A suggestion for making the risk table more systematic

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The terminology in the current version of the "risk table" contains some ambiguities that may result in different interpretations or inconsistencies between assessment authors when applied. For example:

- "Some" and "multiple" are used as mutually exclusive terms, but they are basically synonyms.
- Current punctuation leaves the door open to multiple interpretations (e.g., does a period function similarly to a comma or semicolon, or does it indicate that the items in the next phrase are examples?).
- Whether an indicator is likely to impact the stock affects the risk determination only for level 4.
- "Issues," "concerns," and "indicators:" Are these all the same, or are they different?
- To what are the various metrics/examples being compared (i.e., what is the reference level)?
- Some things seem to be double-counted (e.g., trends in biomass and recruitment are already factored into the assessment and projections, so why should negative values constitute a basis for reducing ABC?)

I have attempted to systematize the table more thoroughly, without changing either the basic structure or intent, borrowing heavily from the current version. For each of the columns, I identified (see Table 1):

- A standard against which the metrics are to be compared
- A pair of metrics to be applied (these can be interpreted broadly or supplemented, in the event that an author truly believes that additional metrics are required for a particular stock)
- A pair of examples for each of the two metrics (this is definitely not an exclusive list; I was just focusing on the things listed in the current version of the table).

Risk levels would be determined as follows (as currently, the criteria are qualitative only):

Level	Criterion
1: Typical	Each metric results in a level of concern that is *typical*, relative to the standard
2: Elevated	At least one metric results in a level of concern that is *elevated*, relative to the standard
3: High	At least one metric results in a level of concern that is *high*, relative to the standard
4: Extreme	At least one metric results in a level of concern that is *extreme*, relative to the standard

Table 1. Suggested standards, metrics, and examples.

Considerations	Standard	Metric	Examples (not necessarily exclusive)
Assessment	similar assessments	1. assessment uncertainty	1a. within-model uncertainty 1b. between-model uncertainty
		2. other assessment issues	2a. lack of fit to data 2b. retrospective pattern
Population dynamics	long-term patterns	1. abundance	1a. recent trend (up, down) 1b. recent values (relative to average)
		2. recruitment	2a. recent trend (up, down) 2b. recent values (relative to average)
Ecosystem	long-term patterns	1. ecosystem indicators that likely relate directly to the stock/complex	1a. recruitment covariates 1b. mortality covariates
		2. other ecosystem indicators	2a. within same trophic level as the stock 2b. within other trophic levels
Fishery/resource performance/behavior	long-term patterns	1. commmercial fishery CPUE	1a. recent trend (up, down) 1b. recent values (relative to average)
		2. local/traditional knowledge of resource condition or behavior	2a. resource condition 2b. resource behavior