NOAA FISHERIES

Southeast
Fisheries
Science Center

Red grouper

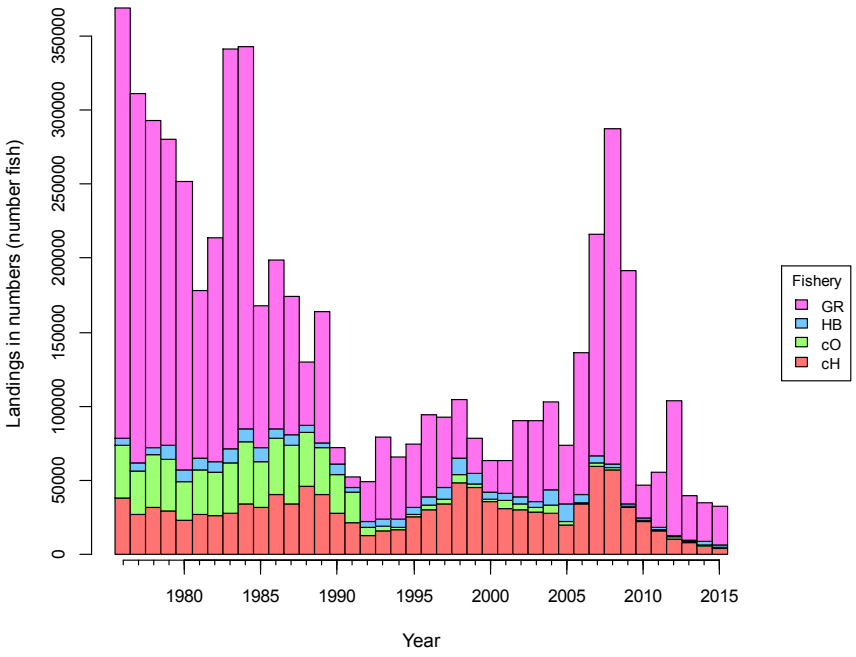
SEDAR-53 Standard Assessment

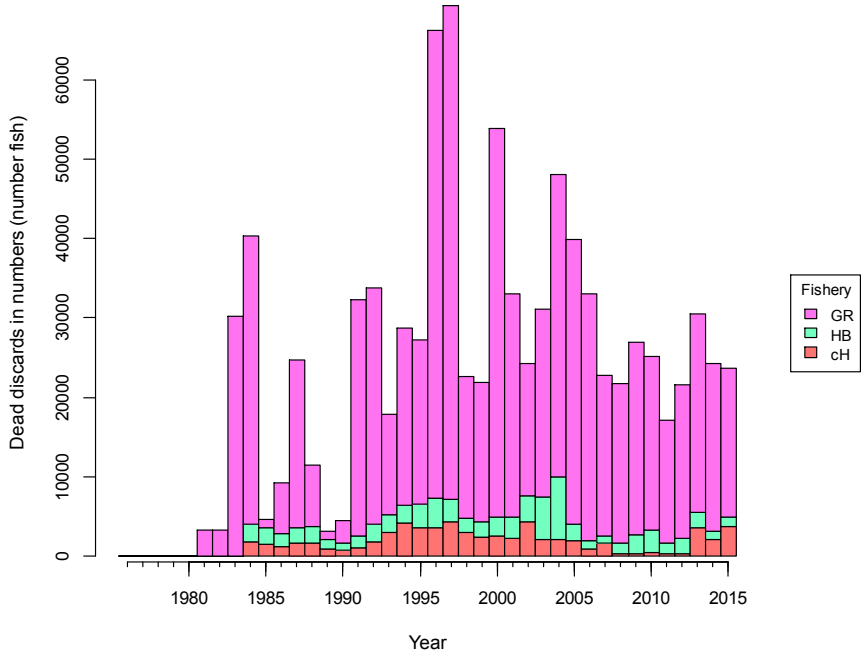
June, 2017

Background

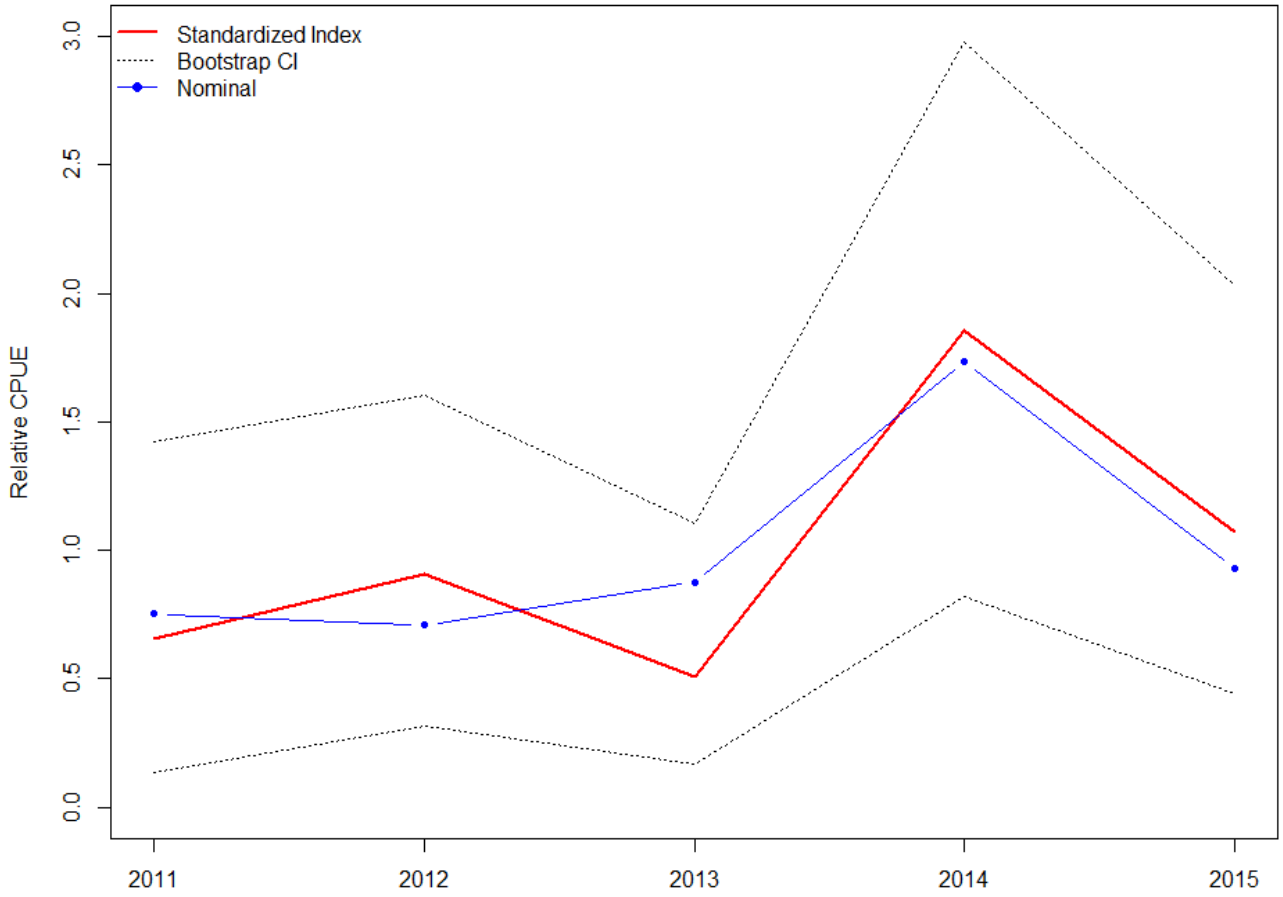
- This assessment was originally scheduled as an *update* of the SEDAR19 assessment, but was changed to a *standard* assessment to allow inclusion of SERFS video data.
- Standard assessment conventions
  - Modeling decisions made by an assessment panel. Meetings conducted via webinars.
  - SSC conducts the review
- TOR #2
  - Consider the inclusion of the SERFS video index
  - Incorporate the latest BAM model configuration
- Strike a balance between fidelity to SEDAR19 and modifications intended to improve the assessment

Landings and discard mortalities (in numbers)

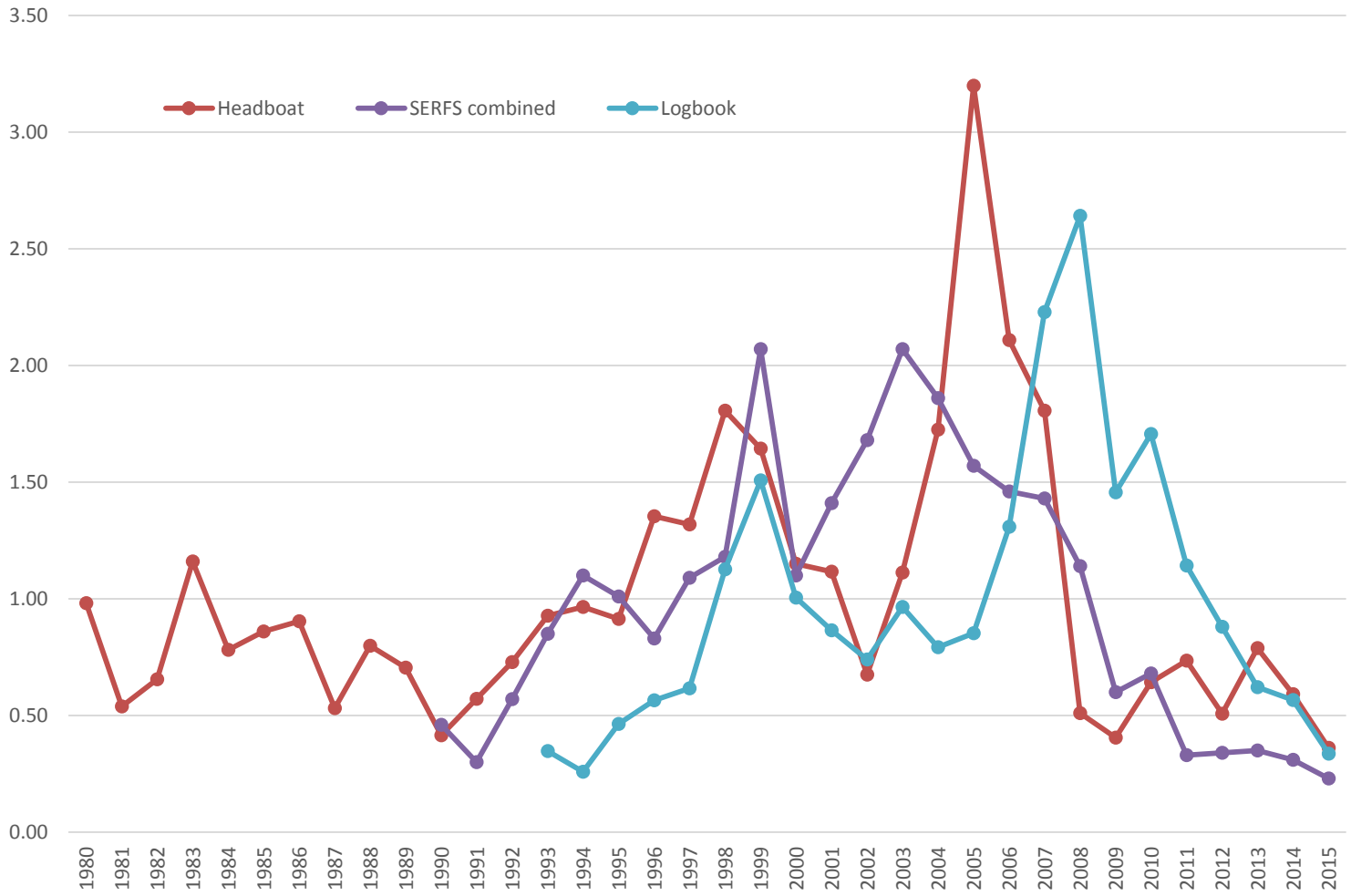




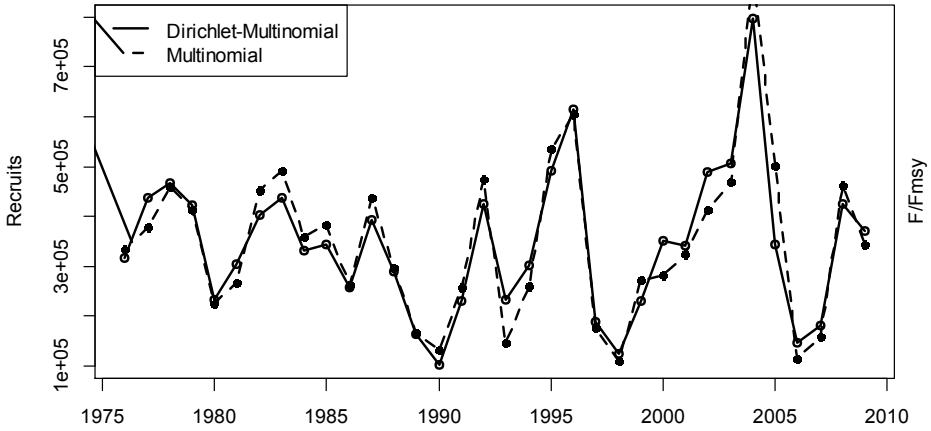
Relative standardized index (solid line) with 2.5% and 97.5% confidence intervals (dashed lines) and the relative nominal index (blue) for red grouper in the SERFS video survey

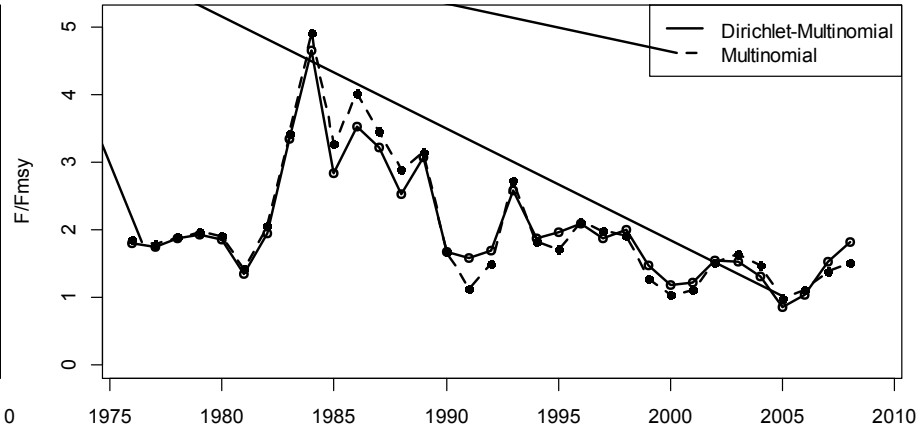


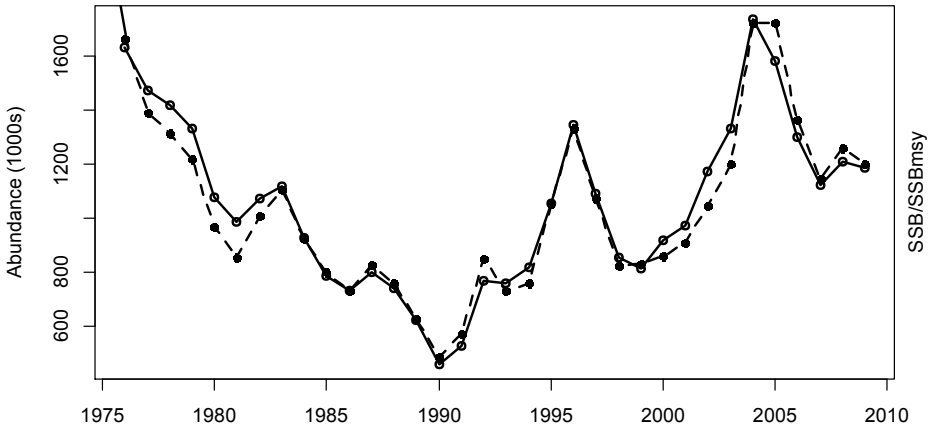
Indices of abundance

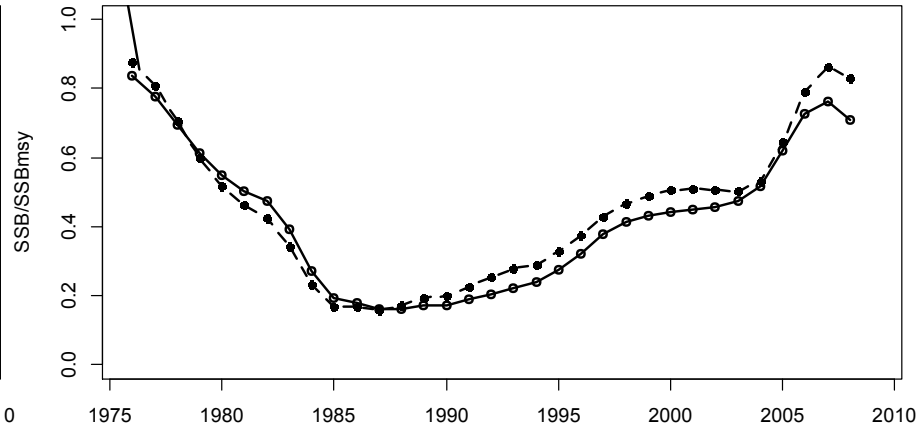


Effect multinomial → Dirichlet-multinomial (S19 model and data)

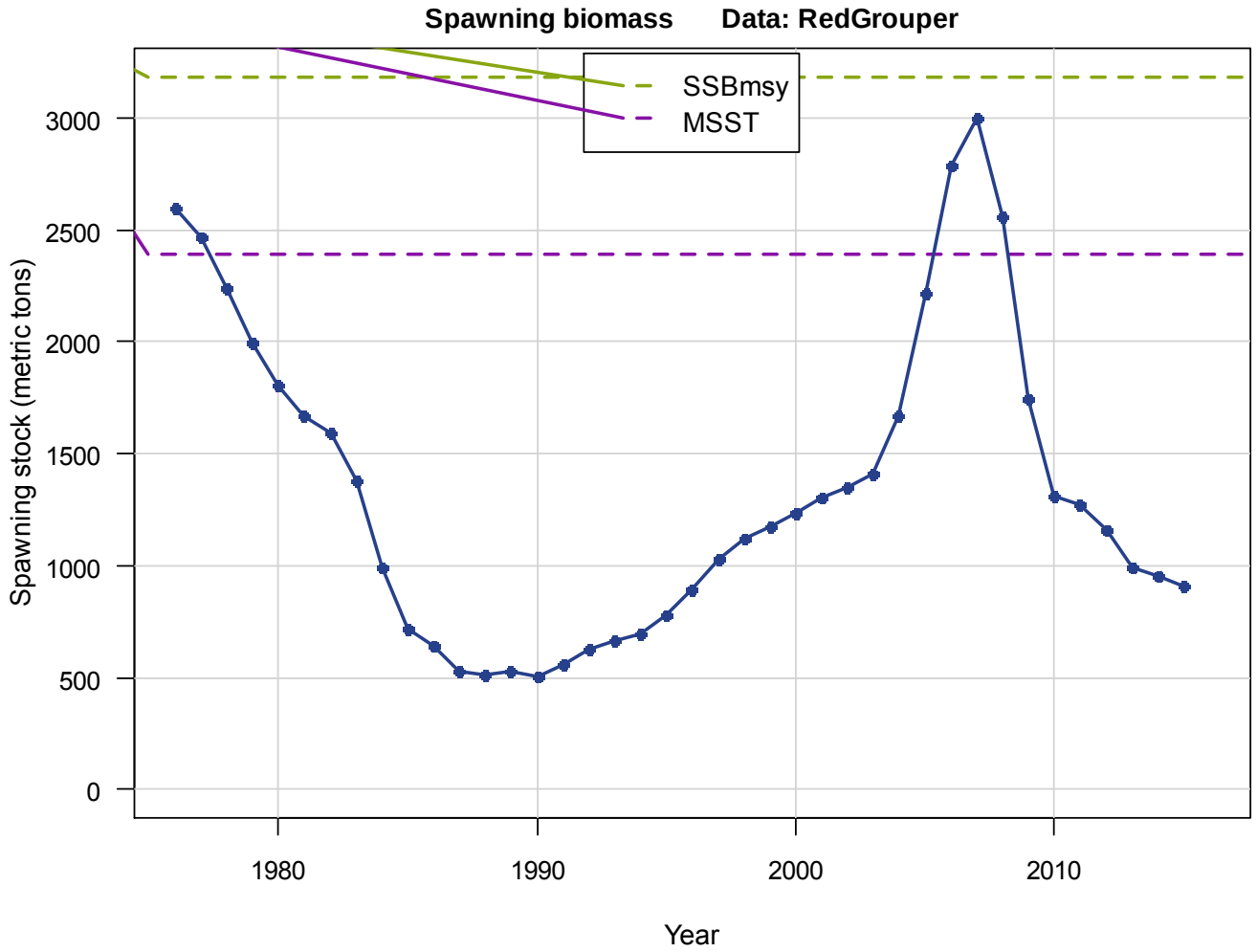




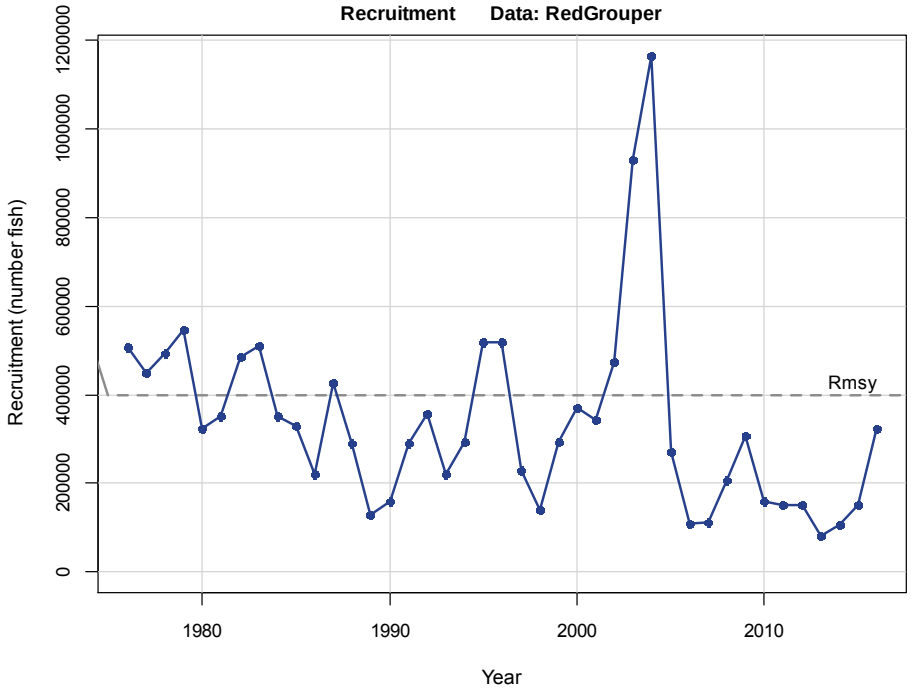




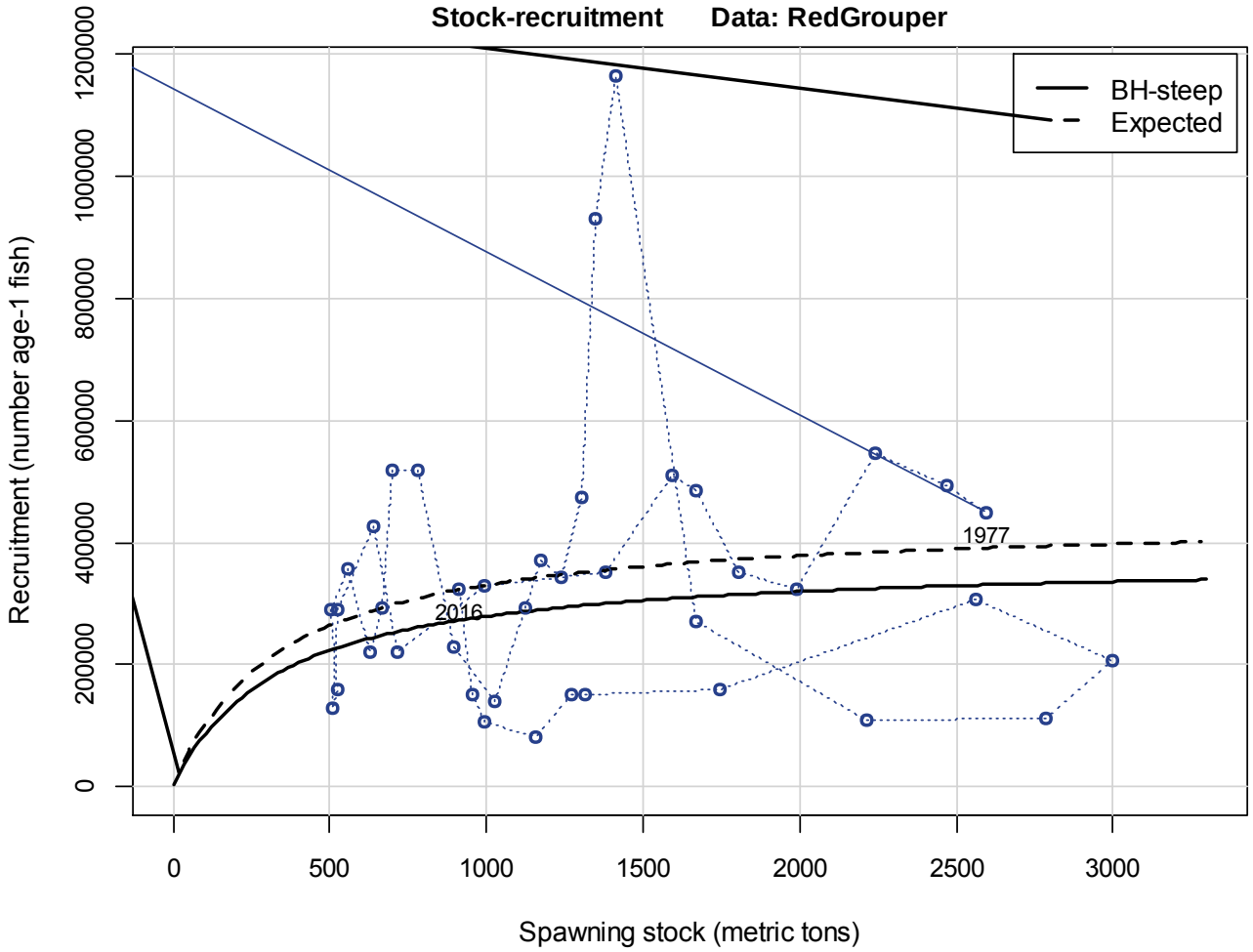
BAM base run – SSB



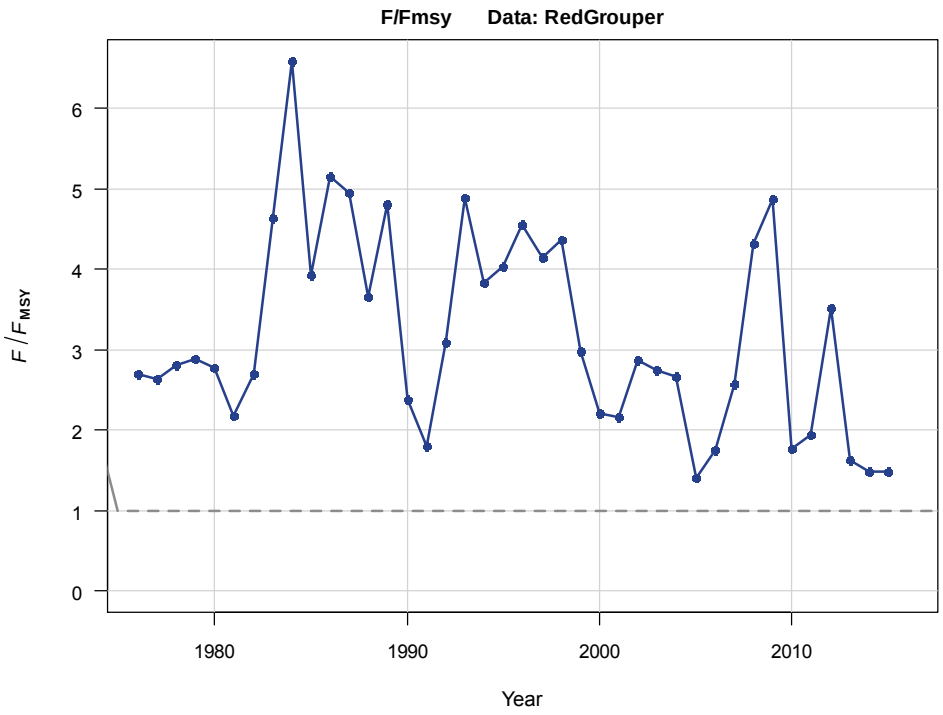
BAM base run – Recruitment

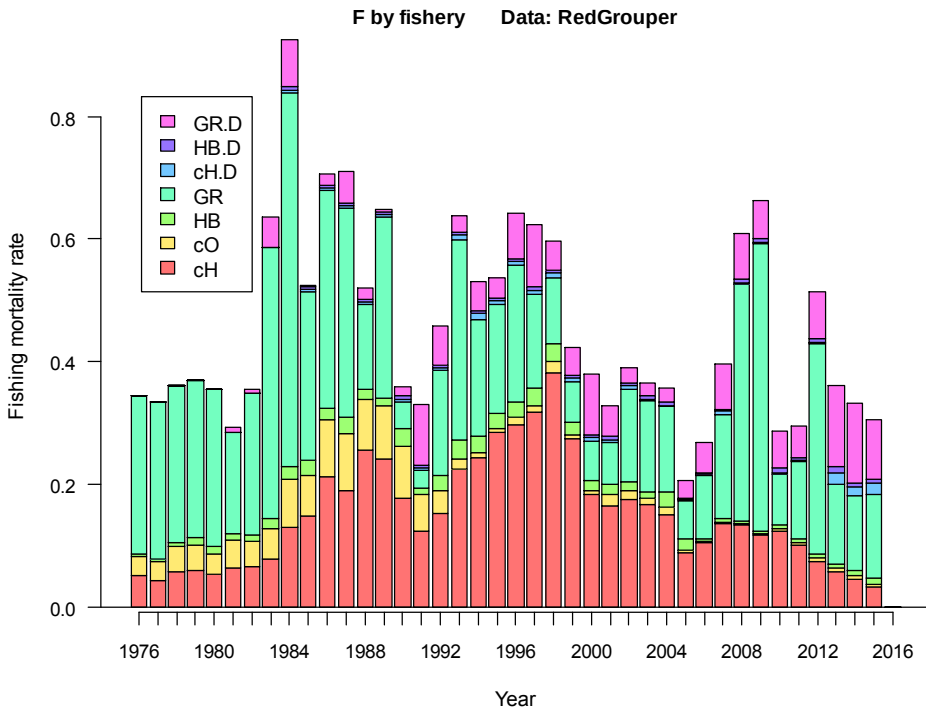


BAM base run – Spawner-recruit curve

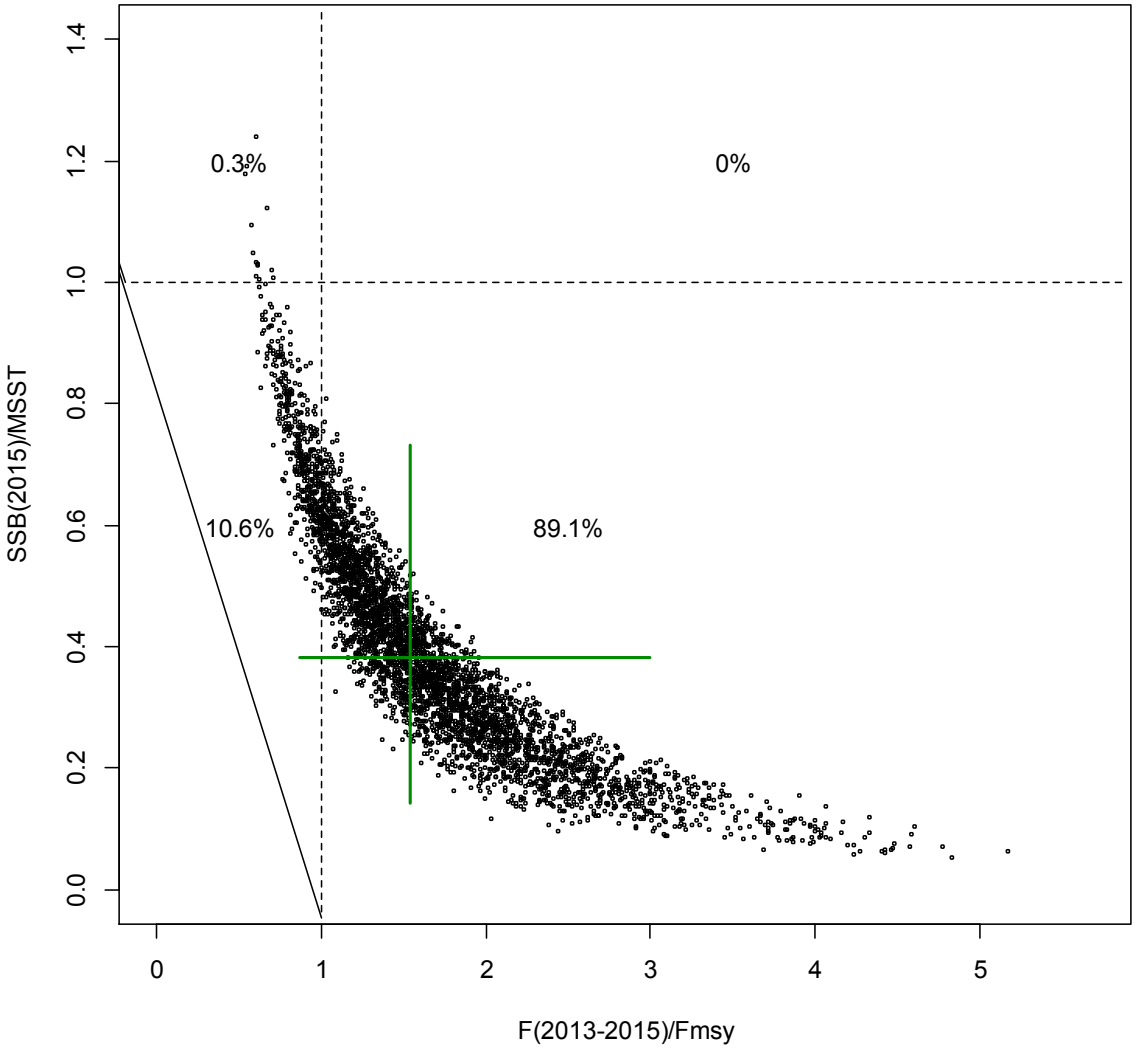


BAM base run – Fishing mortality



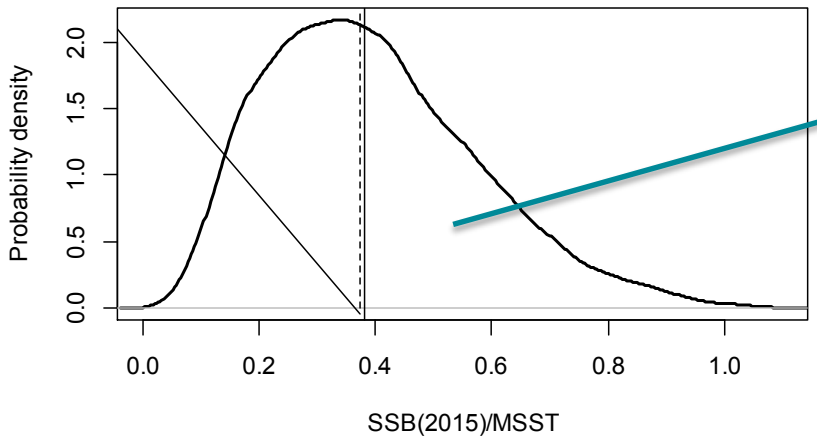


MCB – stock and fishery status

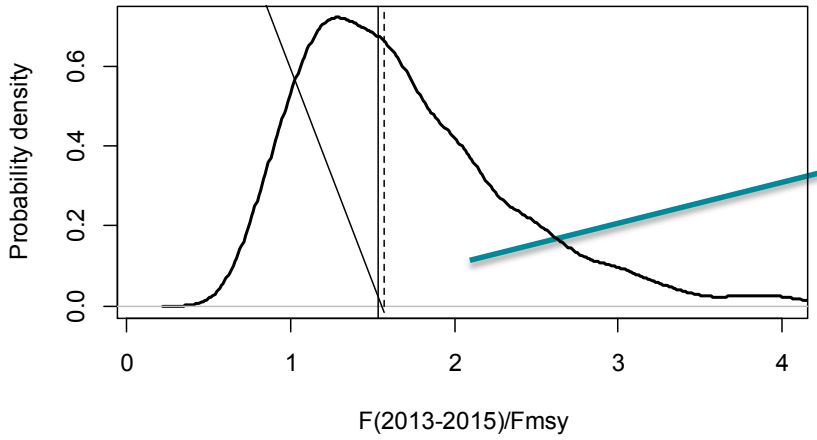


MCB – stock and fishery status

Solid=MLE (base)
Dash=Median



~97.7% of distribution below 1.0 (i.e., overfished)



~89.1% of distribution exceeds 1.0 (i.e., overfishing)

BAM results – Management quantities

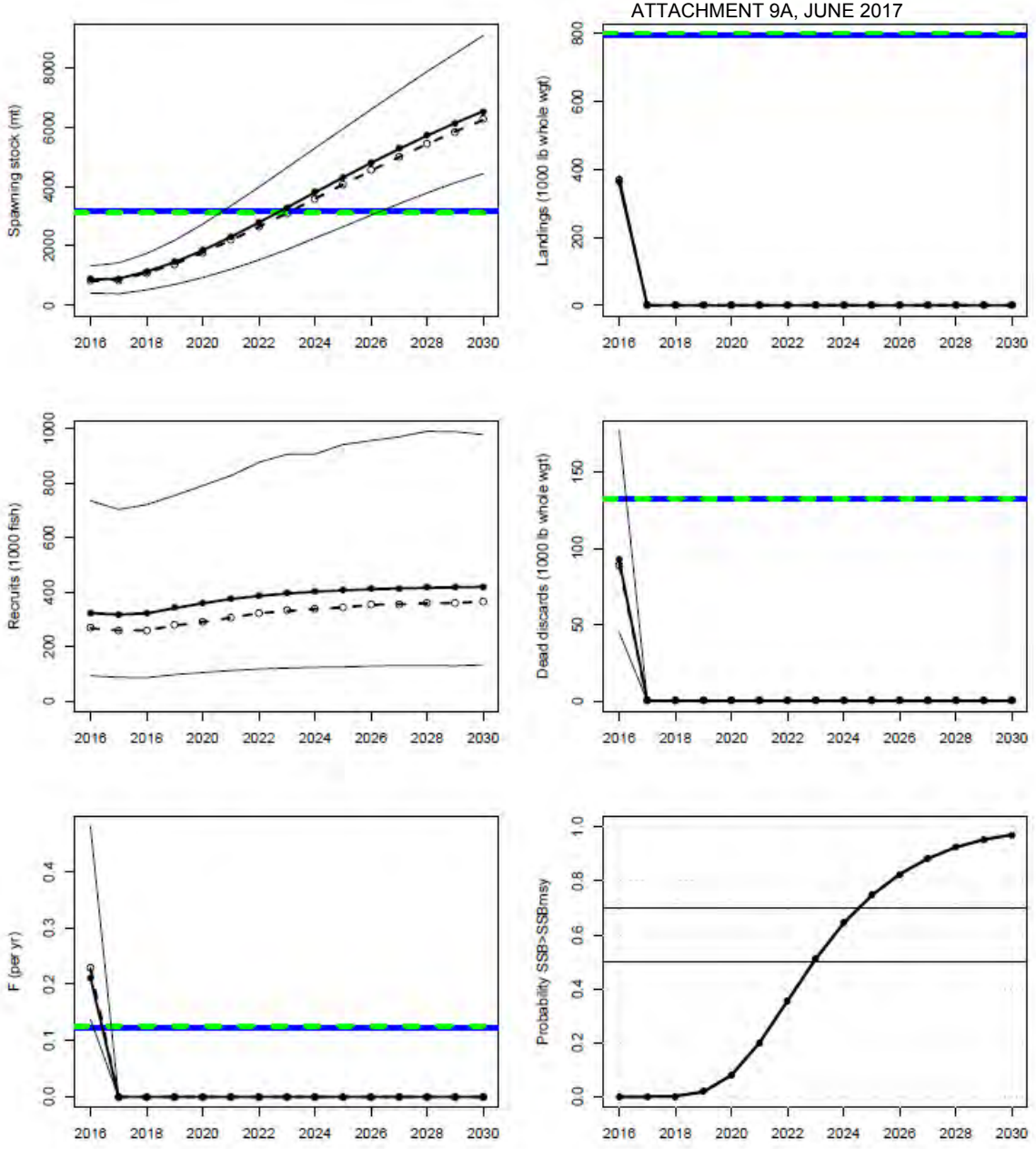
Quantity	Units	Estimate	Median	SE
F_{MSY}	y^{-1}	0.12	0.13	0.02
$85\%F_{MSY}$	y^{-1}	0.10	0.11	0.02
$75\%F_{MSY}$	y^{-1}	0.09	0.09	0.02
$65\%F_{MSY}$	y^{-1}	0.08	0.08	0.01
$F_{20\%}$	y^{-1}	0.20	0.21	0.03
$F_{30\%}$	y^{-1}	0.14	0.14	0.02
$F_{40\%}$	y^{-1}	0.10	0.10	0.01
B_{MSY}	mt	4188.3	4149.6	1333.
SSB_{MSY}	mt	3183.4	3145.4	1165.1
MSST	mt	2387.6	2359	873.8
MSY	1000 lb	794.3	806.7	180.0
D_{MSY}	1000 fish	60.9	61.2	13.5
R_{MSY}	1000 age-1 fish	399.8	414.8	69.2
Y at $85\%F_{MSY}$	1000 lb	787.0	794.3	178.0
Y at $75\%F_{MSY}$	1000 lb	772.0	779.7	174.1
Y at $65\%F_{MSY}$	1000 lb	746.4	754.7	167.6
$F_{2013-2015}/F_{MSY}$	—	1.54	1.58	0.57
$SSB_{2015}/MSST$	—	0.38	0.37	0.13
SSB_{2015}/SSB_{MSY}	—	0.29	0.27	0.11

Projection scenarios

Scenario	F	Recruitment	Start year
1	Fmsy	Expected	2017
2	75%Fmsy	Expected	2017
3	0	Expected	2017
4	Fmsy	Low	2017
5	75%Fmsy	Low	2017
6	0	Low	2017
7	0	Expected	2019
8	75%Fmsy	Expected	2019

Example projection Scenario 3: F=0

Thick blue solid=base benchmark
Thick green dash=median benchmark
Thin solid, closed circles=deterministic
Thin dash, open circles=median
Thin solid=5th and 95th percentiles



Assessment summary and conclusions

- This assessment indicates that red grouper are currently overfished and experiencing overfishing

- Decreases in abundance over the past decade appear to be due to low recruitment since 2005, combined with high landings in 2007-2009, particularly from the general recreational fleet.

Questions