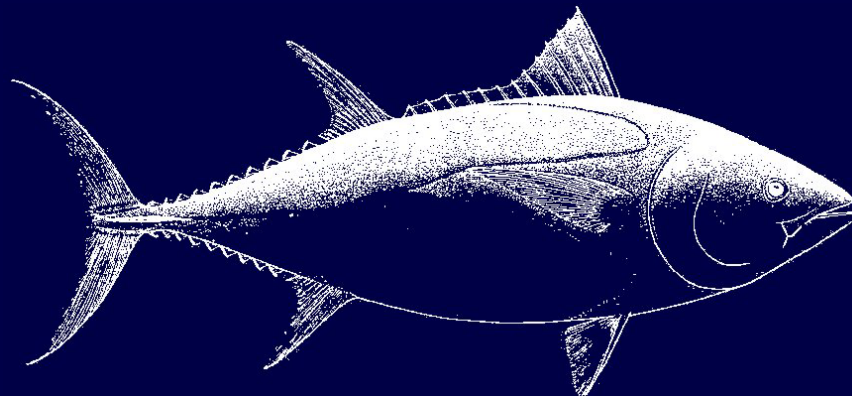


Commission for the Conservation  
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# SELECTION OF MANAGEMENT PROCEDURES FOR SOUTHERN BLUEFIN TUNA





# MANAGEMENT PROCEDURE DEVELOPMENT PROCESS

## Management Procedure Progress

Substantial progress made at the MP I (2002) and MP II (2003) workshops, and MP development is on schedule:

- All aspects of the operational and projection models have now been finalised and coded.
- Alternative scenarios of stock productivity have been represented and their weightings agreed
- Initial candidate MPs have been tested, tuning ranges proposed, and performance statistics chosen.
- Members will finalise development and testing of proposed candidate MPs at the MP III Workshop in April 2004.
- A selection of final candidate MPs will be presented to CCSBT11 in 2004 for consideration.

## Industry/ Management Consultation

A comprehensive process of industry and management consultation was conducted, at which an example MP was used to evaluate preferences under various scenarios:

- Industries of all members were sensitive to market price and expressed concern that increases in global TAC could result in lower prices.
- All participants recognised the global nature of the fishery and the single Japanese market that makes bluefin tuna fishing profitable.
- Industries of longlining members were concerned that profitability of longlining is sensitive to changes in catch rates. They indicated that, if catch rates declined, there may be reductions in catch even without reductions in the TAC.
- All participants in the consultation agreed that a period of stable harvest for the next 5 years would be highly desirable.

## Implications for MP Design

These industry preferences suggest certain implications for the design of suitable management procedures for SBT:

- The objectives of the chosen management procedure should be asymmetric, with slow increases in TAC in high productivity scenarios, while providing for TAC decreases in low productivity scenarios.
- In low productivity scenarios an ideal management procedure would have a gradual decrease in TAC with substantial notification in advance.



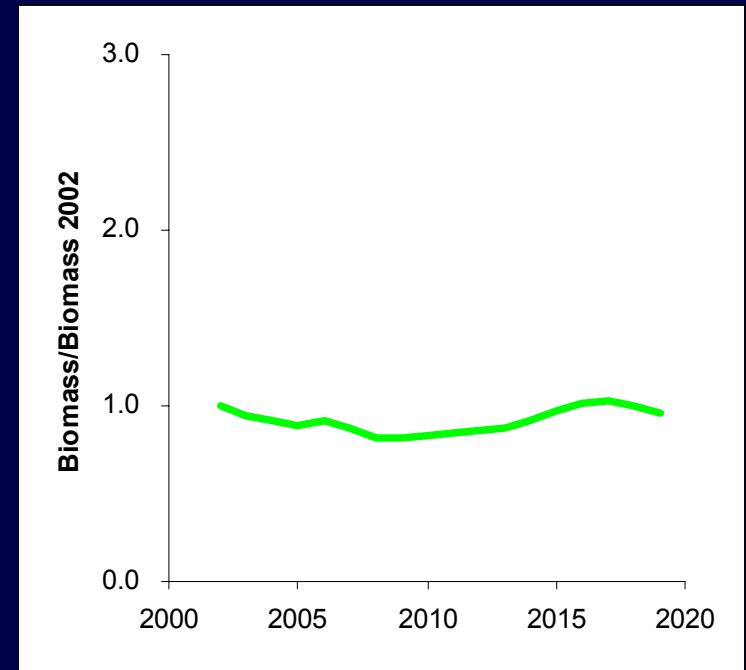
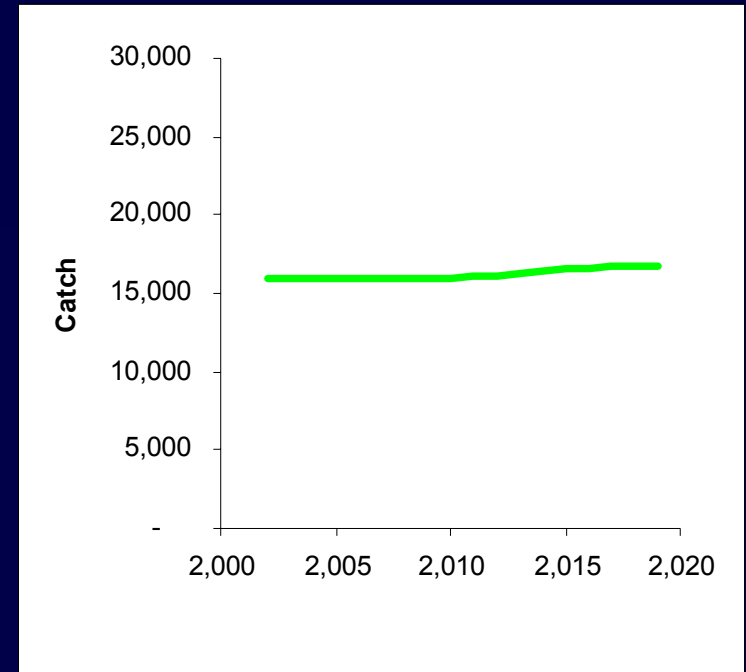
# EVALUATION OF MANAGEMENT PROCEDURES

# What is a Management Procedure ?

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A management procedure is a set of rules that determine TAC from the data that are available.

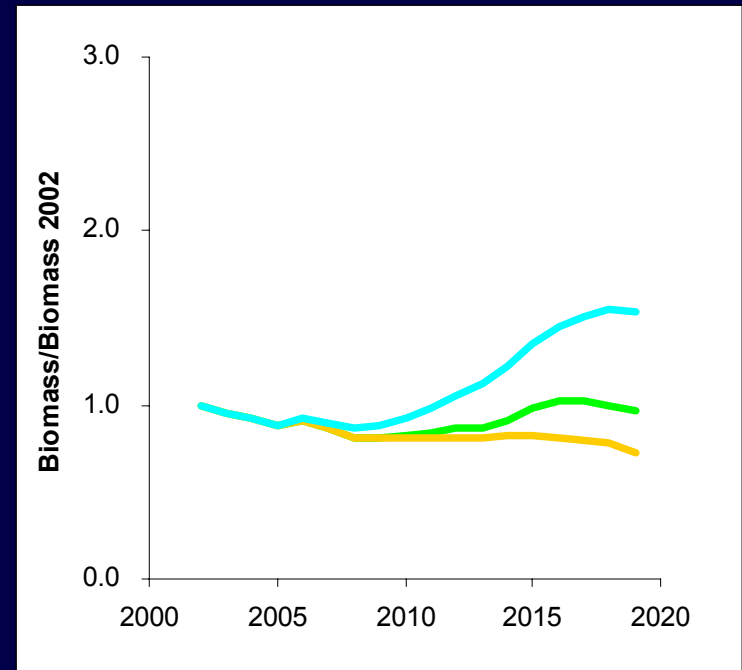
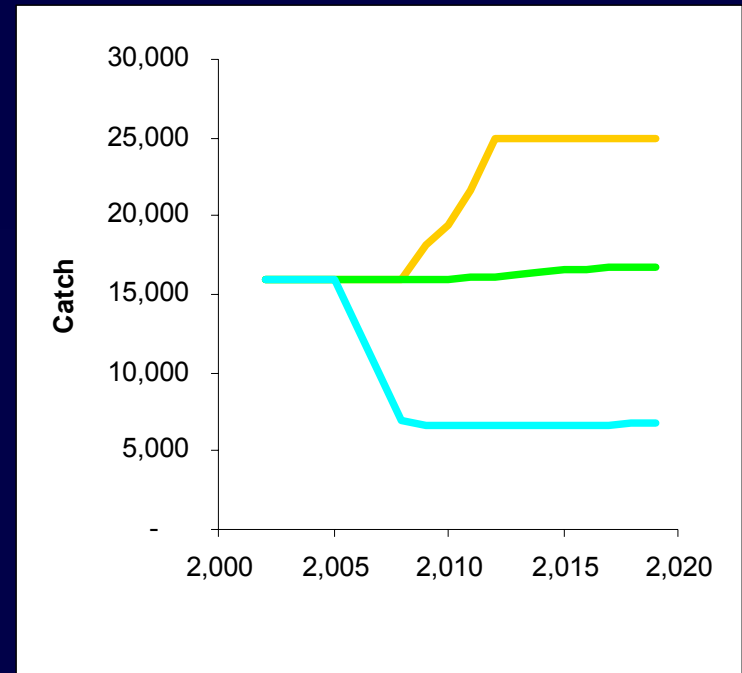
- A sample simulation of an MP is shown here.



# Management Procedure Options

MPs can be 'aggressive' (catch orientated: orange), moderate (green) or 'cautious' (re-building oriented: blue).

- Generally, aggressive MPs result in higher catch but lower stock biomass.
- Cautious MPs result in lower catch but higher biomass.





## SBT Stock Productivity

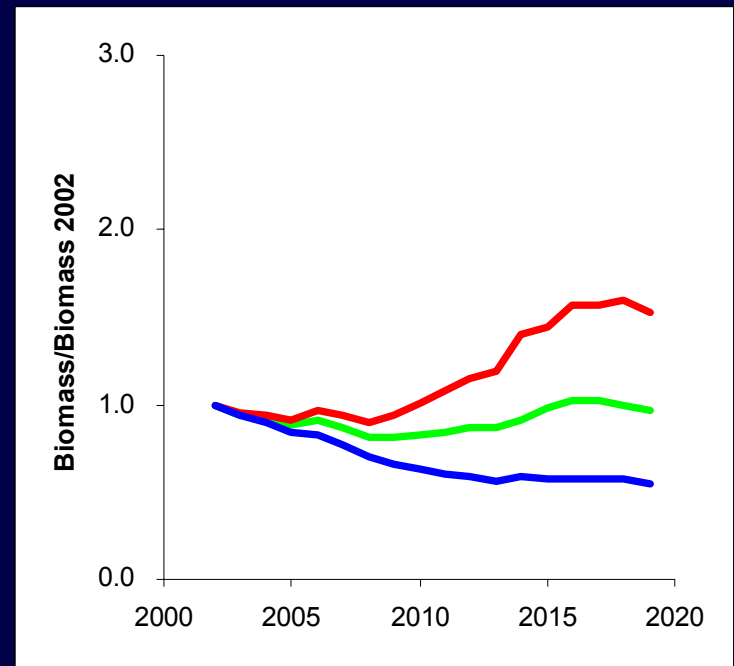
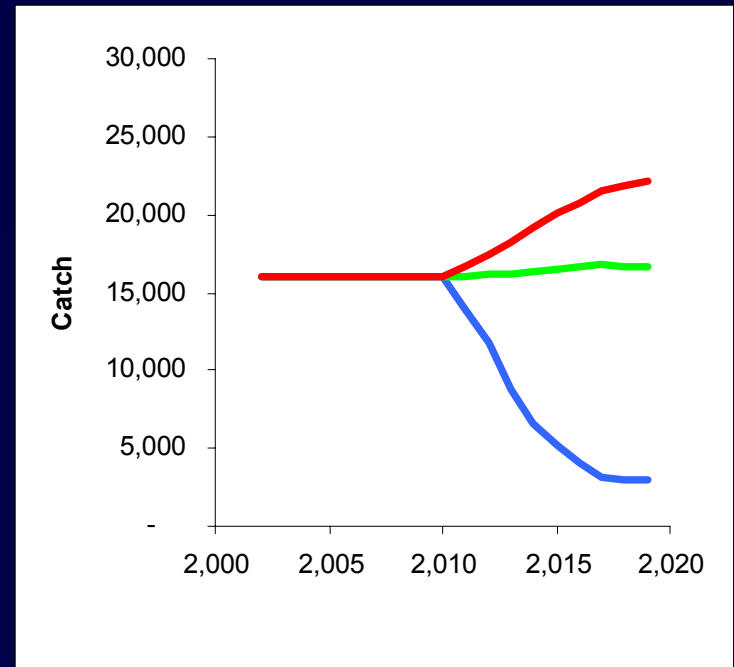
There is uncertainty regarding the productivity of the SBT stock:

- If the stock is productive then recruitment is higher and the stock is likely to increase under current TAC.
- If the stock is unproductive then recruitment is lower and the stock is likely to decline under current TAC.

## Effects of Productivity

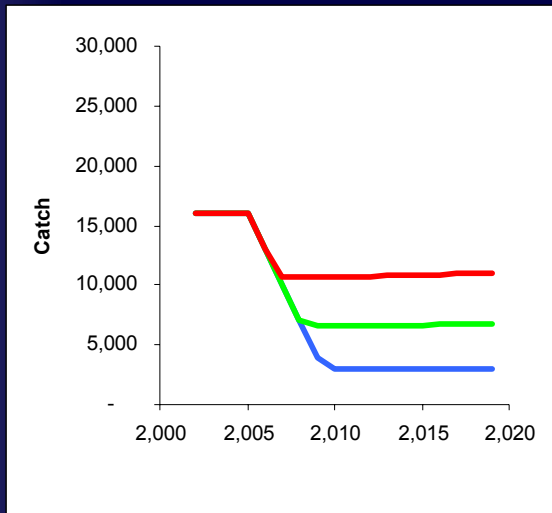
Results for a single MP will differ for a productive (red), an unproductive (blue) and a moderate stock (green).

- If the stock is productive both catch and biomass can rise.
- If the stock is unproductive then both catch and biomass will decline.

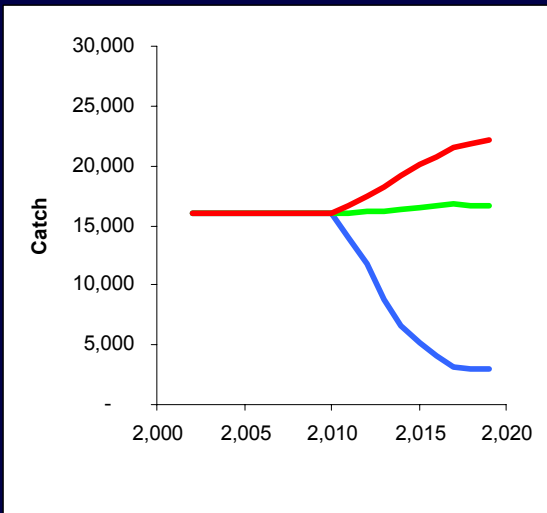


# Comparing three different MPs:

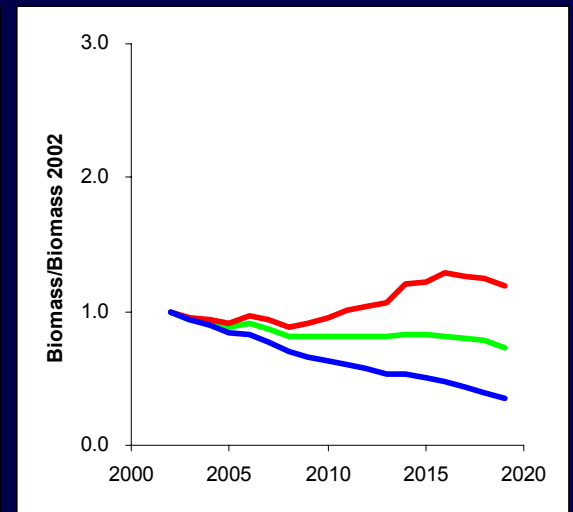
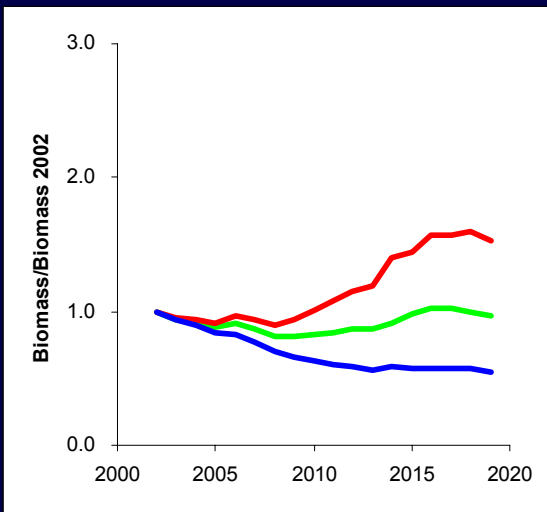
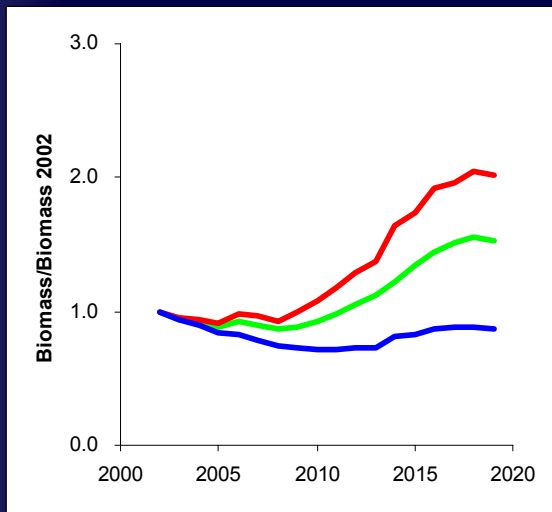
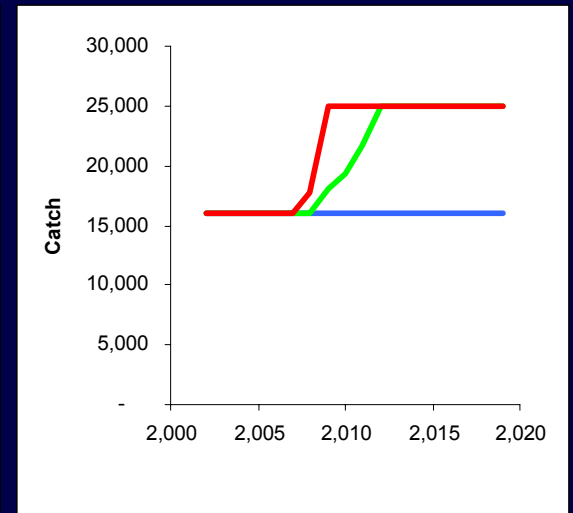
## Cautious



## Moderate



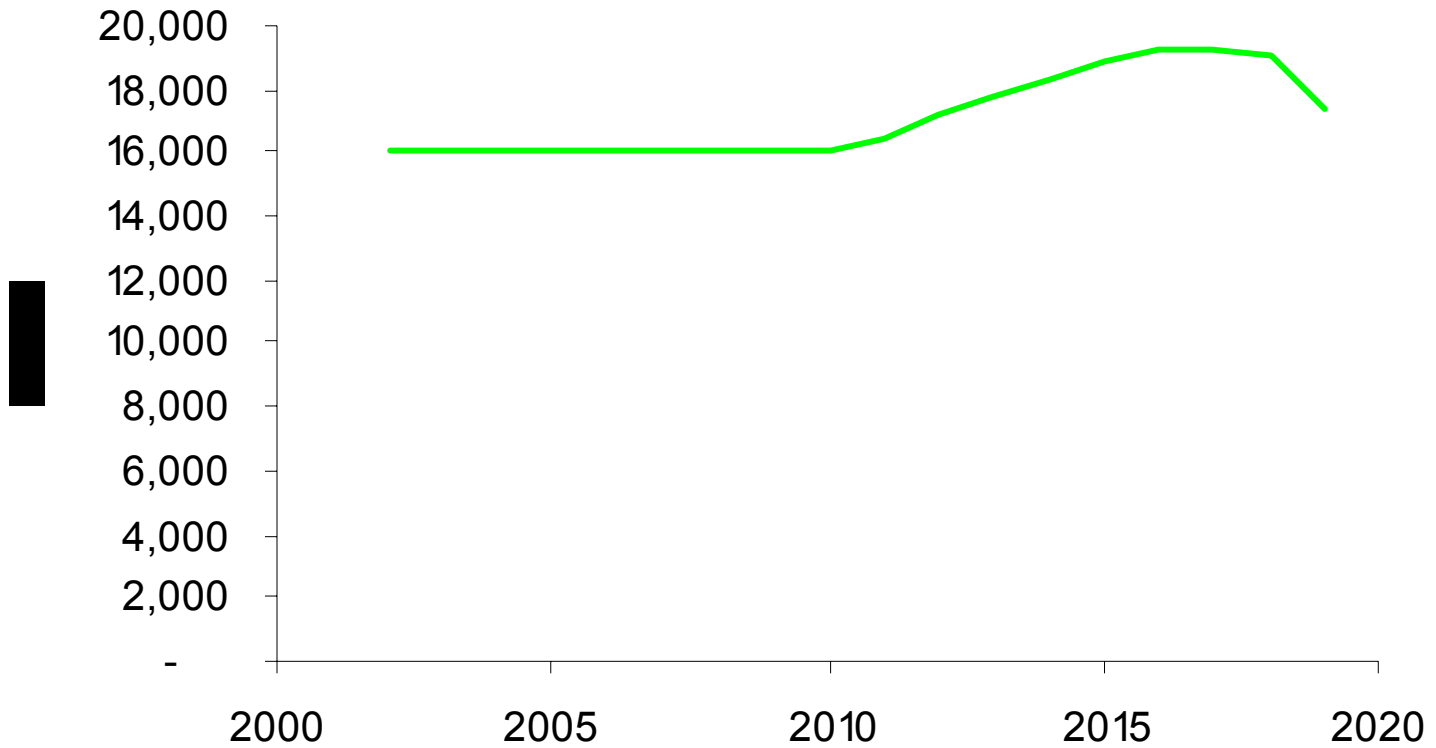
## Aggressive



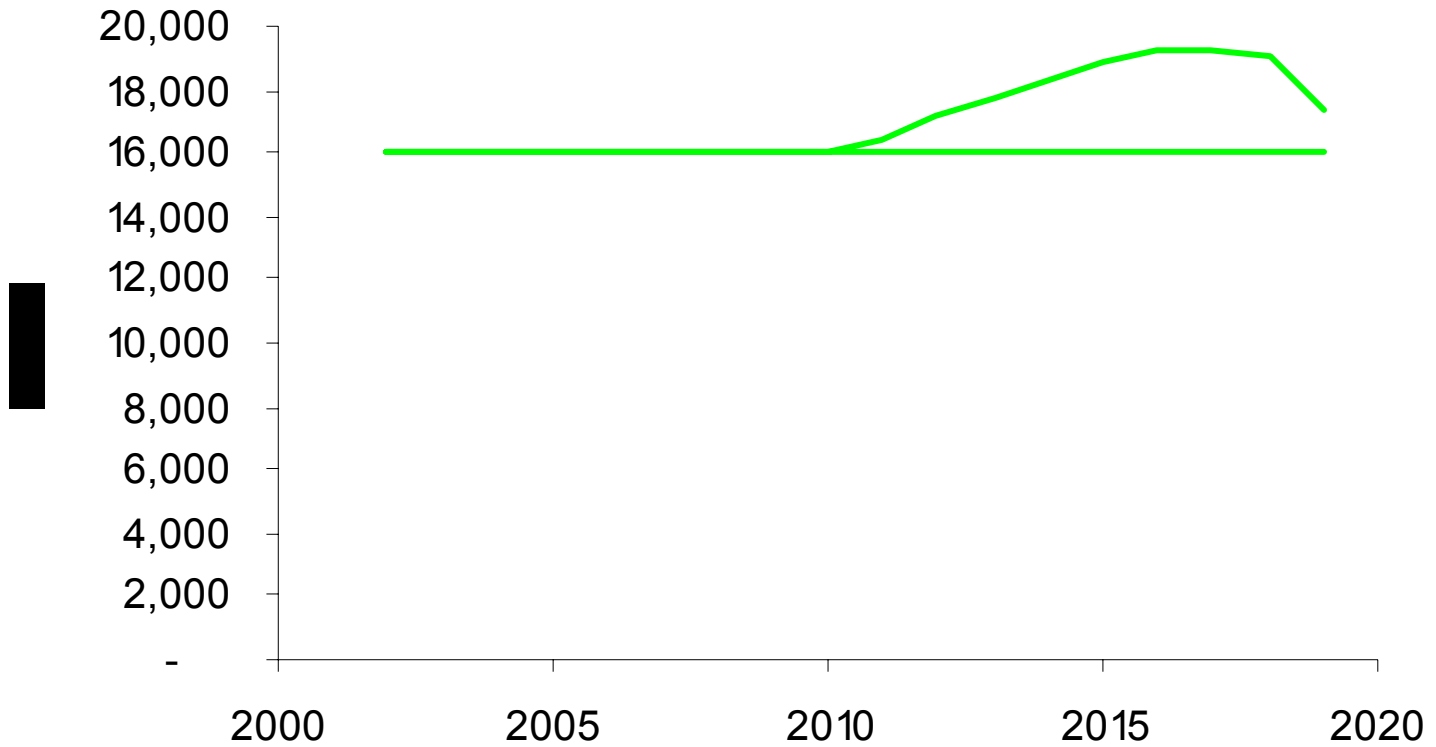
## Looking at Multiple Random Simulations

For any chosen MP, and a given stock productivity, a range of potential catches and biomass will result during simulations, due to random variation in recruitment and the other data available to the MP.

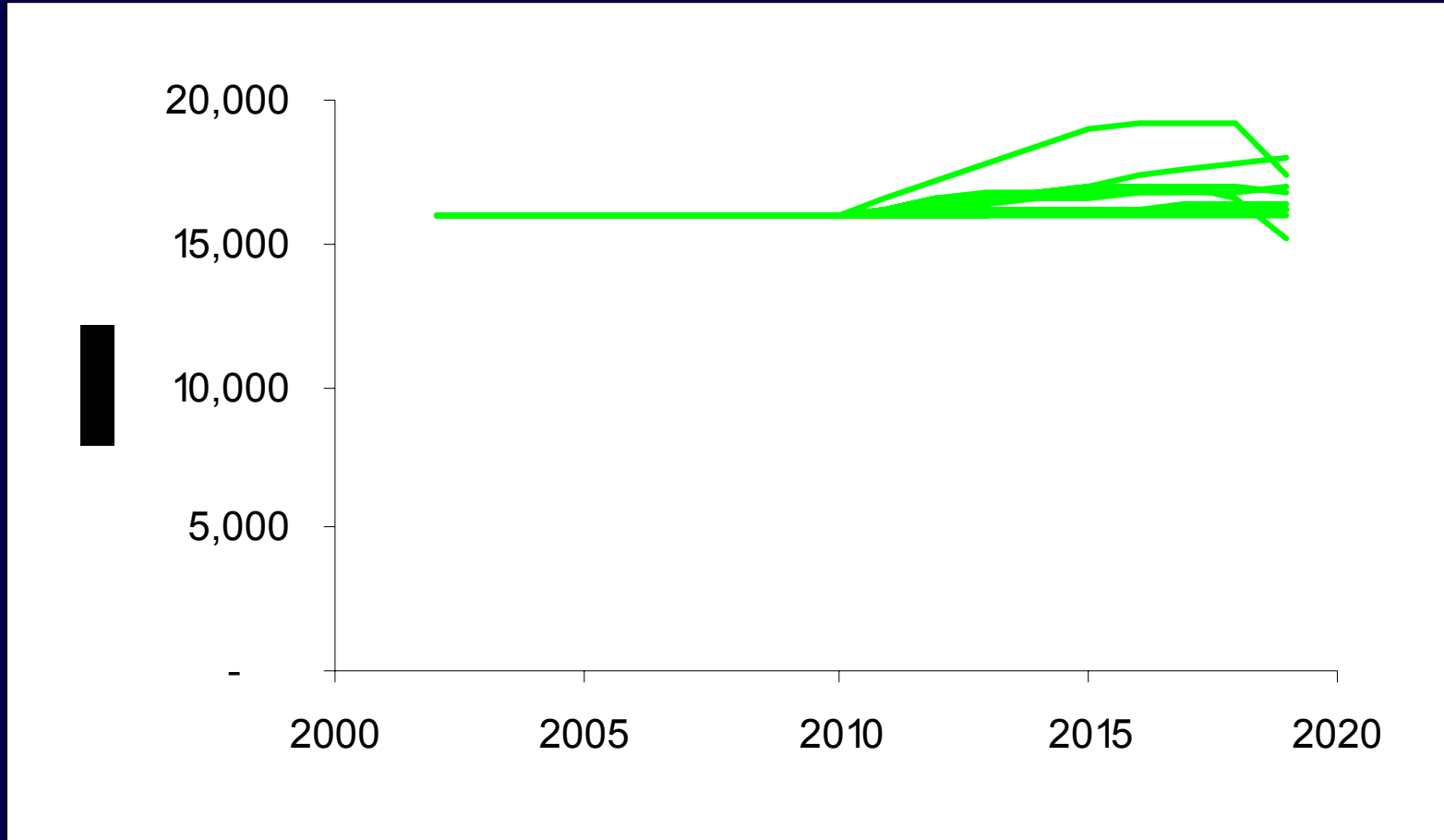
# Simulation: 1



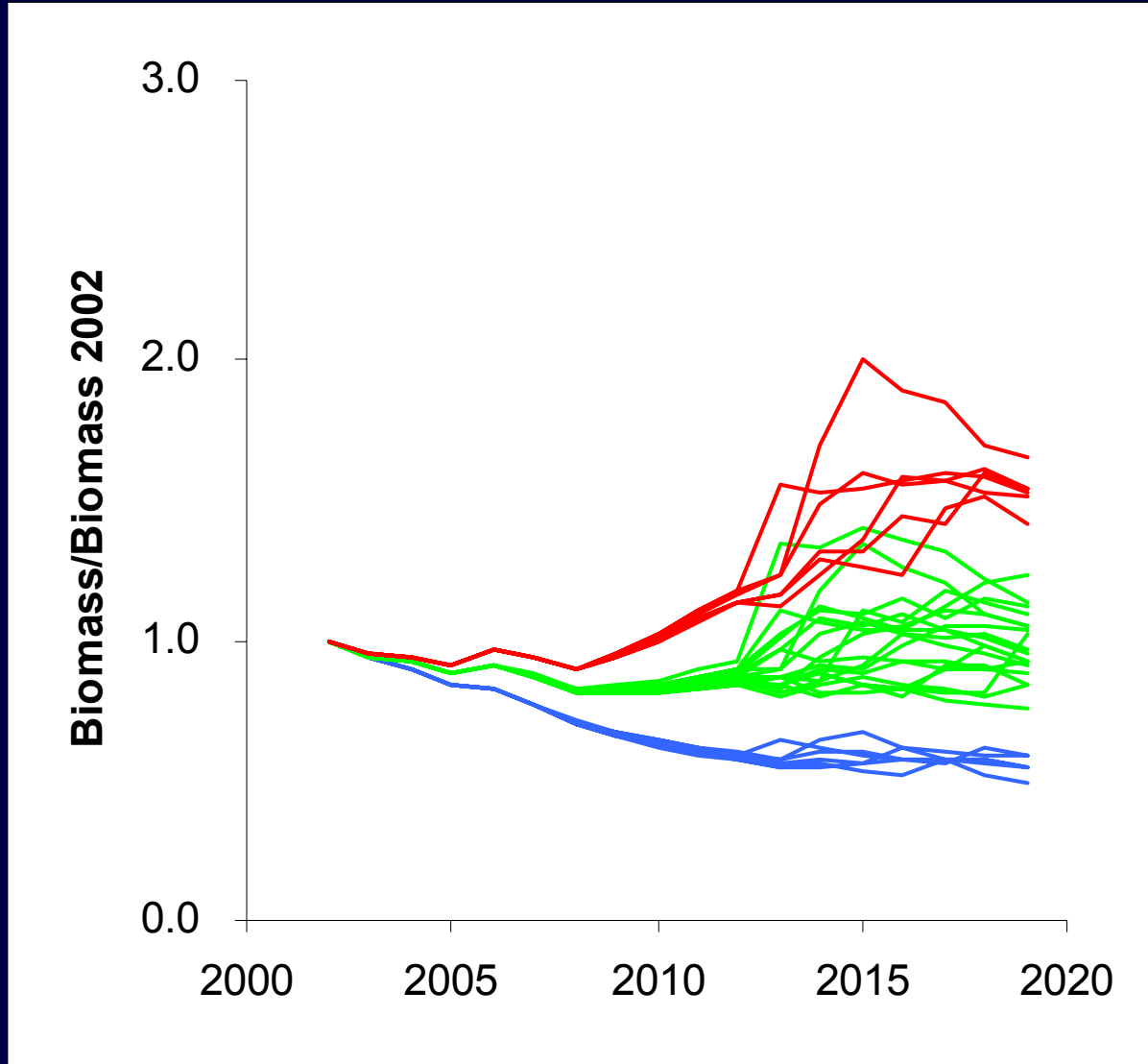
## Simulation: 2



# Simulation: 9



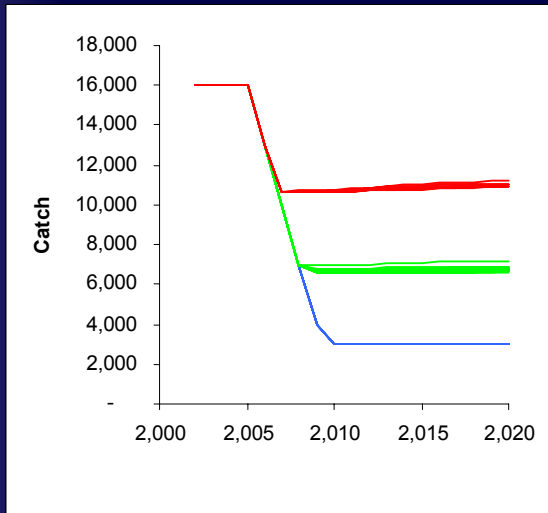
# Adding different stock productivities:



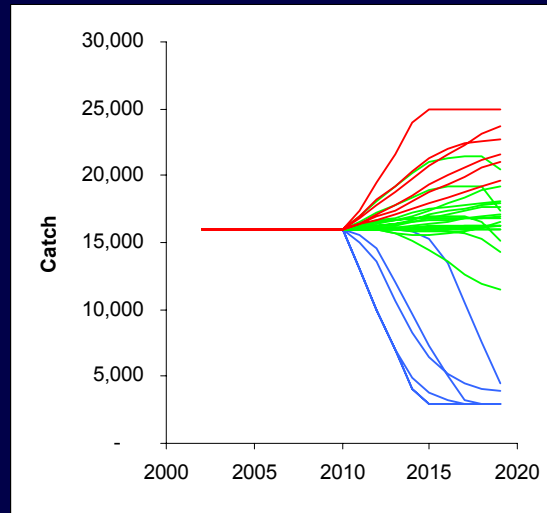


# And comparing three MPs:

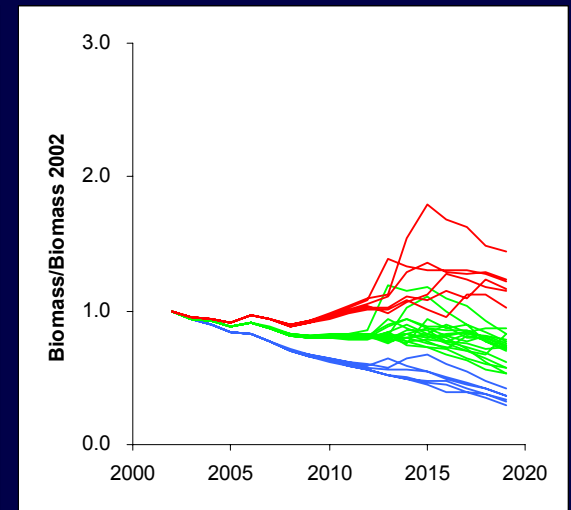
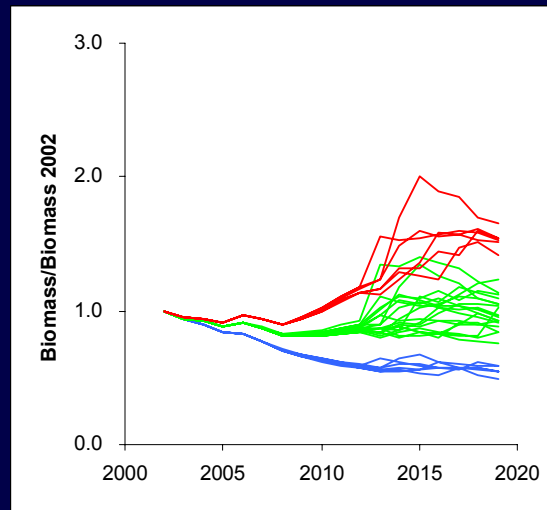
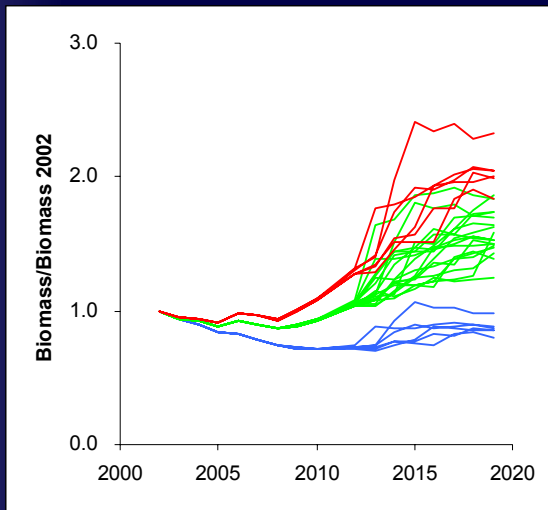
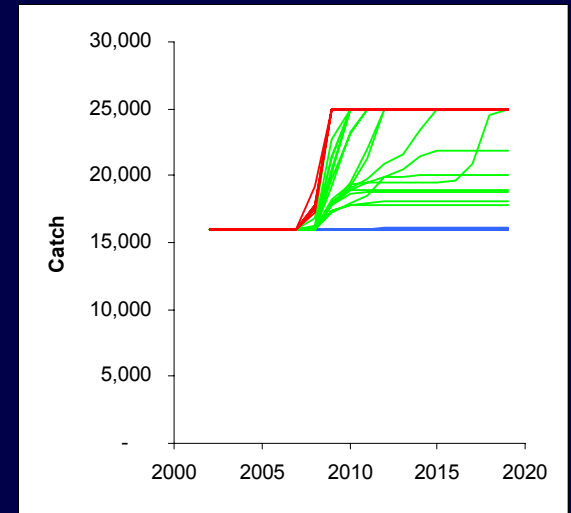
## Cautious



## Moderate



## Aggressive





# SELECTION OF MANAGEMENT PROCEDURES

# Selection of the Final SBT Management Procedure

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In 2004, following completion of the MP III Workshop, the SC will provide CCSBT with a range of several candidate management procedures developed and tested by the members. CCSBT will be asked to choose between them.

# Trade-Offs in Selecting a Management Procedure

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In selecting the final SBT management procedure, the CCSBT will have to make choices along two key trade-off axes:

- There is an strong trade-off between catch magnitude and rebuilding of biomass. The effect of this will depend on the actual productivity of the stock. If the stock is unproductive, biomass will not be re-built without a reduction in catches.
- There is also some degree of trade-off between stability in catches and the total magnitude of catch. Higher average catches should be achieved over a period of time if TACs are allowed to vary more frequently.

To develop suitable MP options for consideration, the MP Working Group needs guidance from CCSBT on the following:

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- Are the proposed bounds between aggressive and cautious MPs appropriate ?
- Should we present more policies around the moderate one or explore more aggressive or more cautious policies ?

## Trade-Off in TAC Stability

The SC plans to explore policies that either update the TAC annually, or every 3 years:

- Should we consider other (longer) time intervals ?

## MP Performance Measures

The SC will provide the following “performance measures” for the candidate MPs presented for consideration. Are these sufficient ?

- Average catch to 2020 .
- Average spawning biomass to 2020.
- Spawning biomass relative to 2002.
- Spawning biomass relative to 1980.
- Frequency of TAC change.
- Proportion of simulations exceeding specific thresholds (still to be specified).

What additional information will the CCSBT need in order to evaluate and select the final SBT management procedure ?

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