RISK TABLE ECOSYSTEM

SSC WORKSHOP, FEBRUARY 2021

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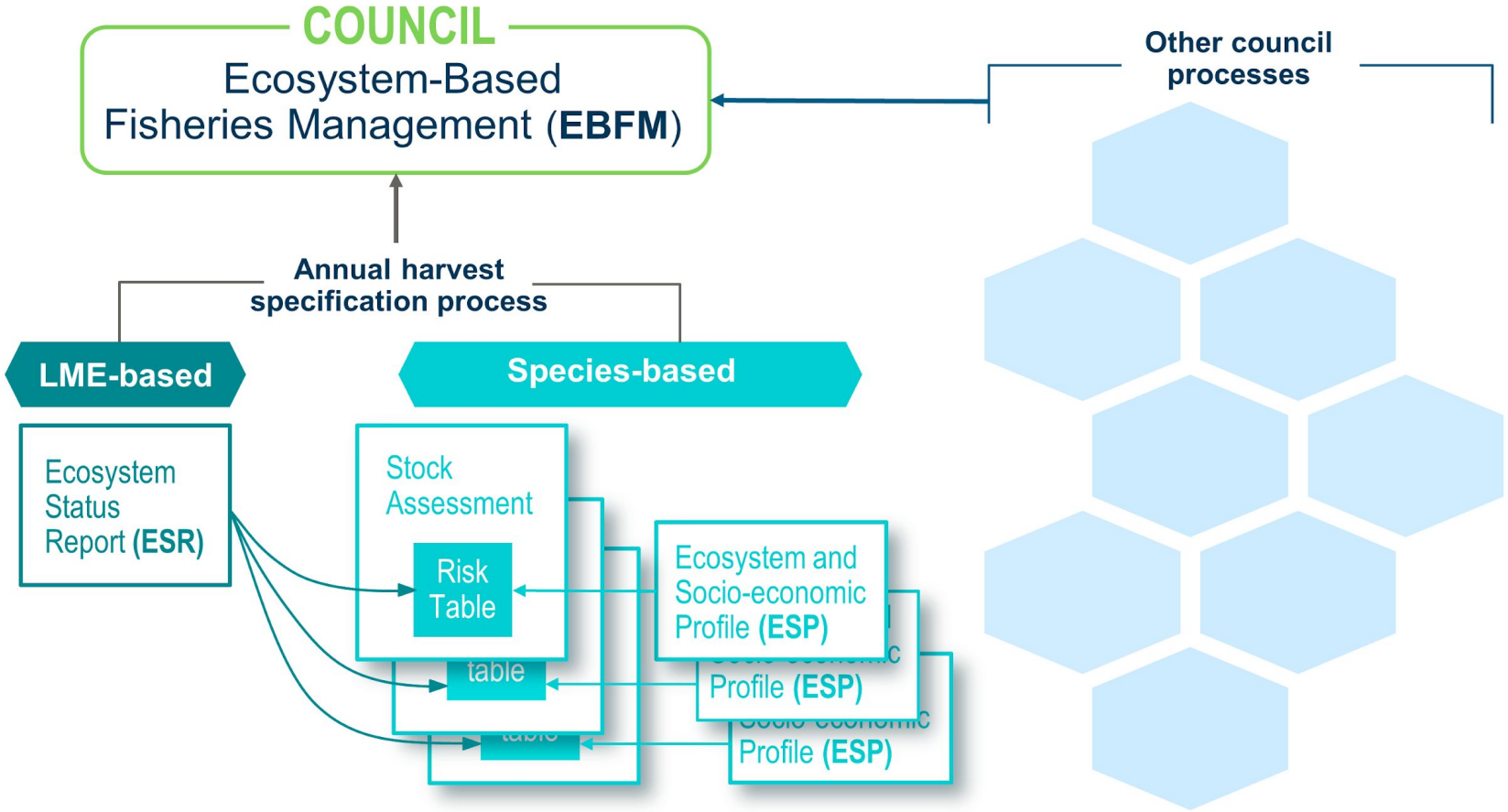
Historical overview of ecosystem information in risk tables, notables of stock responses, pathways from qualitative anomaly to quantitative projection

NOAA FISHERIES

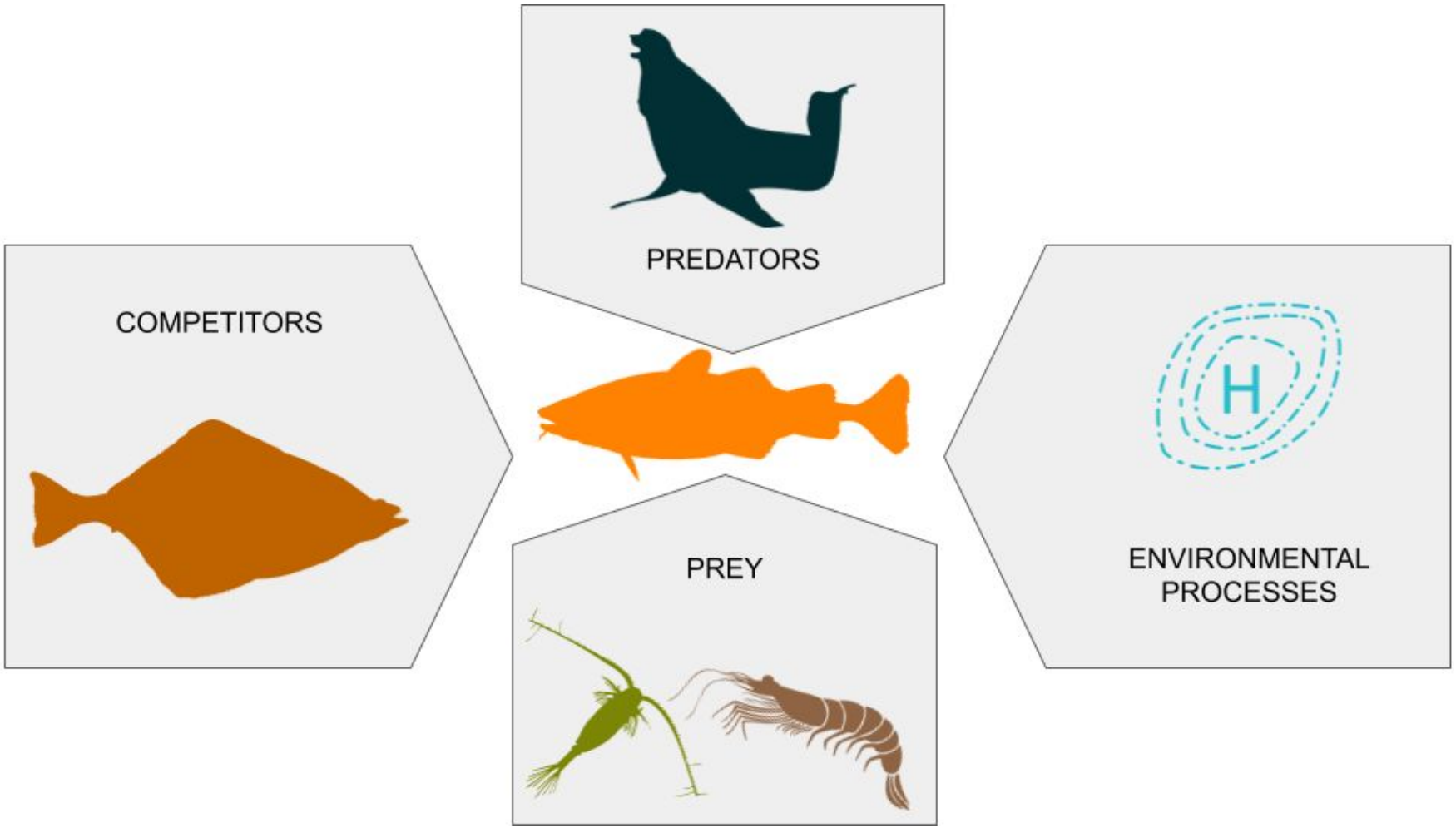
INFORMATION FLOW INTO RISK TABLES



HISTORY OF ECOSYSTEM INFO IN RISK TABLES

- ESR Editor Contribution
  - 2018: Five risk tables completed, 1-2 ESR editors talked to authors
  - 2019: 19 risk tables completed, ESR editors assigned, no template
  - 2020: 29 risk tables completed, ESR editors assigned, template
- ESP Contribution (4 stocks)
  - Sablefish risk table linked to ESP for all three years
  - As other ESPs were created, they contributed along with ESR input to the risk table summary

ECOSYSTEM TEMPLATE



ASPECTS OF ECOSYSTEM TO CONSIDER

- ESR categories template, generally specific to the stock
  - Describe adverse trends in all four categories, ⇩ ecosystem productivity, ecosystem model results if applicable
  - Reference indicators in the current ESR of the stock LME
- Overall recommendations from ESP
  - Presented by ecosystem and socioeconomic categories
  - Main takeaways from indicator analysis, could be quantitative using indicator analysis stages

STOCKS WITH ELEVATED ECOSYSTEM (all Level 2)

- Stocks with reduction
  - Generally had another category elevation, often population dynamics category, but not always (exception was EBS Pacific cod in 2019)
  - Usually several species-specific indicators, data-rich stocks
- Stocks without reduction
  - BSAI Greenland turbot and northern rockfish, GOA arrowtooth
  - Related to uncertain recruitment, cold pool, poor condition, lack of forage due to heat wave

STOCKS WITHOUT ELEVATED ECOSYSTEM

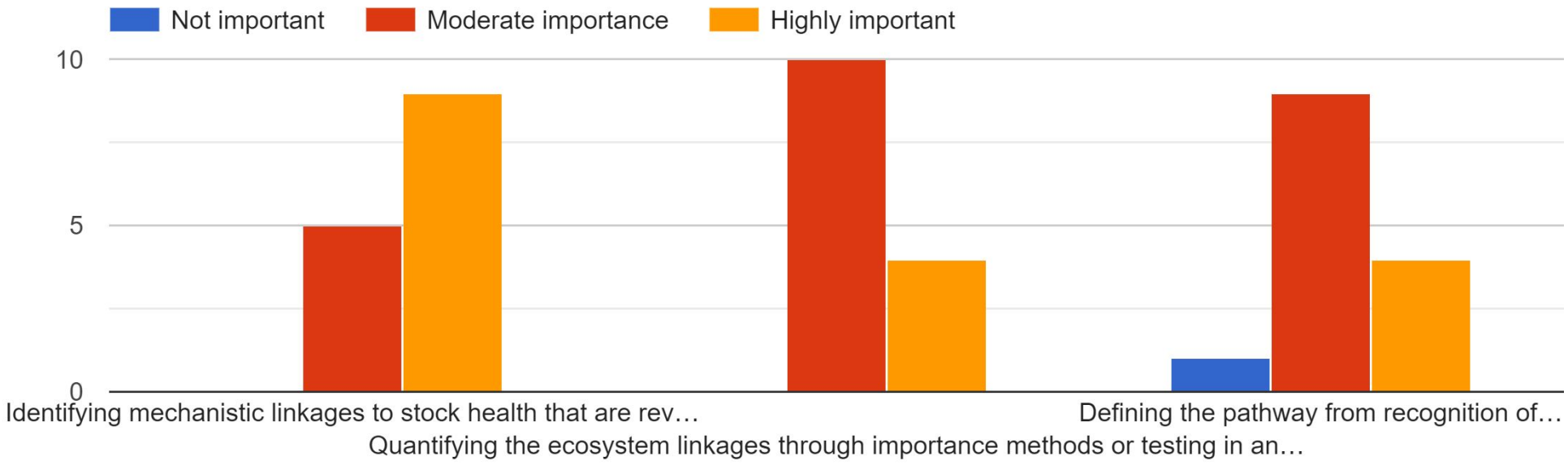
- Stocks with reduction
  - Still described a mix of indicators, just less than previous year
  - Limited information (e.g., no surveys) resulted normal level
- Stocks without reduction
  - Majority of stocks (31 of 39)
  - Still provided descriptions of four categories with a mix of signals

QUESTIONS RELATED TO ECOSYSTEM

- How to distinguish double-counting robustly? heatwave?
- How to weigh multiple indicators time series? direct vs indirect to stock
- How to choose the level value? mix of indicators described both level 1 and 2 concerns
- Can the same data be interpreted two ways or is this double counting? heatwave in population dynamics and ecosystem?
- Is there value to adding an "unknown" level? complexes, data-limited?
- 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?

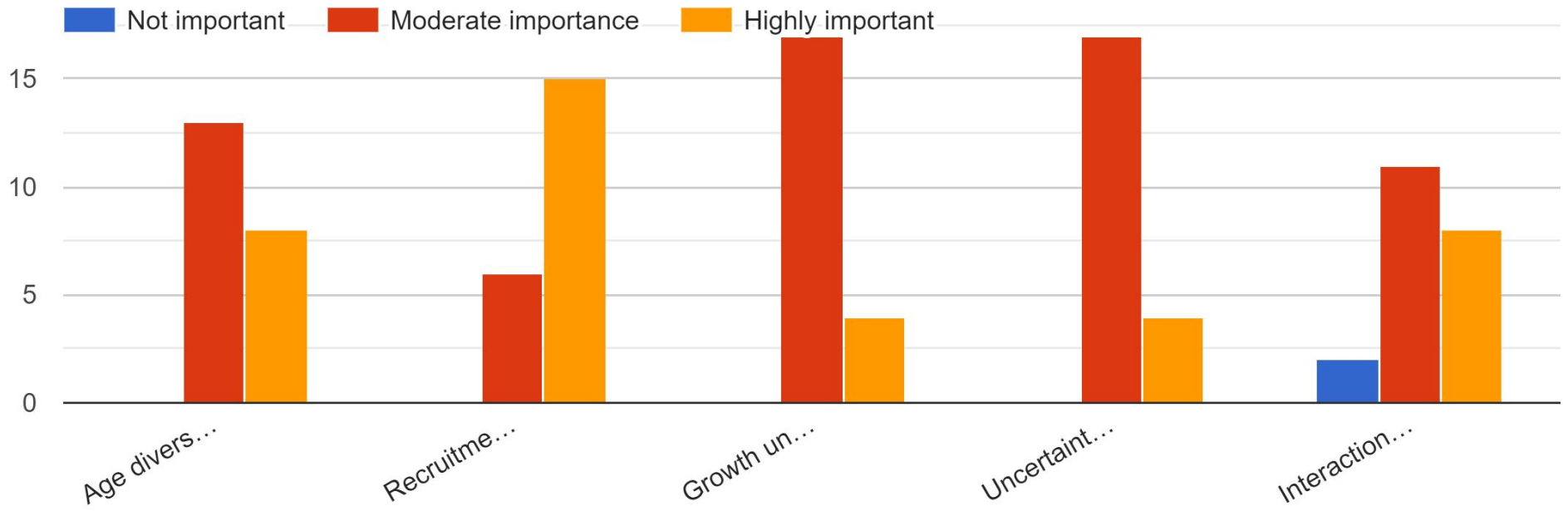
FORM SUMMARY - ECOSYSTEM

Discussion of tangible steps towards quantifying the importance of external changes in ecosystem conditions



FORM SUMMARY - POPULATION DYNAMICS

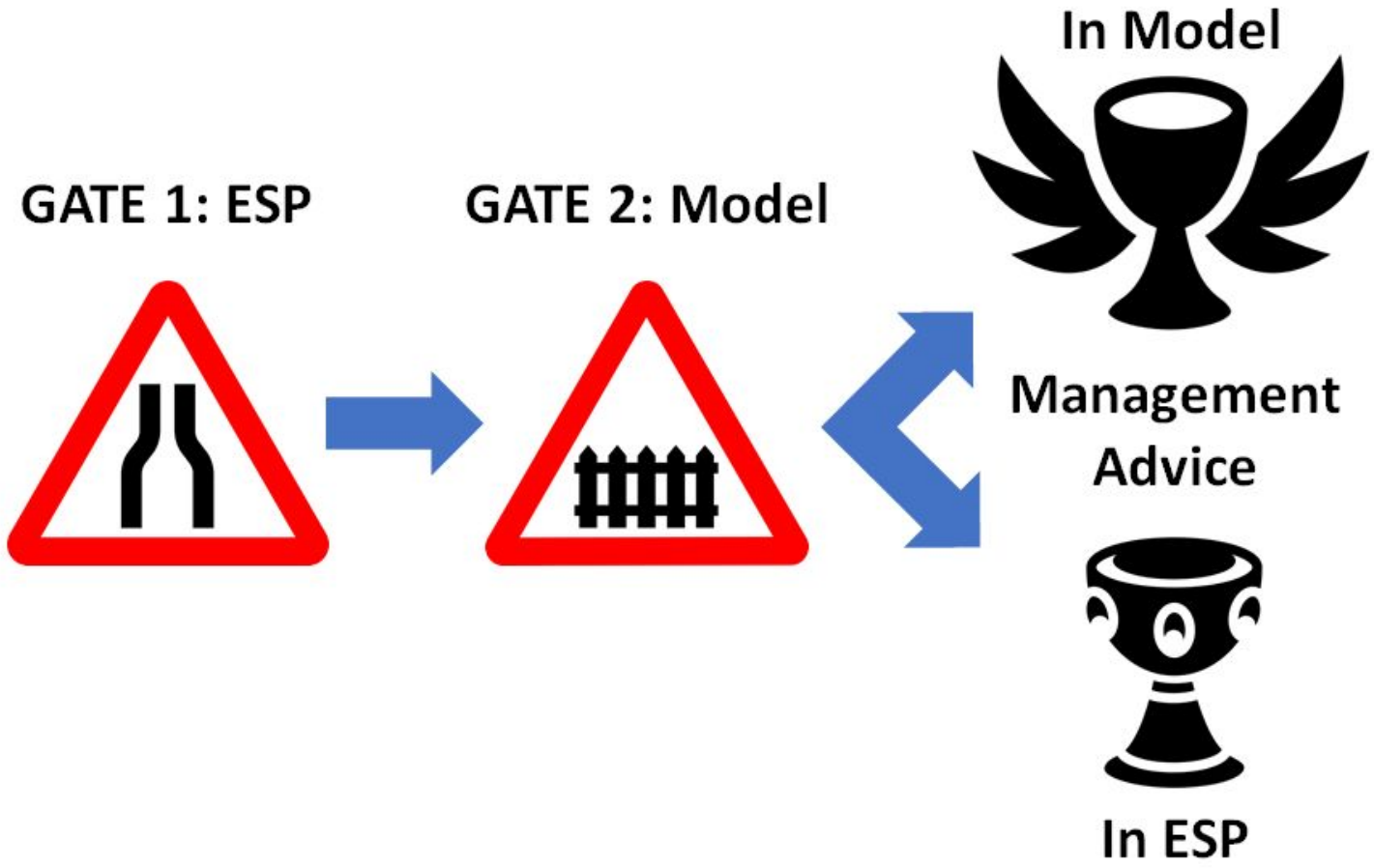
Discussion of tangible steps towards quantifying the risk of external changes in population conditions



POTENTIAL QUANTITATIVE PATHWAY

Indicator…

1. Is correlated with assessment model estimate
2. Has skill in retrospective testing experiment
3. Is biologically meaningful for the stock of interest
4. Has identified mechanistic link and is vetted by publication, council body, group of experts (e.g., ESP team), and/or stock assessment lead author



QUESTIONS?

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