



INTERNATIONAL PACIFIC



HALIBUT COMMISSION

Management Procedures

Agenda Item 4

IPHC-2020-MSAB015-07

Intersessional meeting of the Commission (1)

- Coastwide MSE Results.
- The Commission **NOTED**:
 - a) *SPR values greater than 40%**;
 - b) *A control rule of 30:20*;
 - c) *Constraints on the annual change in the TCEY that either limit the annual change to 15%, use a slow-up, fast-down approach, or fix the mortality limits for three-year periods, recognizing that additional types of constraints may also meet the objectives.*
- [IPHC-2020-CR-007](#)

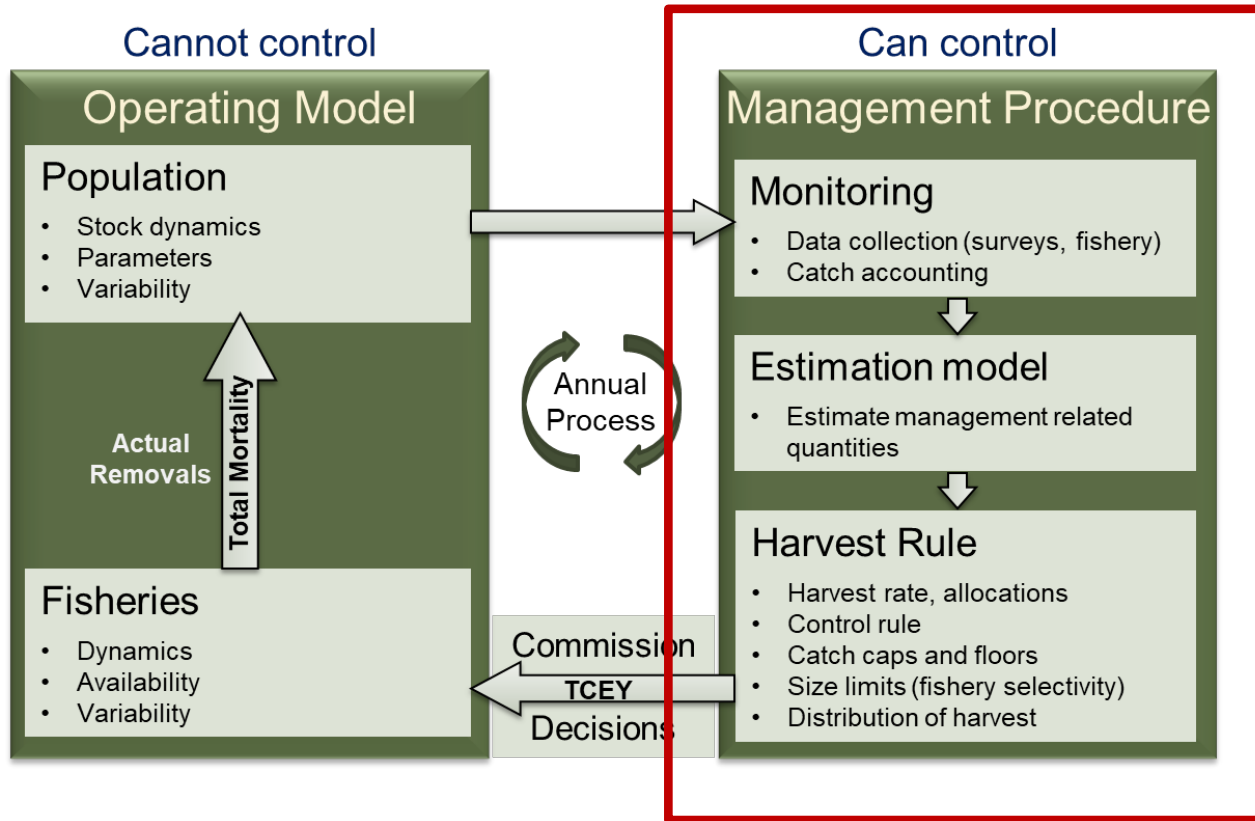


Intersessional meeting of the Commission (2)

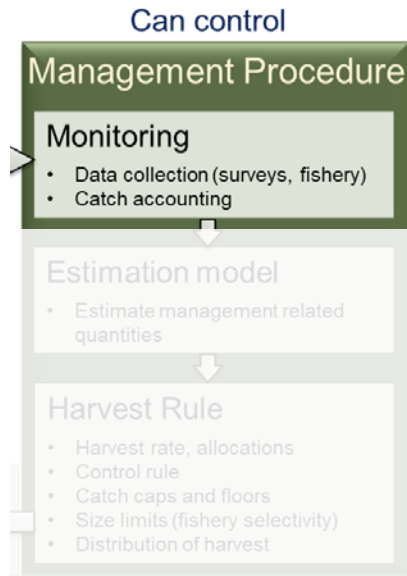
- **IPHC-2020-ID001:** The Commission **RECOMMENDED** that the **primary coastwide and area-specific objectives** outlined in Table 1 of Appendix A **be used for evaluating MSE results** conditional on future consideration of the objectives after preliminary MSE results are presented at MSAB015 in May 2020.
- **IPHC-2020-ID002:** The Commission **RECOMMENDED** **a reference SPR fishing intensity of 43% with a 30:20 control rule be used as an updated interim harvest policy consistent with MSE results** pending delivery of the final MSE results at AM097, noting the additional components intended to apply for a period of 2020 to 2022 as defined in IPHC-2020-AM096-R paragraphs 97 b, c, d, and e. Specifically, these additional components are allocations to 2A and 2B, accounting for some impacts of U26 non-directed discard mortality, and the use of a rolling three-year average for projecting non-directed fishery discard mortality.



The closed loop framework



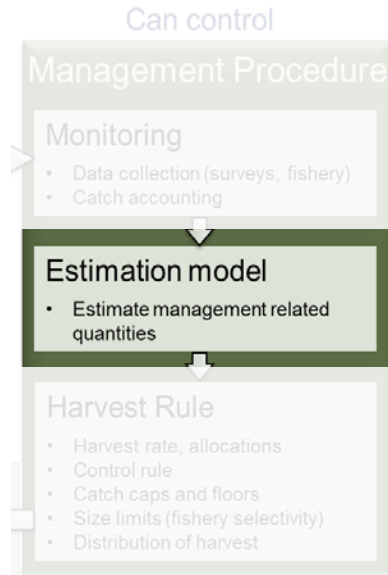
Monitoring



- Data generated with error from the OM
 - Indices of abundance (survey NPUE & commercial WPUE)
 - Catch-at-age
- Data provided at coastwide, Biological Region, and IPHC Regulatory Area levels



Estimation model

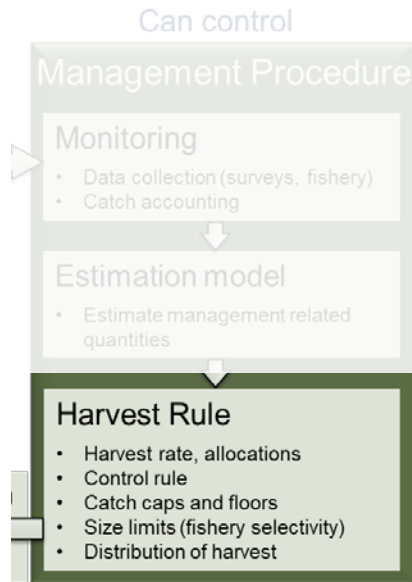


- Coastwide MSE: estimation error was simulated
- Area based MSE: ensemble of two coastwide estimation models
 - Long Coastwide
 - Short Coastwide



Harvest rule

- The HR is the application of the estimation model output to determine mortality limits for the upcoming year or years.



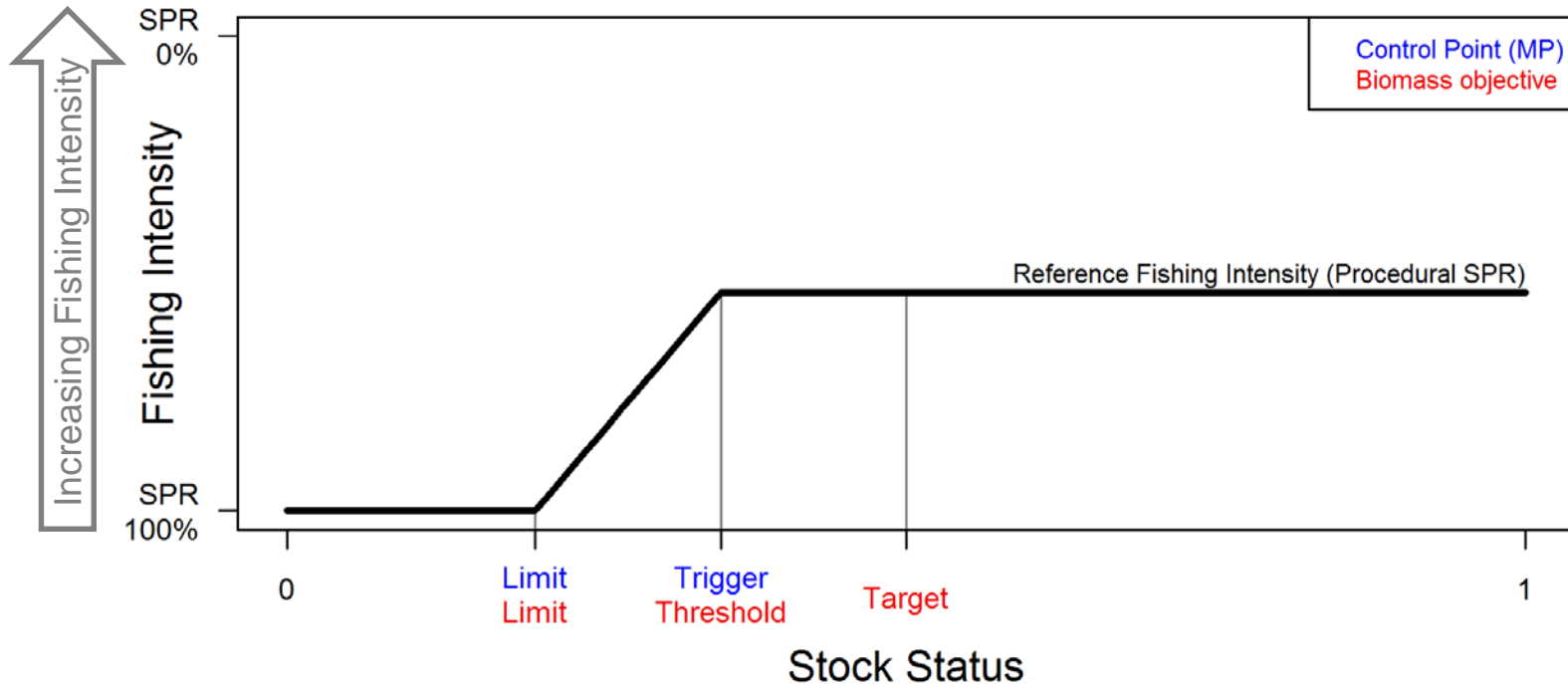
1. Coastwide component
2. Distribution component



Reference Points and Control Points

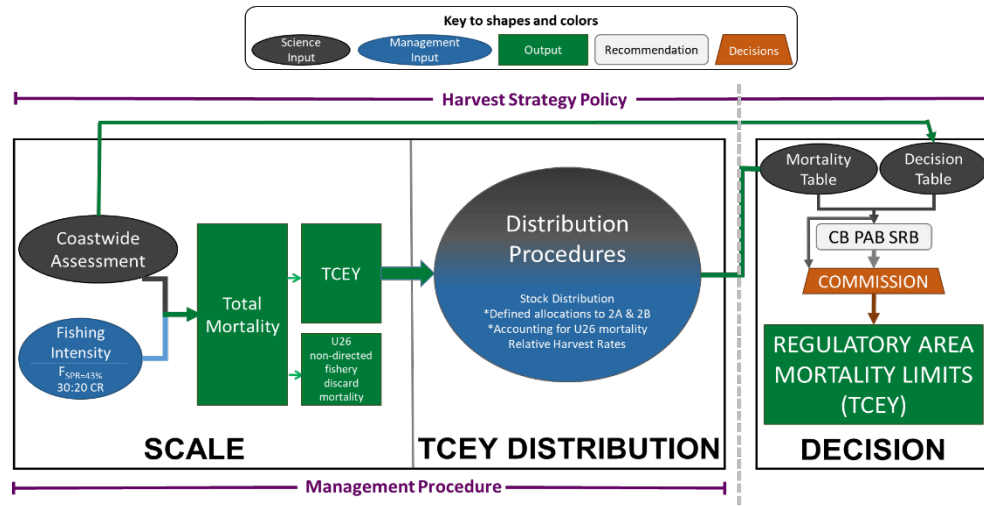
There is a difference between the MP and objectives

Harvest Control Rule



A procedure for distributing the TCEY (1)

1. Coastwide target fishing intensity (science-based & management-derived)
2. Regional Stock Distribution (science-based & management-derived)
3. Regulatory Area Allocation (science-based & management-derived)
4. Annual Regulatory Area Adjustment (policy-based)

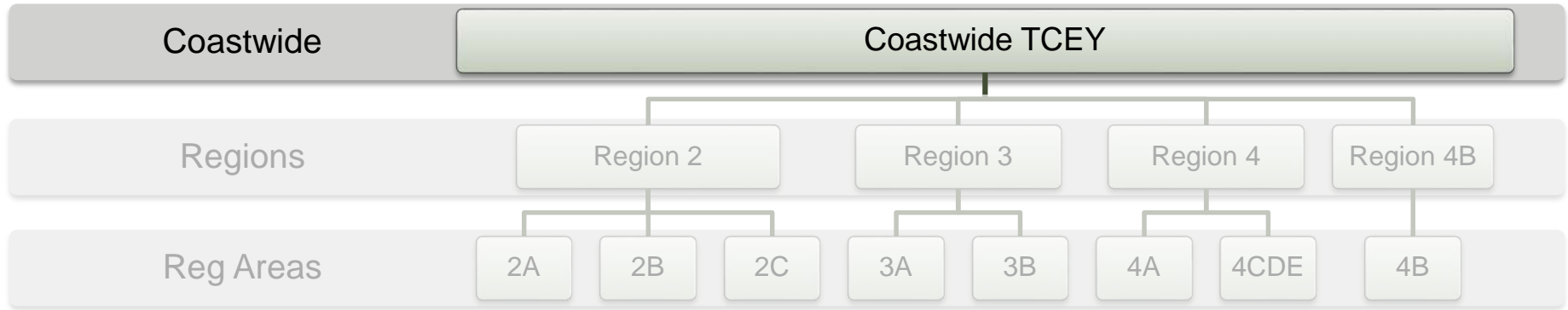


A procedure for distributing the TCEY (2)

1. Coastwide Target Fishing Intensity

Required

- Determine coastwide Total Mortality from Scale MP
- Separate TM into O26 (TCEY) and U26 components

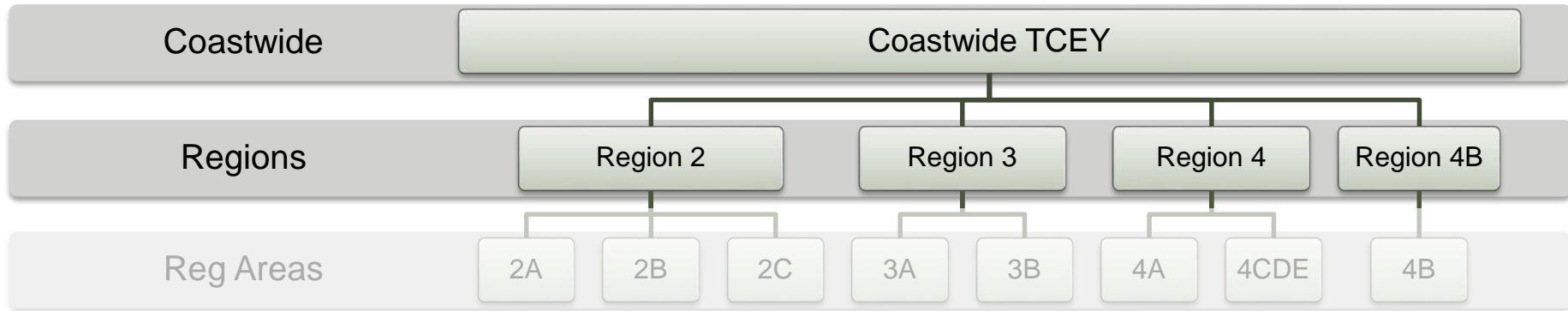


A procedure for distributing the TCEY (3)

2. Regional Stock Distribution

Optional

- Stock distribution using proportion of the stock estimated from the WPUE index.
- Relative fishing intensity to adjust the distribution in account of migration, productivity, etc...
- **Regional Allocation adjustment to account for other factors.**

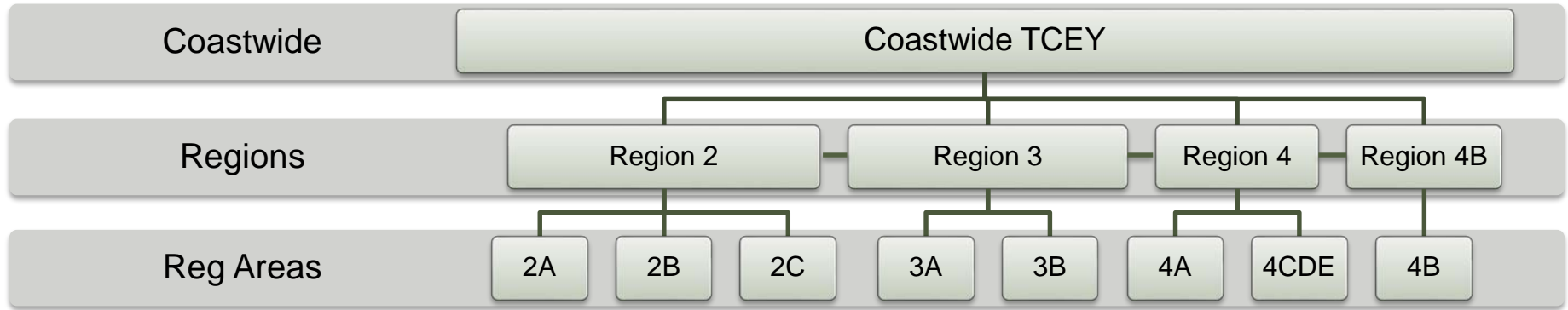


A procedure for distributing the TCEY (4)

3. Regulatory Area Allocation

- Stock distribution using proportion of the stock estimated from the WPUE index.
- Regulatory area allocation

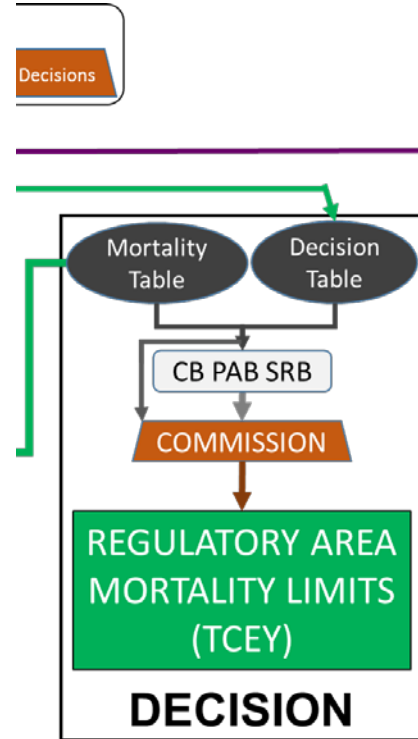
Required



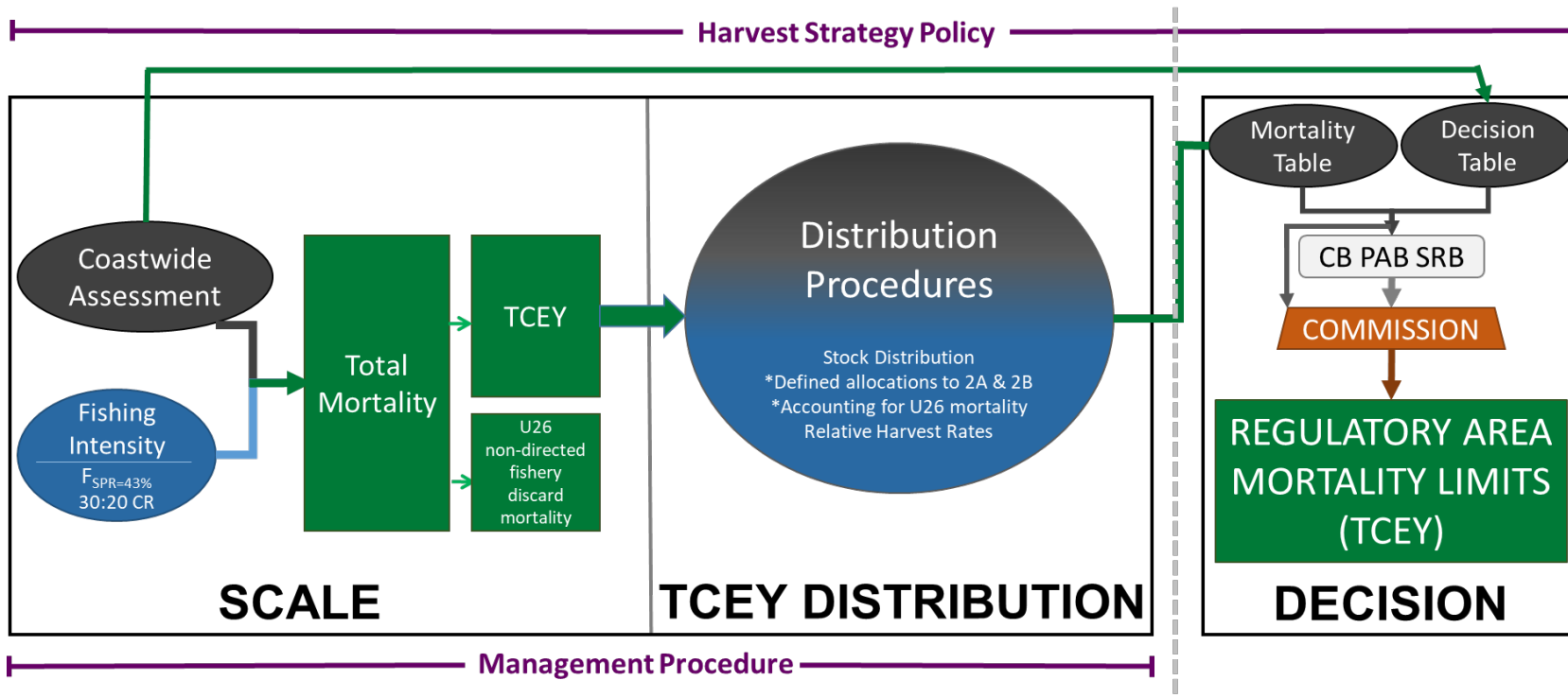
A procedure for distributing the TCEY (5)

4. Annual Regulatory Area Adjustment

- Adjust Regulatory Area TCEY's to account for other factors as needed
- May deviate from the management procedure
 - Will have unpredictable consequences



Interim IPHC harvest strategy policy



Interim MP

- Coastwide fishing intensity
 - Reference SPR 43%
 - 30:20 harvest control rule
- Distribution component:
 - Estimated from the space-time model mean O32 WPUE indices for each IPHC Regulatory Area
 - Relative harvest rate adjustments
 - Allocation adjustments: 1.65 million pounds for IPHC Regulatory Area 2A and an allocation for IPHC Regulatory Area 2B based on both stock distribution and a fixed percentage (agreement until 2022)



MSAB014

Specific elements of candidate management procedures were requested for evaluation (paragraph 55 of [IPHC-2019-MSAB014-R](#)):

- *a) A coastwide constraint using a slow-up, fast-down approach with a maximum change in the TCEY of 15%;*
- *b) evaluating different relative harvest rates across IPHC Regulatory Areas or Biological Regions;*
- *c) distributing the TCEY directly to IPHC Regulatory Areas;*
- *d) A fixed shares concept for all or some IPHC Regulatory Areas, Biological Regions, or Management Zones with options to distribute the TCEY to the areas without a fixed share. The determination of these shares may be fixed or varying over time; and*
- *e) A maximum fishing intensity defined by an SPR of 36% to act as a buffer when distributing the TCEY to IPHC Regulatory Areas.*



Management Procedures for current MSE (1)

- Set of MPs proposed at MSAB014
(<https://www.iphc.int/uploads/pdf/msab/msab014/iphc-2019-msab014-r.pdf>)
- The tools considered:
 - a) Modelled survey estimates (e.g. relative biomass estimates by Biological Region, IPHC Regulatory Areas or other scale, O32 WPUE, trend in O32 WPUE, etc..).
 - b) Fishery Dependent Data (e.g. trend in CPUE by Biological Region, IPHC Regulatory Area or other scale).
 - c) Practical Tools (e.g. relative harvest rate, percentage allocation to an IPHC Regulatory Areas, proportion of adopted TCEY, etc...).



Management Procedures for current MSE (2)

- Coastwide TCEY
 - Reference SPR 43%
 - 30:20 harvest control rule

 - Application of different constraints
- Distributing the TCEY
 - Main tool is the O32 stock distribution
 - Most MP distribute directly to reg areas
 - Different relative harvest rates adjustments
 - Interim adjustments for reg area 2A and 2B



Management Procedures for current MSE (3)

- MaxChangeBoth15%
 - TM limit constrained to change no more than xx percentage
- SlowUpFastDown
 - TM limit increases by 1/3rd of increase suggested by harvest control rule
 - TM limit decreases by 1/2 of decrease suggested by harvest control rule
- MaxChangeBoth20% & MaxChangeUp15%
- SlowUpFullDown
 - TM limit increases by 1/3rd of increase suggested by harvest control rule
 - TM limit decreases by full decrease suggested by harvest control rule
- Multi-year mortality limits



Some tools considered (1)

- O32 vs “all sizes”
 - “all sizes” stock distribution is largely composed of O26 Pacific halibut due to the selectivity of the setline gear, and is therefore more congruent with the TCEY
- Biological Region vs IPHC Regulatory Areas
 - Conservation objective is at a biological region level



Some tools considered (2)

- Interim adjustments by IPHC Regulatory Areas
 - This may limit yield in years when the stock biomass is high, and lower biomass in times of reduced productivity
- Constraints vs. no-constraints
 - Trade-off between catch stability and catch opportunities
 - Constraints both at coastwide or at area level might help satisfying all objectives.

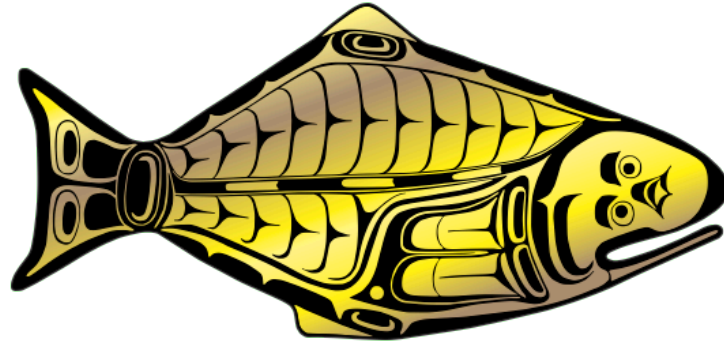


Recommendations

- **NOTE** paper IPHC-2020-MSAB015-07 which includes discussion on management procedures to distribute the TCEY
- **RECOMMEND** that the distribution framework consisting of a coastwide TCEY distributed to Biological Regions based on stock distribution, relative fishing intensities, and other allocation adjustments, and then distributed to IPHC Regulatory Areas based on other data, observations, or agreement is a useful starting point for developing management procedures to distribute the TCEY, although the coastwide TCEY may be distributed directly to IPHC Regulatory Areas.
- **AGREE** that the tools listed here are the tools to be considered for the development of management procedures to evaluate in 2020.



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