

Defining Measurable Objectives based on the Council's Overarching Goals

Abundance-Based Management of Pacific Halibut PSC limits
Public Workshop

February 2, 2017

Council
defined
overarching
goals

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Our job: help
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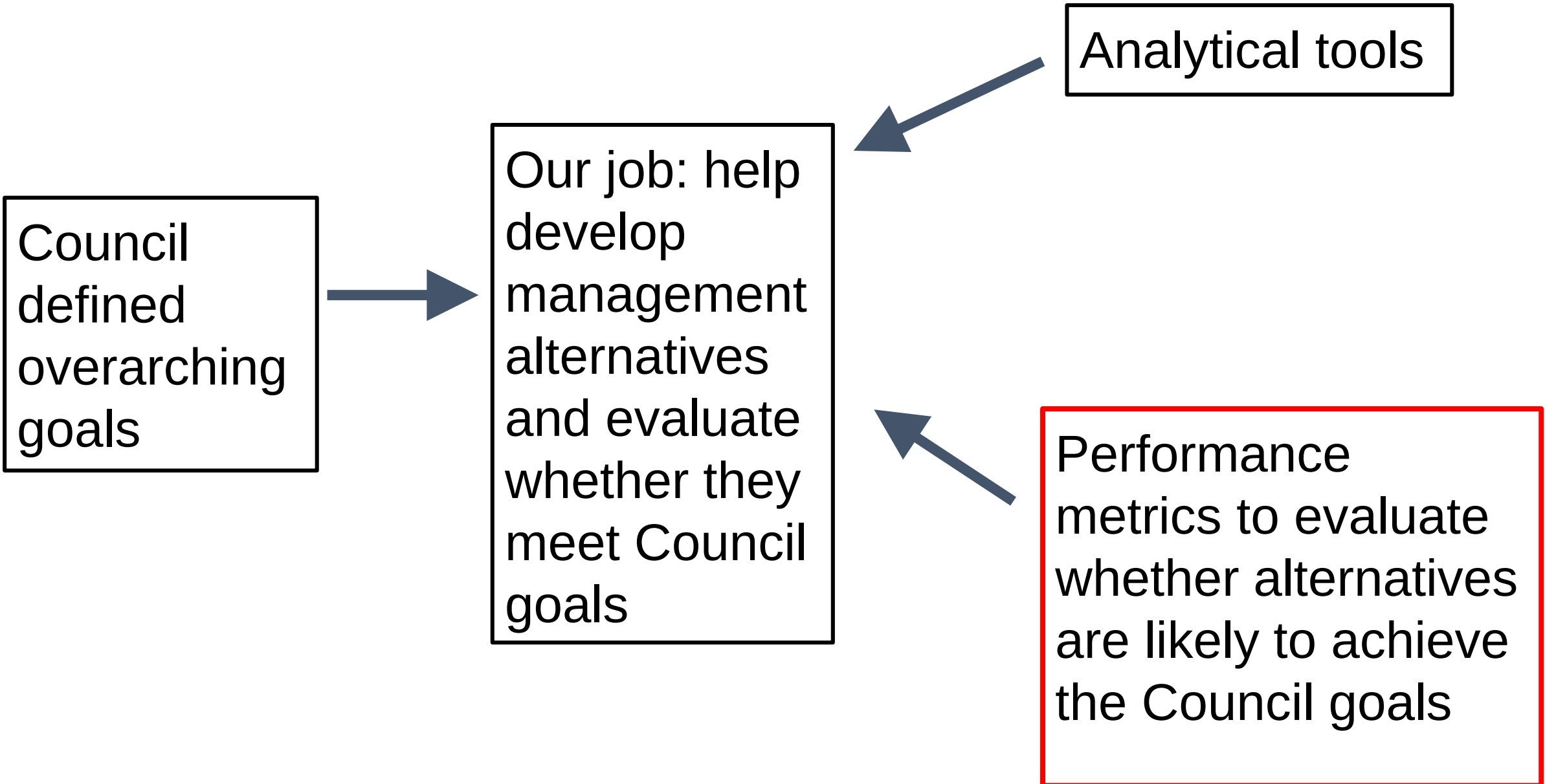
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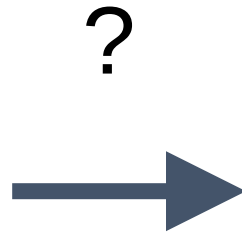


Analytical tools



How do we define the performance metrics needed for our evaluation?

Council defined
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Performance
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Changing Goals to Objectives

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 1. An outcome (what you want)
 2. A time frame (when you want the outcome)
 3. A probability (tolerance for failure)

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- User participation can help change goals to objectives
- Objectives for natural resources must have:
 1. An outcome (what you want)
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 3. A probability (tolerance for failure)
- These 3 elements change Goals to **Measurable** Objectives
- Objectives may be in conflict with one another; this is typical

Changing Goals to Objectives: Example

Goal: Be a healthier person

Measurable Objective:

1. *Outcome:* Lose x pounds
2. *Time Horizon:* Evaluate over the next z months
3. *Probability:* $y\%$ chance of success of losing x pounds after z months

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Changing Goals to Objectives: Example

Do you want to lose weight?

Measurable Objective	Threshold	Time Frame	Probability/Risk tolerance

Changing Goals to Objectives: Example

Goal: Maintain a Healthy Fish Stock

Measurable Objective:

1. *Outcome:* Spawning stock greater than 20% of unfished biomass
2. *Time Horizon:* Evaluate over x years
3. *Probability:* A 95% probability of spawning stock greater than 20% of unfished biomass after x years

Evaluating Alternatives

- Simulation analysis can be used to evaluate alternative management strategies against defined objectives

		Alternatives					
		A	B	C	D	E	F
Objectives	Conservation						
	Average biomass	XX	XX	XX	XX	XX	XX
	Biomass above value	Probability	Probability	Probability	Probability	Probability	Probability
	Yield						
	Average yield	XX	XX	XX	XX	XX	XX
	Variability in yield	XX	XX	XX	XX	XX	XX
	Catch above a value	Probability	Probability	Probability	Probability	Probability	Probability

There should be flexibility provided to avoid unnecessarily constraining the groundfish fishery particularly when halibut abundance is high

- What is the minimum catch to prosecute the groundfish fishery?
- Is there a desired minimum catch?
- Are there market constraints that should be considered?
- At what level of lost yield are you economically harmed?
- Is foregone yield (unrelated to TAC negotiations) something to consider?
- How does Flatfish Flexibility factor into the considerations above?
- What incentives exist or can be developed to minimize bycatch?

Provide for some stability in PSC limits on an interannual basis

- What % change in PSC limits interannually disrupts groundfish planning and management activities?
- At what % change in PSC limits interannually is 4CDE directed halibut fishery planning affected?
- Will incentives to minimize bycatch be reduced if PSC limits jump up quickly from one year to next?

Halibut spawning stock biomass should be protected especially at lower levels of abundance

- What is a useful measure for the impact on spawning biomass?
- Should a maximum level of impact on spawning biomass be specified?
- Is there a desired minimum abundance/biomass of spawning halibut?
- Is there a target spawning abundance/biomass?
- Is there a threshold spawning abundance/biomass?
- Should precautionary action be taken when below the threshold, and when below the minimum?

Provide for directed halibut fishing operations [in the Bering Sea]

- Is there a minimum FCEY to prosecute the directed halibut fishery in 4CDE?
- Is there a target FCEY in 4CDE?
- Are there market constraints for the directed fishery in 4CDE that should be considered?
- Should the directed halibut fishery O32 (or O26) catch limit be greater than a specific proportion of the total O32 (or O26) catch limit in 4CDE?

Halibut PSC limits should be indexed to halibut abundance

- Does PSC limit increase and decrease with halibut abundance?
- Is the PSC limit continuous, or does it have floors and/or ceilings?
- Is there a range over which PSC will index with abundance?
- Should size compositions of indices be considered?