

A large pile of fish, likely salmon, on a boat deck. The fish are piled together, with some showing signs of being cut or processed. The background is a bright, overexposed area, possibly the sky or a large body of water.

Goals, objectives, performance metrics

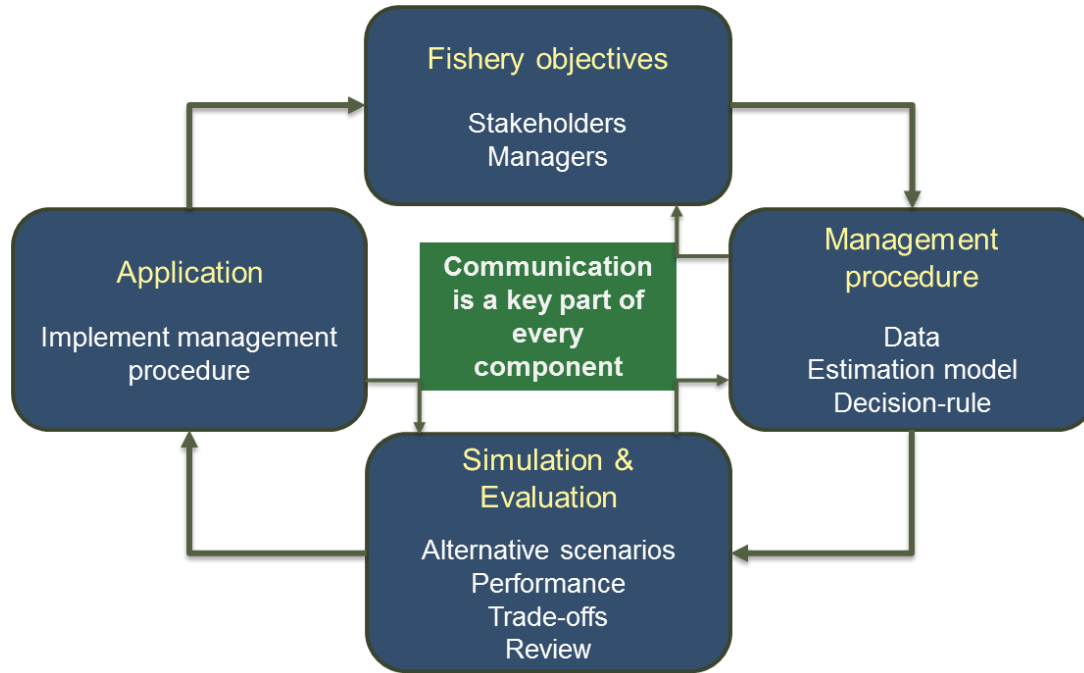
Management Strategy
Advisory Board 10

October 23-26, 2017

IPHC-2017-MSAB10-08

A review

- The MSE process consists of defining goal, objectives, and performance metrics



Fishery Terms

- **Commercial:** directed commercial fishery, no discards
- **Discard Mortality:** mortality in the commercial fishery that is not landed (formerly wastage)
- **Bycatch:** mortality from fisheries not targeting Pacific halibut
- **Recreational:** mortality from recreational/sport fisheries
- **Subsistence:** mortality for subsistence/personal use purposes



Six goals

1. Biological sustainability
2. Fishery sustainability, access, and stability
3. Minimize discards
4. Minimize bycatch and bycatch mortality
5. Serve consumer needs
6. Preserve biocomplexity



Biological Sustainability

Measurable Outcome	Outcome	Time-frame	Probability	Performance Metrics
Maintain a minimum of number of mature female halibut coast-wide	Number of mature female halibut less than a threshold	10 year period, long-term	0.01	$P(Y < X)$ $Y = SSB \text{ or } RSB \text{ or } dRSB$
Maintain a minimum spawning stock biomass	$RSB < 20\%$ of unfished biomass	10 year period, long-term	0.05	$P(RSB < 20\%)$
Maintain a minimum spawning stock biomass	$RSB < 30\%$ of unfished biomass	10-year period, long-term	0.25	$P(RSB < 30\%)$
When Limit < Estimated Biomass < Threshold, limit the probability of declines	SSB declines when $20\% < RSB < 30\%$	10 year period, long-term	0.05 – 0.5, depending on est. stock status	$P(SSB_{i+1} < SSB_i)$ given $20\% < RSB < 30\%$
Spawning Biomass	An absolute measure	10 year period, long-term	NA	Median \overline{RSB}

Fishery Sustainability, Stability, and Access

Measurable Outcome	Outcome	Time-frame	Probability	Performance Metrics
Maintain directed fishing opportunity	Fishery is open	Each year	0.05	$P(FCEY = 0)$
Maximize yield in each regulatory area		Each year	0.5	
Maintain median catch	Within $\pm 10\%$ of 1993-2012 average	Within 5 yrs, 10 yr per, long term		$P(FCEY > 110\% \text{ or } FCEY < 90\%)$
Maintain average catch	> 70% of historical 1993-2012 average	10 year period, long-term	0.1	$P(FCEY < 70\%)$
Limit annual changes in TAC, coast-wide and/or by Regulatory Area	Change in FCEY < 15%	10 year period, long-term		$P\left(\frac{FCEY_{i+1} - FCEY_i}{FCEY_i} > 15\%\right)$
FCEY	An absolute measure	10 year period, long-term	NA	Median \overline{FCEY}
Variability in FCEY	An absolute measure	10 year period, long term		Average Annual Variability (AAV)

Minimize Discard Mortality (Wastage)

Measurable Outcome	Outcome	Time-frame	Probability	Performance Metrics
Discard Mortality in the longline fishery	<10% of annual catch limit	10 year period, long-term	0.25	$P(\text{wastage} > 10\%FCEY)$
Discard Mortality	An absolute measure	10 year period, long-term		Median $\overline{\text{wastage}}$

Serve Consumer Needs

Measurable Outcome	Outcome	Time-frame	Probability	Performance Metrics

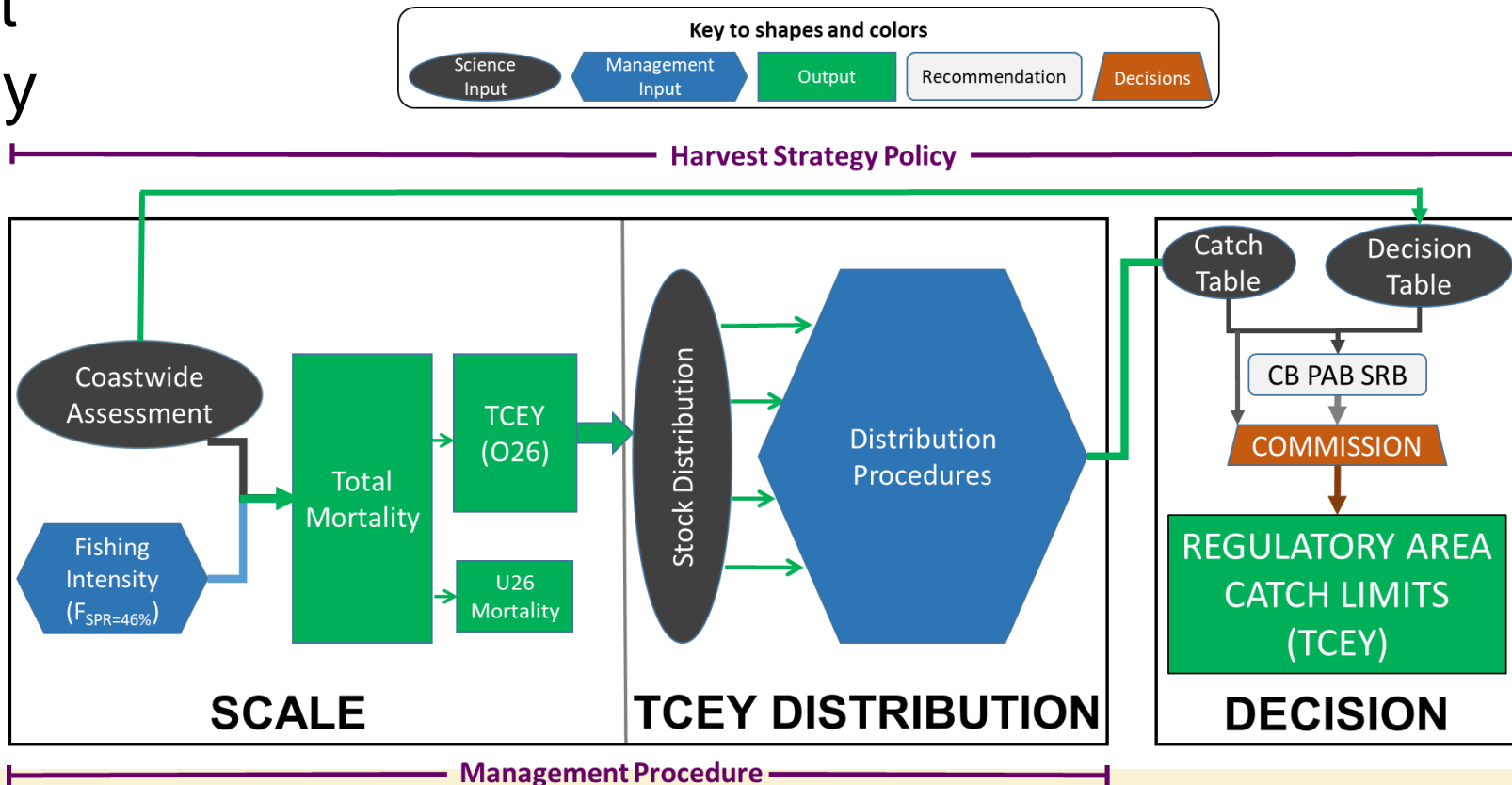
Preserve biocomplexity

Measurable Outcome	Outcome	Time-frame	Probability	Performance Metrics



Linking the objectives to the HSP

Harvest Strategy Policy



Linking the objectives to the HSP

Goal	Component of HSP
Biological Sustainability	Scale
Fishery Sustainability	Scale, Distribution
Minimize Discard Mortality	Scale, Distribution, Other
Serve Consumer Needs	
Preserve Biocomplexity	Distribution

