



Pacific
Community
Communauté
du Pacifique

AGENDA 6C HARVEST CONTROL RULES – SKIPJACK FOCUS

SPC-OFP

HSW 30/11 – 1/12/15

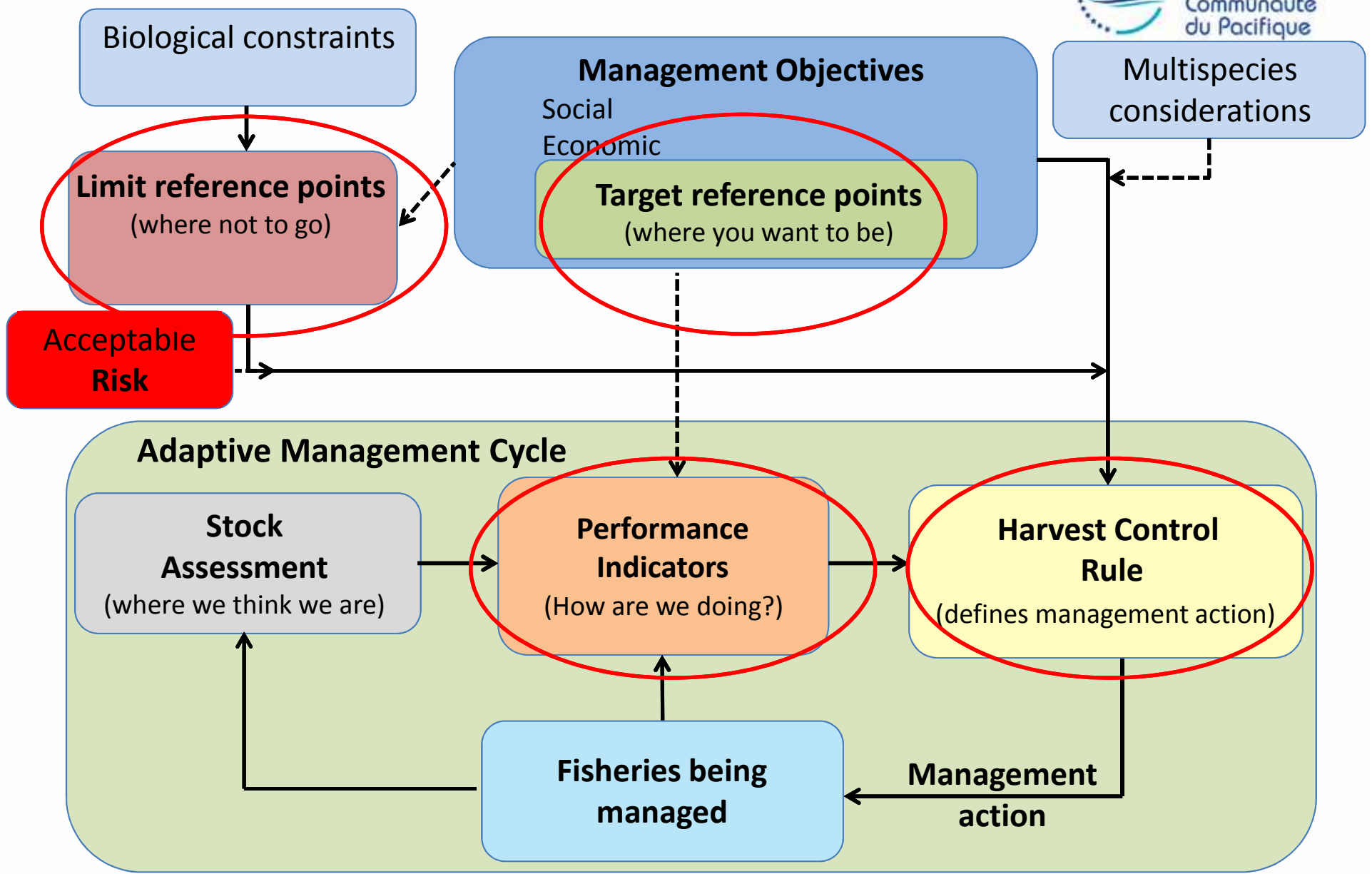
Stones Hotel, Kuta, Bali, Indonesia

Aims

- What are Harvest Control Rules?
- How can you choose a HCR?
- Example of how HCRs work with reference points
- Things that will need to be thought about

What are harvest control rules?

- MSC definition:
 - “well-defined pre-agreed rules or actions that determine a management action in response to changes in indicators of stock status with respect to reference points”
- Internationally recognised best practice
 - Agreed to as parties to the UN Fish Stocks Agreement and in application of a precautionary approach
 - Appropriate way for managing fish stocks under uncertainty



How to choose a HCR?

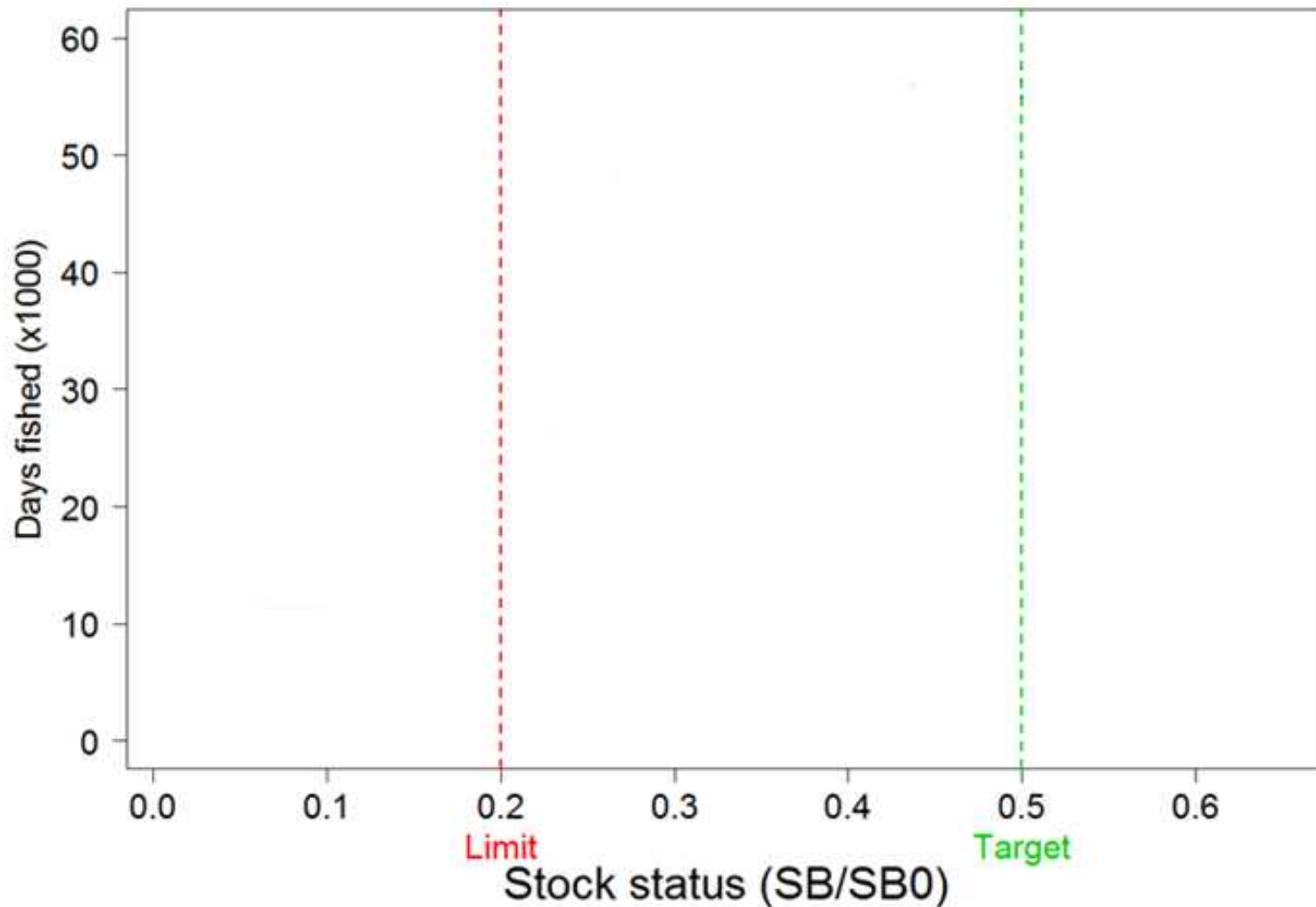
- Evaluate many different HCR options/shapes
- Which gives the best trade-offs between your fishery objectives? E.g. :
 - Achieving the TRP on average & avoiding the LRP with high probability (low risk)
 - Catch/effort stability
 - Achieving profitability
- Ensure the HCR is robust to uncertainties (see also MSE)

Example for skipjack

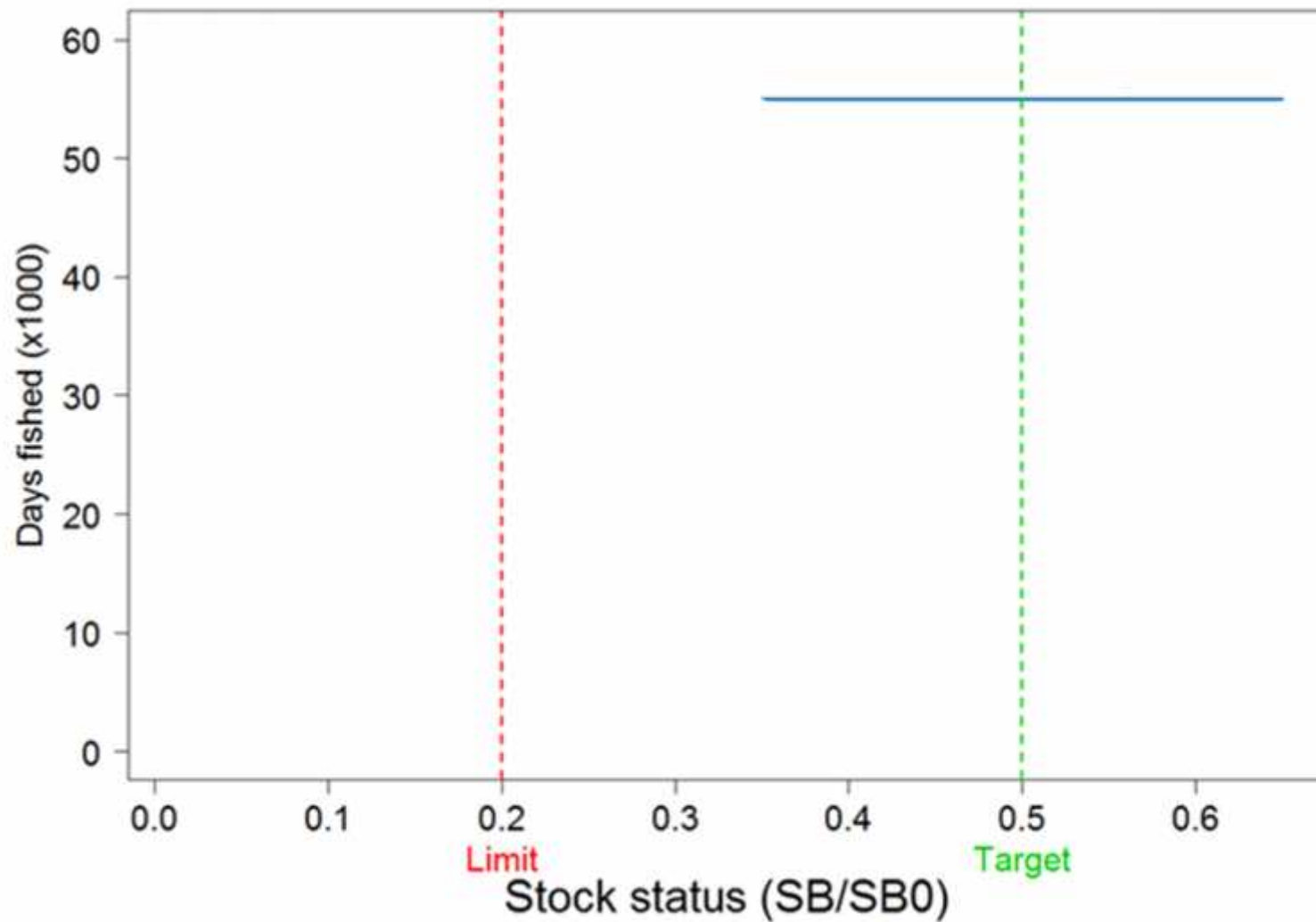


- Effort based control of fishing/harvest
- Example presented at MOW2 (see HSW-IP-03)

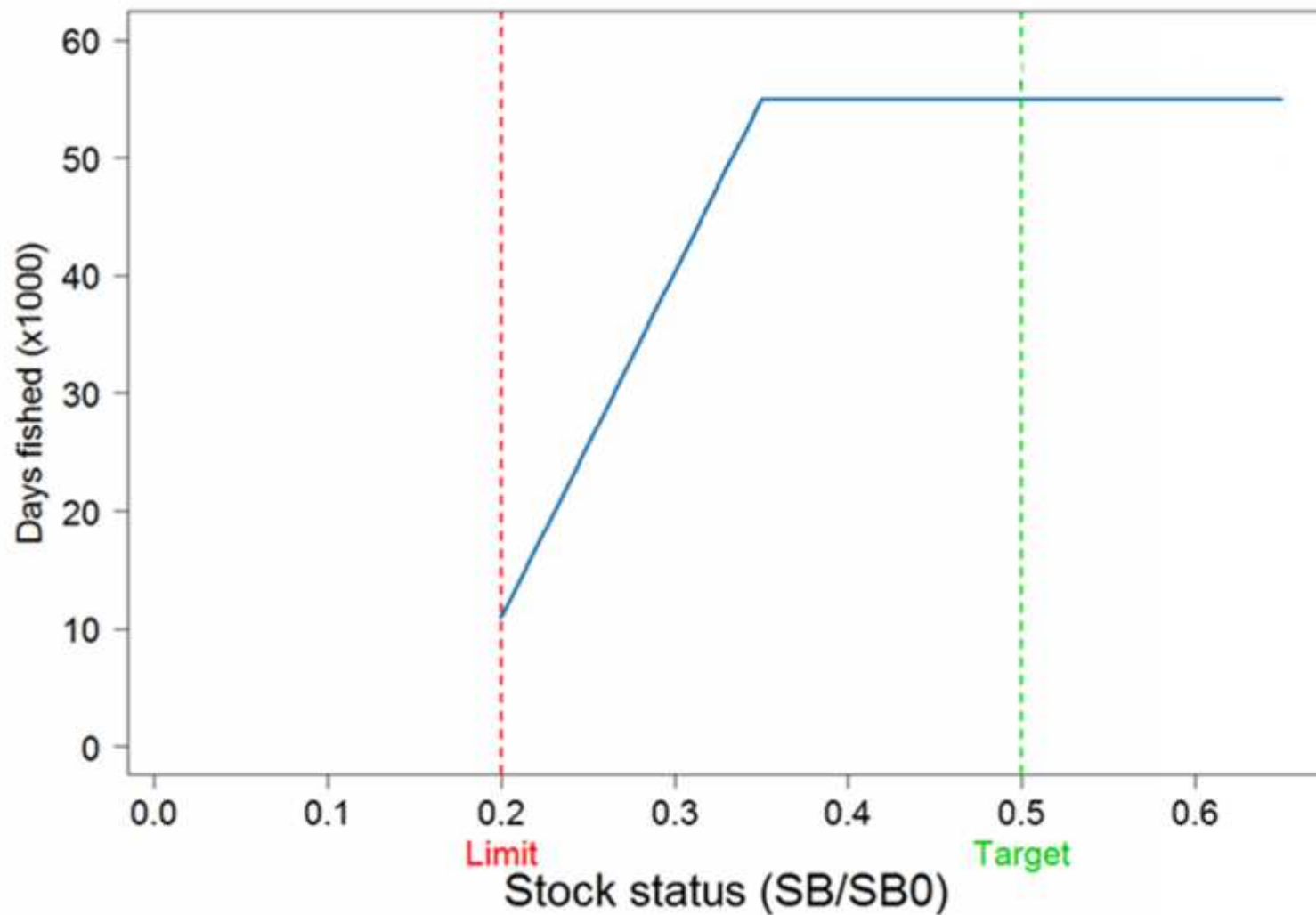
Design of harvest control rules



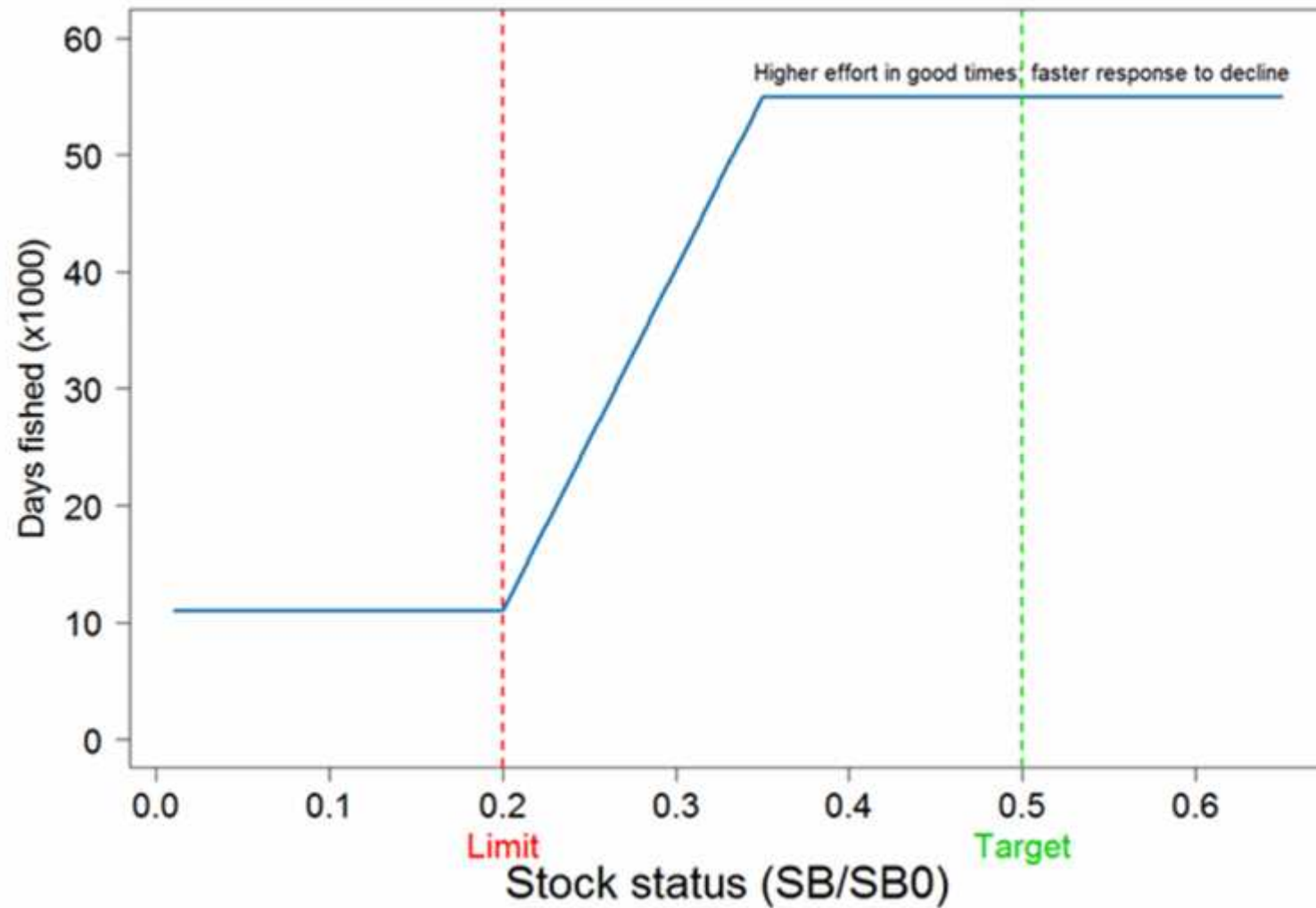
Design of harvest control rules



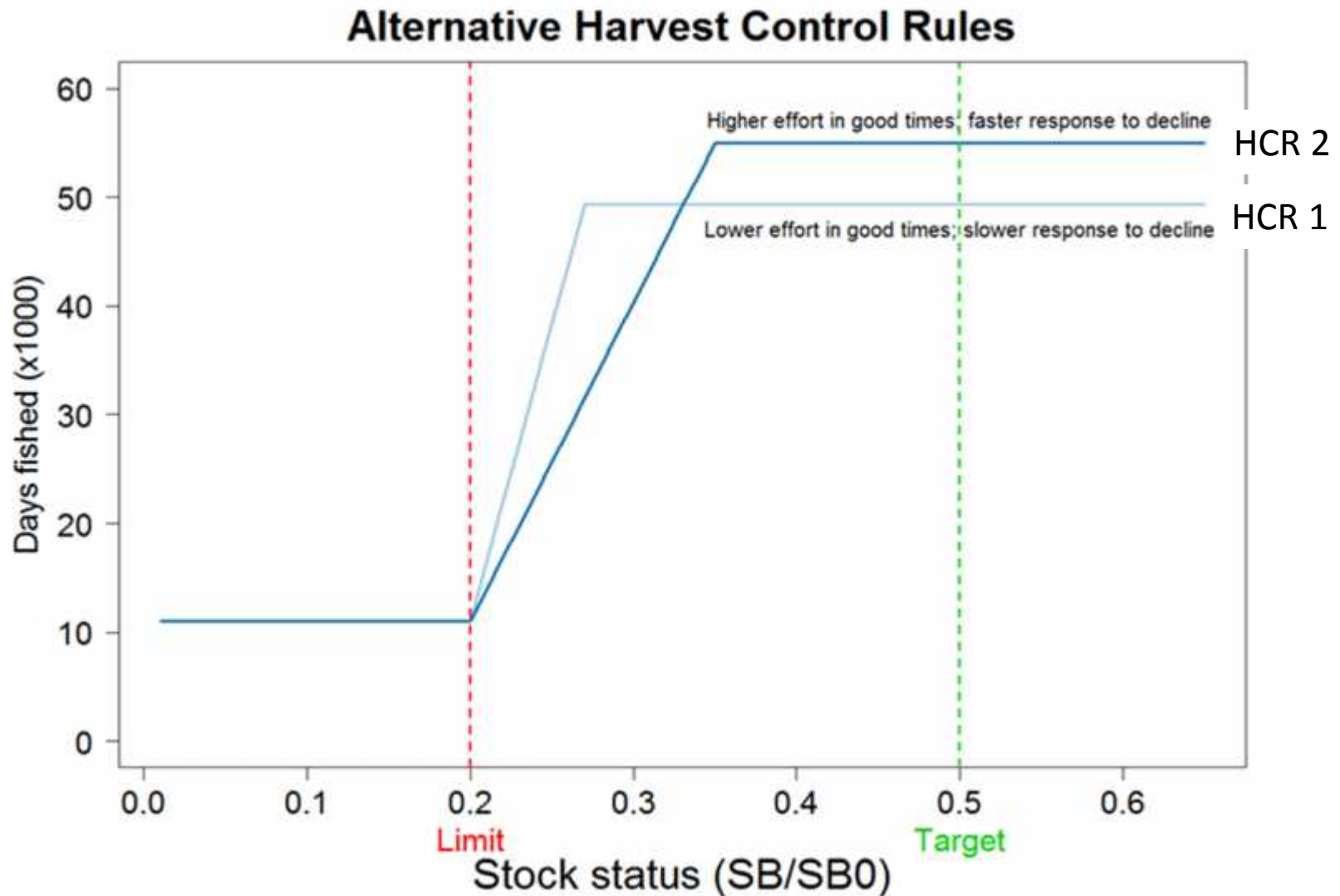
Design of harvest control rules



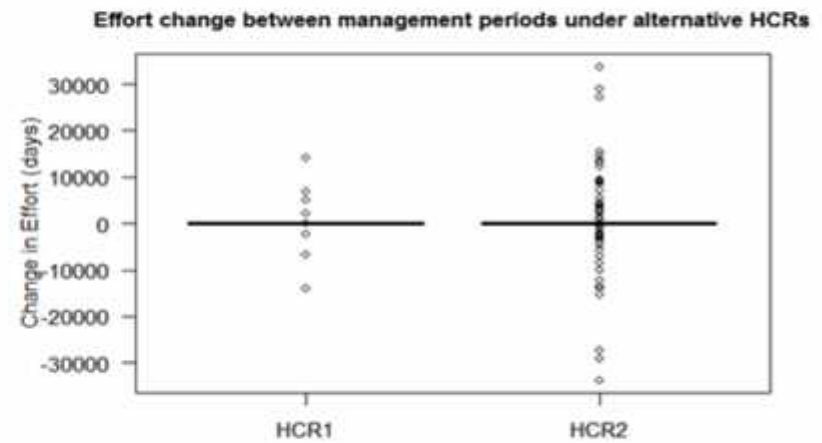
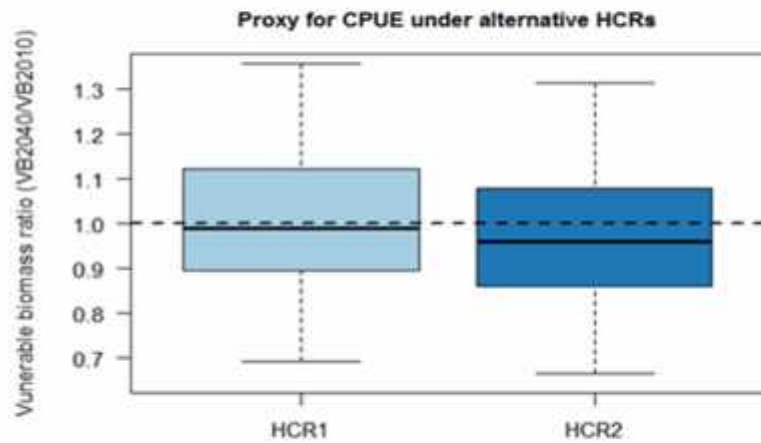
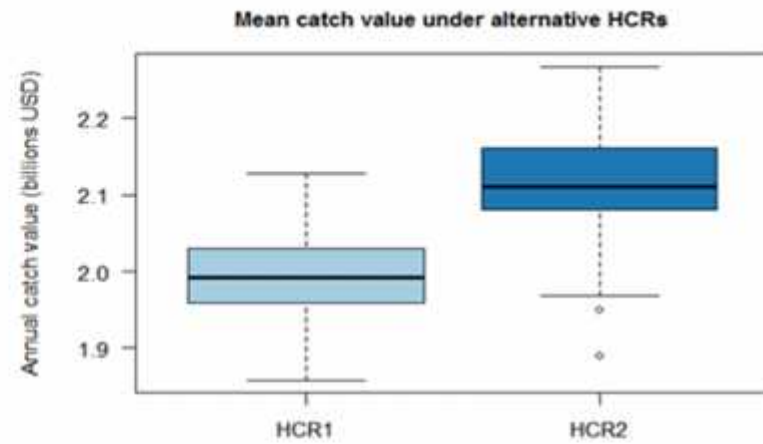
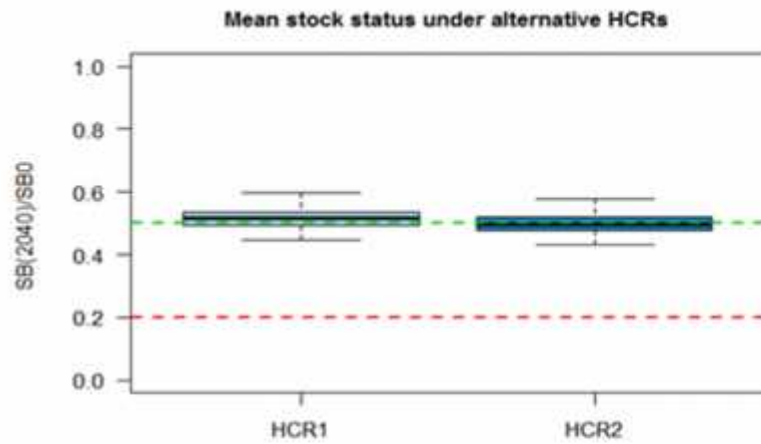
Design of harvest control rules



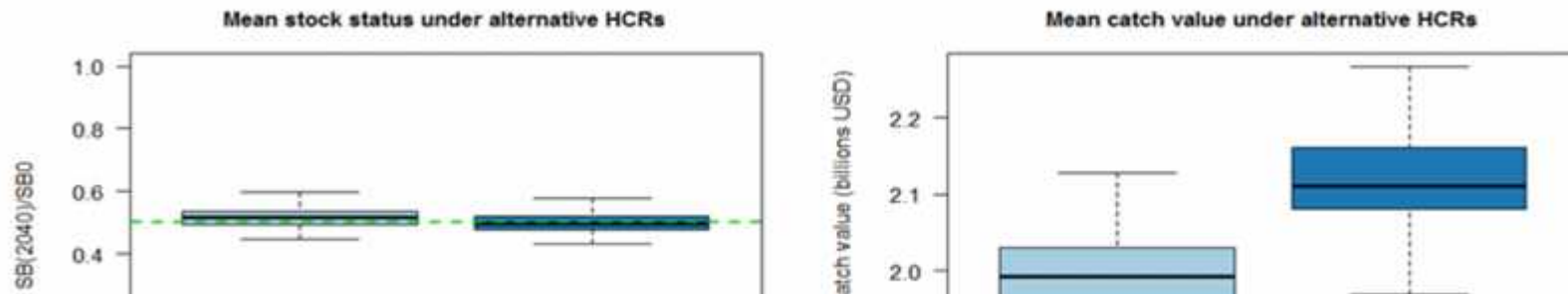
Design of harvest control rules



Results

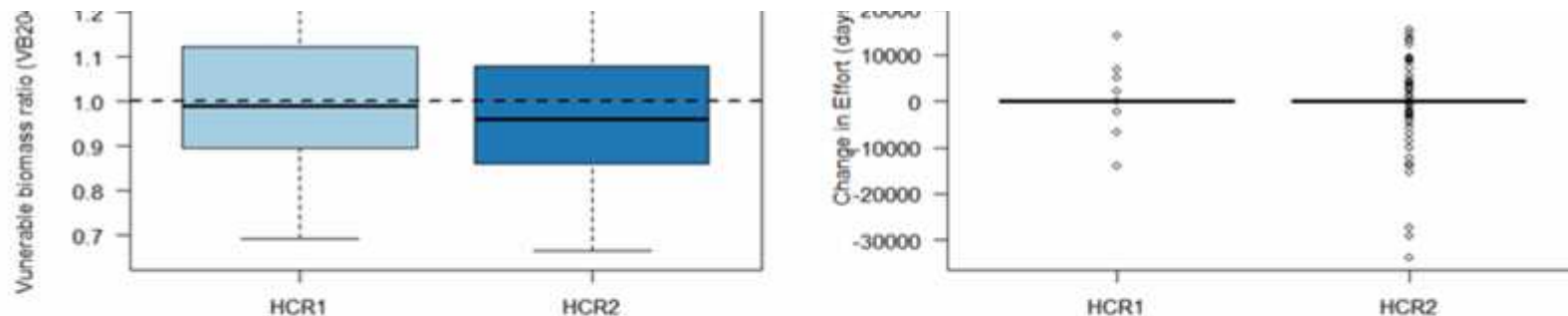


Results



IF THE AIM IS TO ACHIEVE THE TRP, WHILE MINIMISING CHANGE IN EFFORT, MORE CONSERVATE HCR1 PERFORMS 'BETTER'

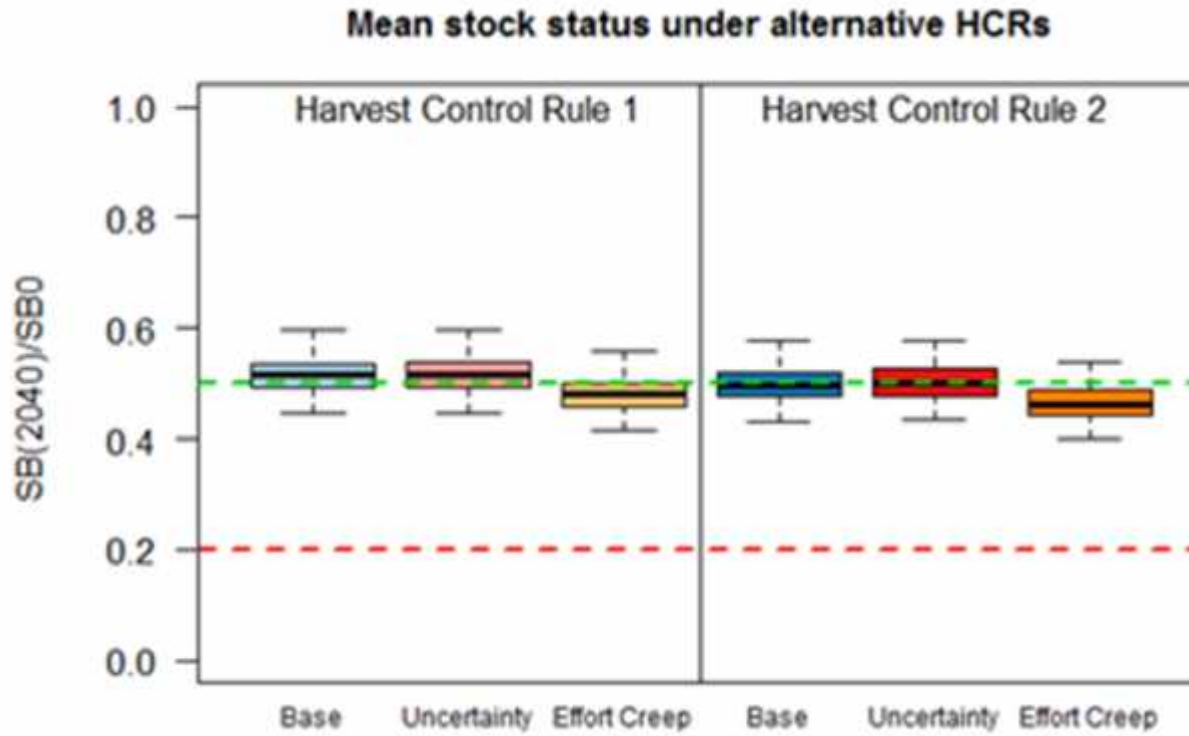
IF THE AIM IS TO ACHIEVE THE TRP, WHILE MAXIMISING CATCH (AND YOU ARE LESS WORRIED ABOUT LOWER CPUE AND FREQUENT EFFORT CHANGES), LESS CONSERVATE HCR2 PERFORMS 'BETTER'



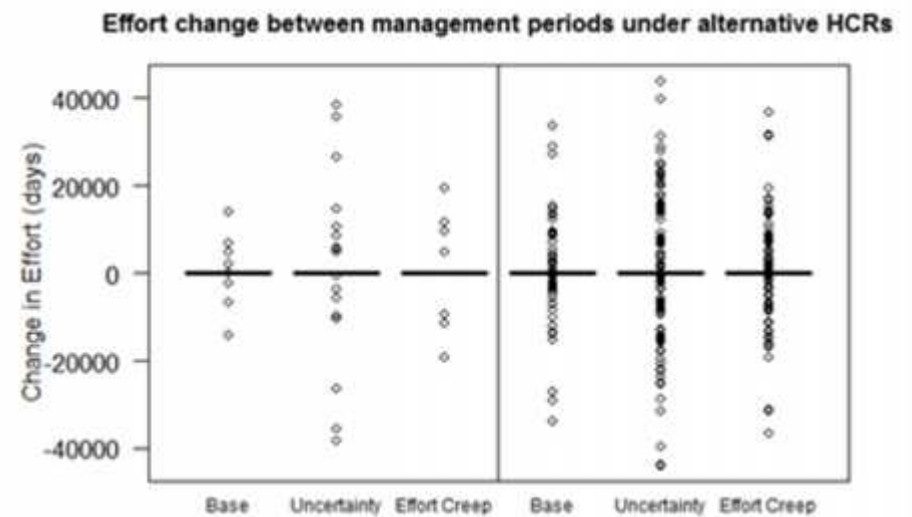
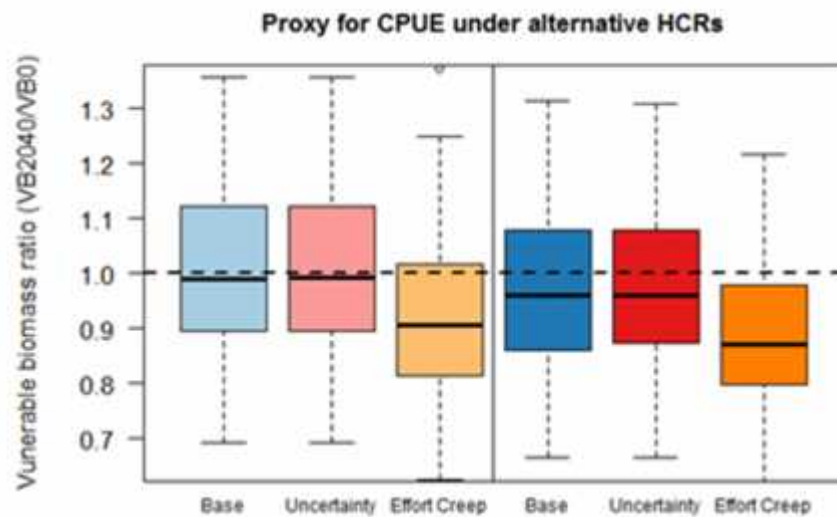
Testing robustness of HCRs

- Important to see if HCR-defined decisions still achieve targets and avoid limits
 - *‘robust to uncertainty’*.
- Two example areas investigated:
 - Stock assessment uncertainty – how does the HCR perform when our assessments are more uncertain?
 - Effort creep – how does the HCR perform when the ability of vessels to catch fish improve over time?

Robustness analysis



Robustness analysis



Things to think about



- **How to trade-off objectives?**
 - E.g. which is more important - maximising catch level/value or stability in catch?
- **How often should catch/effort levels be updated by the HCR?**
 - E.g. every 3 years/after each stock assessment?
- **Should there be limits on how much effort/catch can change between management periods?**
- **How often do you want to re-evaluate the HCR?**
 - E.g. for new objectives, confirm performance, account for new knowledge/information