Term of Reference 8 Backup Plan

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Why might a back up plan be needed?

- Plan A (WHAM in any configuration) does not work or is rejected by a MT peer review panel

- GB and SNEMA: low stock size could lead to too many true zero surveys to allow WHAM convergence

- CCGOM: low fishery catch due to no market could lead to instability in WHAM biomass magnitude

Potential back up plans

- GB and SNEMA: Limiter with no lower bound and constant catch from most recent WHAM MSY (or multiple thereof), no BRPs or status determination
- CCGOM: empirical approach using exploitation rate (catch/survey) to derive catch advice, potential for BRPs and status determination

Why might back up plans fail?

- Process: current Limiter attempts to prevent overfishing, modified Limiter would not do so if stock low and full quota caught

- Missing surveys: all three stocks rely on having chainsweep expanded survey biomass available

- Bad selection of "stable" period for CCGOM: the period selected for calculating the exploitation rate used to generate catch advice (and for BRP) could be artificially influenced by recent market conditions and not representative of an appropriate level of fishing

Chainsweep Expanded Biomass

- NEFSC Spring and Fall Bottom Trawl Surveys (BTS)
- Fall lagged one year
- Combines Spring of this year with fall of previous year
- Mean with or without na.rm (to see impact of missing surveys - was a hot topic in TRAC)
- Note: GB currently also uses DFO survey in Limiter, not shown here

Chainsweep Expanded Biomass
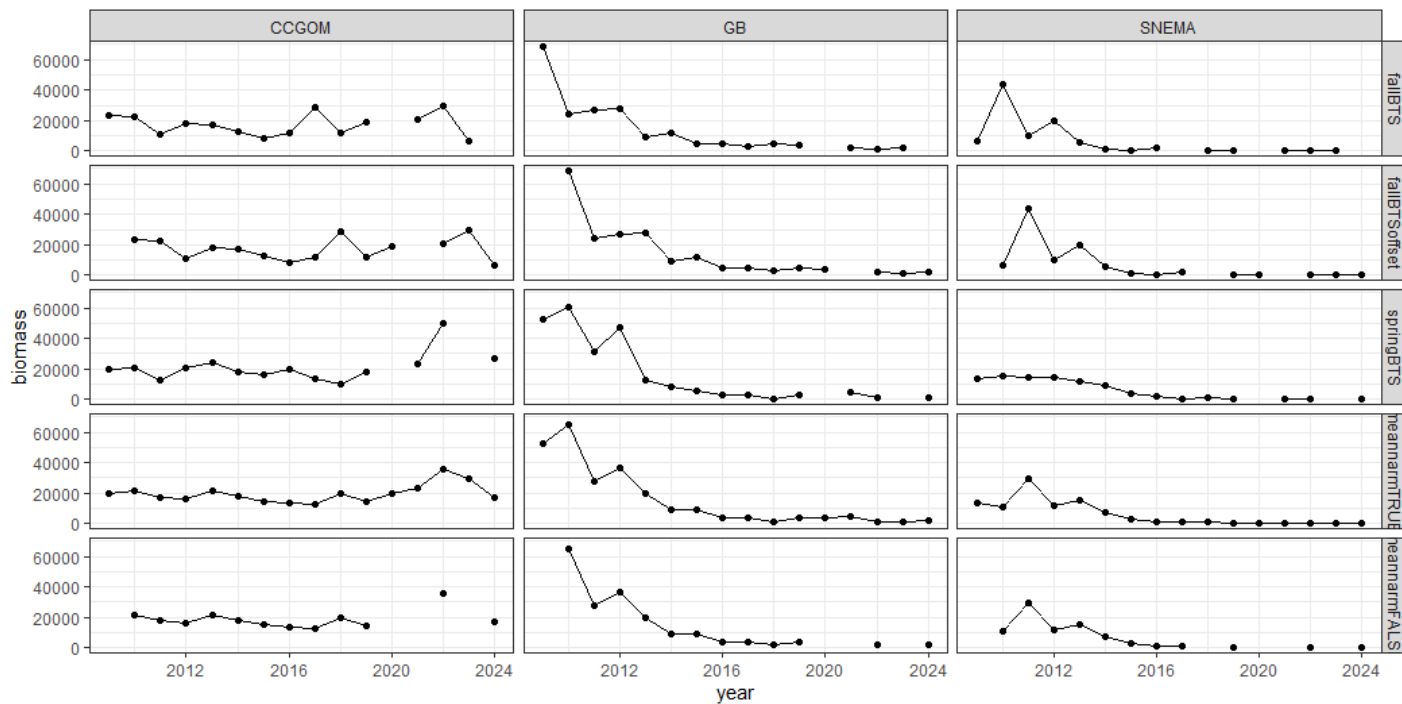
Exploitation Rates

- Aggregate fishery catch in metric tons divided by chainsweep expanded biomass in metric tons
- Not directly comparable to a fishing mortality rate
- Here use mean with na.rm=FALSE
- Note: 2022 last year available in ASAP input files
- Can be used for CCGOM
- Cannot be used for GB/SNEMA if true zero surveys

Exploitation Rates
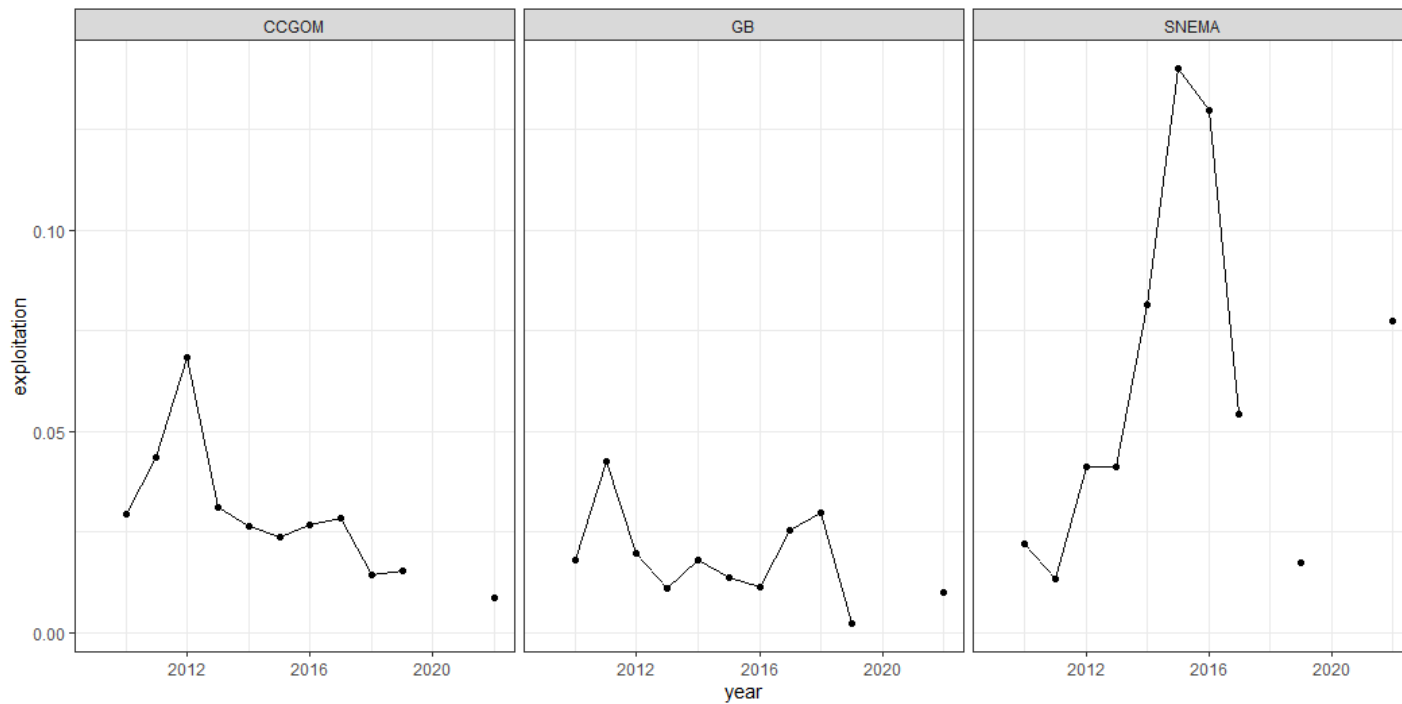
Reminder of the proposed back up plans

- GB and SNEMA: modified Limiter approach
- CCGOM: empirical approach of exploitation rate times recent biomass

GB and SNEMA

- Pick an upper limit for expanded survey biomass
- For example, maximum value during 2014-2022 (GB = 8789 mt, SNEMA = 7591 mt)
- Compare to the 2024 values (GB = 1777 mt, SNEMA = 63.5 mt)
- Since the 2024 value is less than the upper limit for both stocks, set catch advice to some multiple of MSY from the most recently accepted model (GB = 554 mt, SNEMA = 97 mt)
- Note: no biological reference points or status determination

CCGOM

- Stable period (2010-2022) exploitation rate is 0.0287075
- Current (2024) biomass is 16639 mt
- Catch advice is 477.7 mt

CCGOM (continued)

- Biological reference points from "stable period" 2010-2022
- Bmsy proxy (chainsweep expanded biomass) is 18123 mt
- Fmsy proxy (exploitation rate) is 0.0287075
- Using 2022 values:
- CCGOM is not overfished (35420 > 18123/2)
- CCGOM is not overfishing (0.0085545 < 0.0287075)

CCGOM what about longer time series?

- Is there a better period in the past if look at full Albatross + Bigelow calibrated time series?

- Note the exploitation rate units are weird because the survey is now in kg/tow instead of metric tons

CCGOM doesn't look like there is a better time period
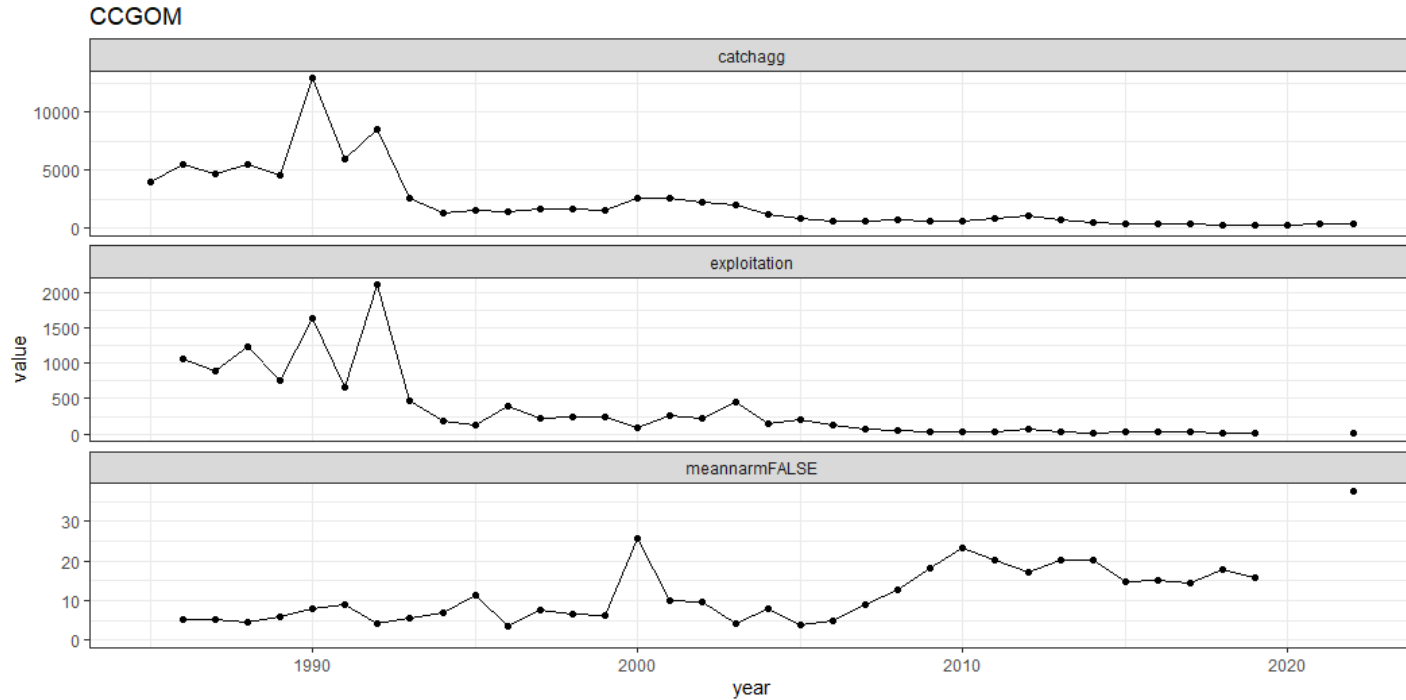
Proposal for Back Up Plans

- GB: revert to currently accepted Limiter (also uses DFO survey, bounds are 1,000 to 7,300-8,500 mt, constant catch of 200 mt, has dealt with missing surveys)

- SNEMA: modified Limiter with no lower limit, upper limit max chainsweep expanded biomass since 2014, constant catch of 50 mt (approximately half of MSY)

- CCGOM: empirical approach using 2010-2022 as "stable" period for exploitation rate and BRPs

Proposal for Back Up Plans (continued)

- For all three stocks: if a backup plan becomes necessary, continue to apply WHAM as an informational assessment
- Hopefully never needed!