

# What exactly is MSE?

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# What is MSE?



# Definitions



- ▶ Risk
- ▶ Uncertainty
- ▶ Simulation

# A brief history of MSE



## Diagram

## Problems

- ▶ SA uncertainty
- ▶ Management objectives unclear
- ▶ Short time horizon
- ▶ Stakeholder alienation

# Decision rules



- ▶ Agree rules of game before start playing
- ▶ Data + Decision rule + Management
- ▶ EXAMPLES

# Testing decision rules under uncertainty



# The 6 STEPS



1. Specify & prioritize objectives
2. Quantify them as performance measures
3. Develop a set of OMs
4. Identify candidate MPs (SA + HCR)
5. Simulate the future
  - ▶ Generate data
  - ▶ Determine management action
  - ▶ Apply to fleet and stock
6. Summarize performance of MPs
7. Select best MP



# Advantages



- ▶ Less haggling for short term benefits
- ▶ Evaluation of risk
- ▶ Limits catch variability
- ▶ Consistent with PA
- ▶ Interaction among scientists, managers & stakeholders
- ▶ Default management if no agreement
- ▶ Robust performance over tracking noise in data

# Disadvantages



- ▶ Lengthy complex development (but less and less so)
- ▶ Overly rigid
- ▶ Autopiloting?
- ▶ Poor data, poor models
- ▶ Choosing scenarios, test cases

## Limitations

# Trade Offs



- ▶ Current status
- ▶ Future work