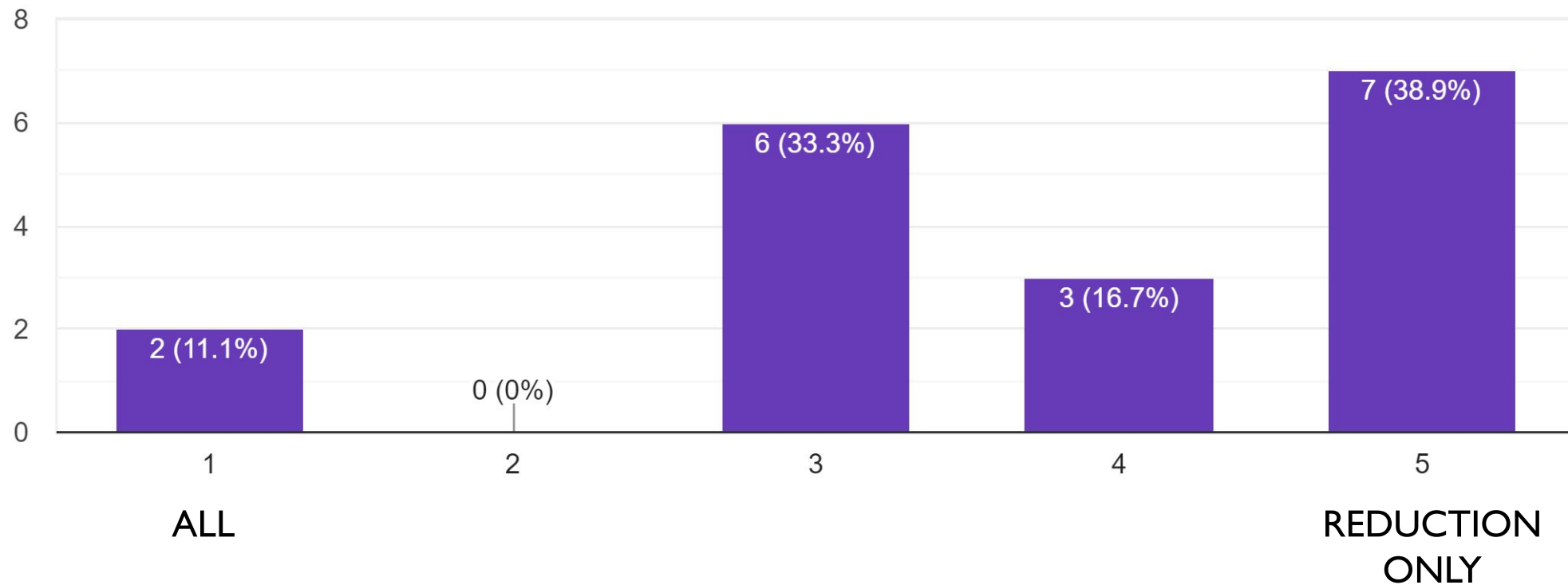
21 responses



FORM SUMMARY

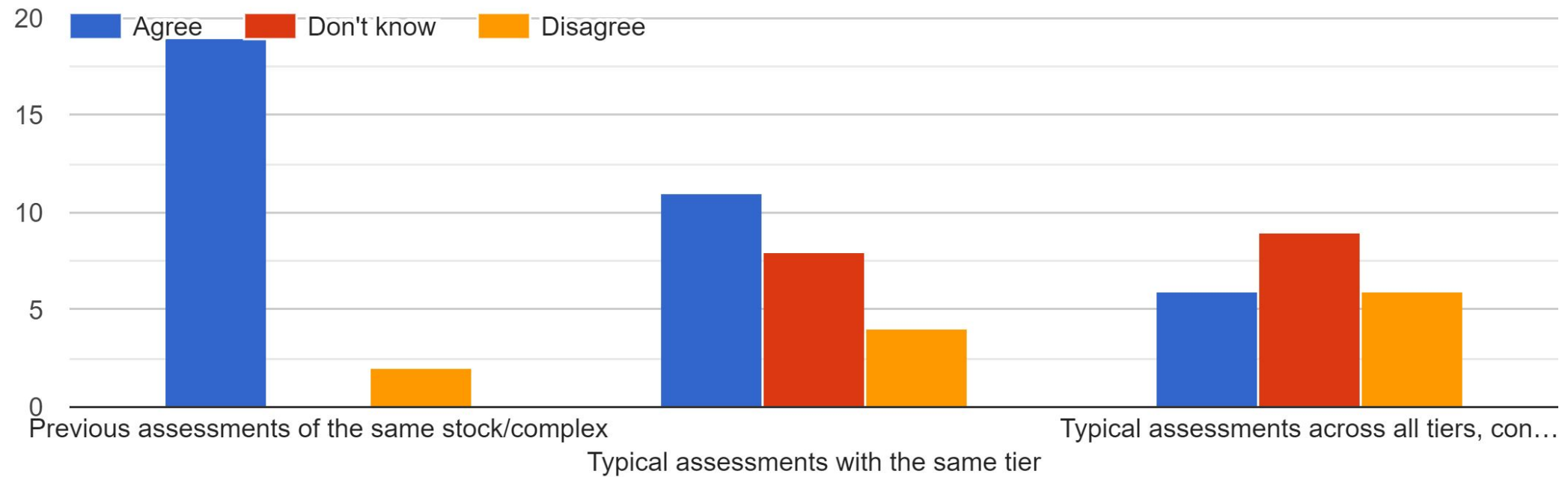
Should the SSC review all of them, or only when a reduction is recommended?

18 responses



FORM SUMMARY

Should “increased” concern be evaluated relative to:



QUESTIONS?



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