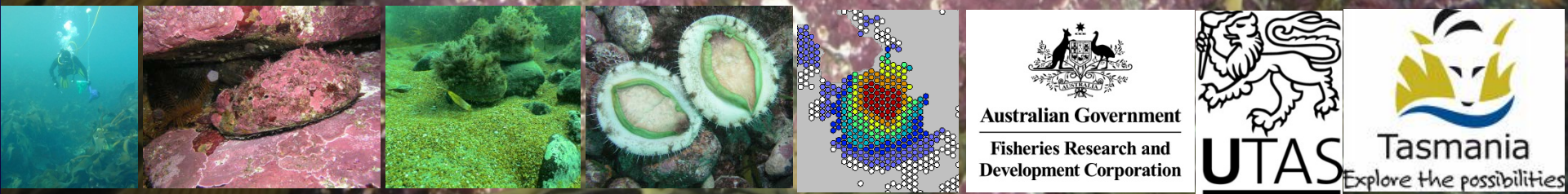




# Abalone Harvest Strategy Option 1: Multi Criteria Decision Analysis:

Craig Mundy  
INSTITUTE FOR MARINE  
AND ANTARCTIC STUDIES

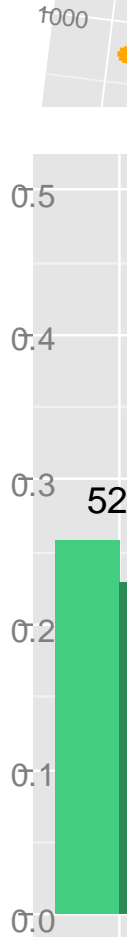


# Why do we need improved decision processes?

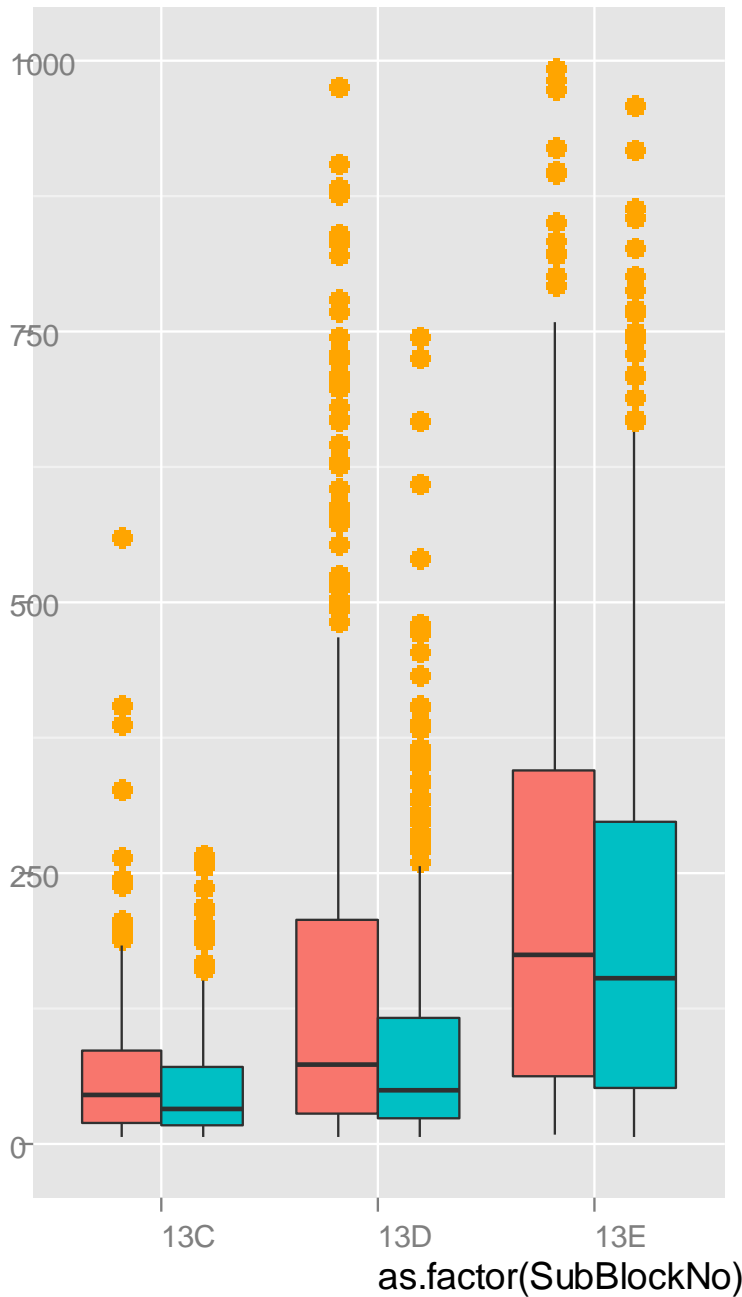
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- More precise information and timely decisions to match exploitation with stocks
- Objective decision pathways based on robust data;
- *Quantify local fisher knowledge*
  - Partially achieved by Geo-referenced diver data
- What worked 30 years ago may not be useful now, or into the future

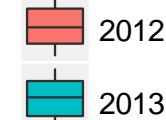
perc



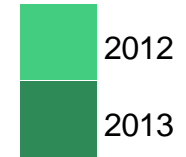
blcatch\_kg



as.factor(FishYear)



Short Dives



Fi -100  
-150

# But how do we use all this in management??

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## Empirical Performance Measures + Harvest Strategy

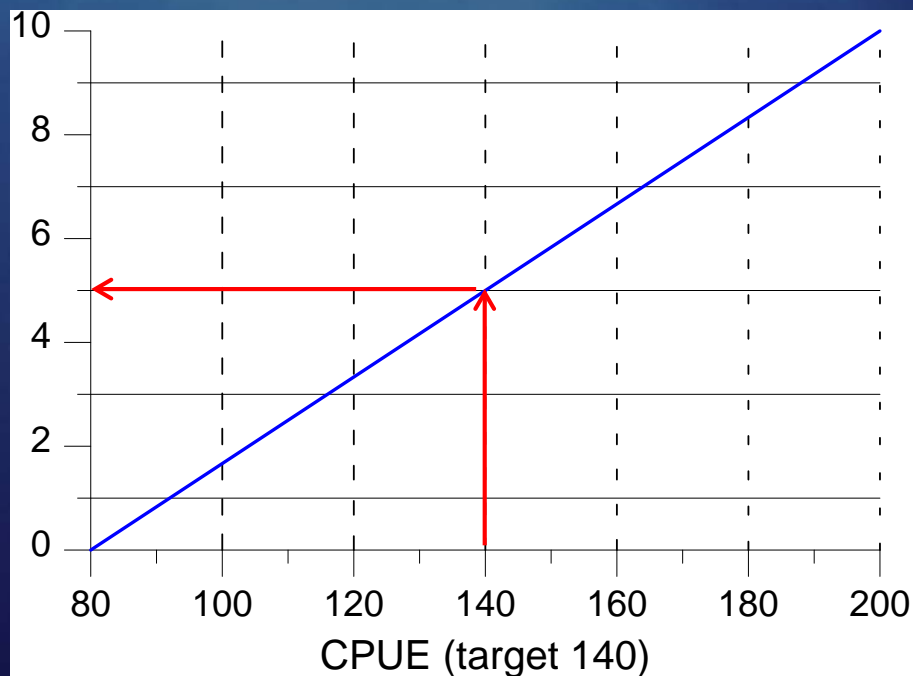
### HS → Multi Criteria Decision Analysis

- Weighted Sum Model approach developed for Tasmania
- Flexible structure & can incorporate multiple quantitative variables (criteria)

# Scoring Function: CPUE indicators

## Performance Measure 1

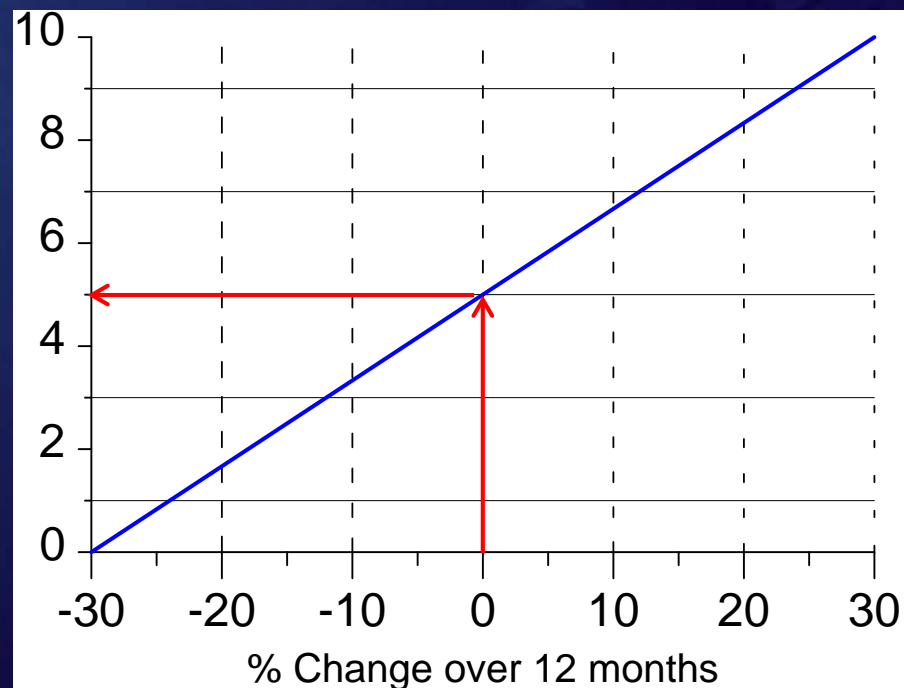
CPUE Target 140 Kg/Hr = 5



Weight PM: 0.5

## Performance Measure 2:

% change in CPUE over past 12 months



Weight PM: 0.5

Joint workshop to consider process to set Targets for each SAU  
More workshops to follow

# Mechanics of the MCDA

For each spatial unit;

	CPUE Target	CPUE % Change 12month			
Criteria Score	a	b			
Criteria Weight	0.5	0.5			(Sum to 1)
	a x 0.5	b x 0.5			SUM(LEFT) Value : 0 - 10

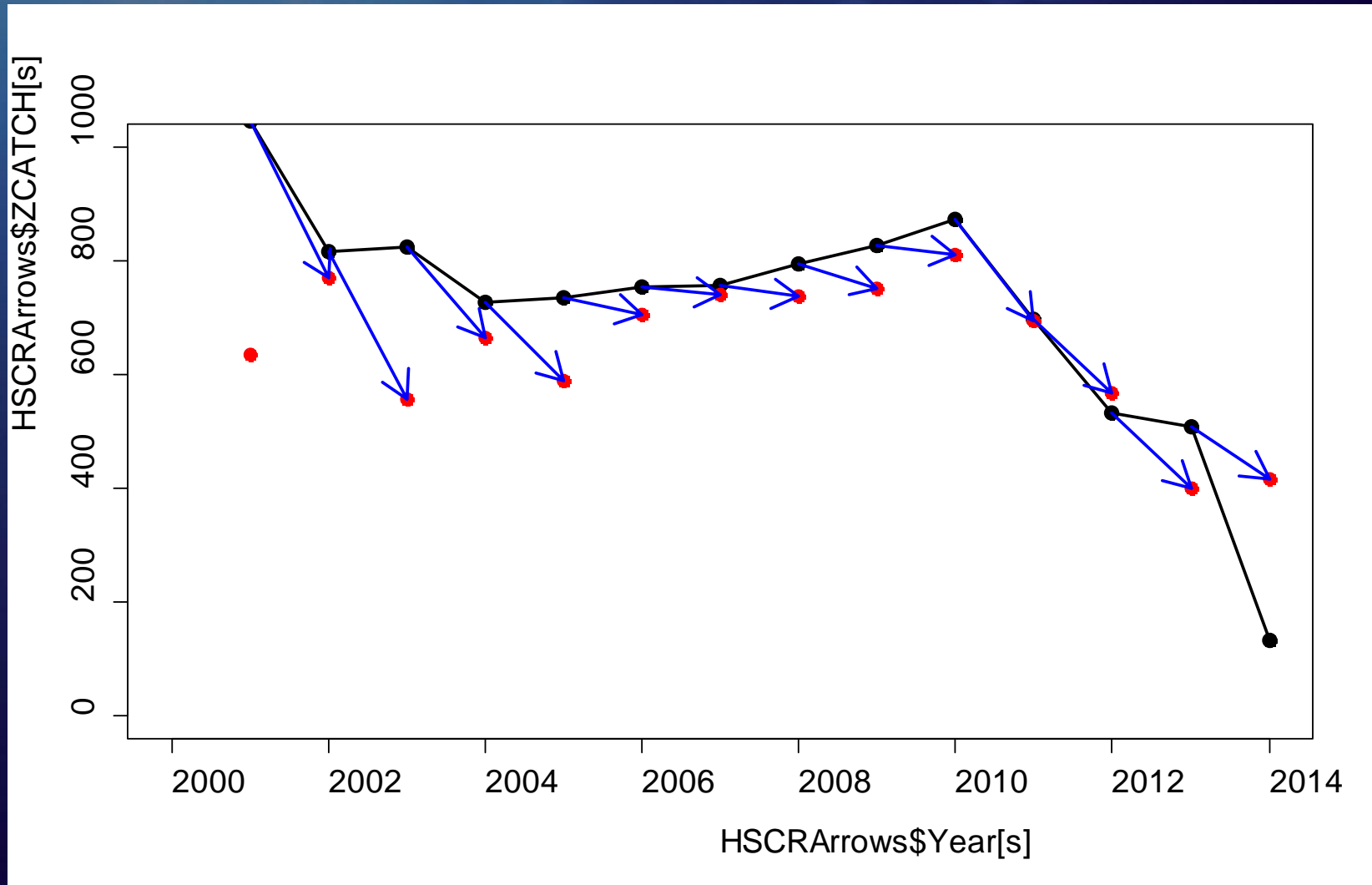
## TAC Decision Framework

(Dichmont & Brown (2010) *A Case Study in Successful Management of a Data-Poor Fishery Using Simple Decision Rules: the Queensland Spanner Crab Fishery*)

Score	<1	1 - 2	2 - 3	3 - 4	4 - 4.5	4.5 - 6	6 - 7	7 - 8	> 8
TAC Adjust	-100%	-35%	-25%	-15%	-5%	NC	5%	5%	10%

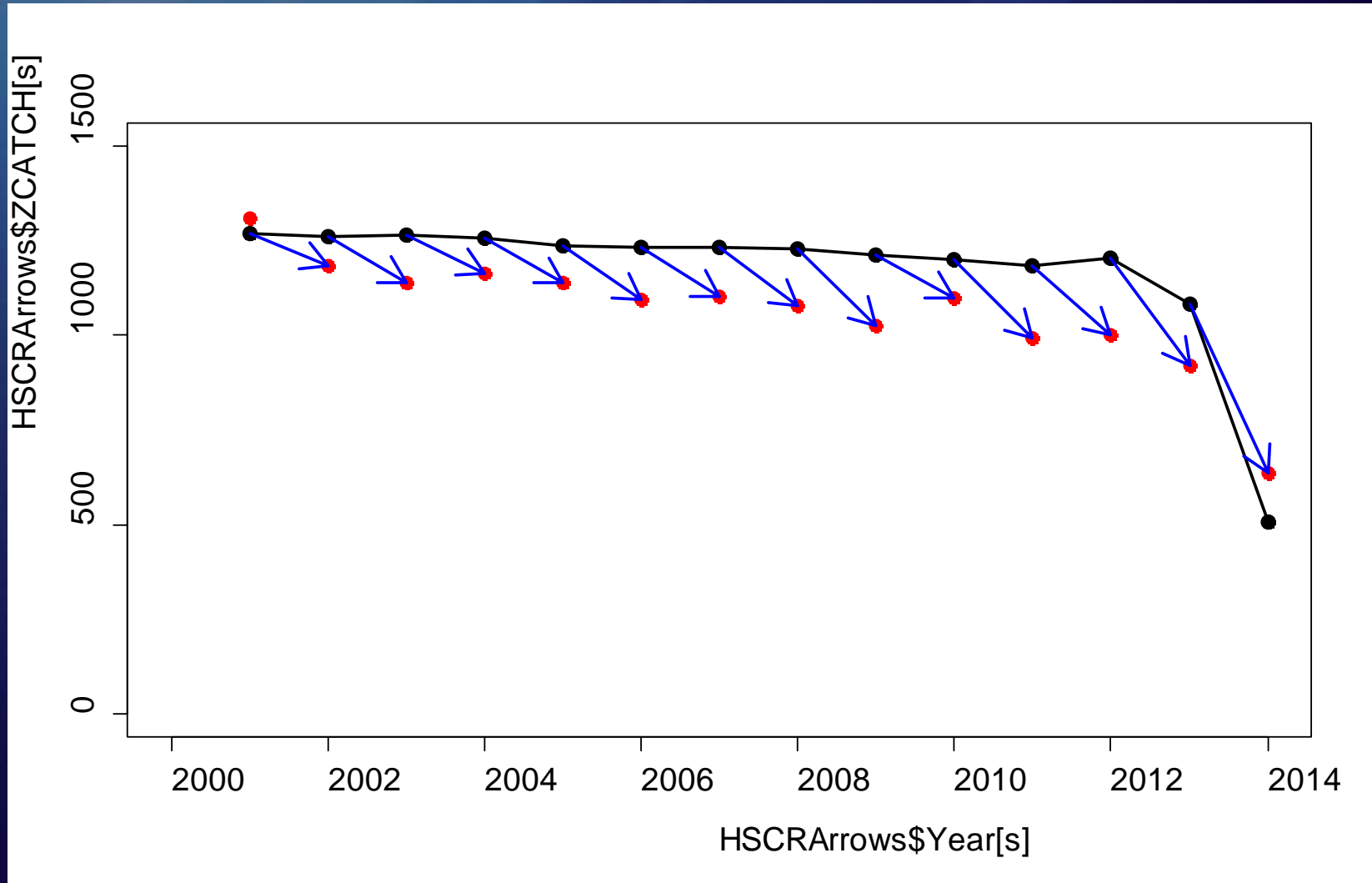
# Eastern Zone: Historical evaluation of Harvest Strategy Control Rule

- CPUE Target: 85Kg/Hr (Zero TAC if CPUE hits 25Kg/Hr)
- CPUE Change Target: 0% change



# Western Zone: Historical evaluation of Harvest Strategy Control Rule

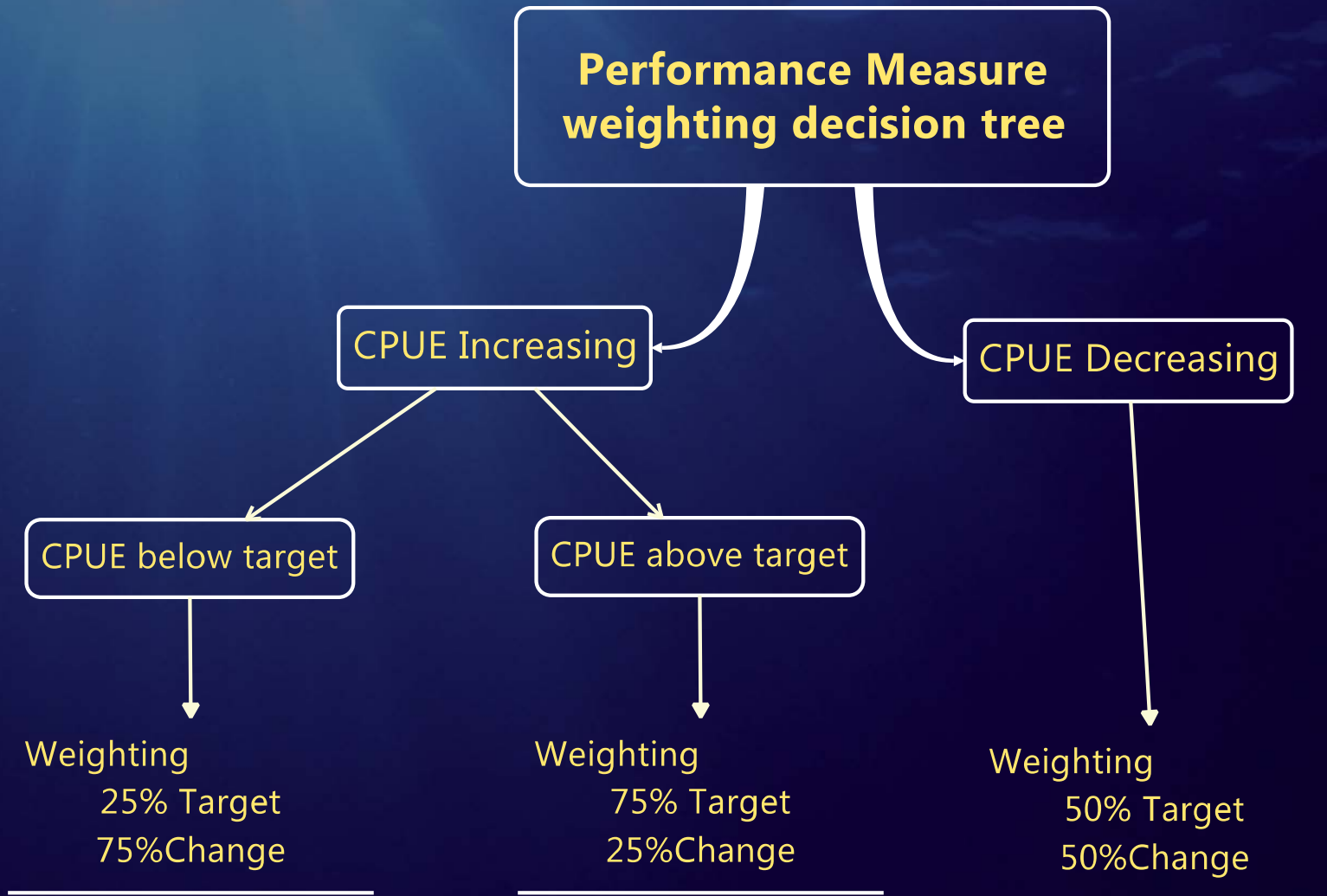
- CPUE Target: 140Kg/Hr (Zero TAC if CPUE hits 80Kg/Hr)
- CPUE Change Target: 0% change





# Rules for Performance Measure weighting

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# Hierarchical MCDA

