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# Model Diagnostics for Revised stock assessments of Black Sea Bass, Blueline Tilefish, Red Grouper, and Vermilion Snapper in the U.S. South Atlantic region

SAFMC SSC review

January 25, 2018

# Background

- MRIP estimates were updated in July 2018, after:
  - Three-year comparison study alongside previous methodology
  - Review of MRIP conducted by the National Academy of Sciences in 2017 (report freely available online)
- SAFMC asked that recent assessments be revised using the new MRIP estimates (everything else remained the same)
- These revised assessments were reviewed by the SSC at the Oct 2018 meeting
- The SSC requested additional diagnostics of revised assessments ...

# Outline

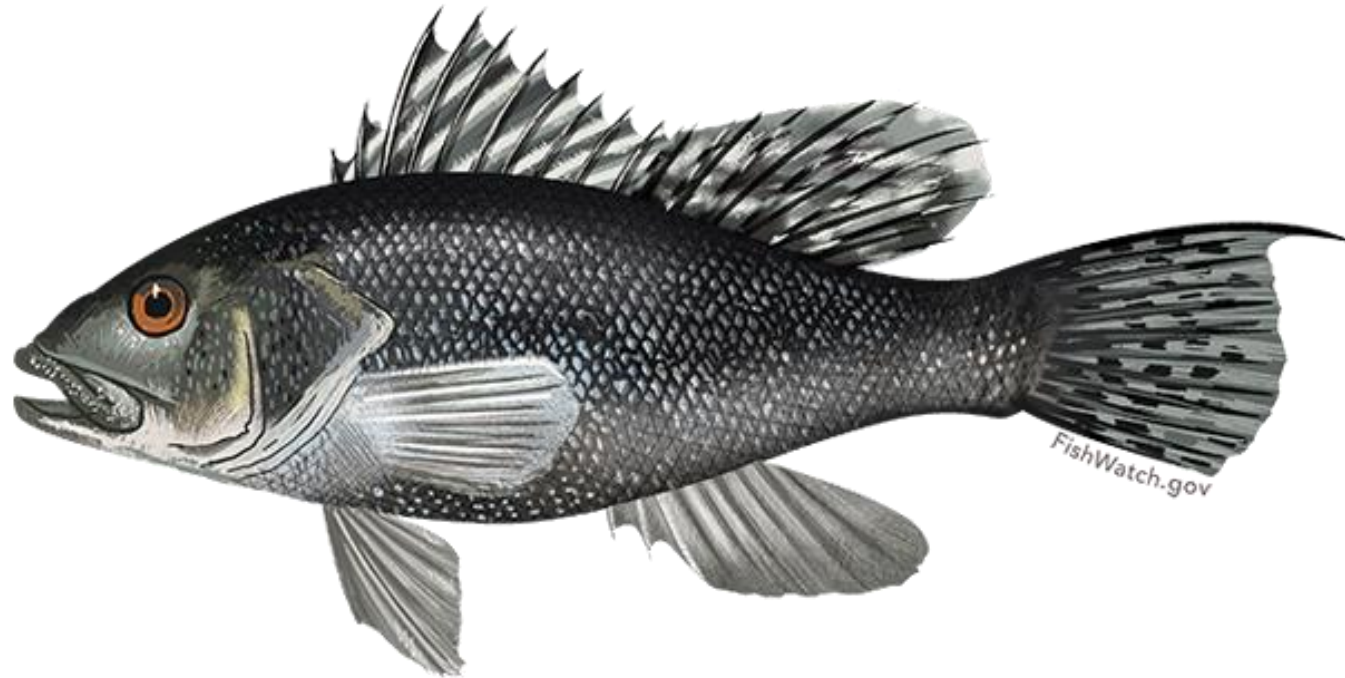
1. Black Sea Bass (SEDAR-56)
2. Blueline Tilefish (SEDAR-50)
3. Red Grouper (SEDAR-53)
4. Vermilion Snapper (SEDAR-55)

## Note:

Diagnostic plots in subsequent slides approximately follow the order presented in the original assessment reports.

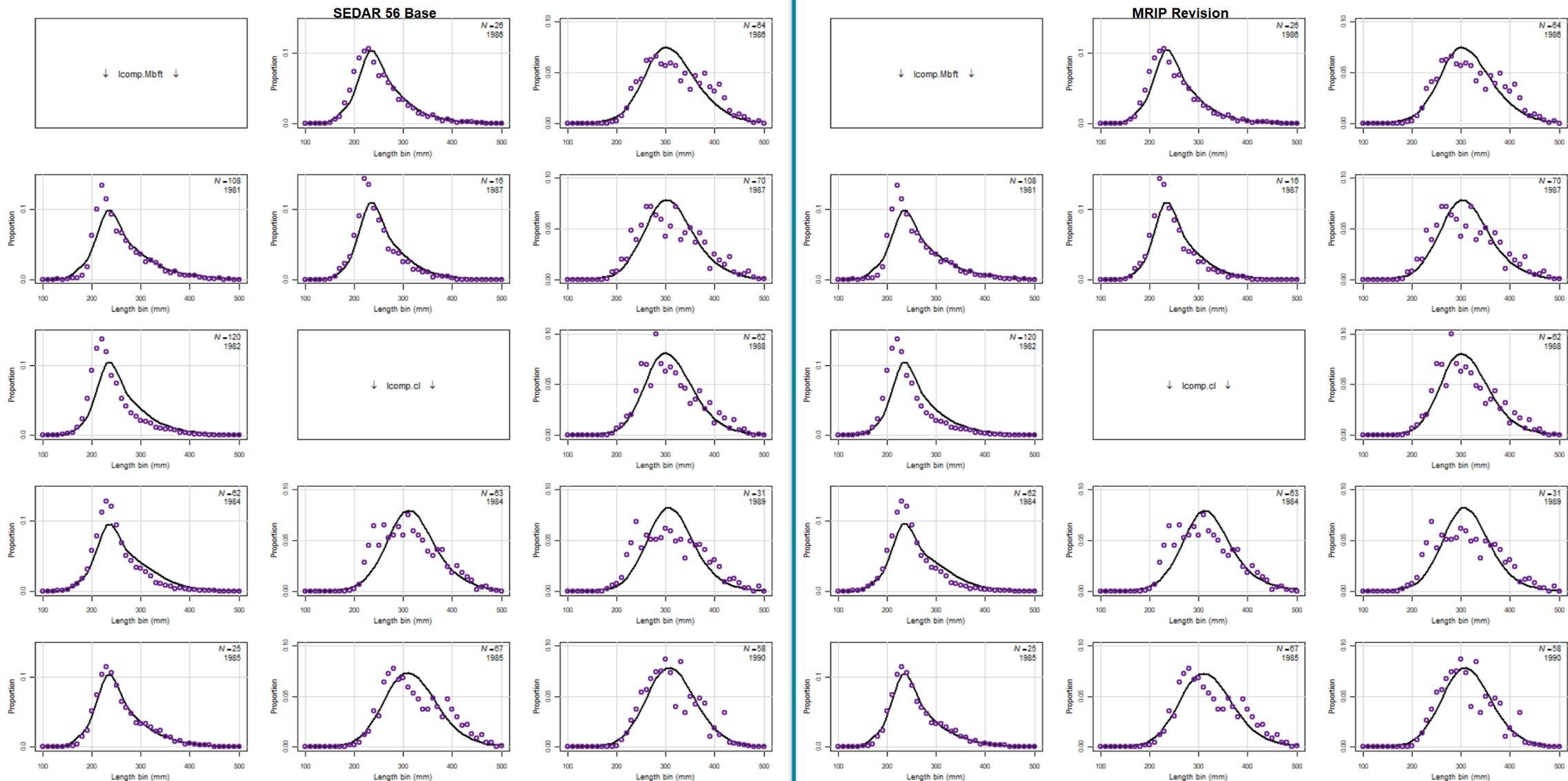
On each slide, previous SEDAR plots on the left, MRIP revision on the right

# Black Sea Bass (BSB)

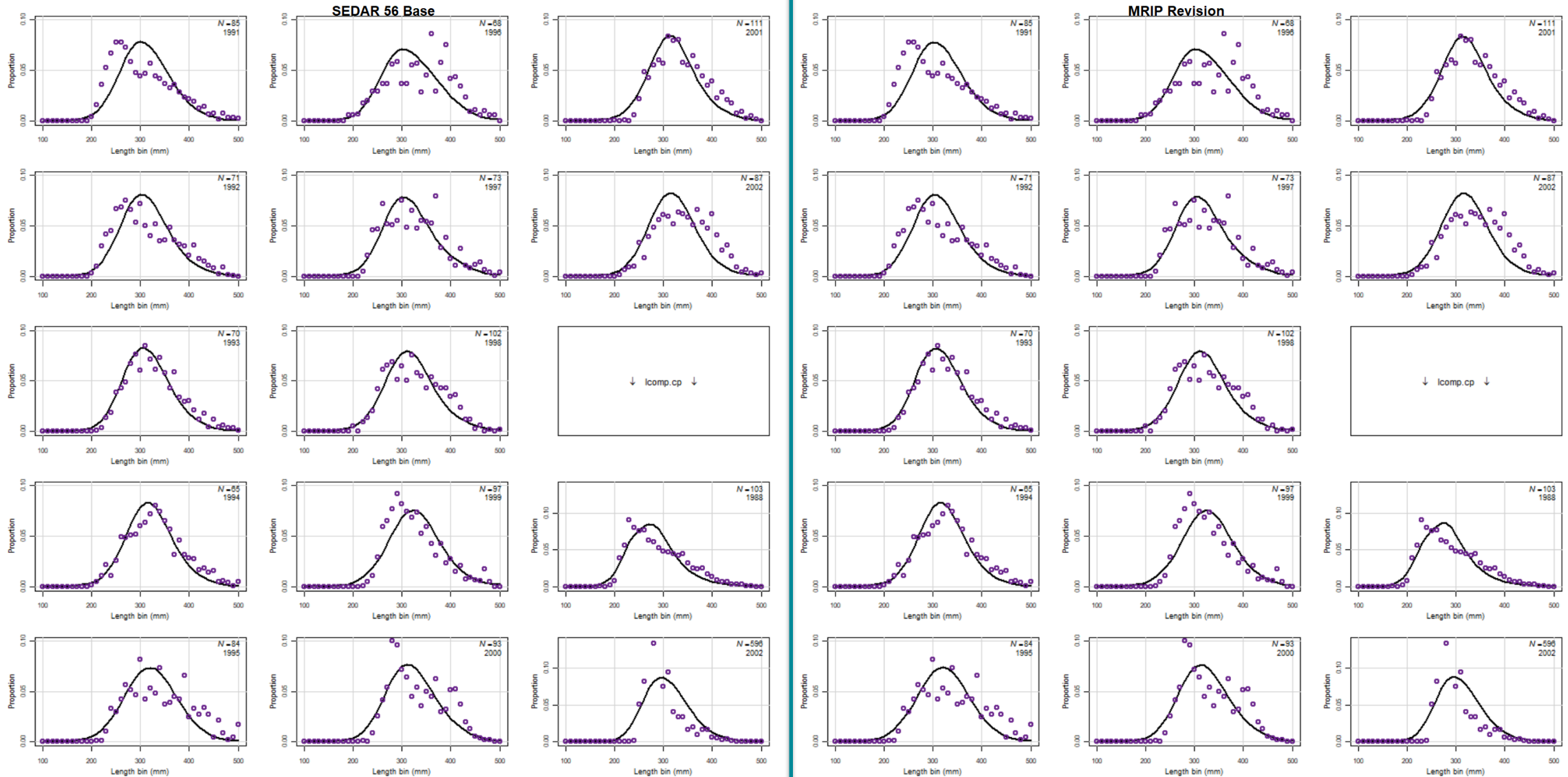




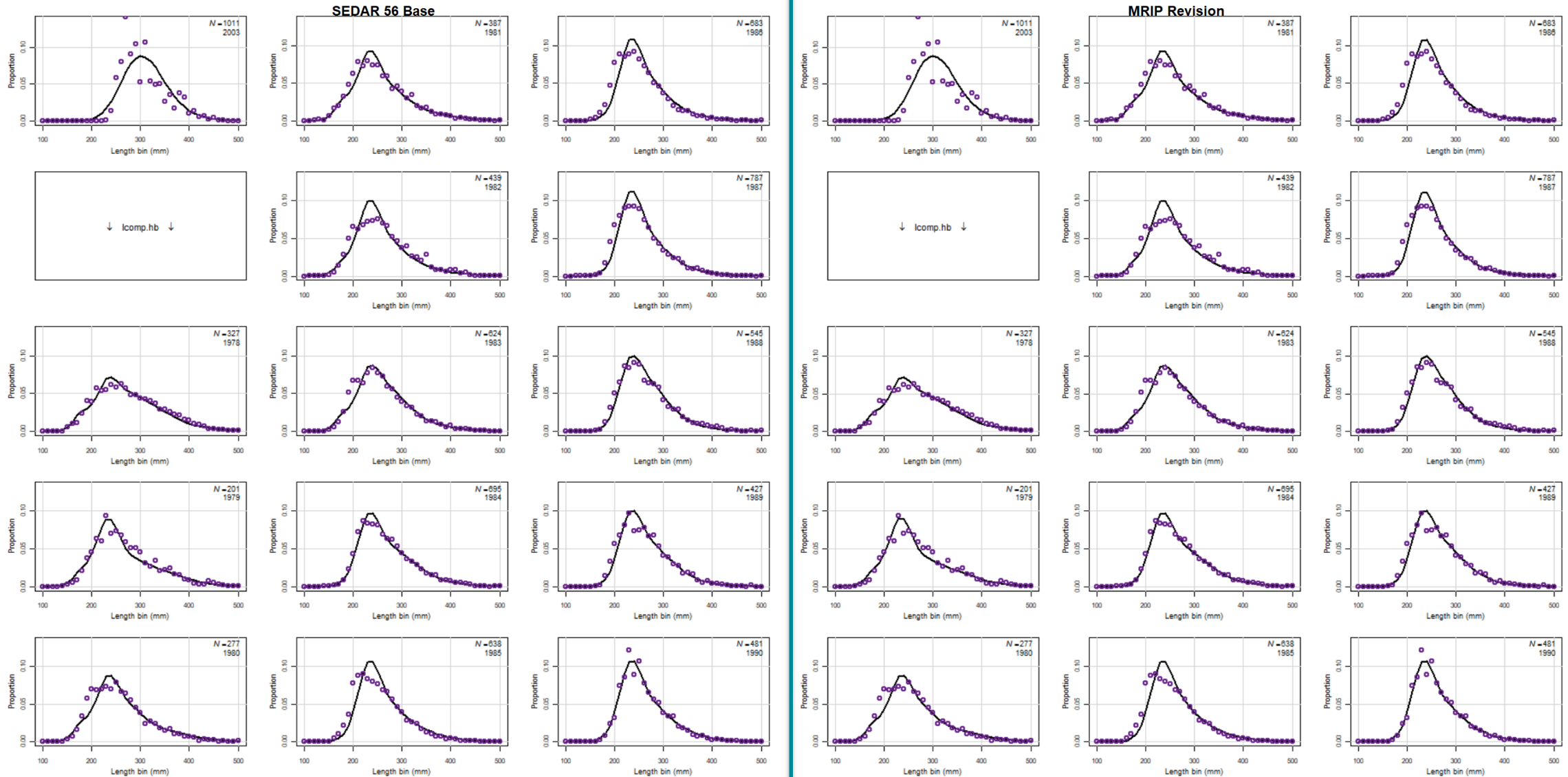
# BSB size and age comps



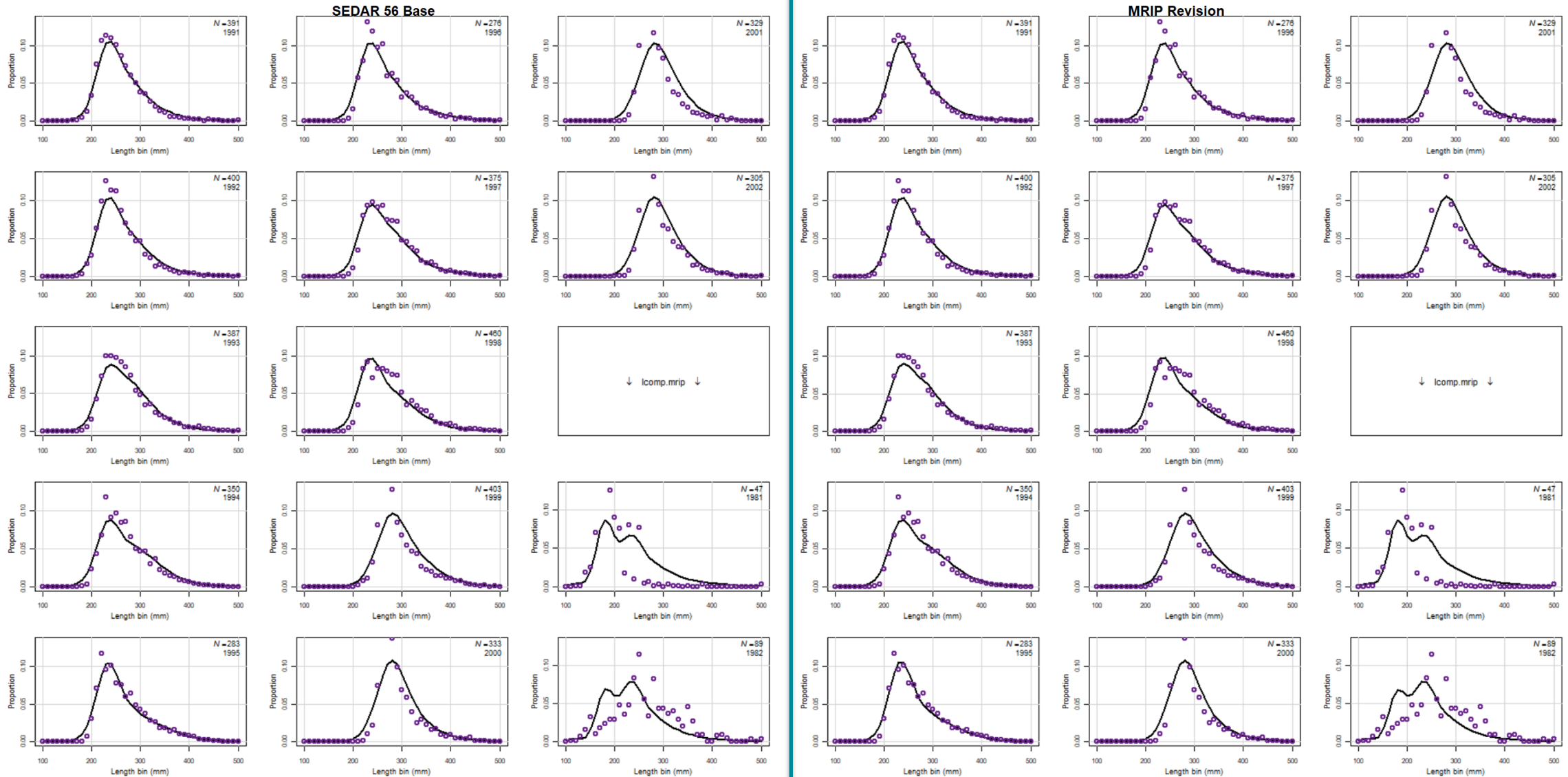
# BSB size and age comps



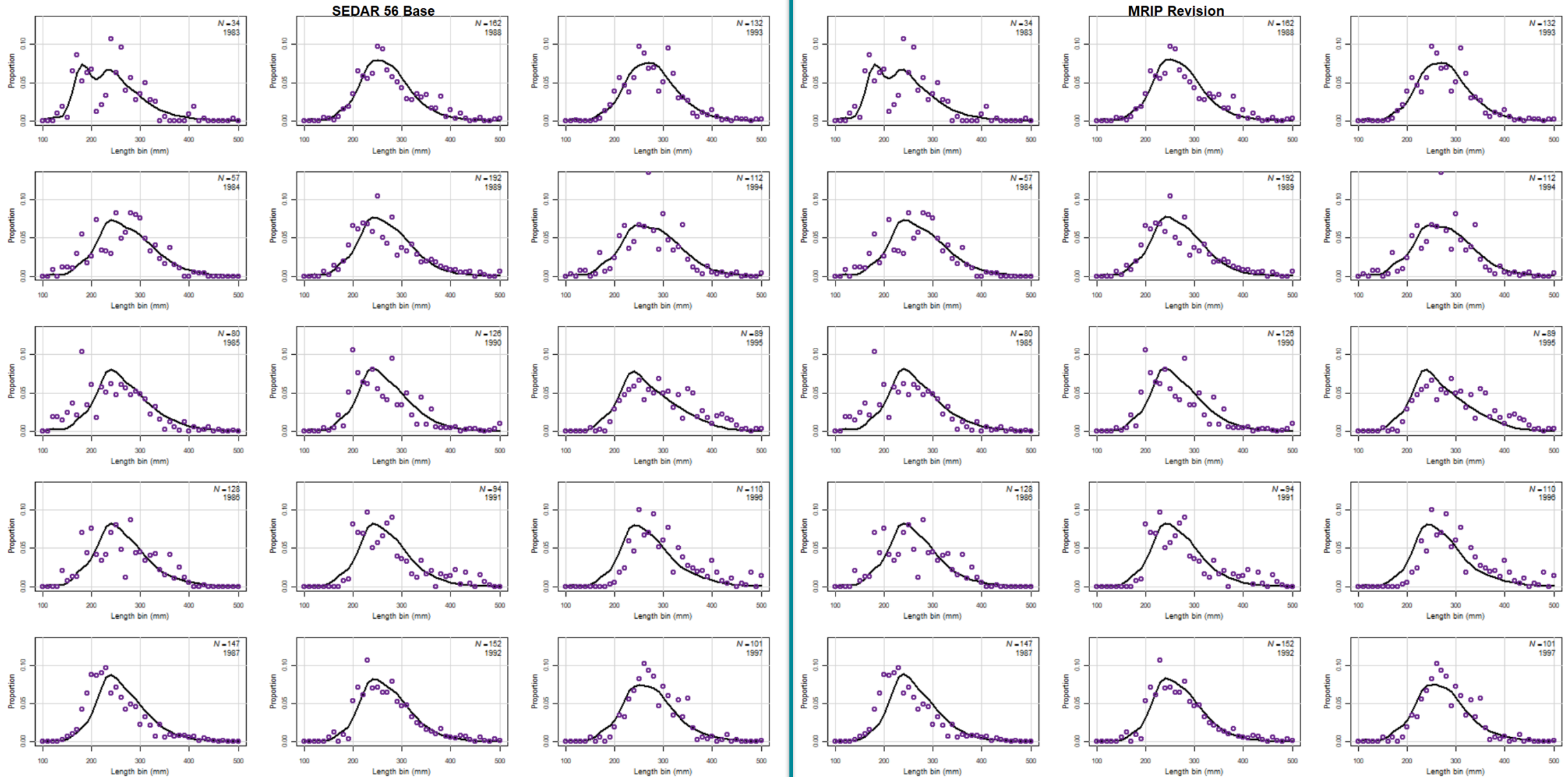
# BSB size and age comps



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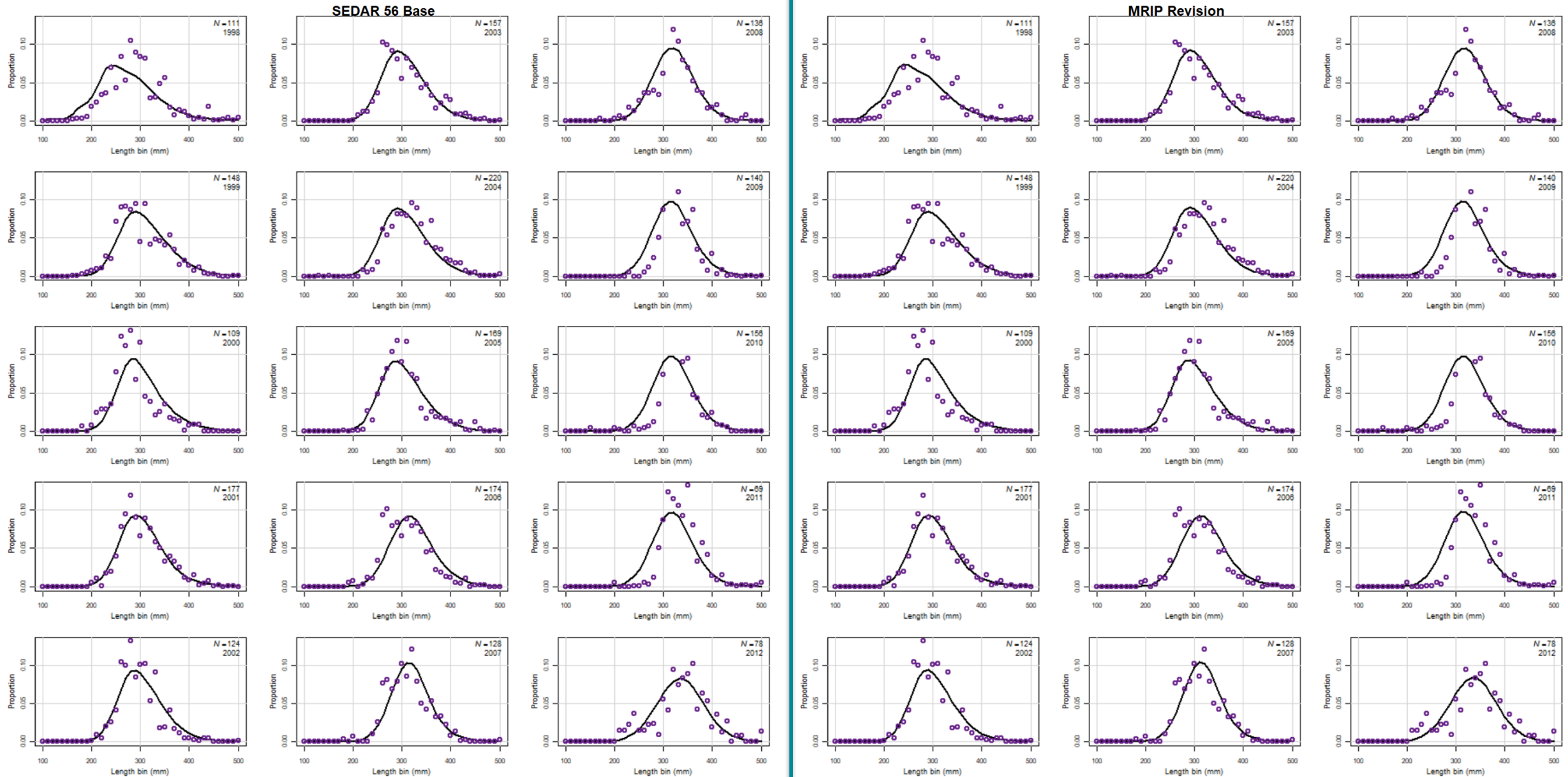


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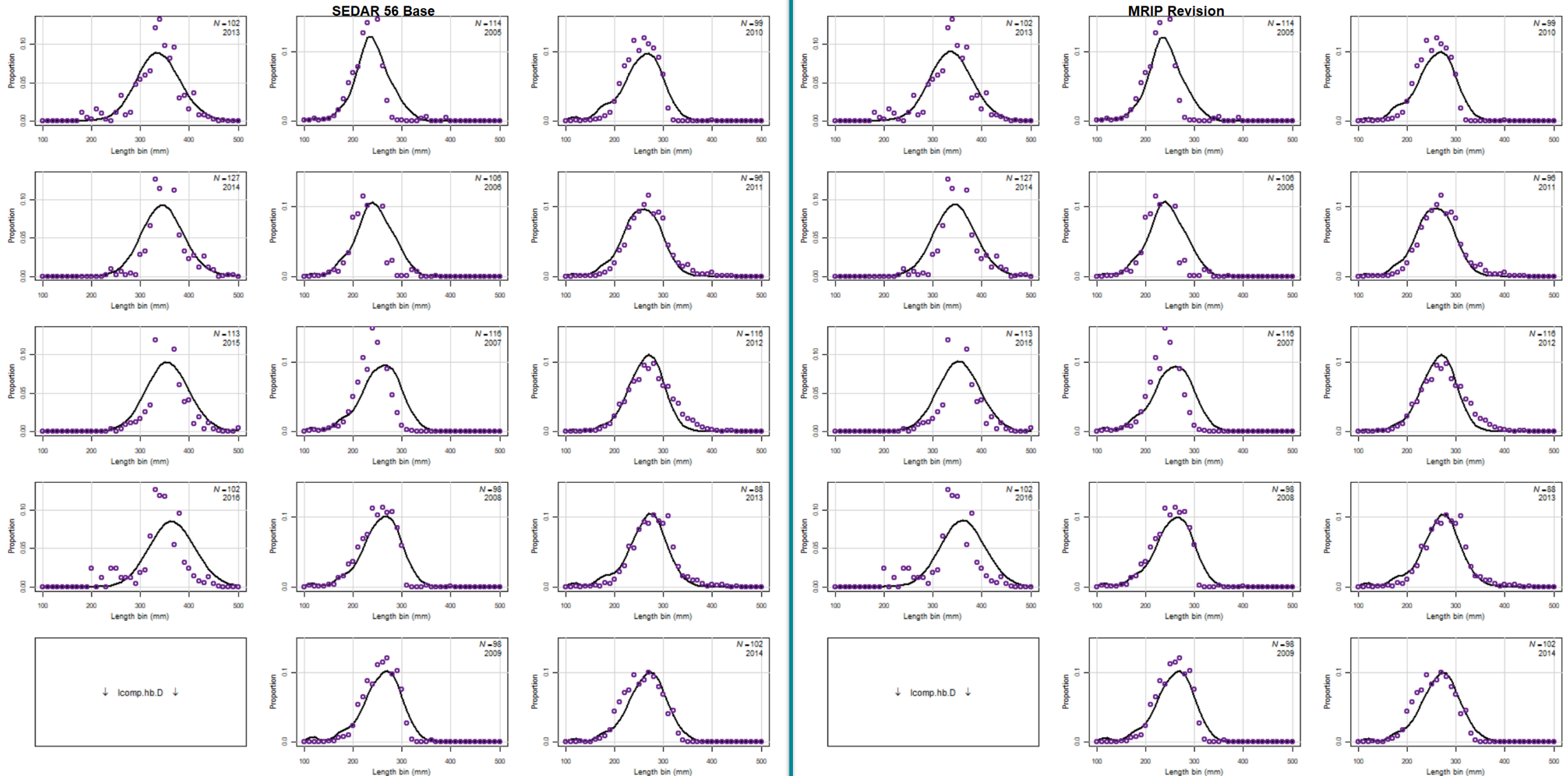




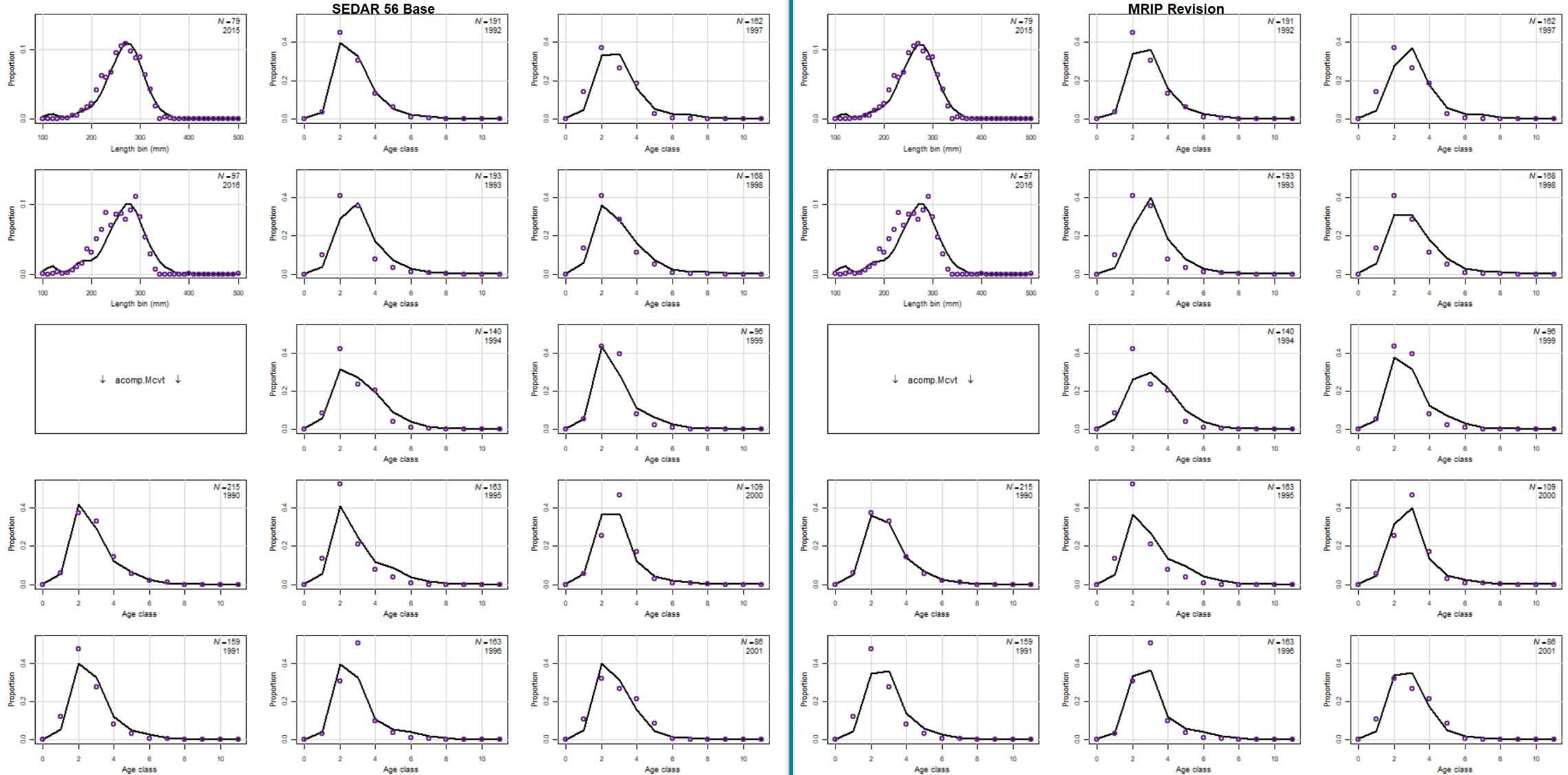
# BSB size and age comps



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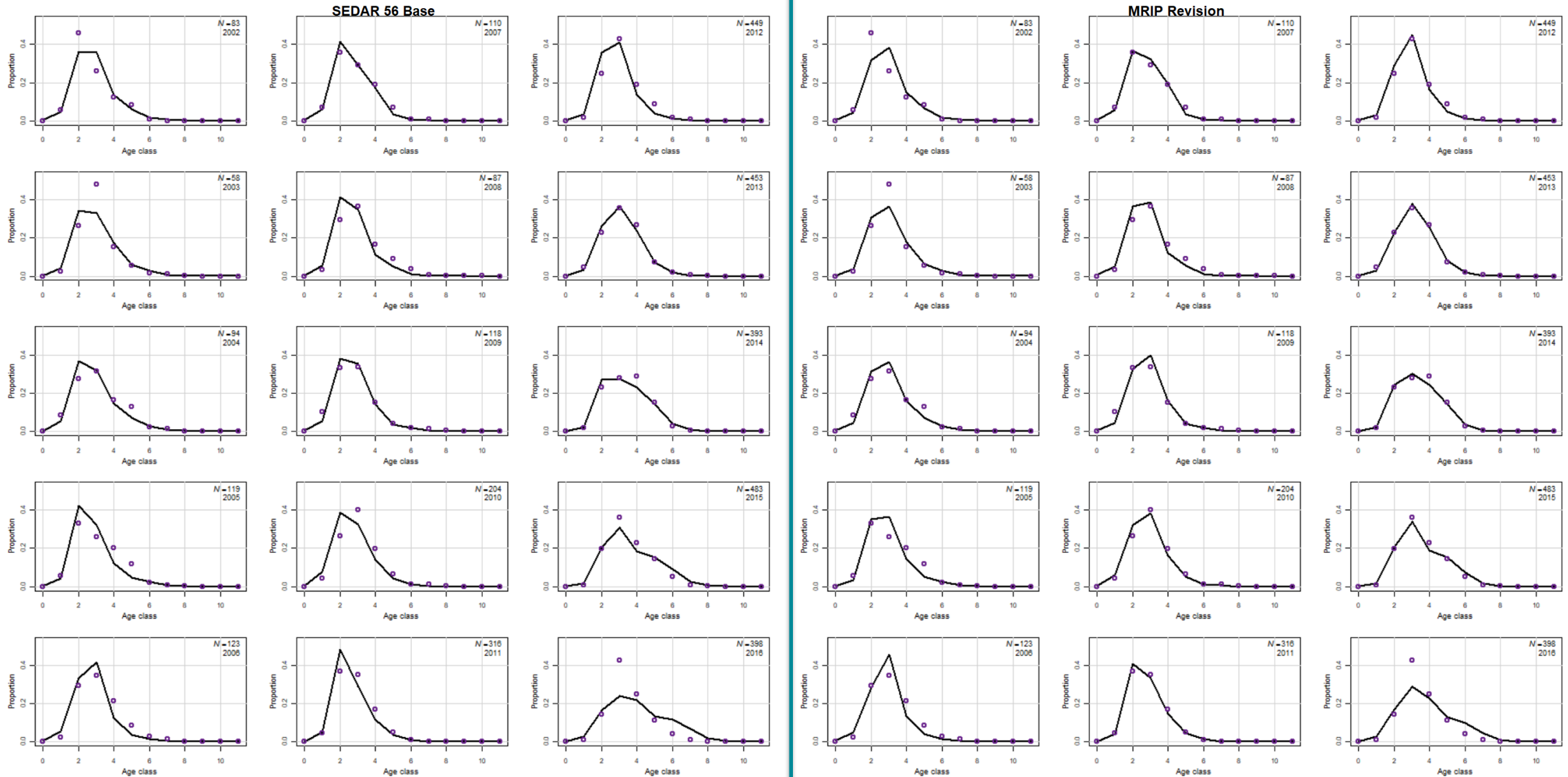


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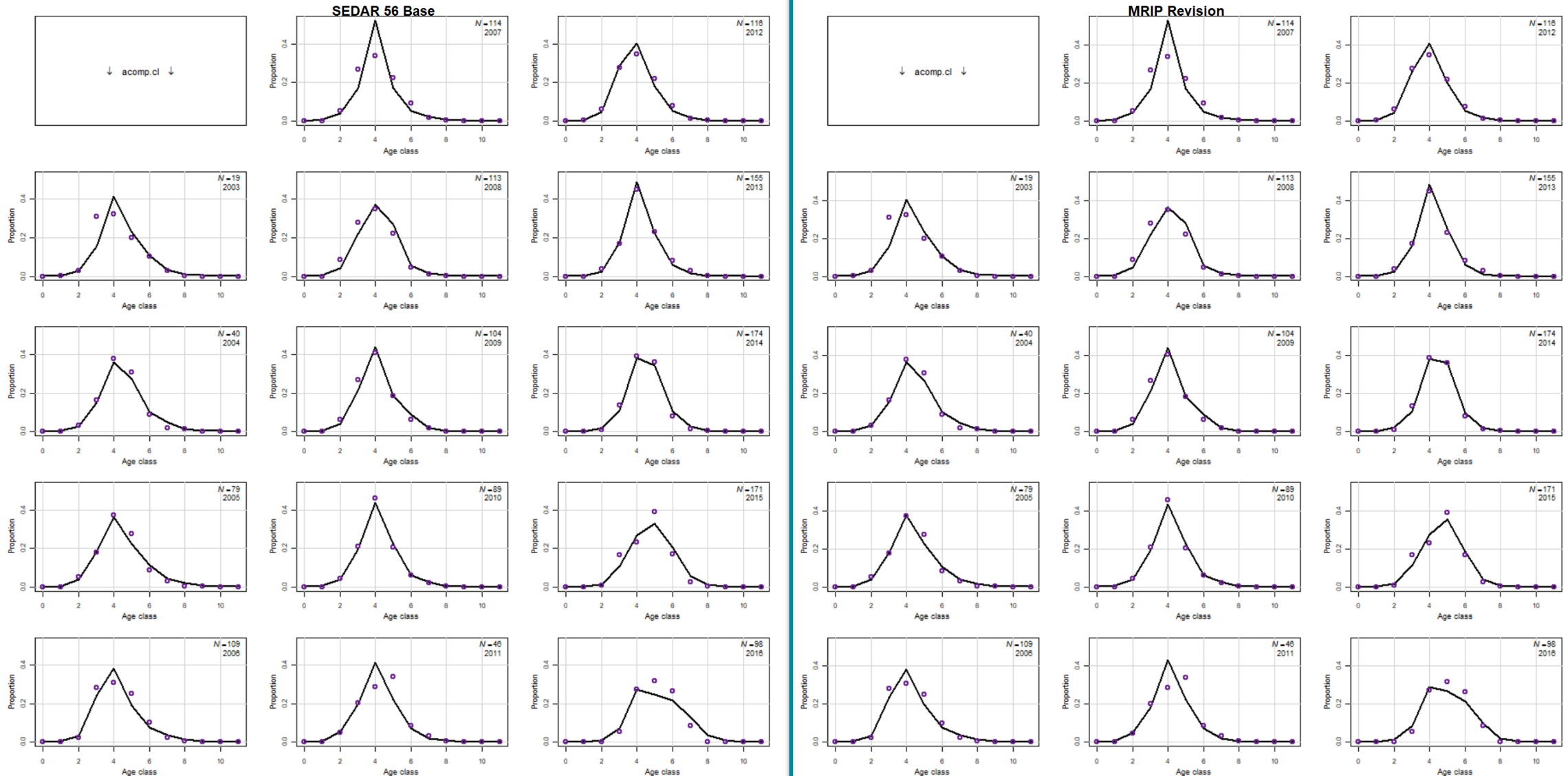




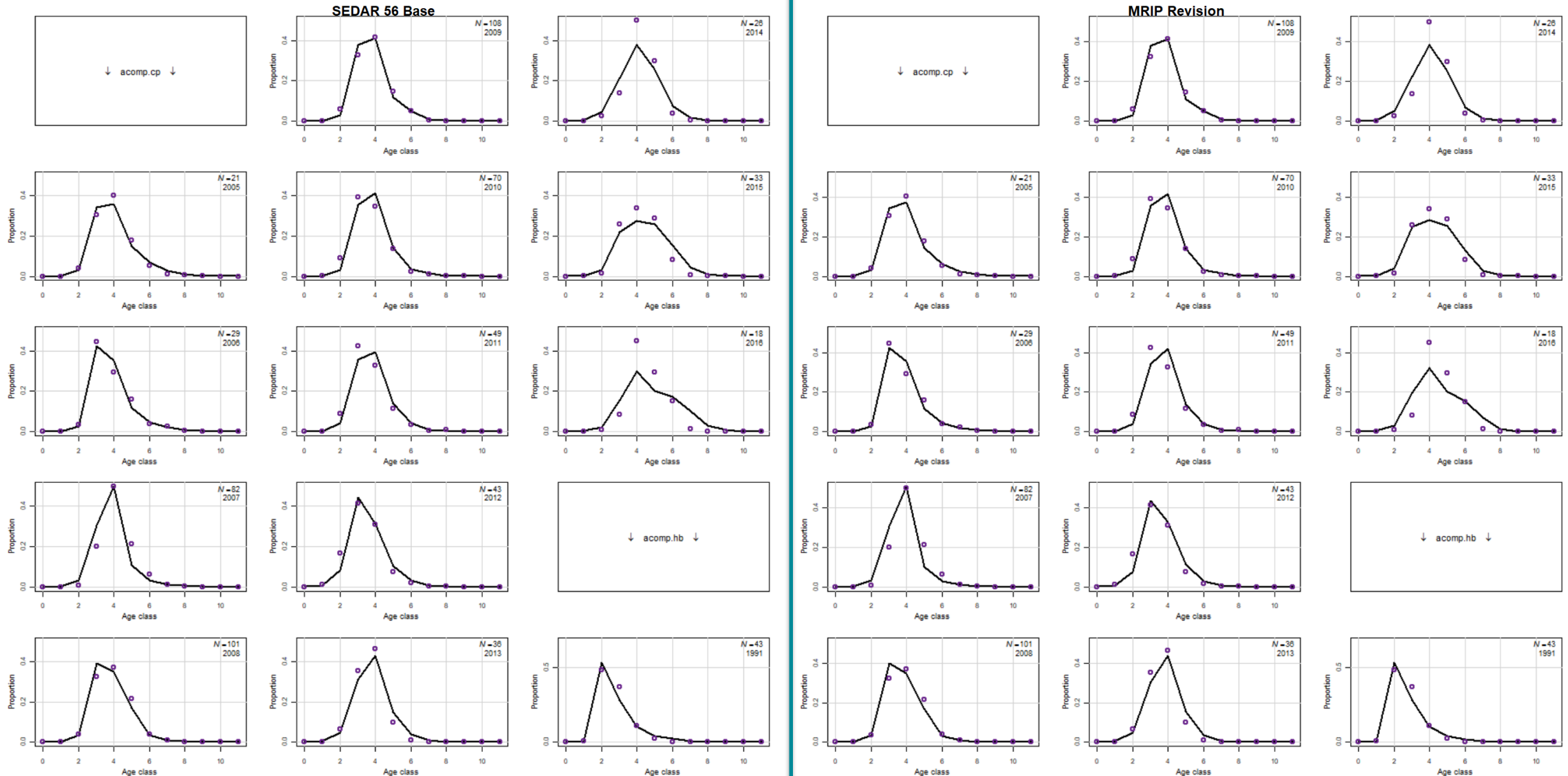
# BSB size and age comps



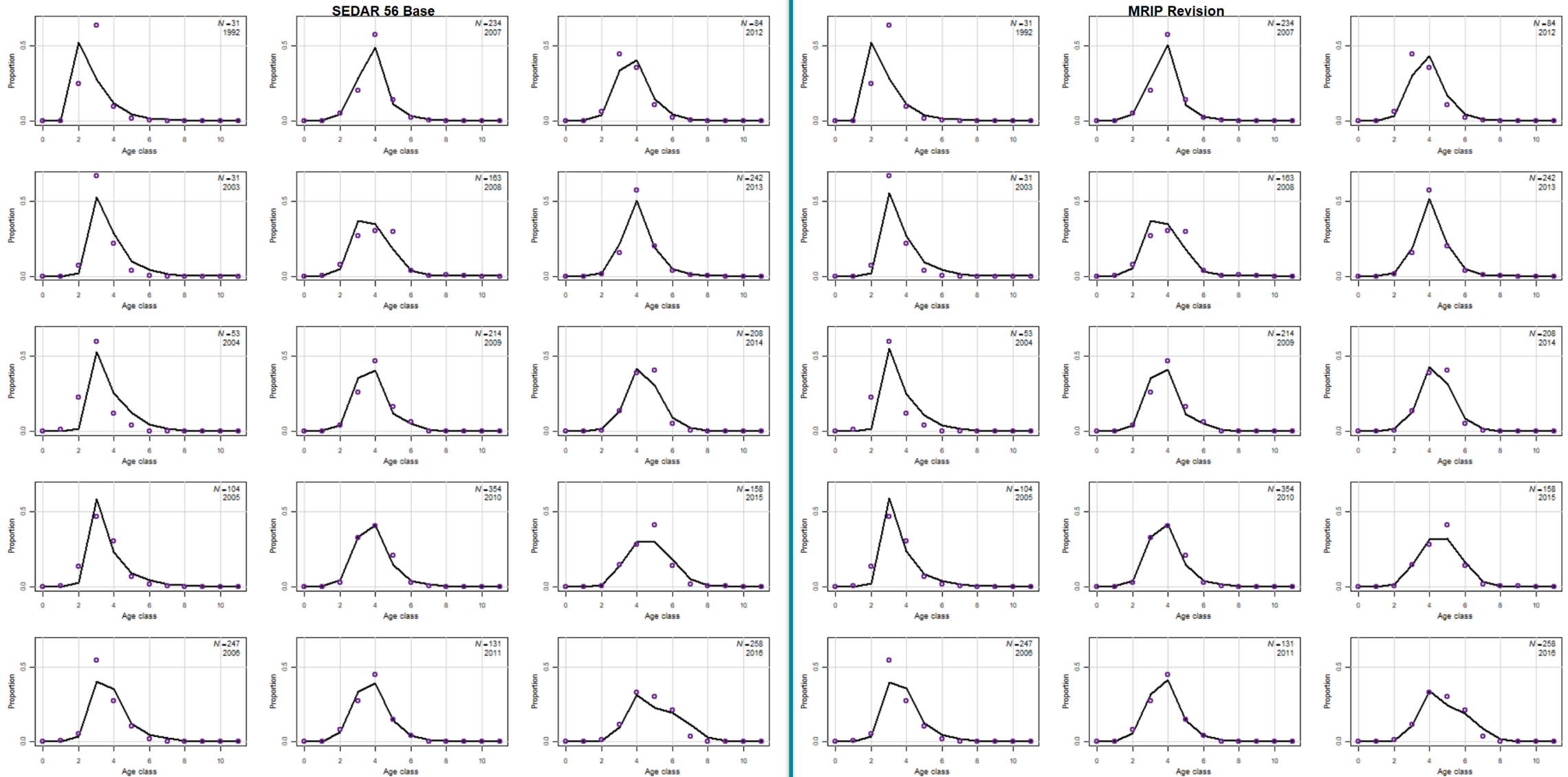
# BSB size and age comps



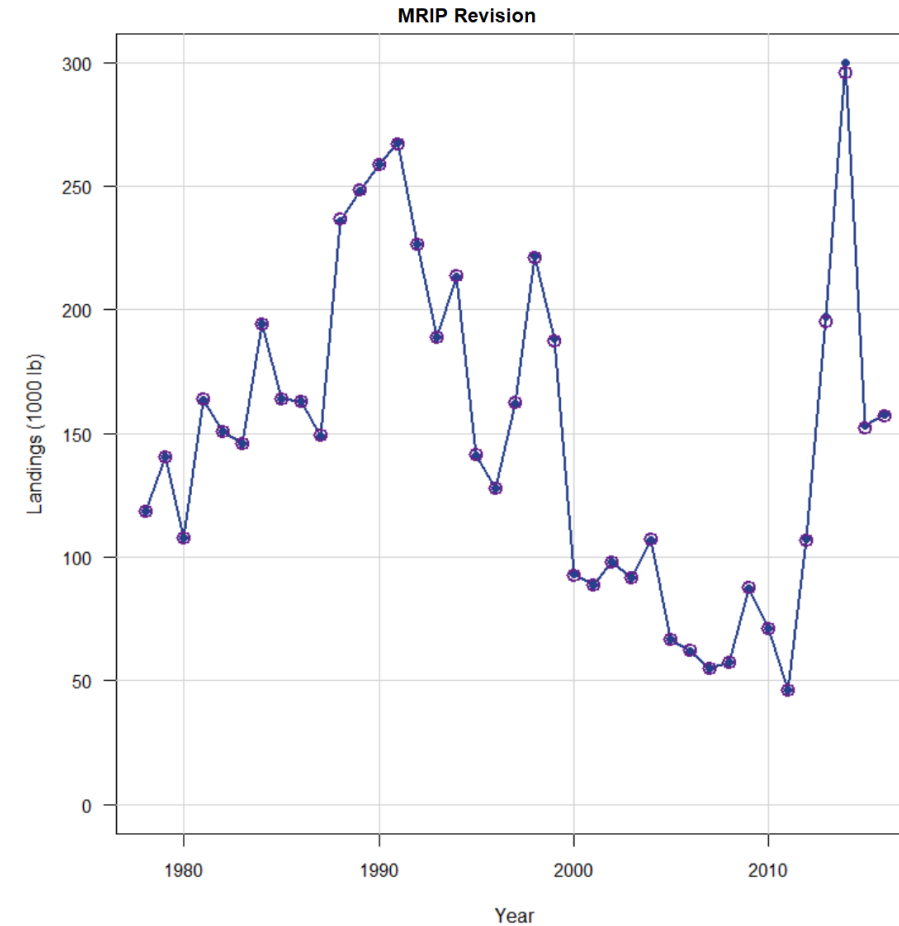
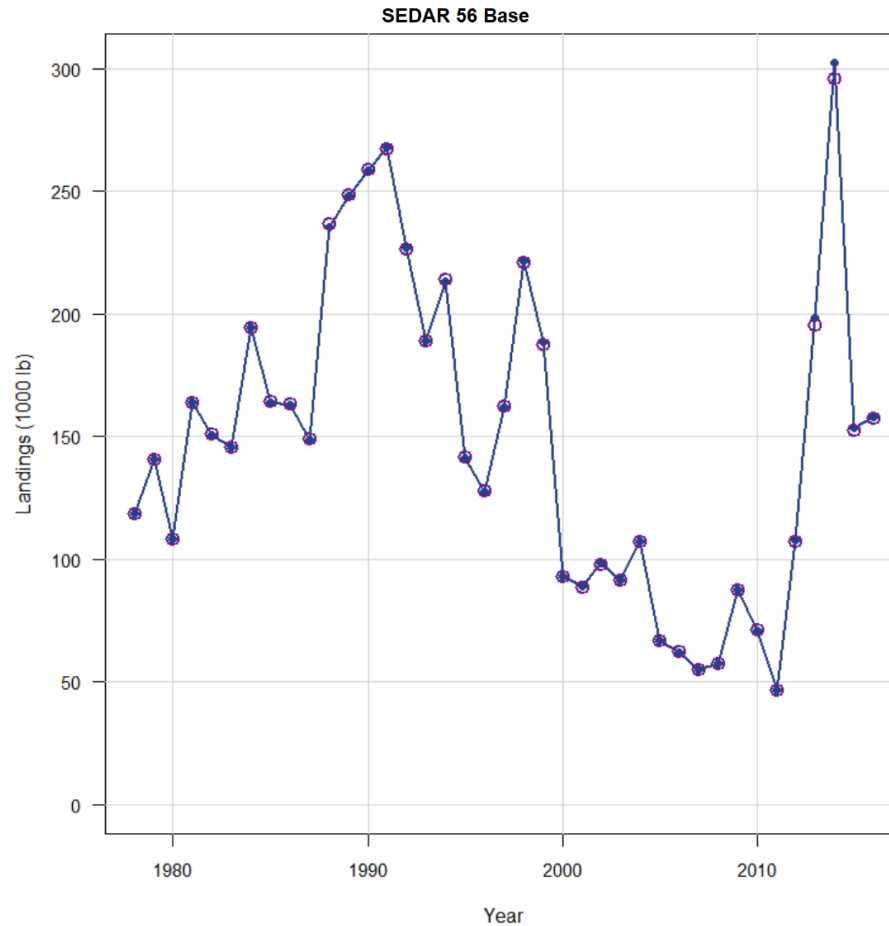
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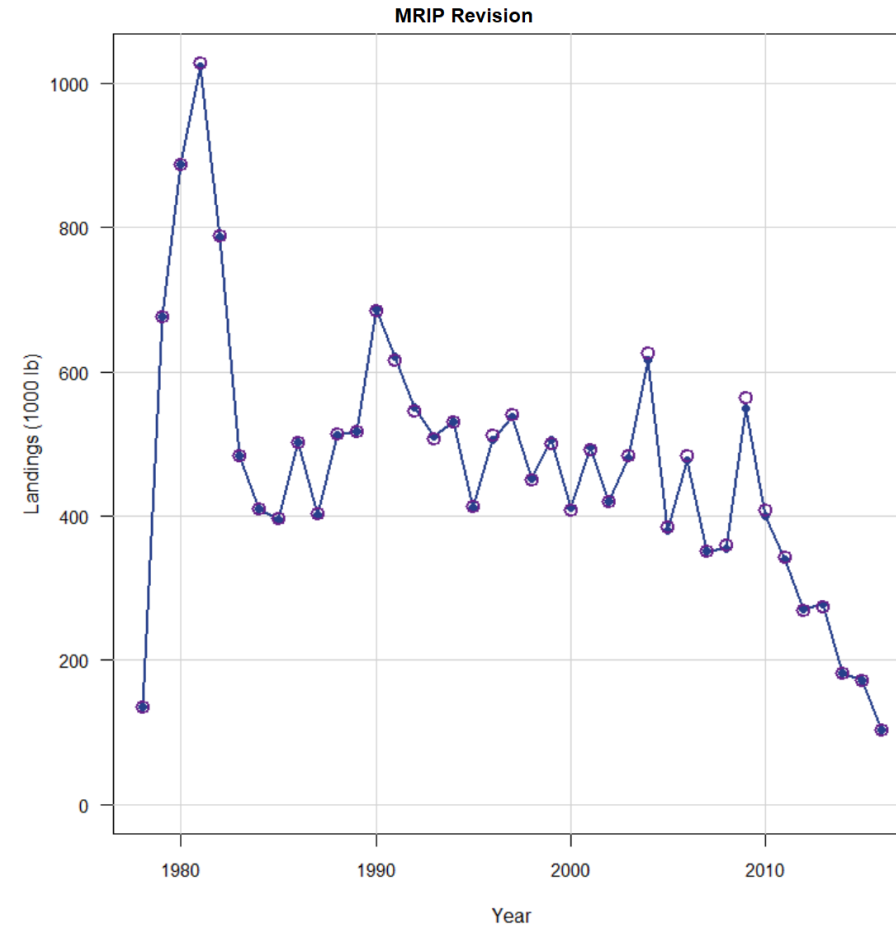
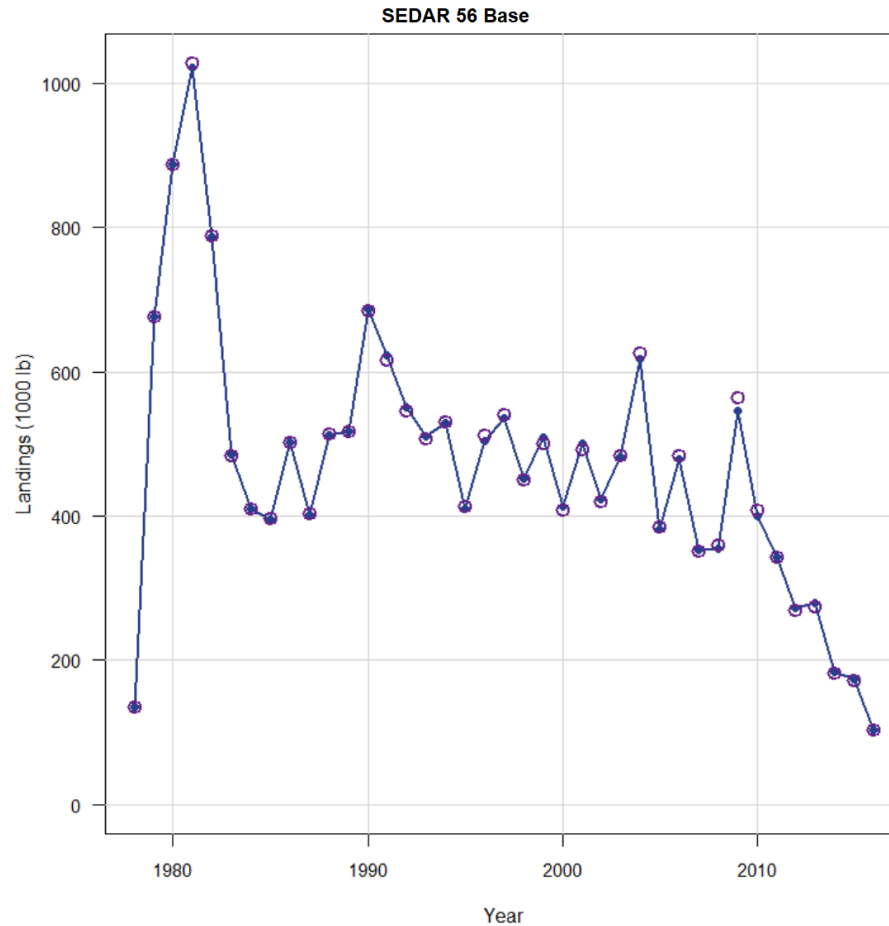
# BSB size and age comps



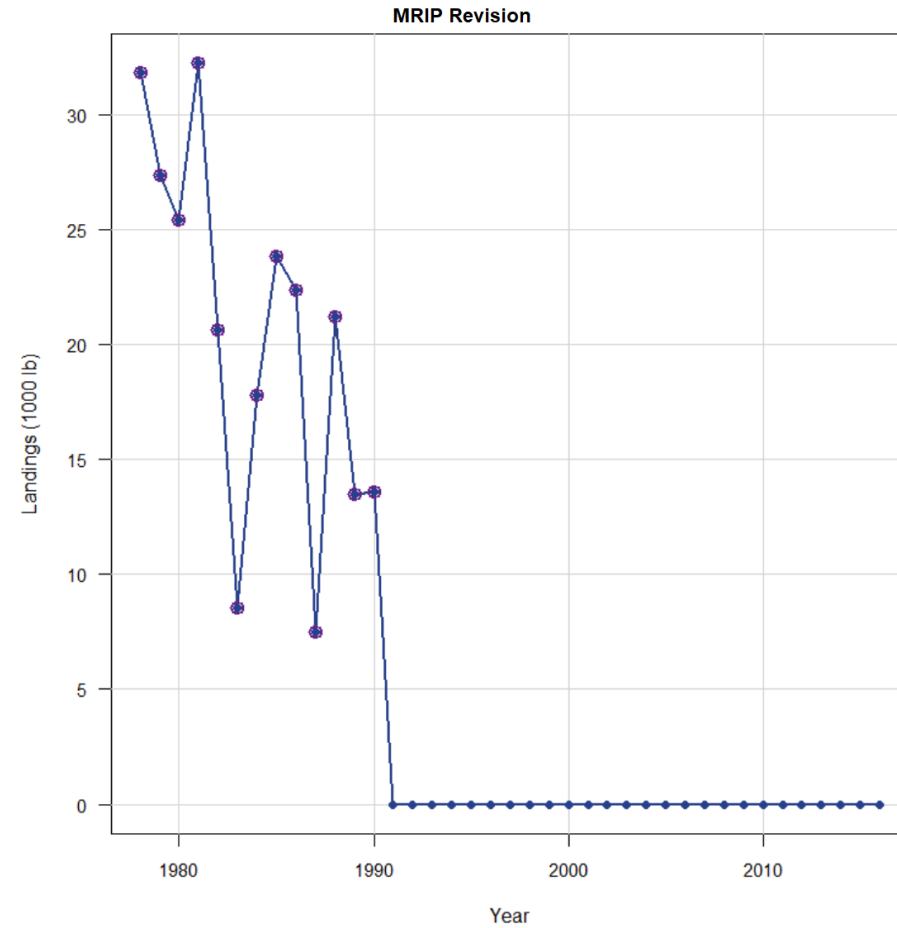
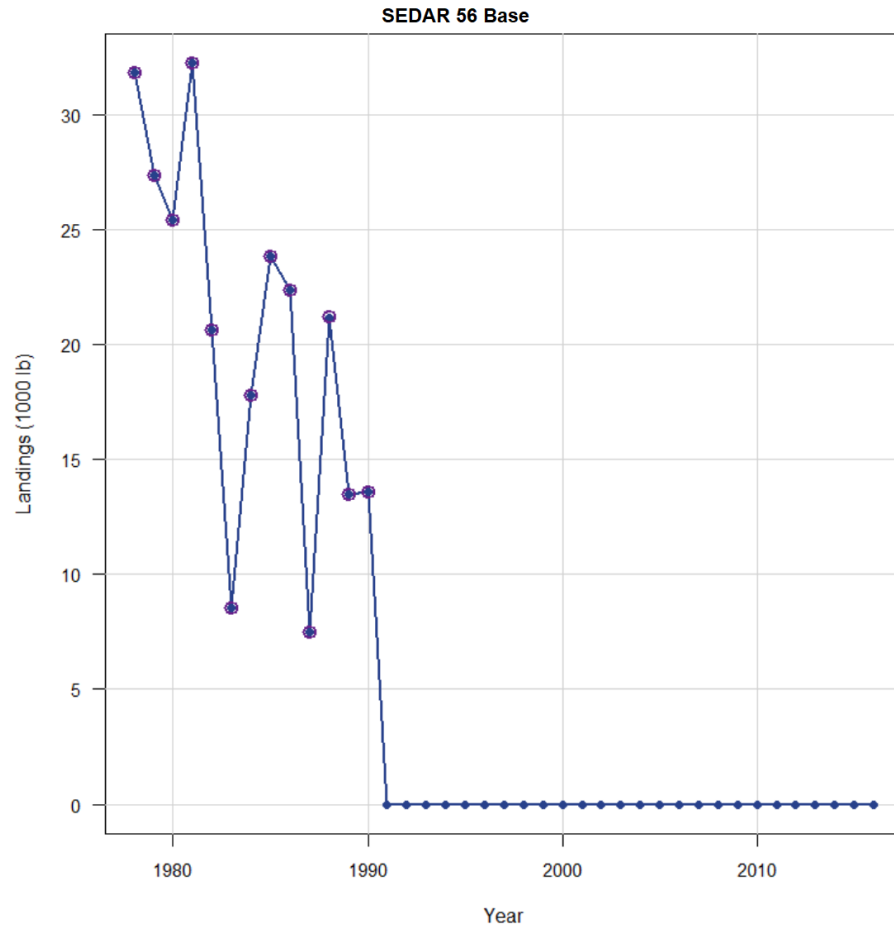
# BSB comm lines landings



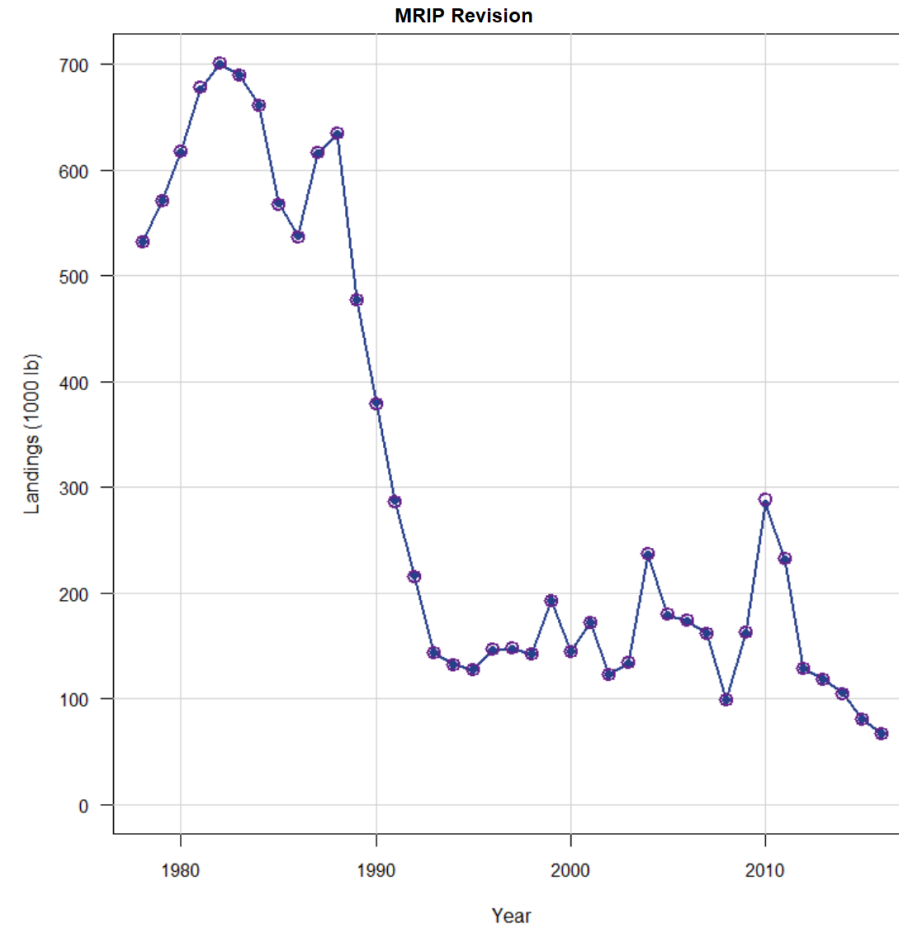
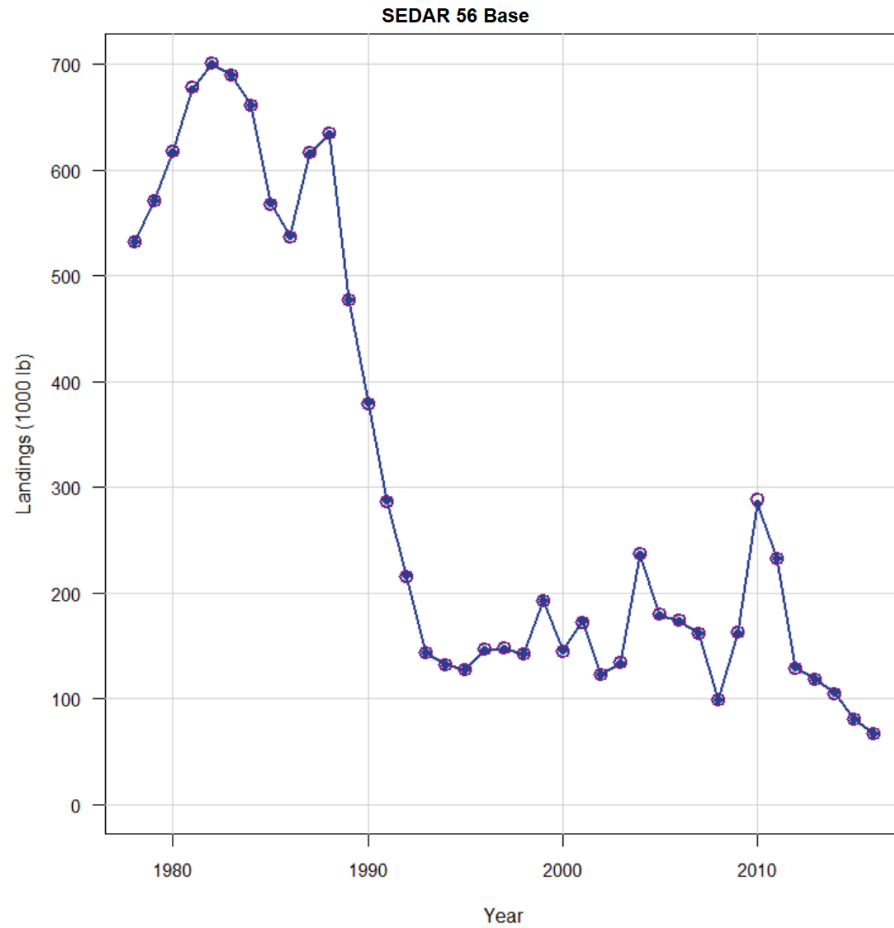
# BSB comm pots landings



# BSB comm trawl landings

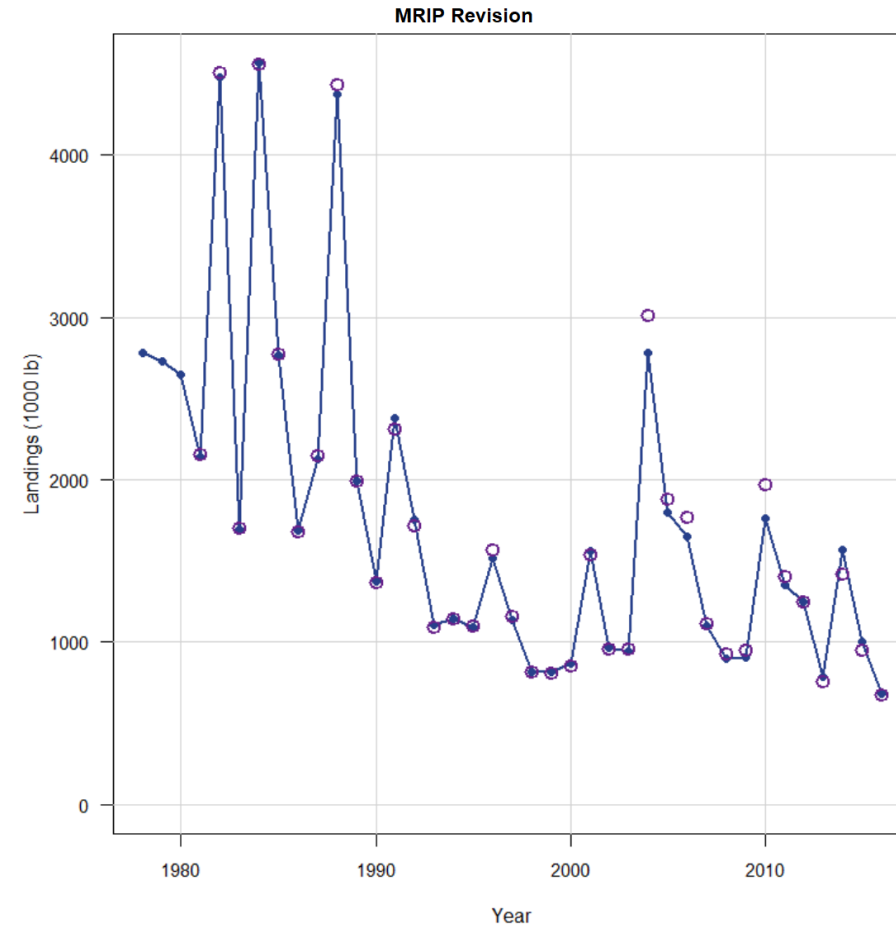
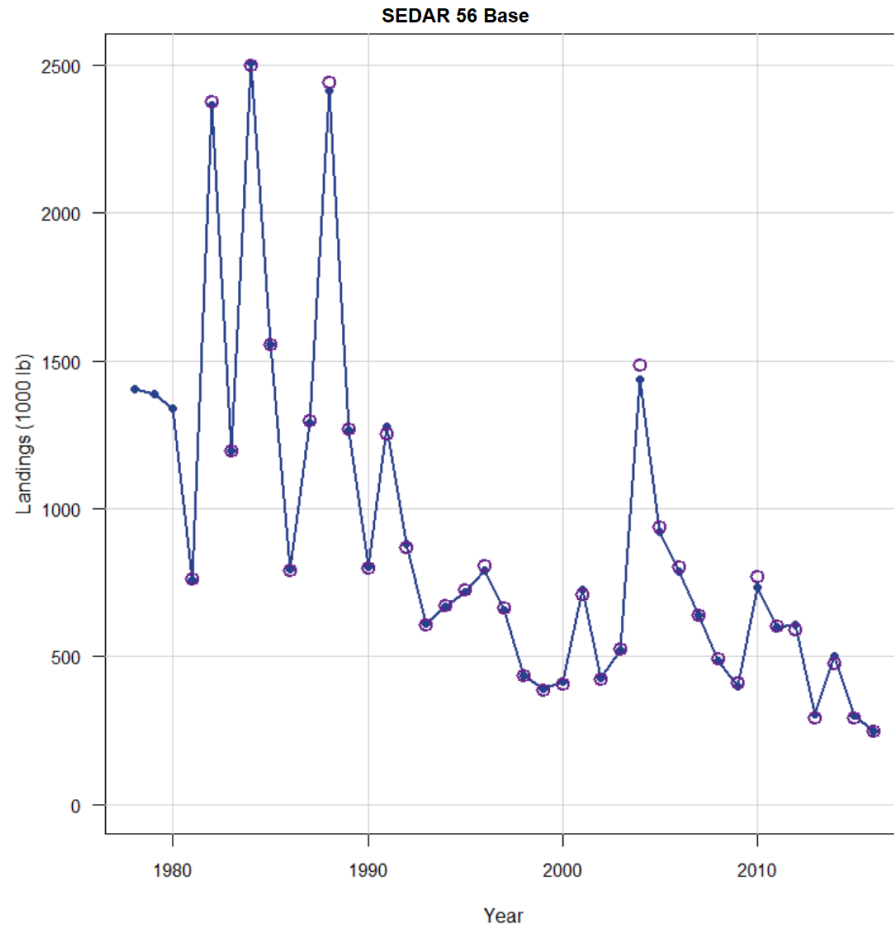


# BSB headboat landings

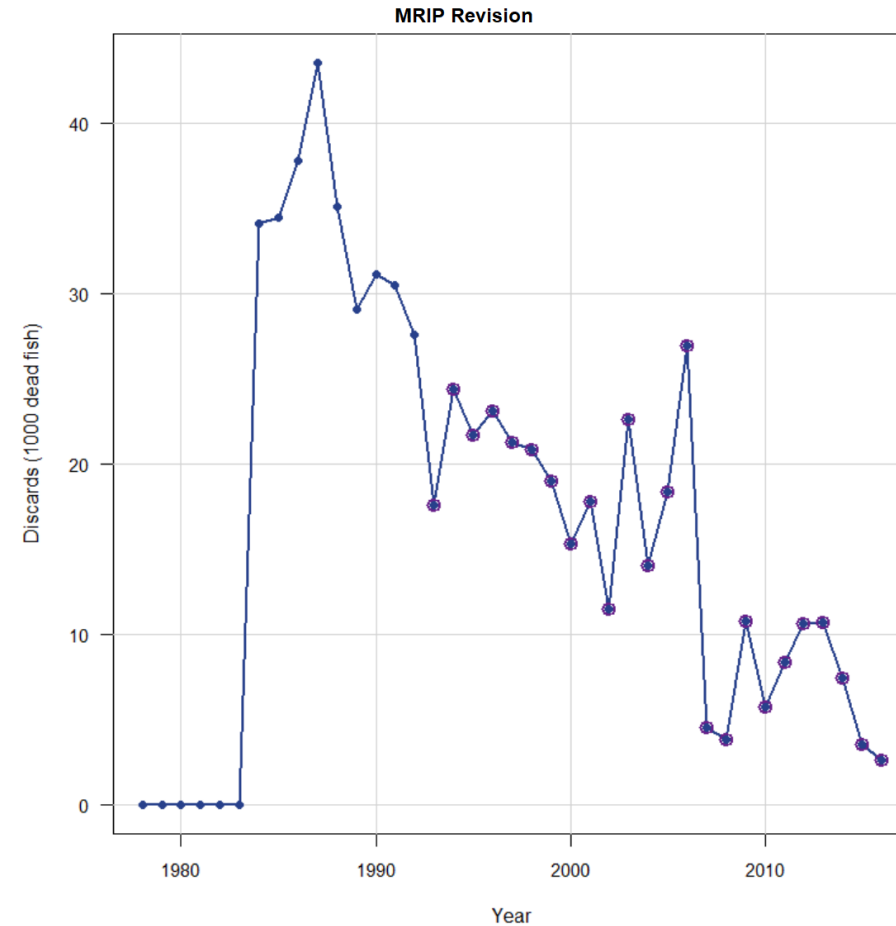
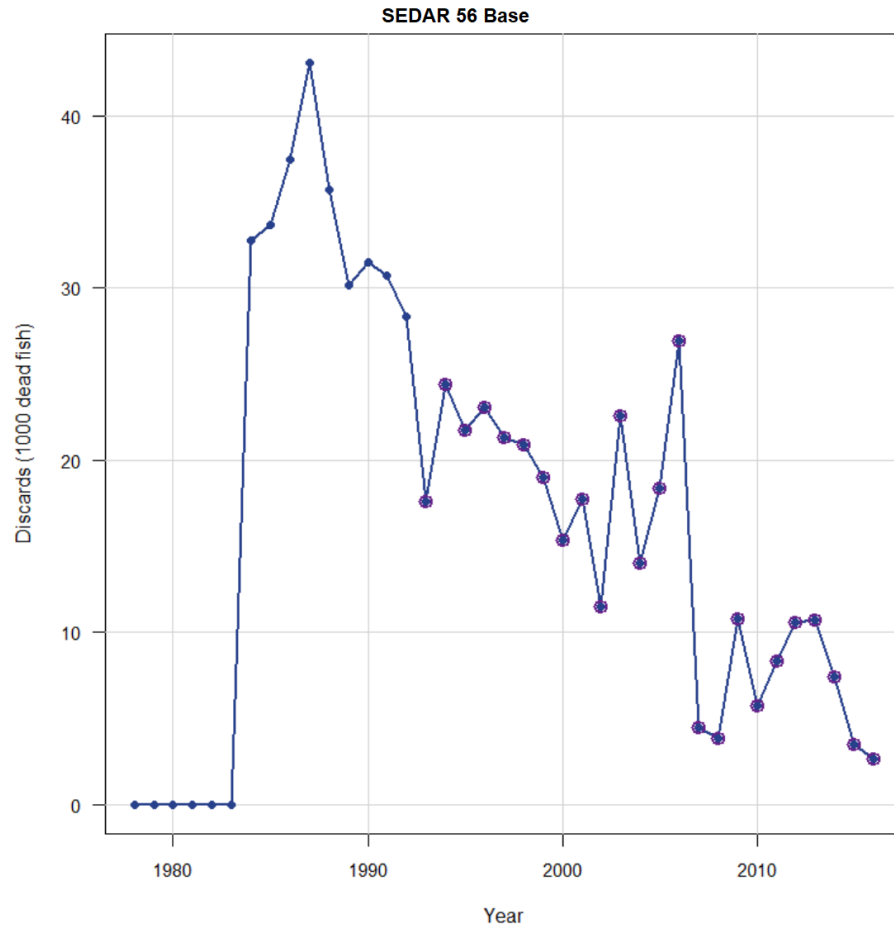




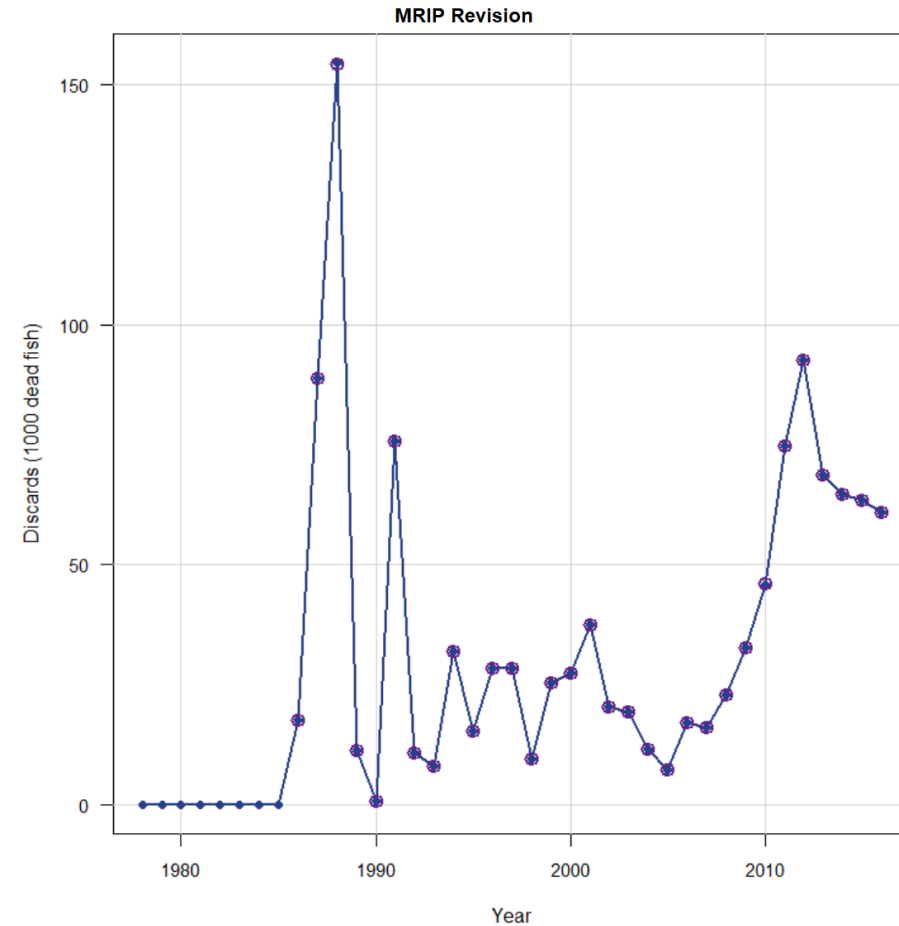
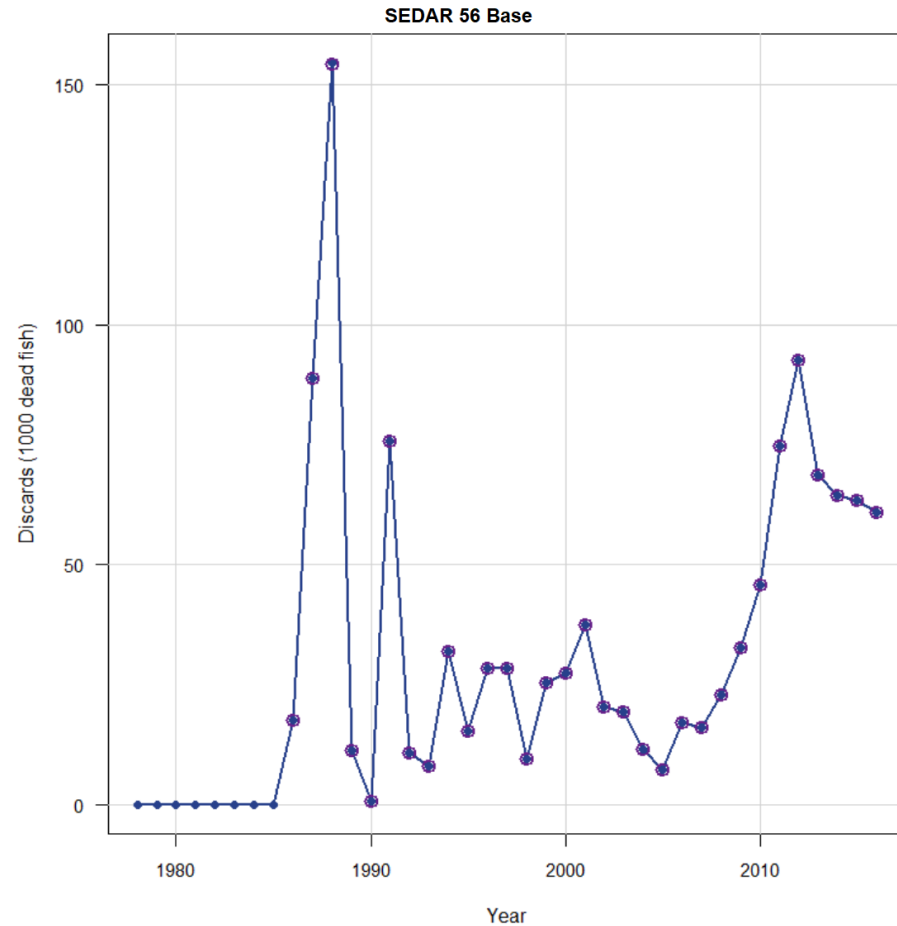
# BSB general recreational landings



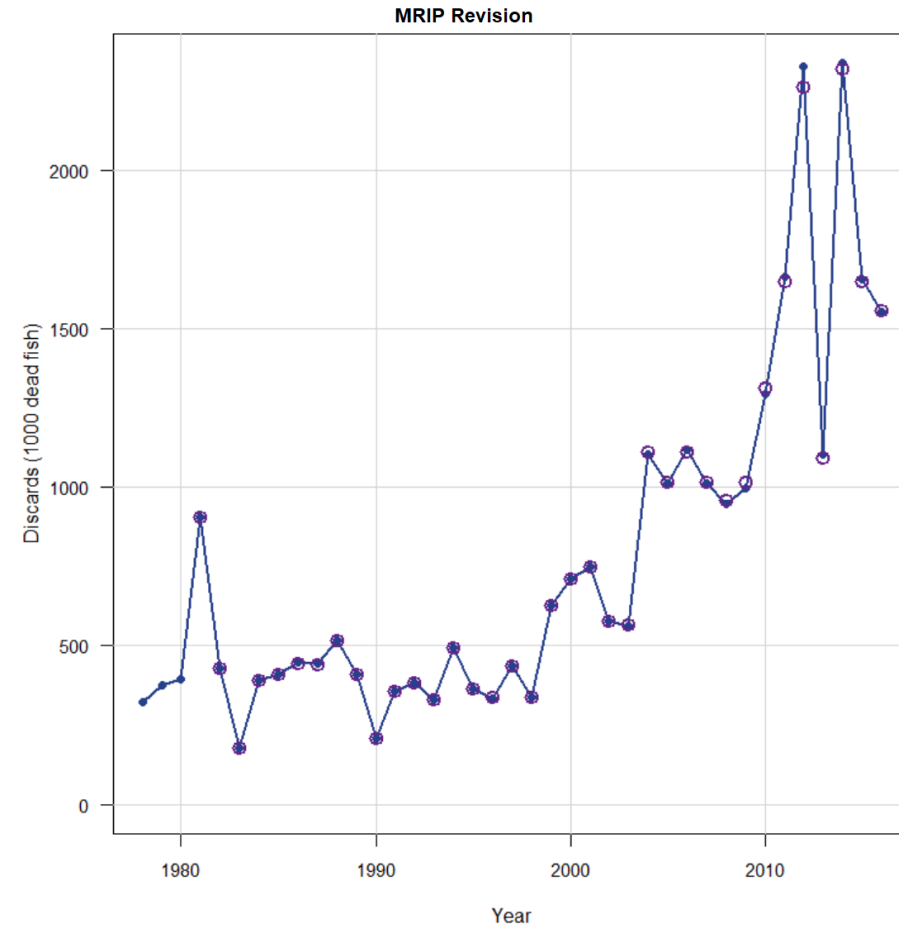
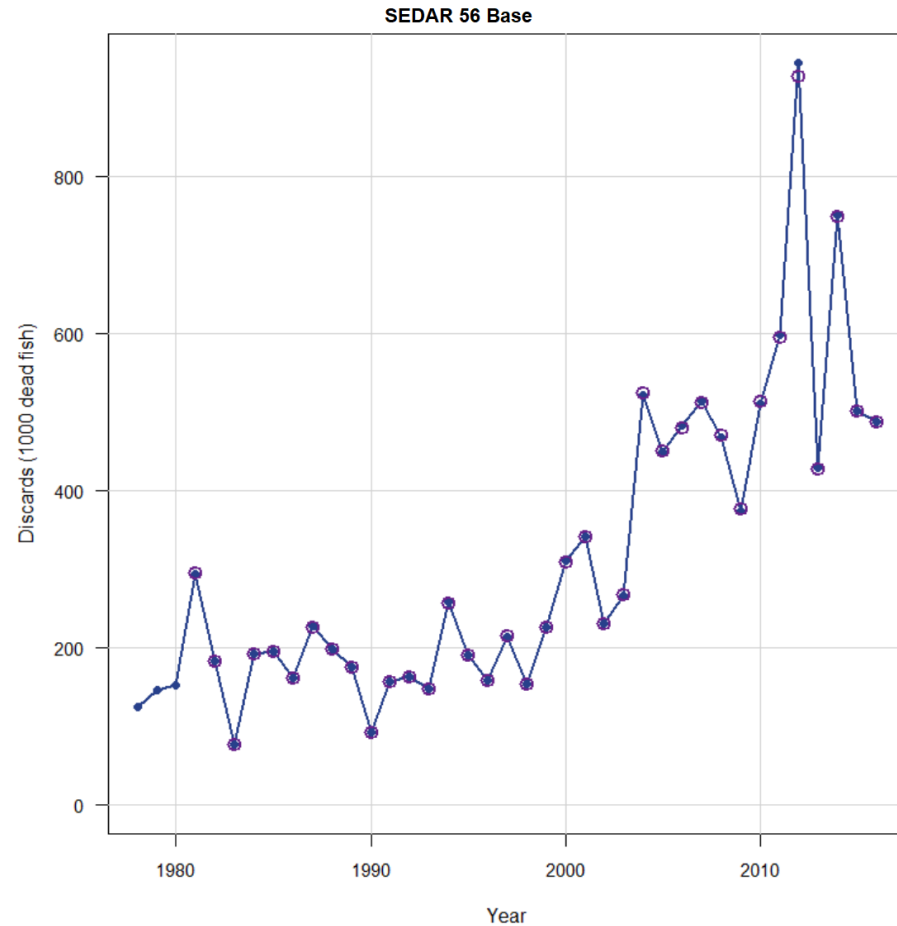
# BSB comm (lines+ pots) discard mortality



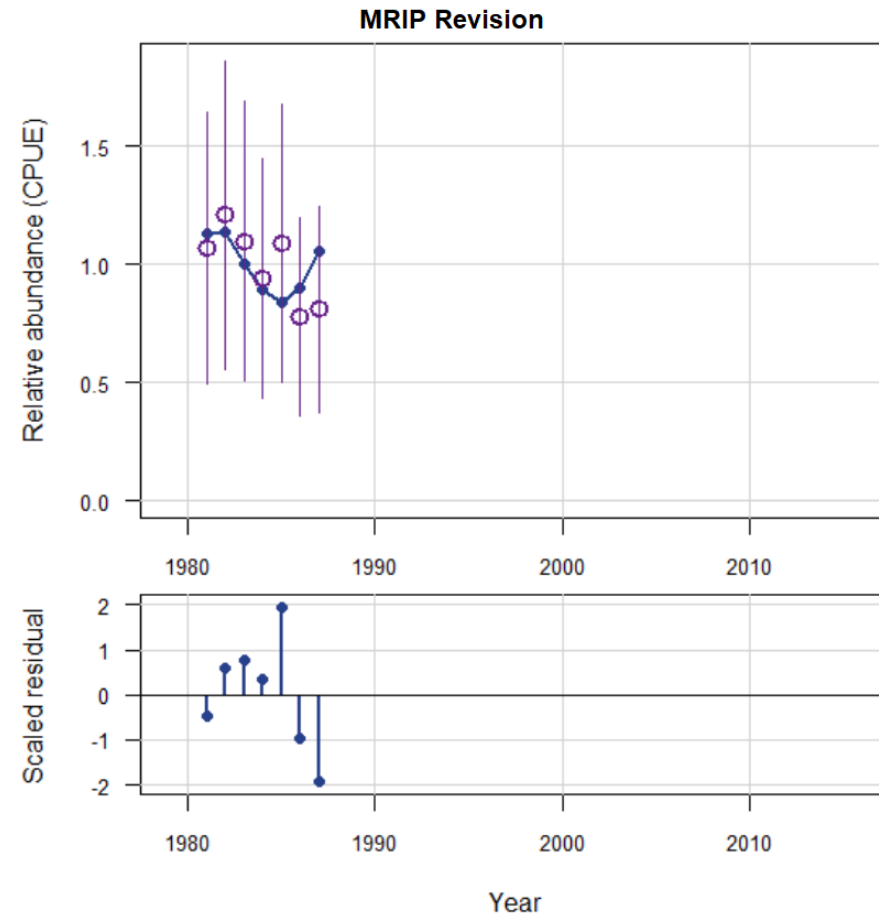
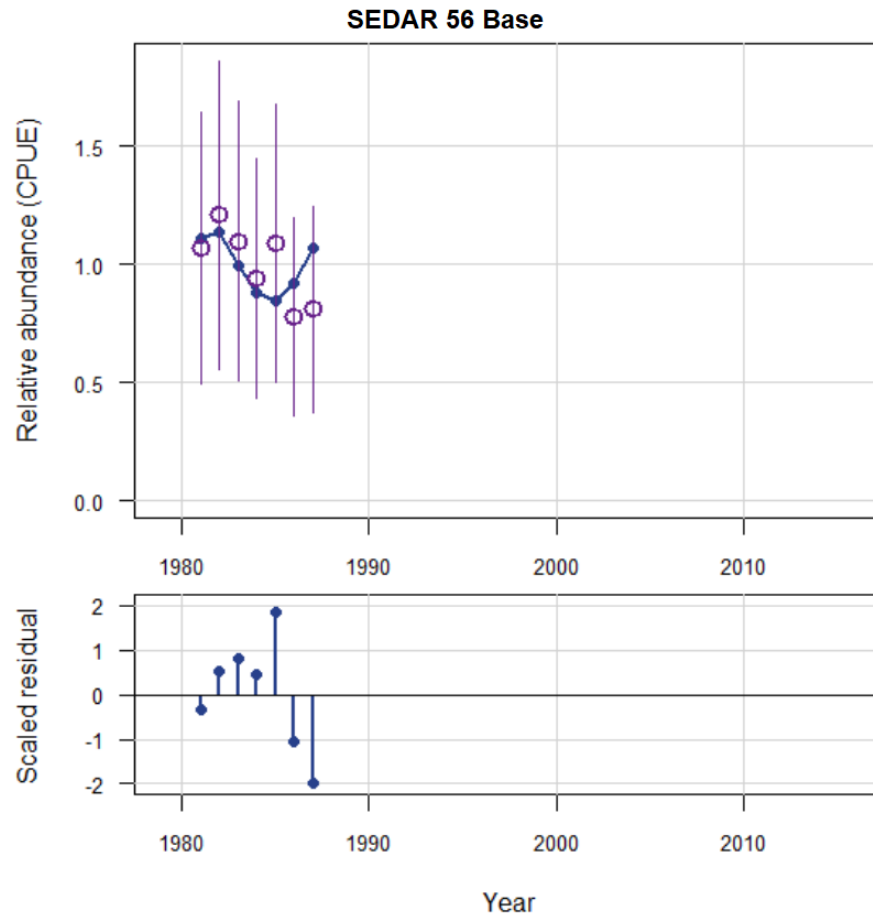
# BSB headboat discard mortality



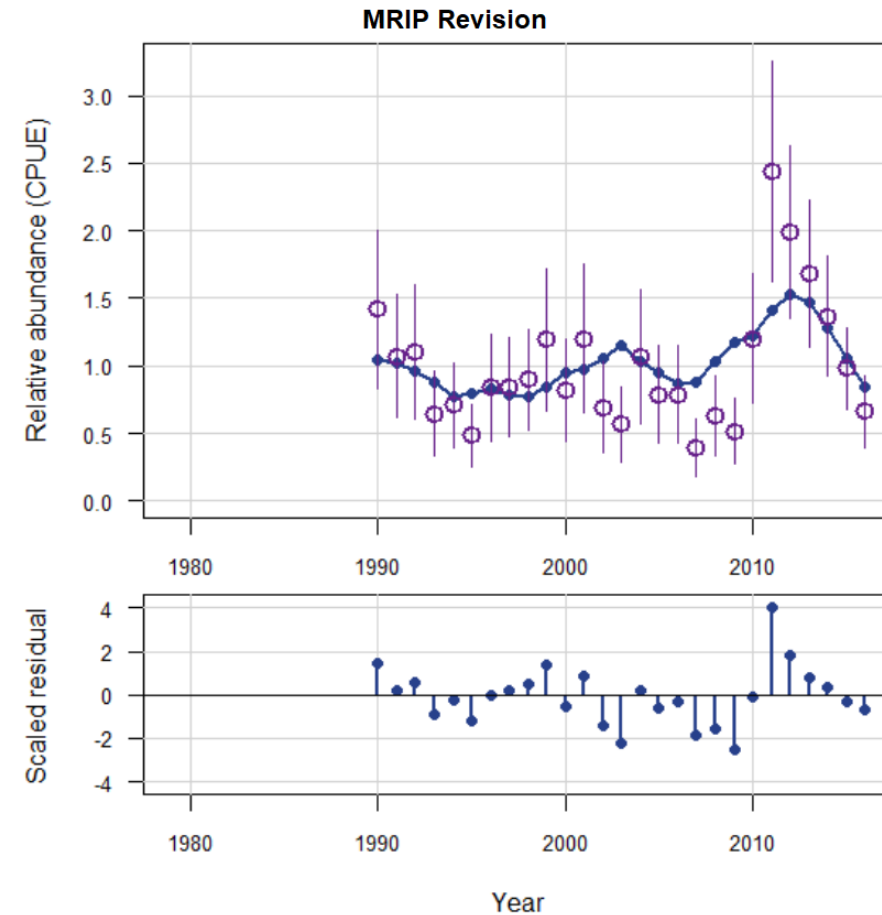
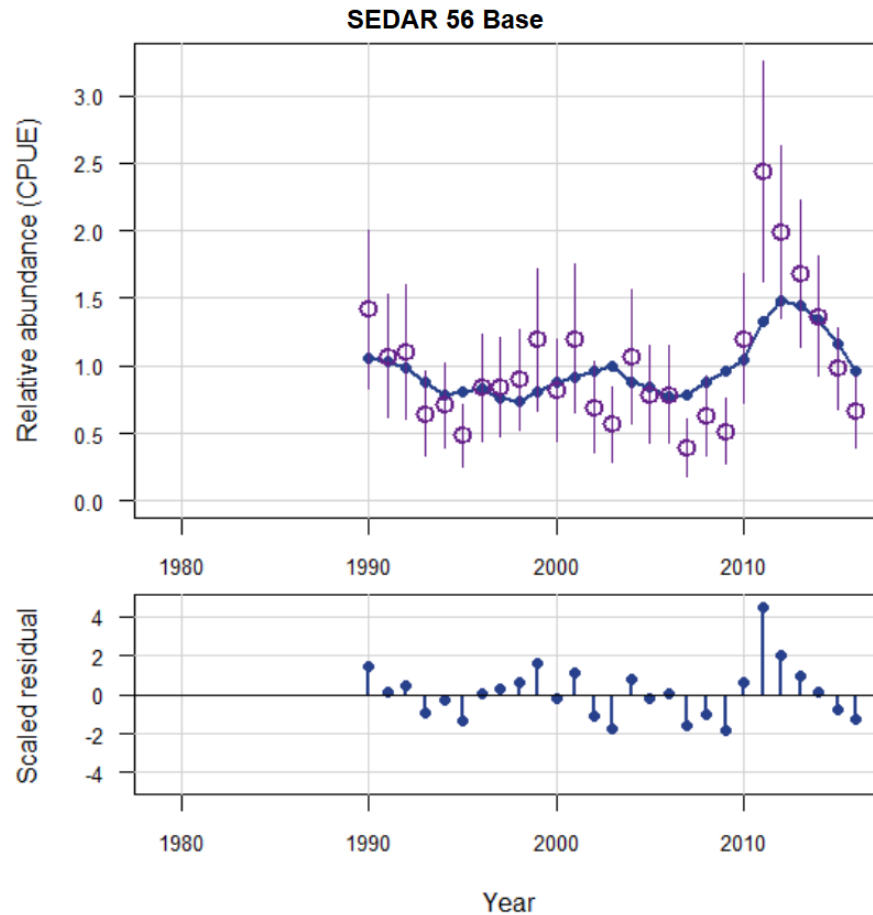
# BSB general recreational discard mortality



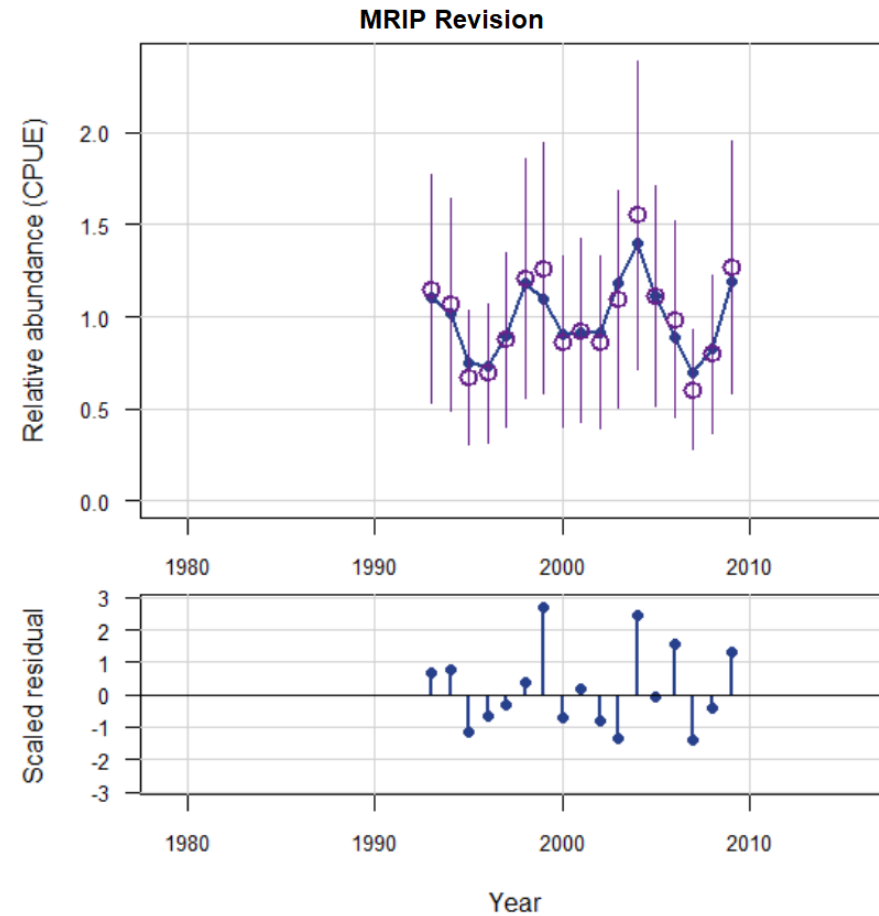
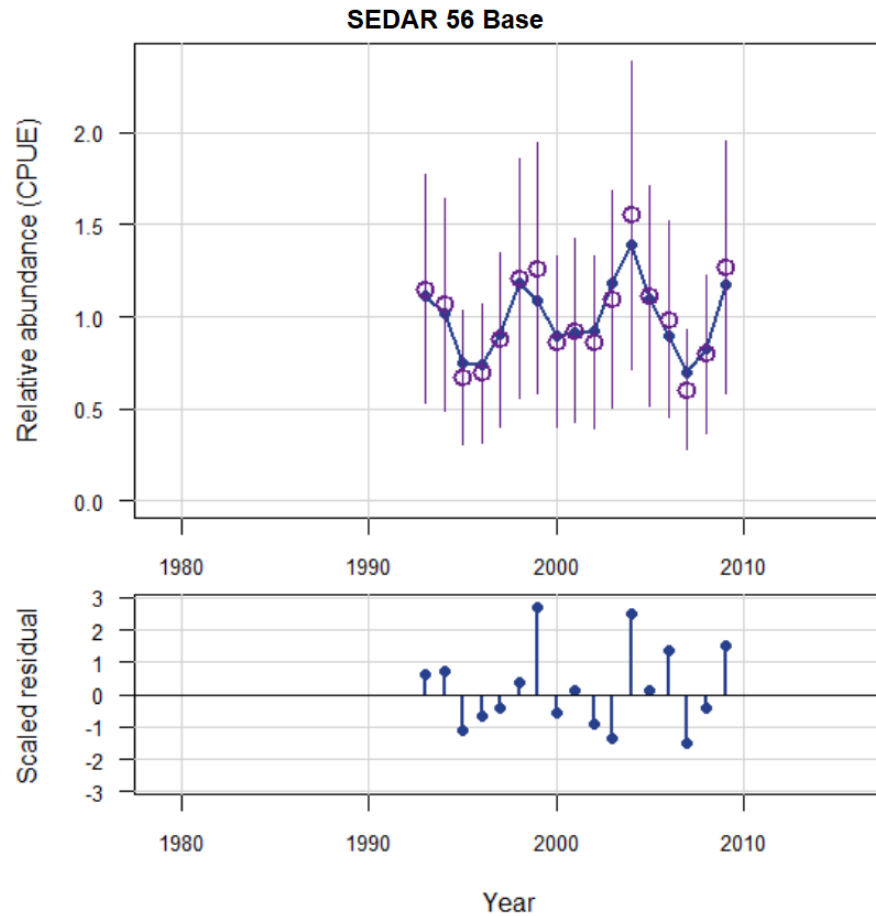
# BSB MARMAP blackfish trap index



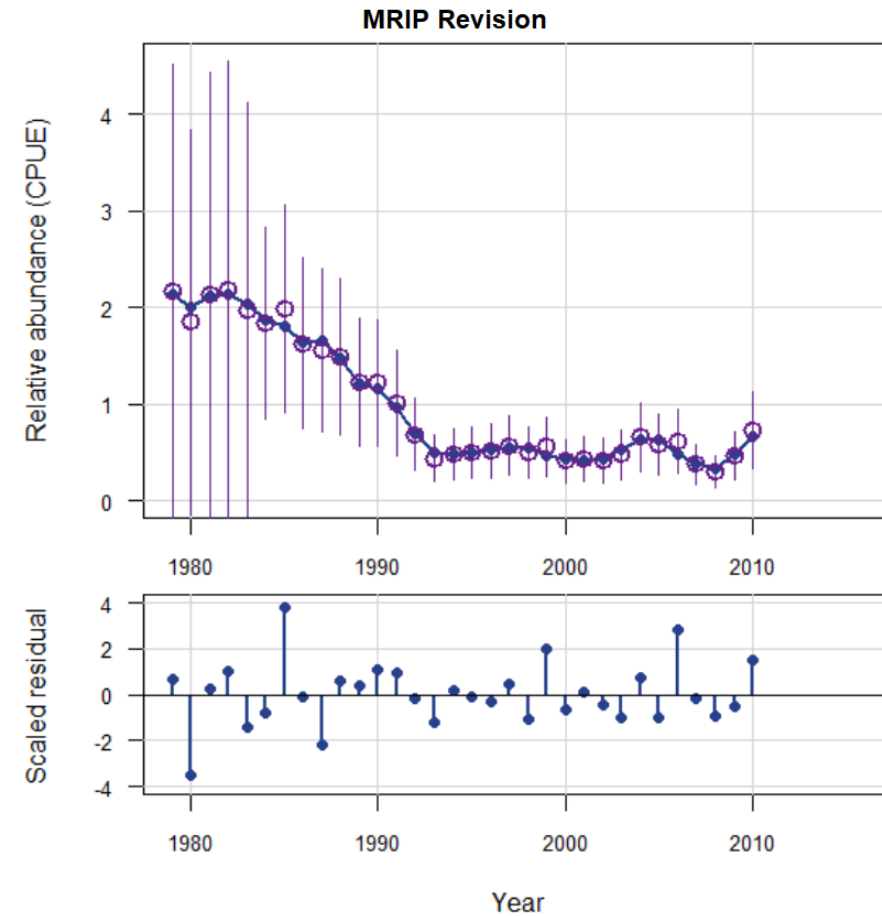
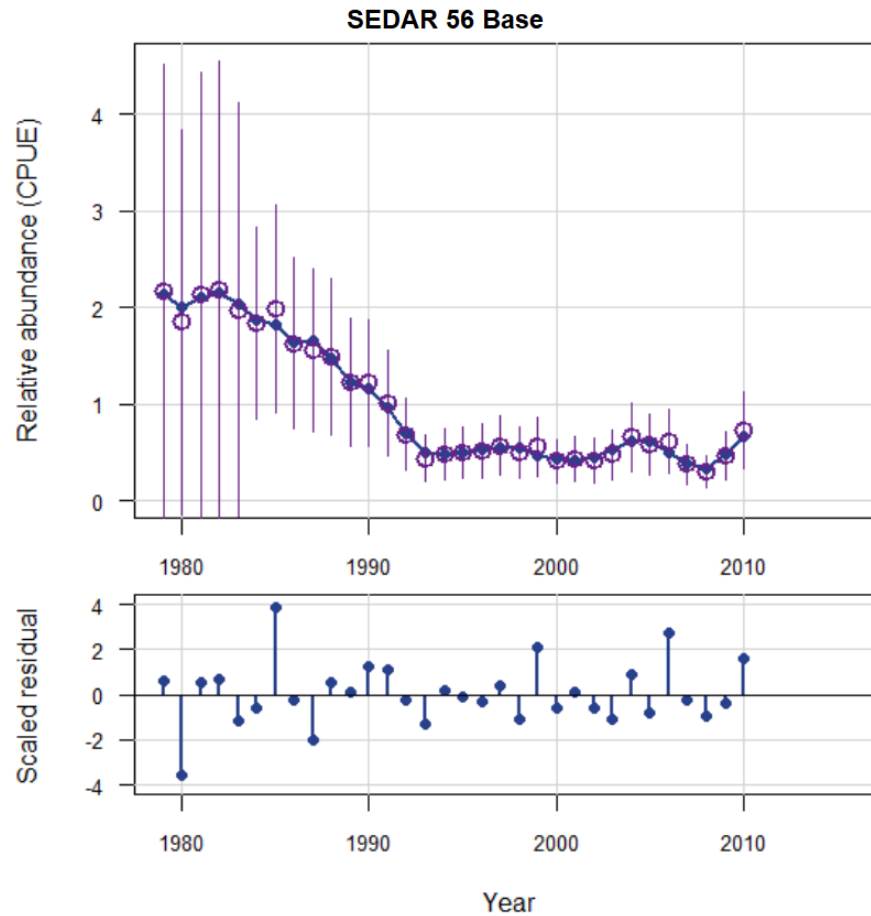
# BSB SERFS chevron trap/video index



# BSB comm lines index

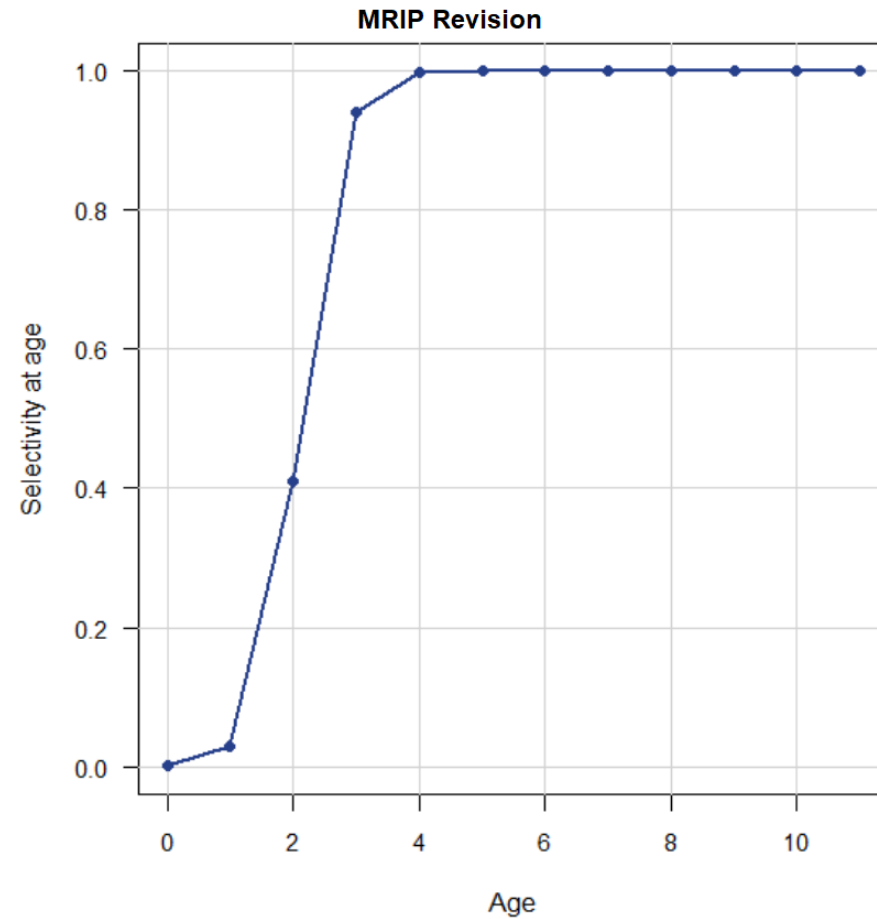
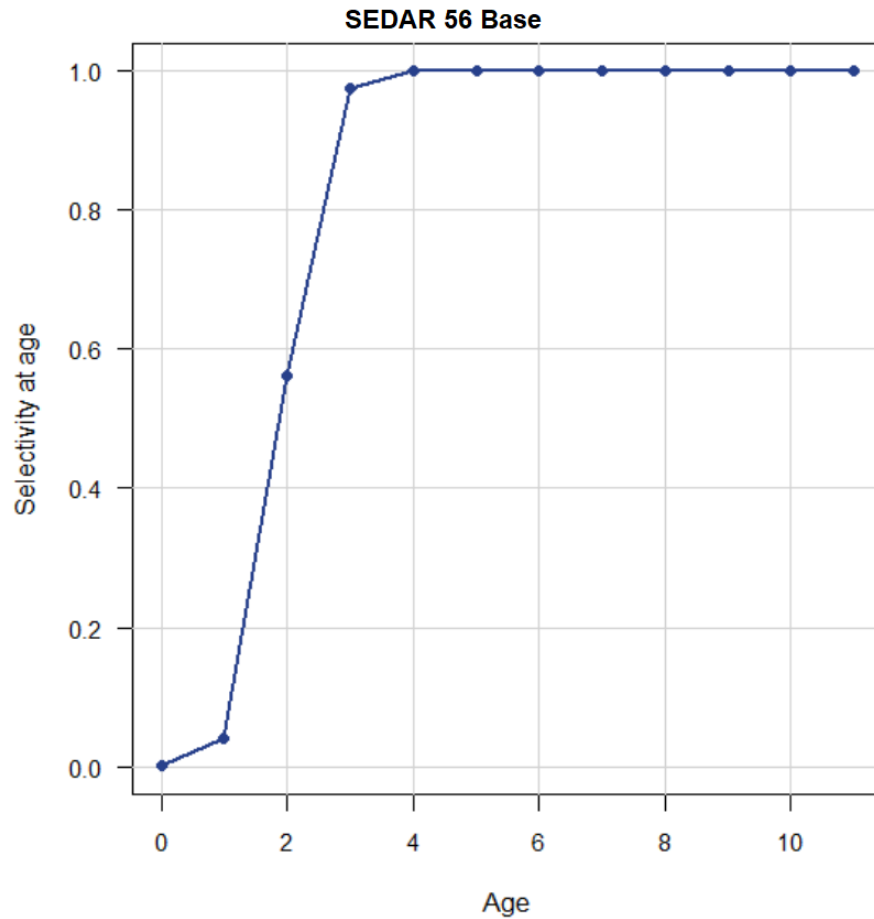


# BSB headboat index

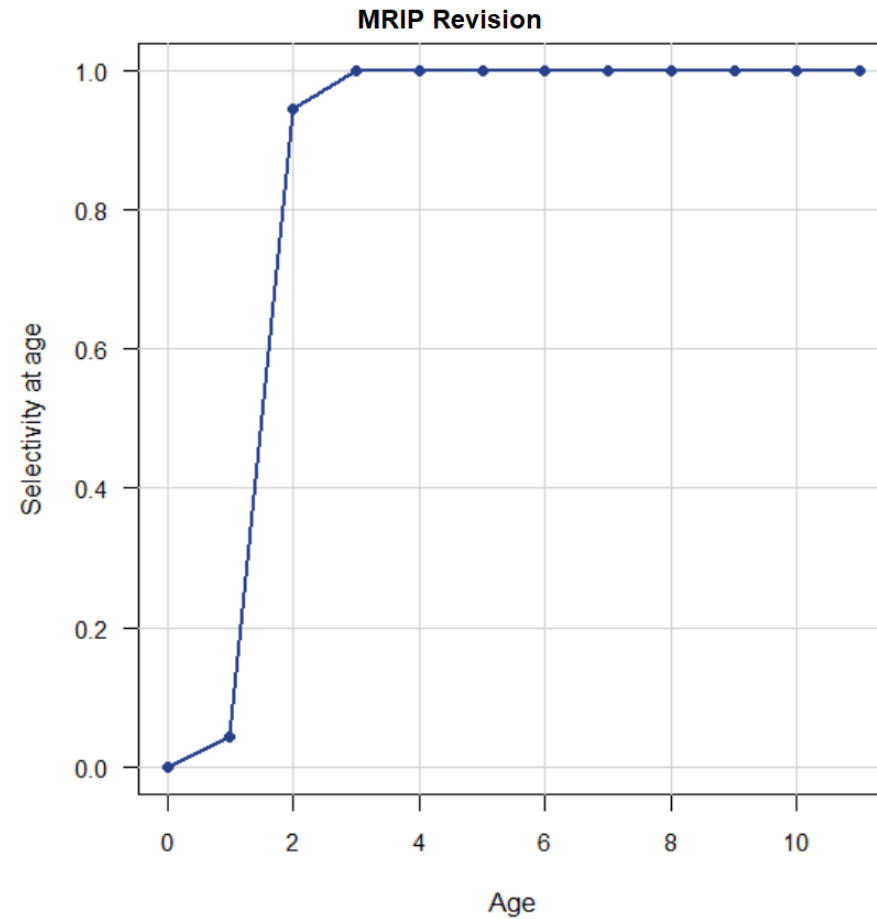
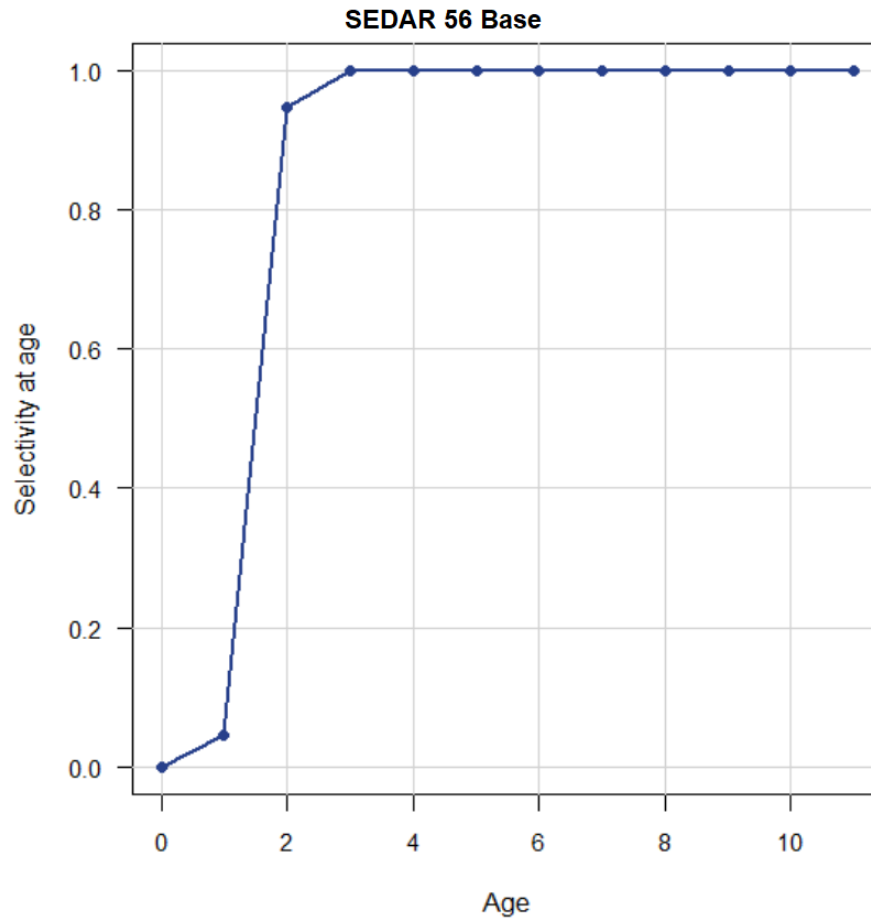




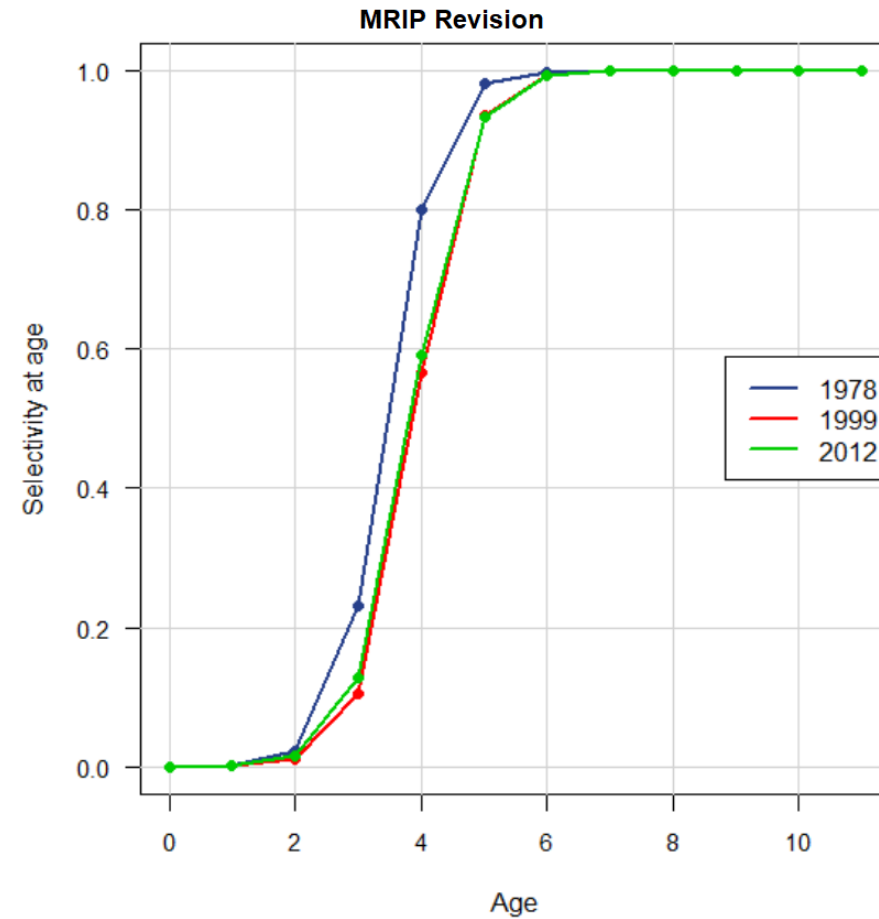
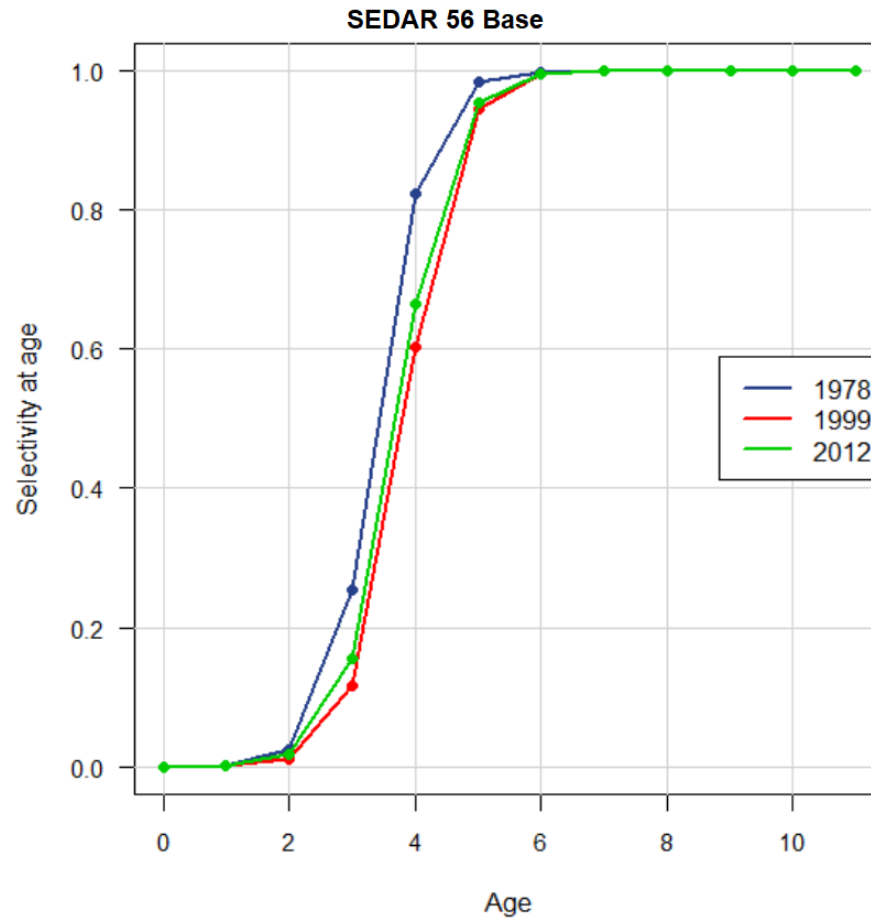
# BSB SERFS selectivity



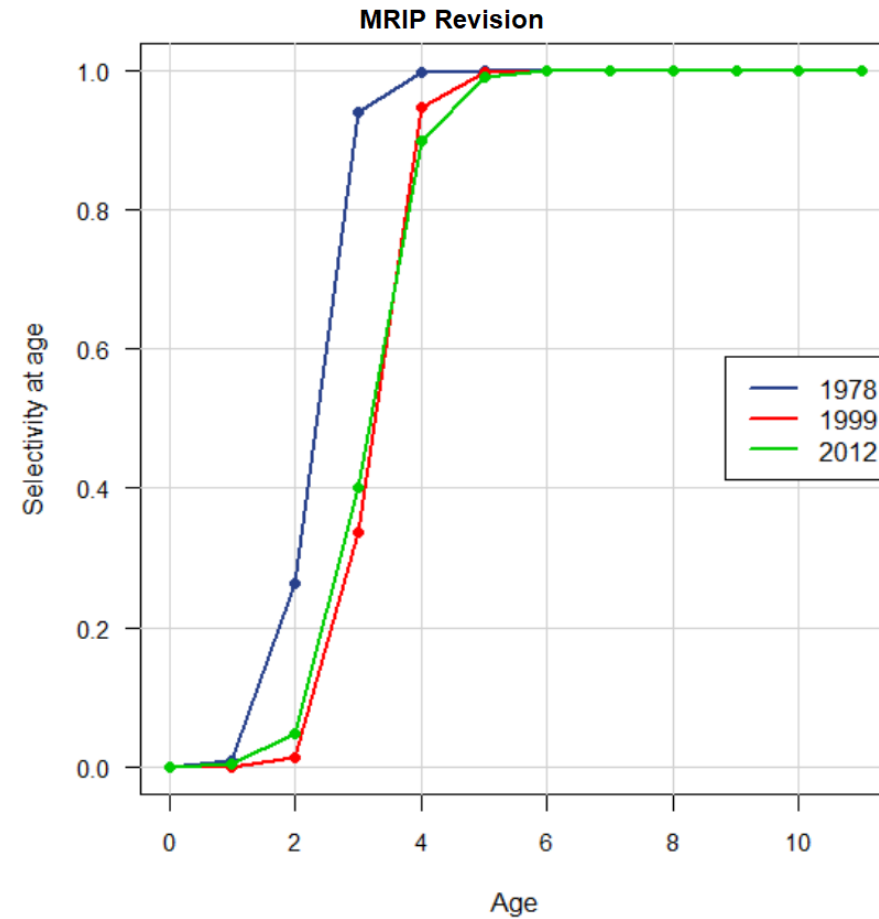
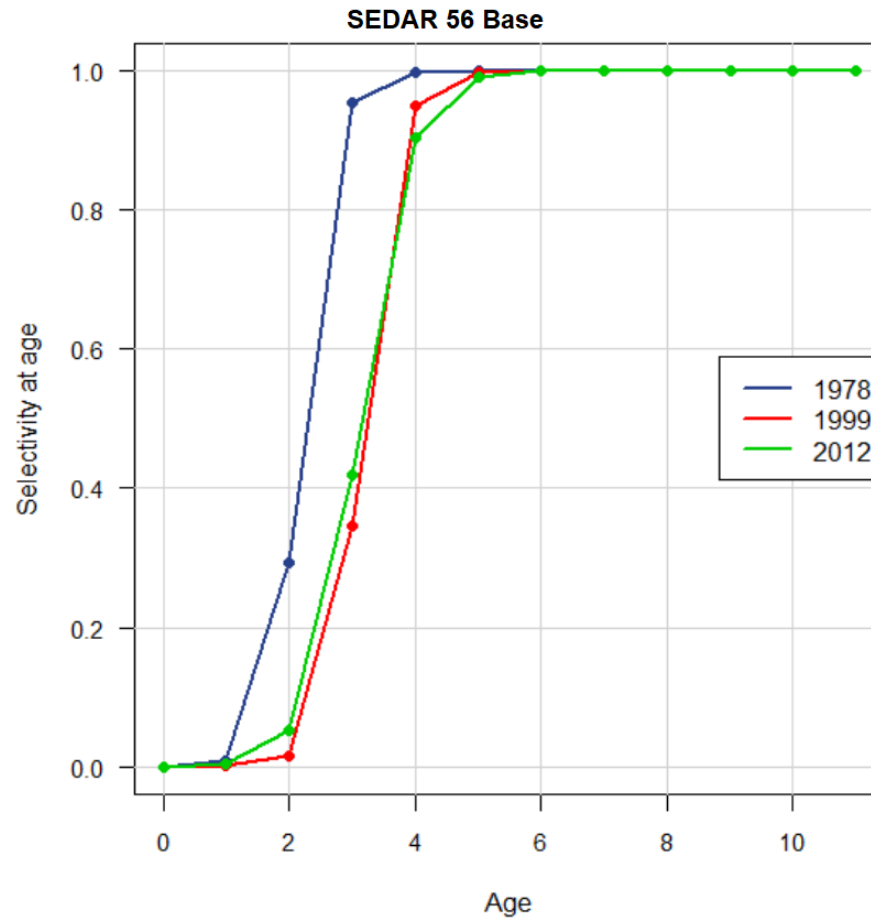
# BSB MARMAP blackfish trap selectivity



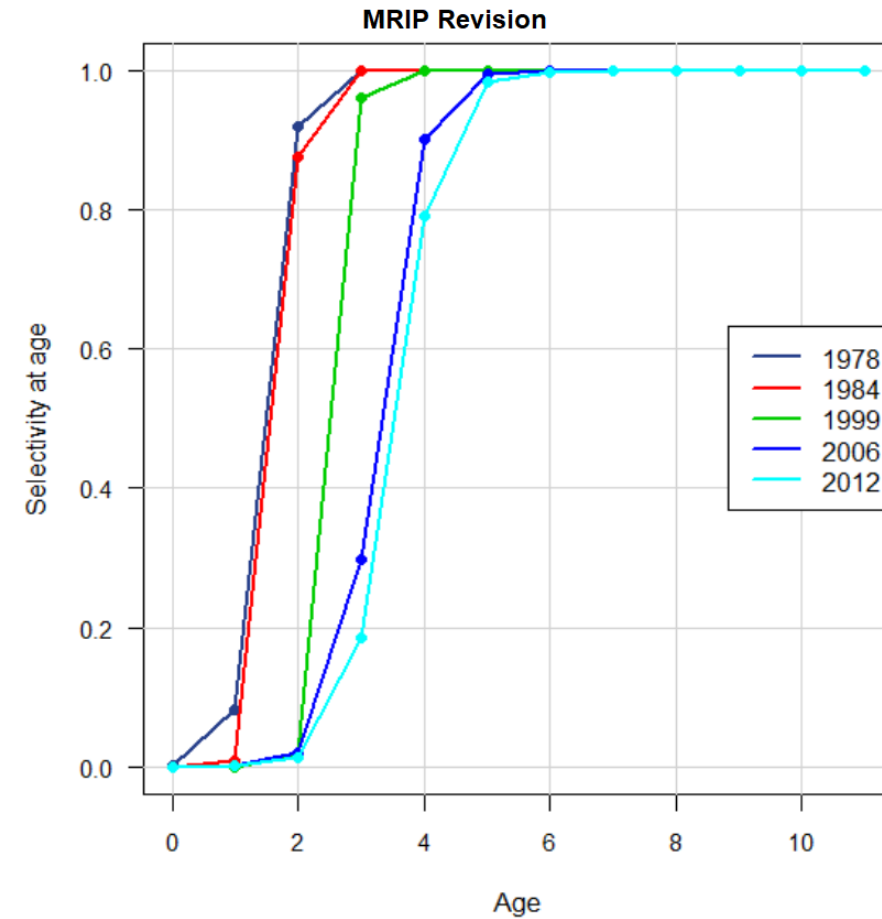
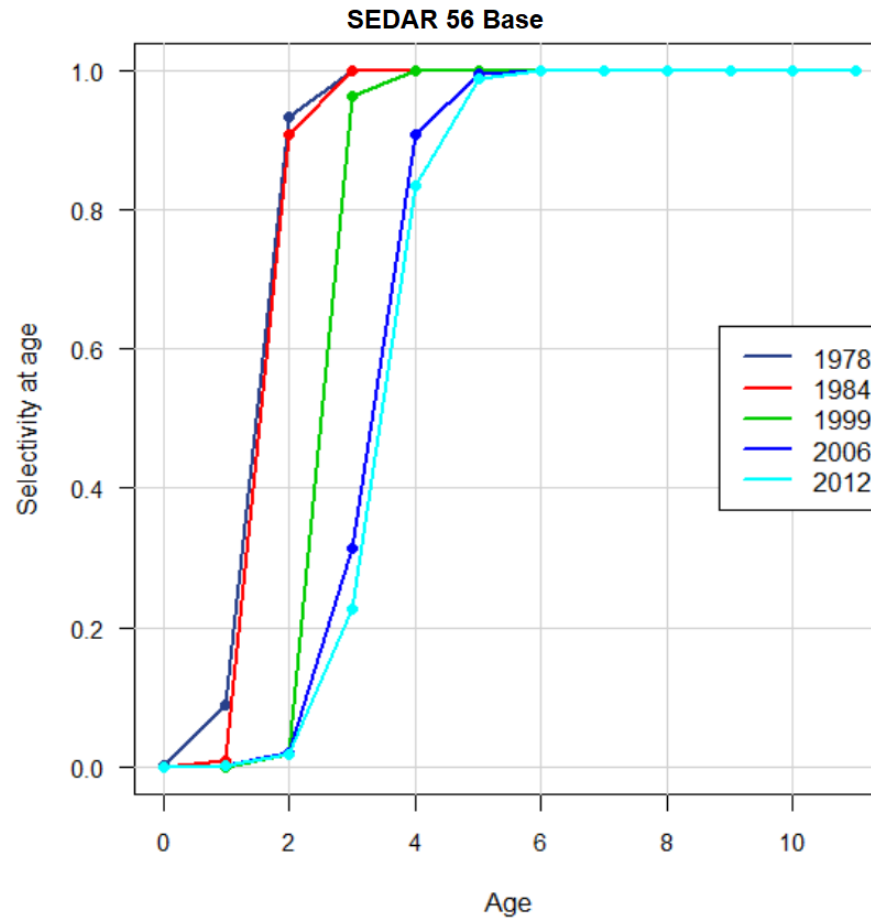
# BSB comm lines selectivity



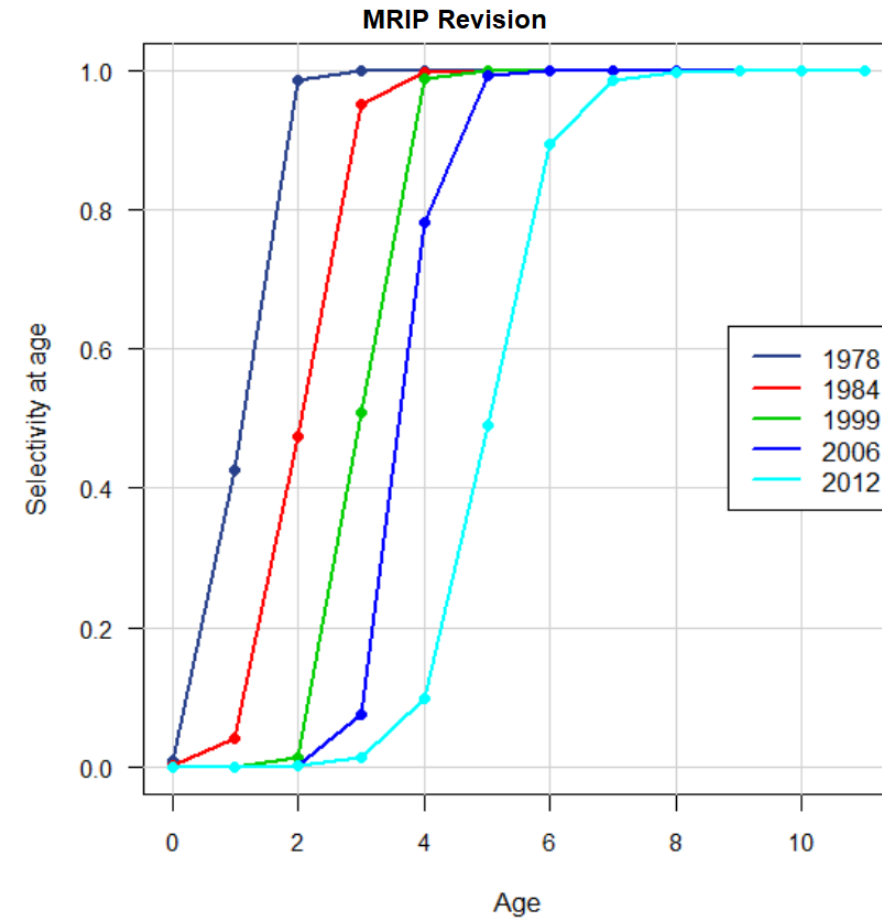
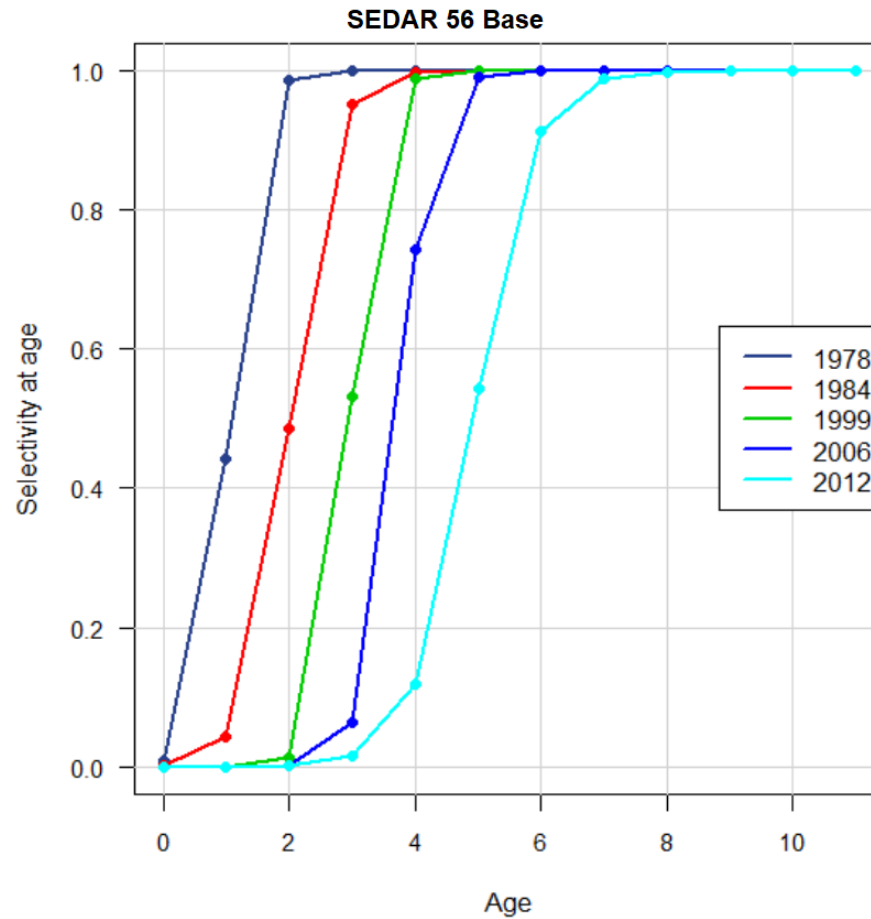
# BSB comm pots selectivity



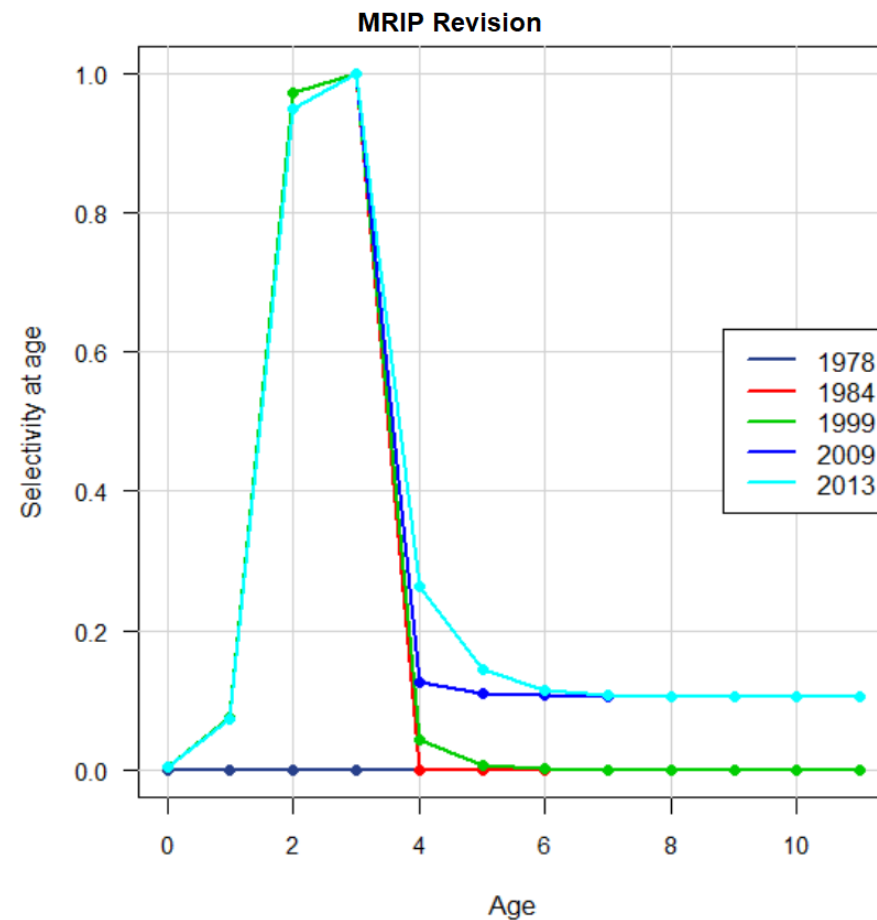
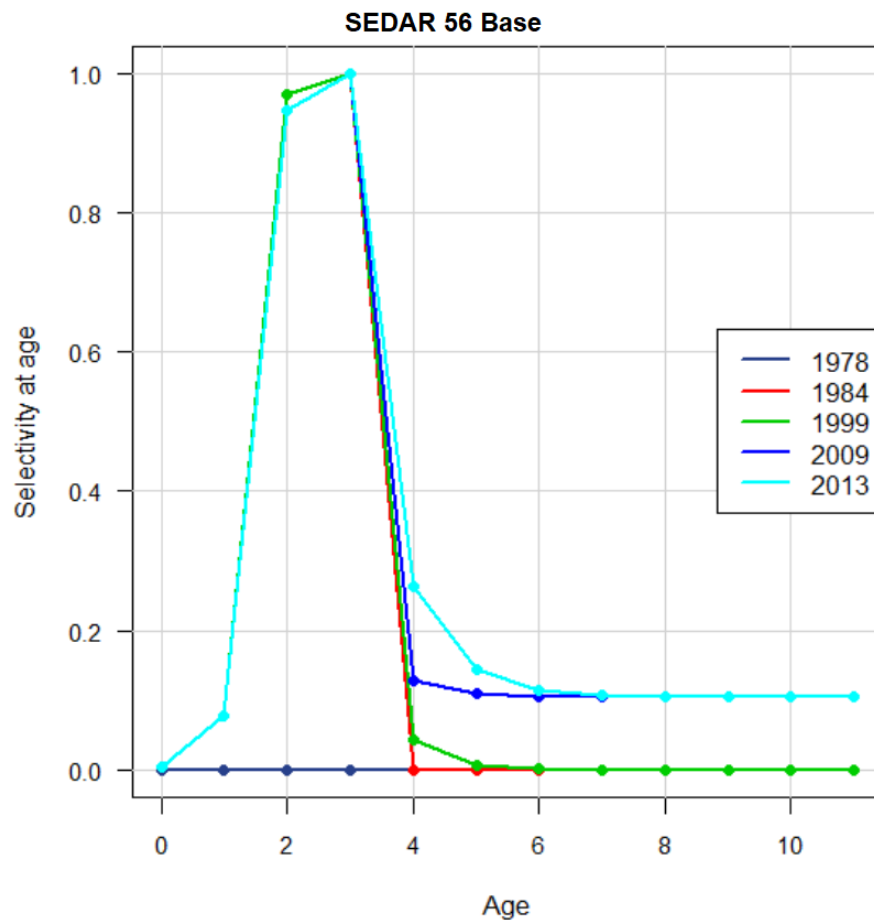
# BSB headboat selectivity



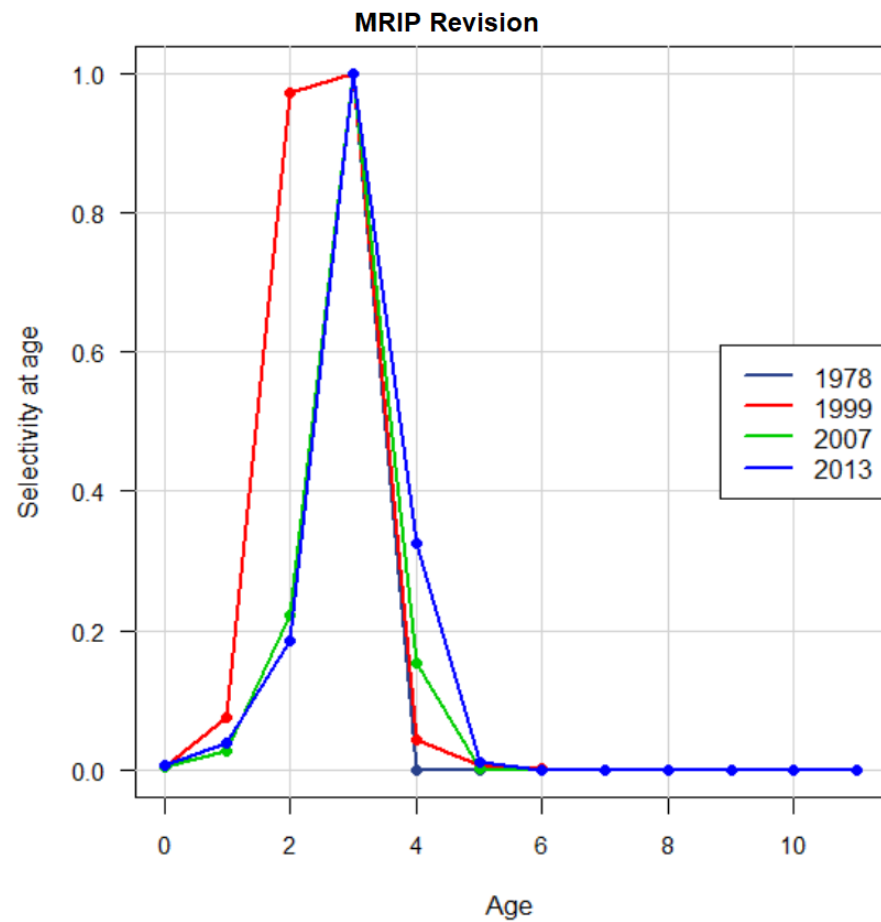
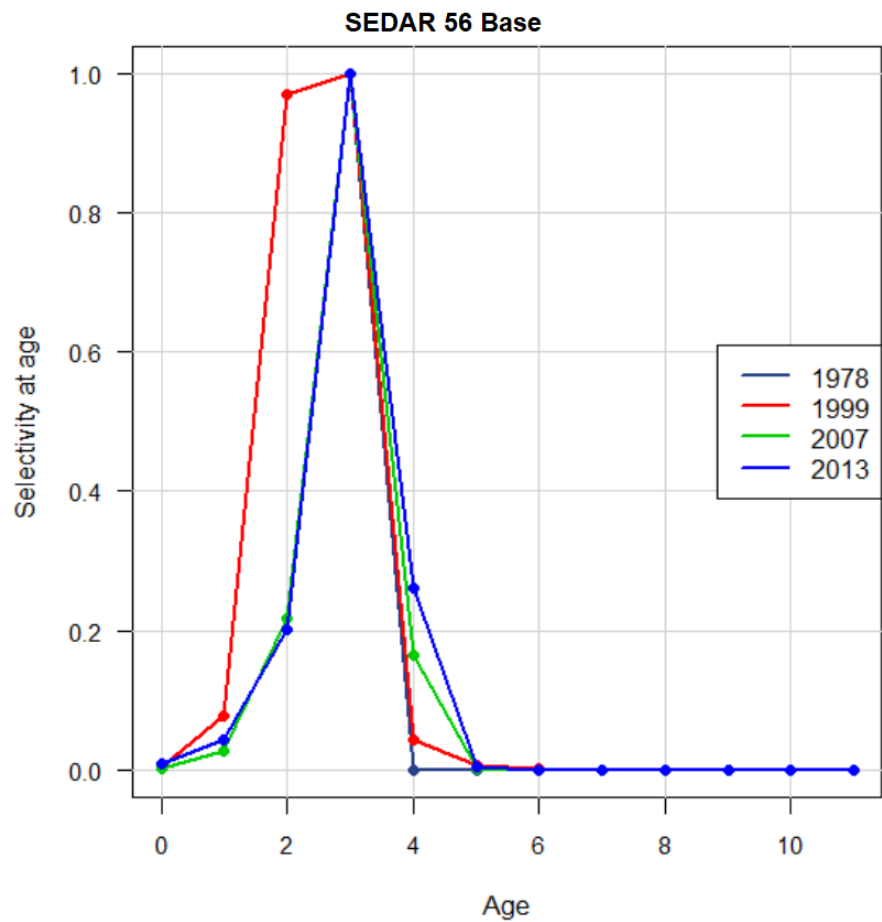
# BSB general recreational selectivity



# BSB comm discard selectivity

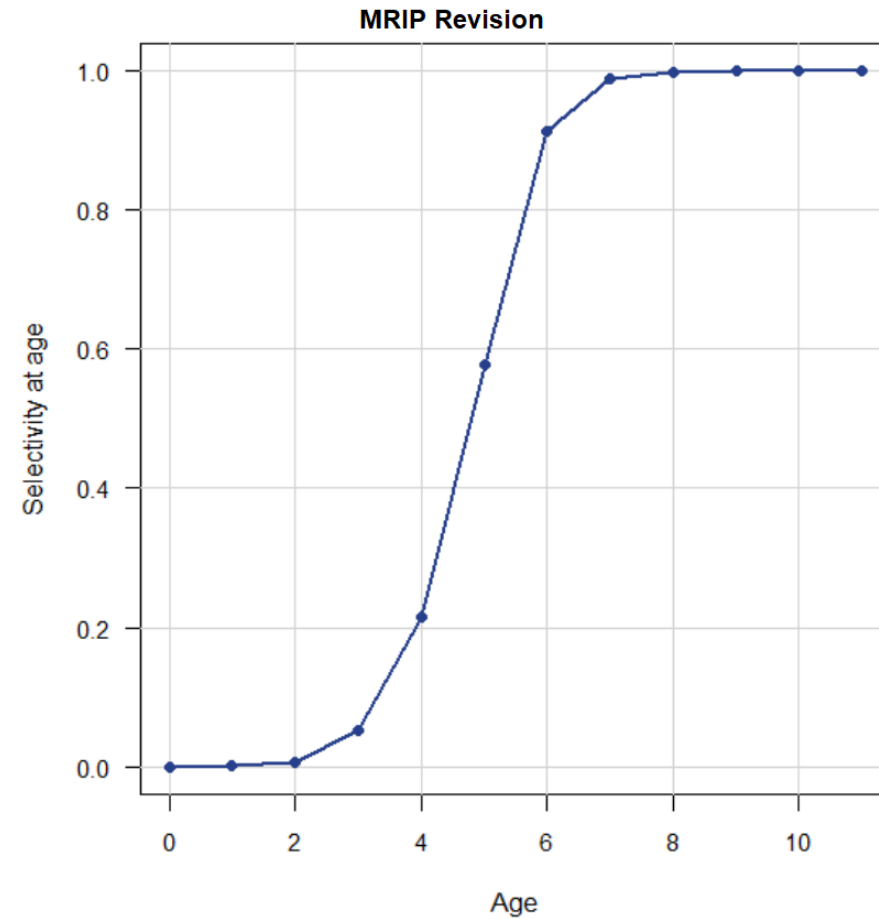
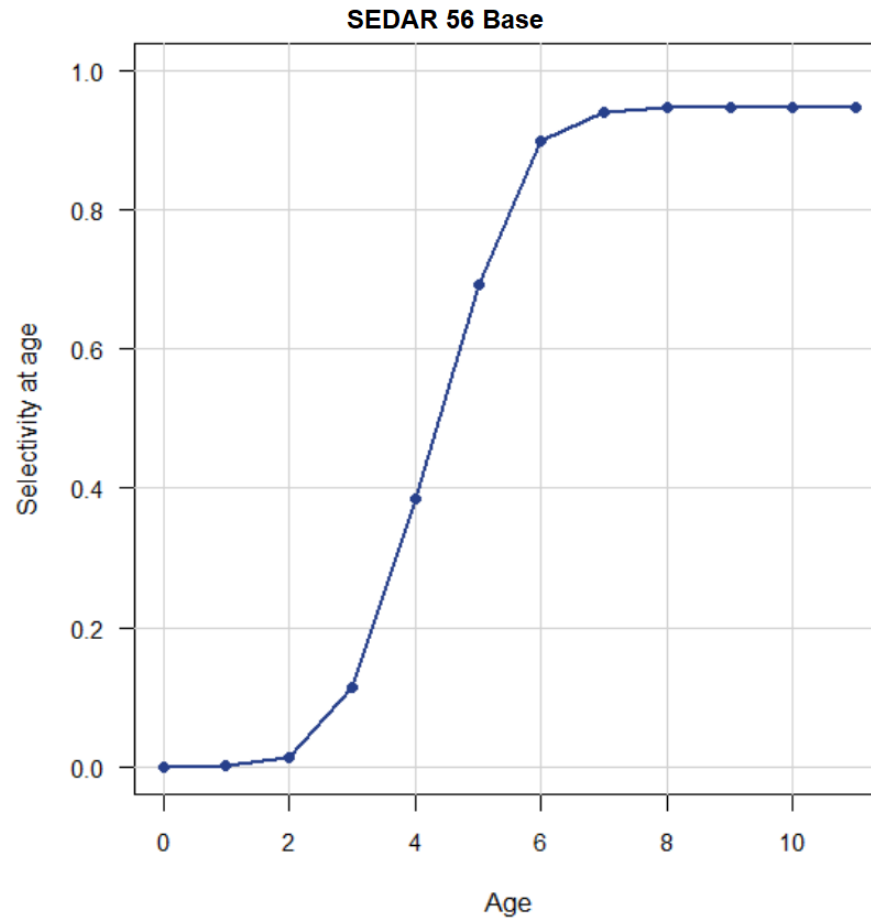


# BSB headboat and general recreational discard selectivity

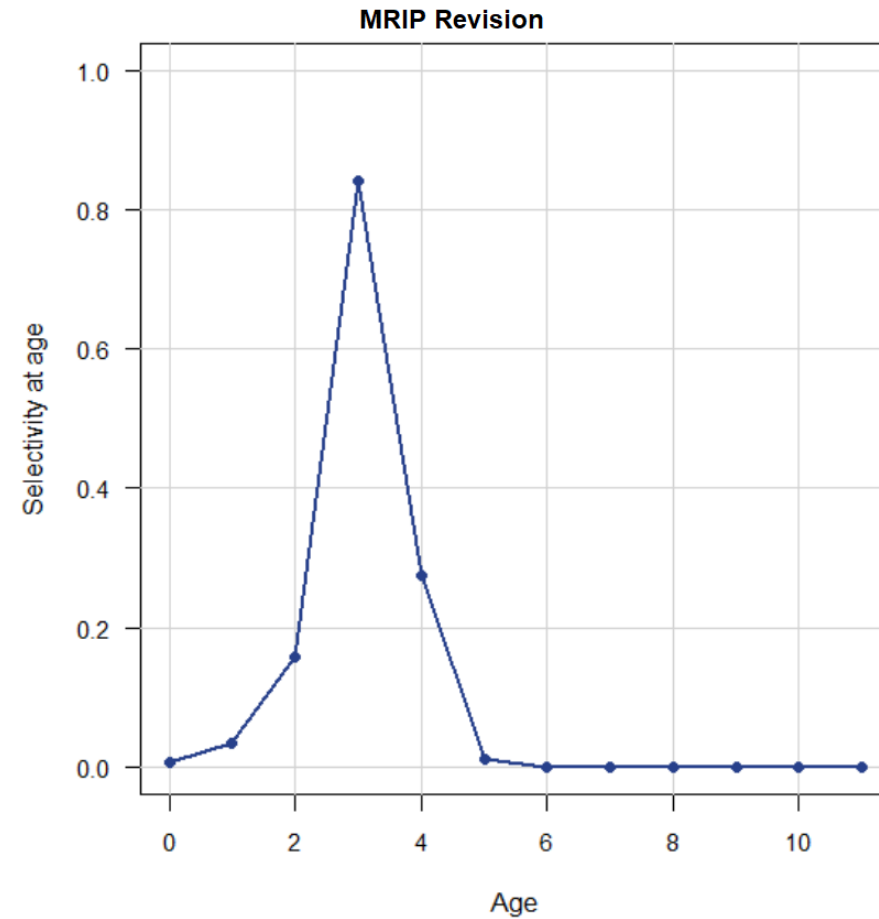
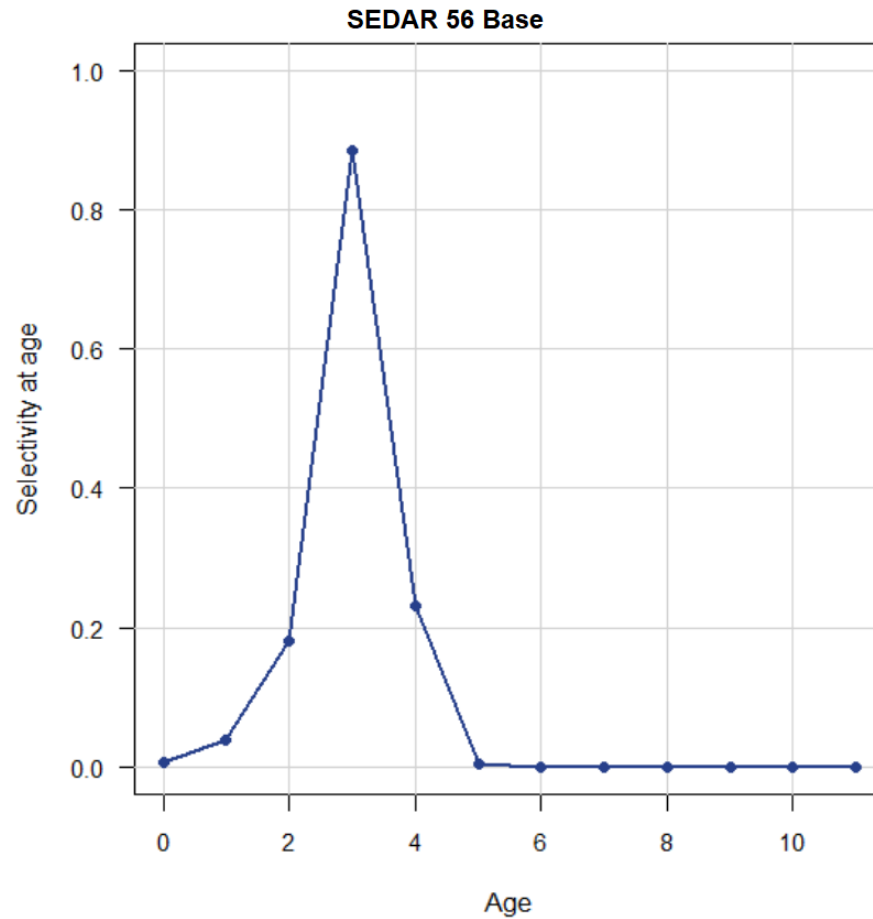




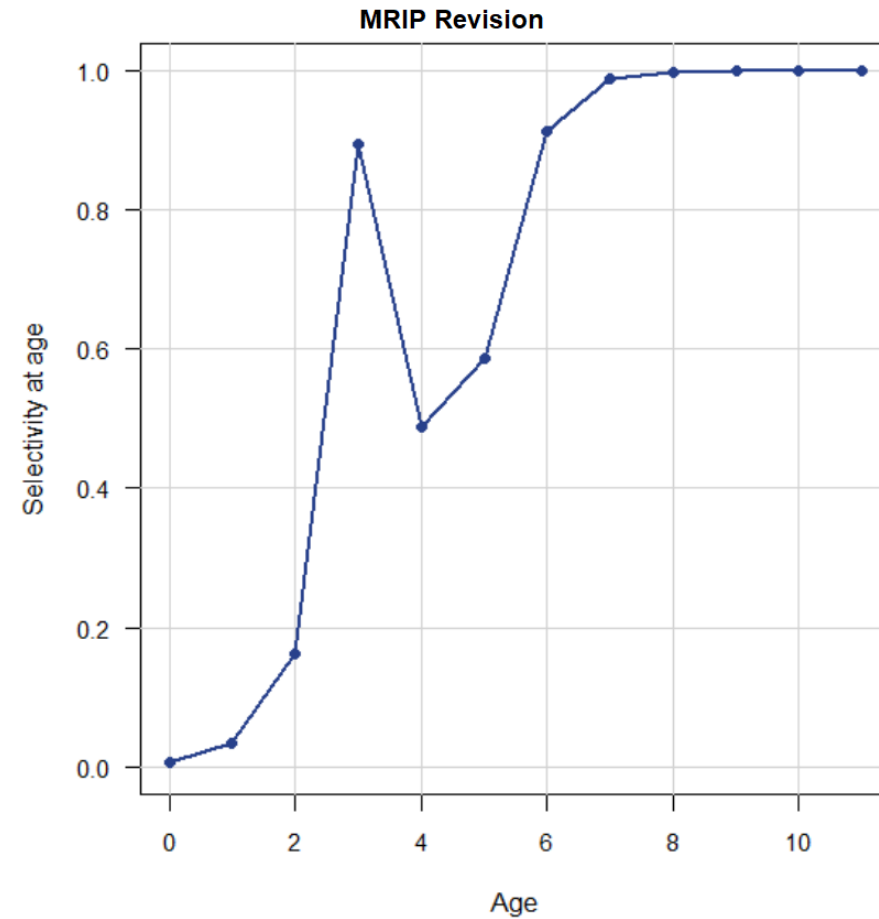
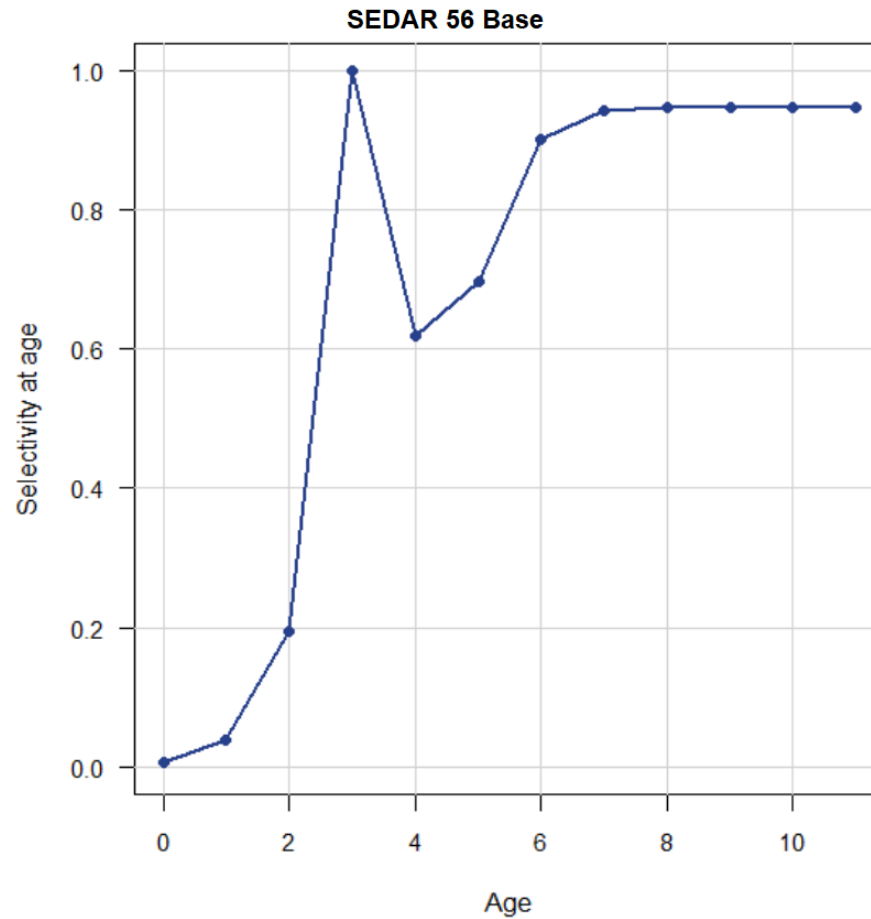
# BSB weighted landings selectivity



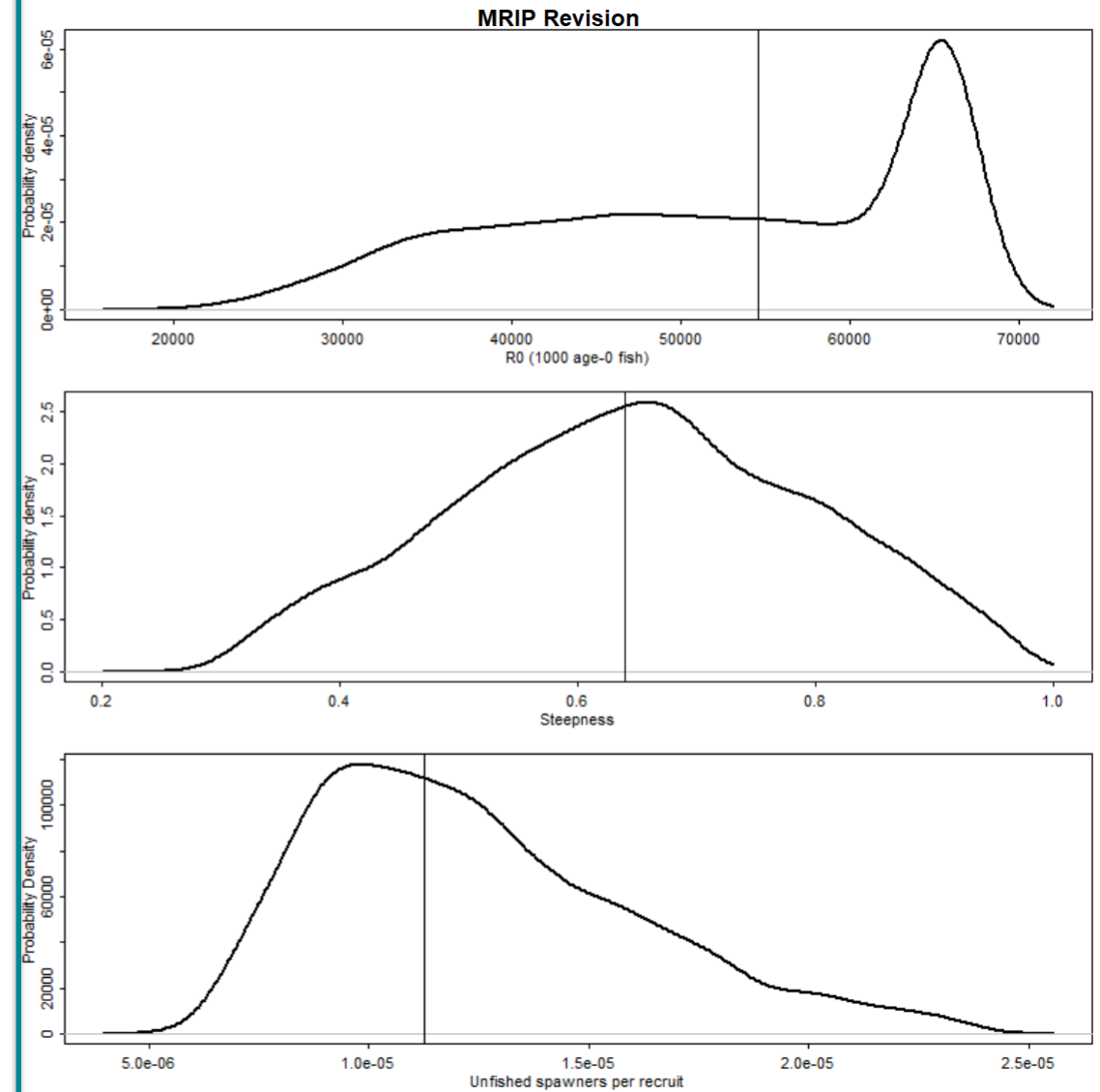
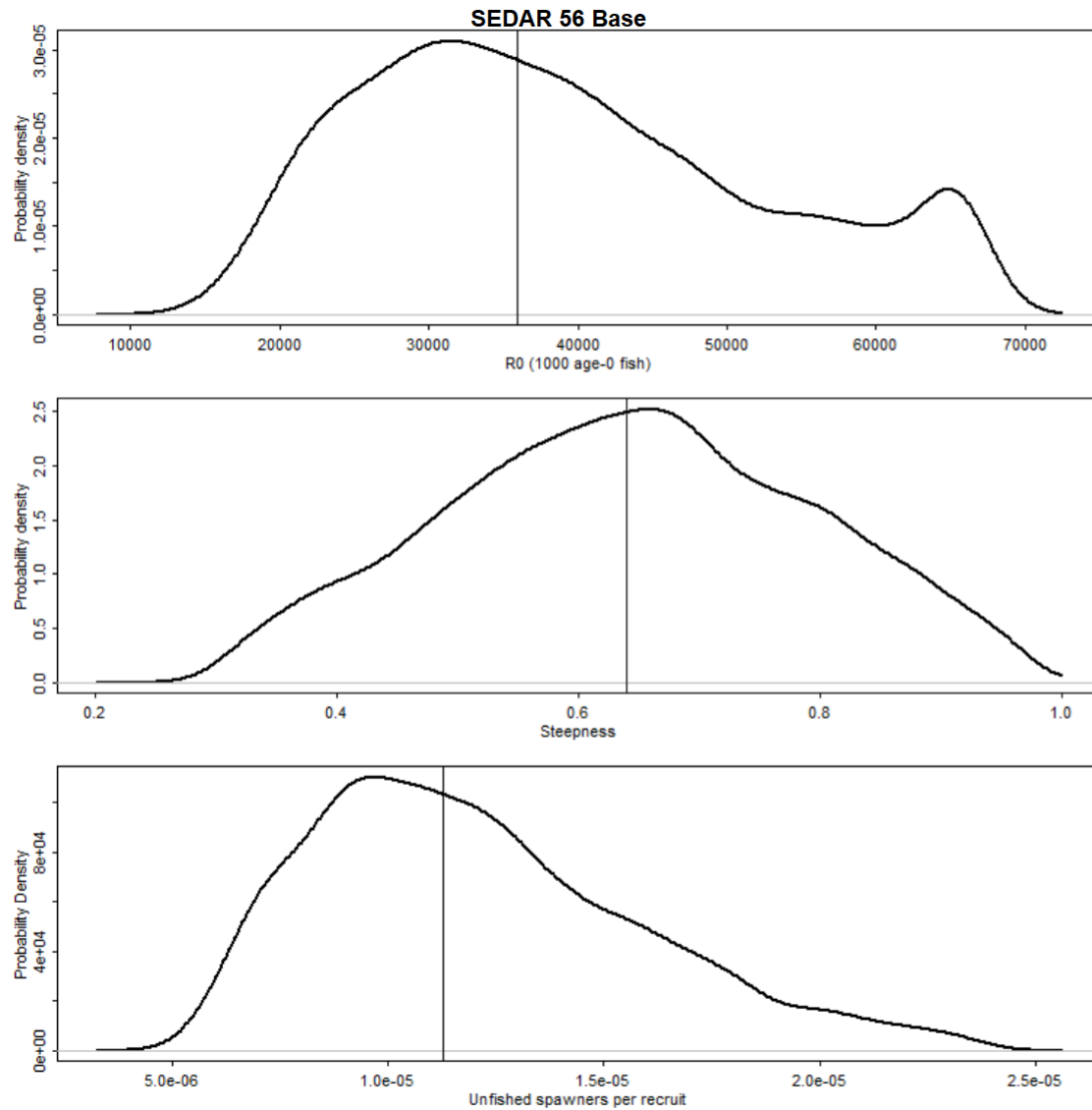
# BSB weighted discard selectivity



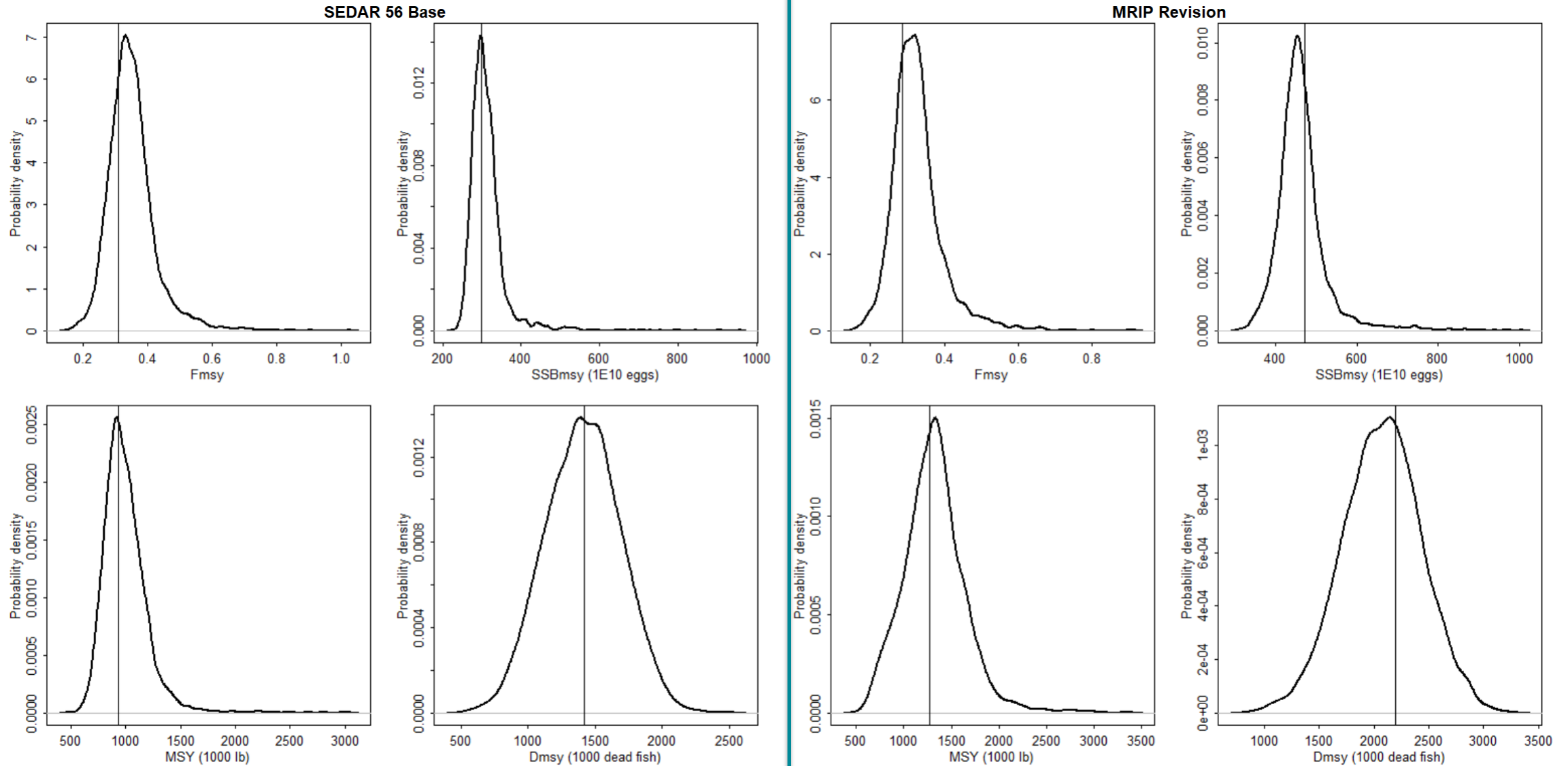
# BSB weighted total (L+D) selectivity



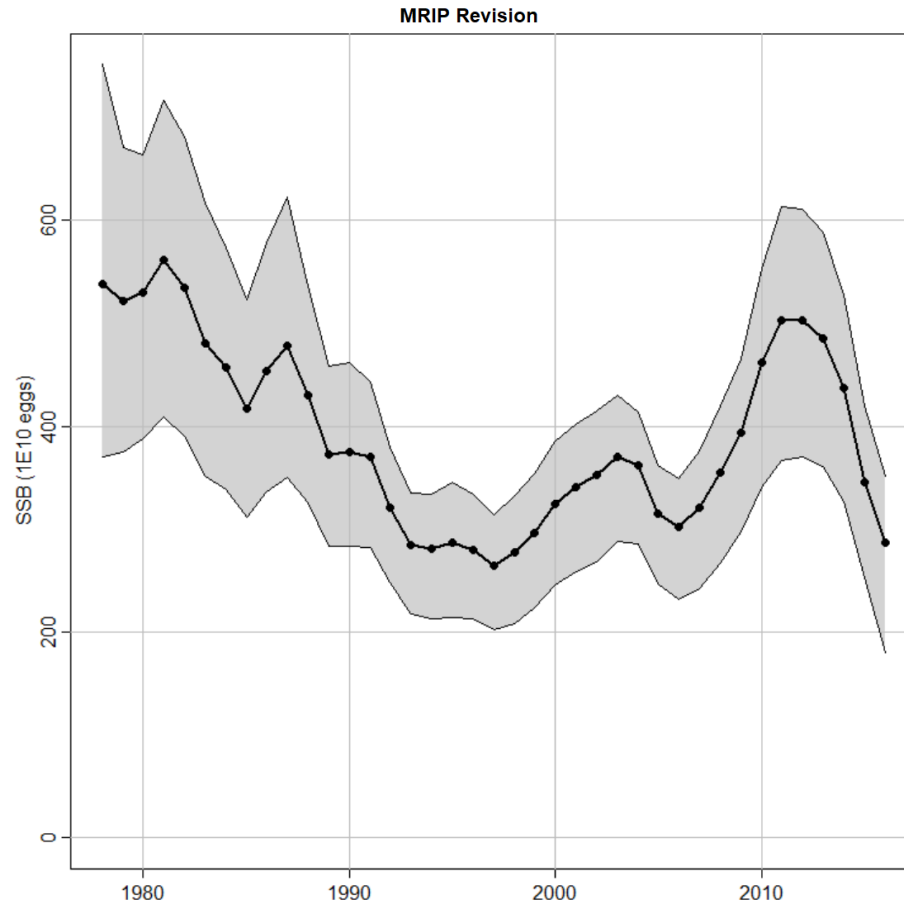
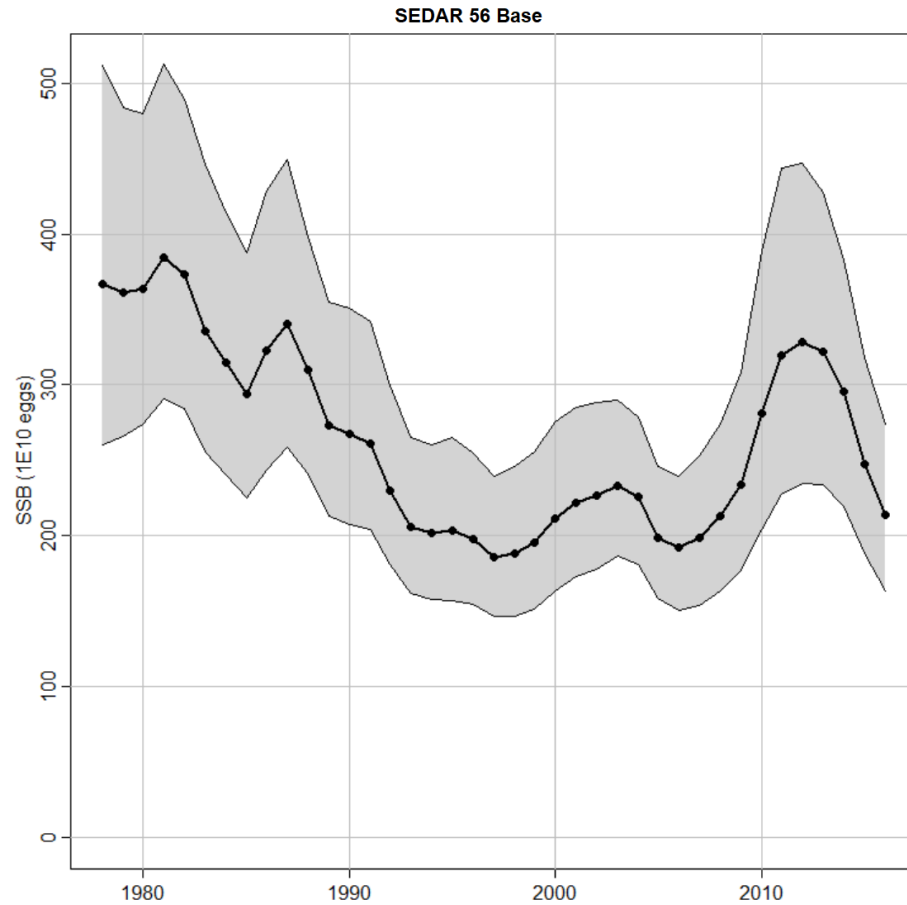
# BSB spawner-recruit quantities



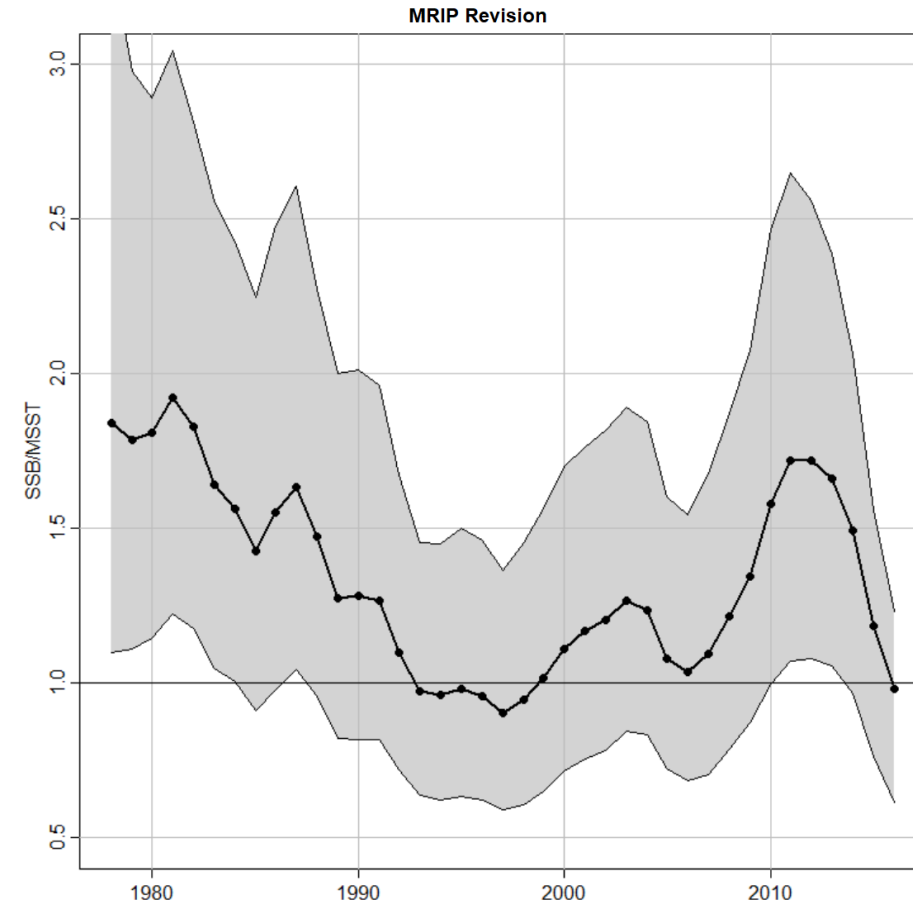
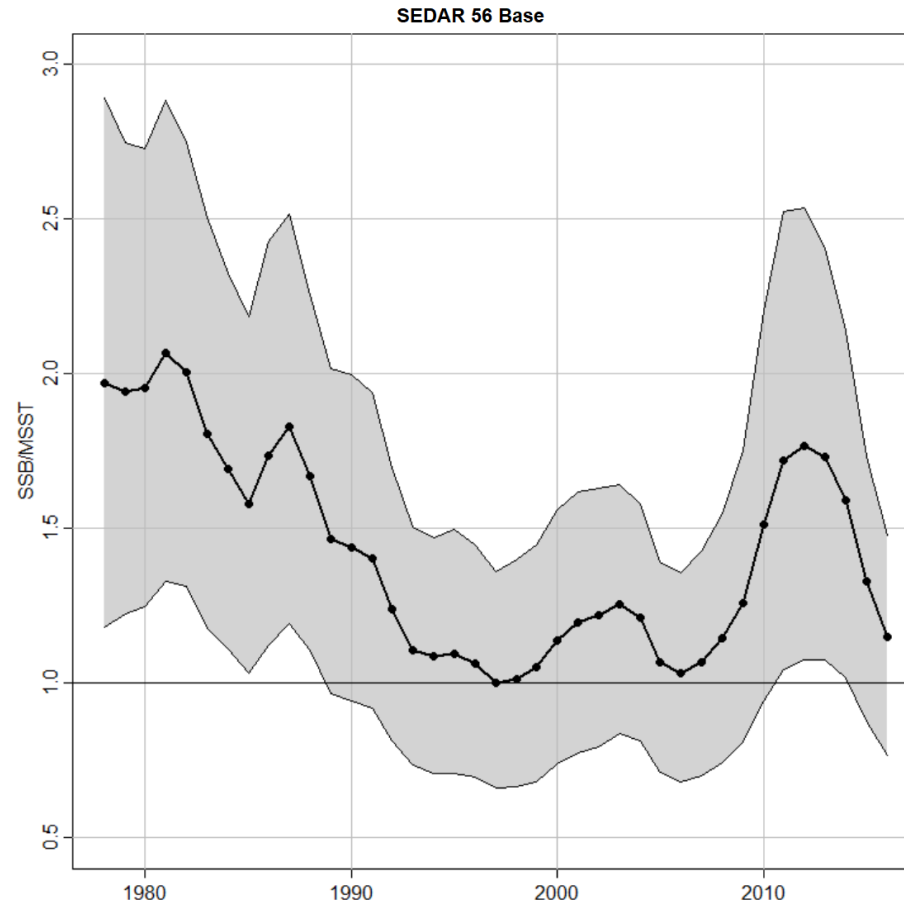
# BSB MSY quantities



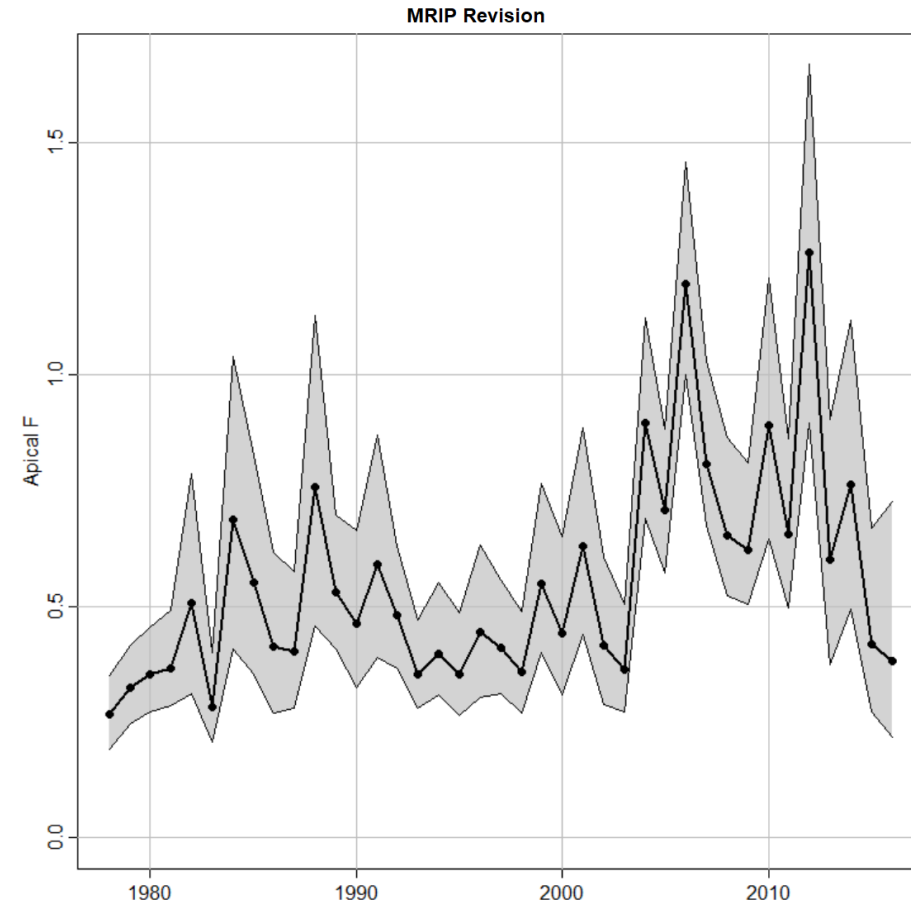
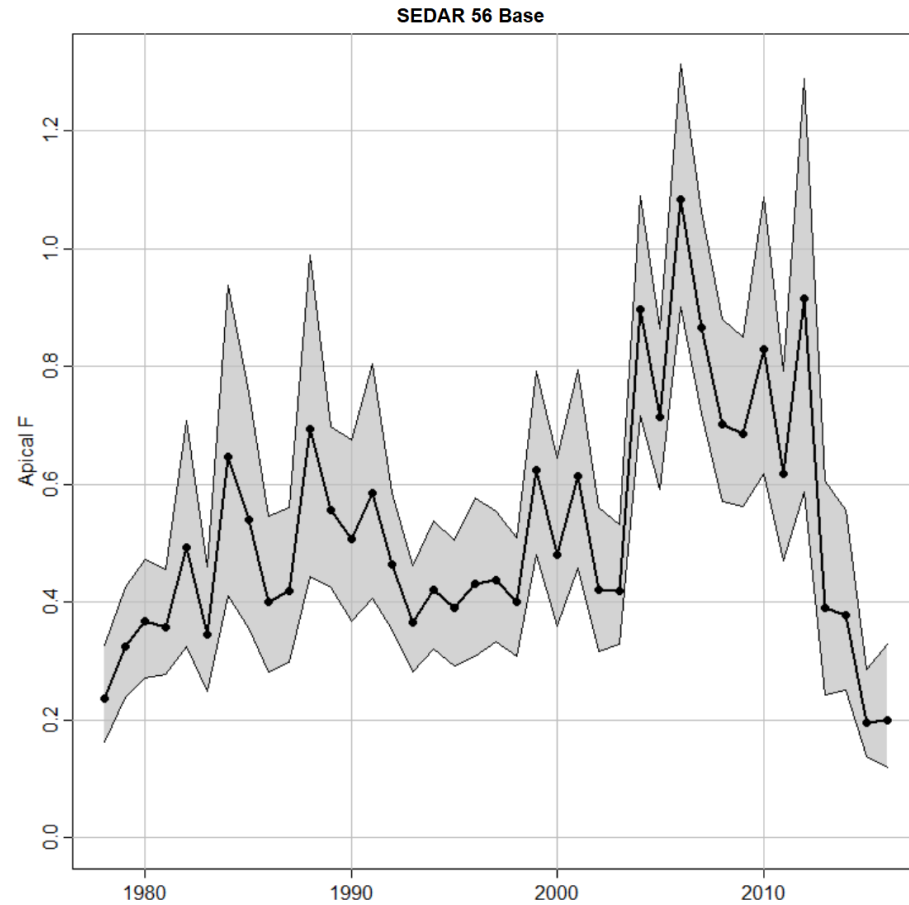
# BSB SSB



# BSB SSB relative to MSST

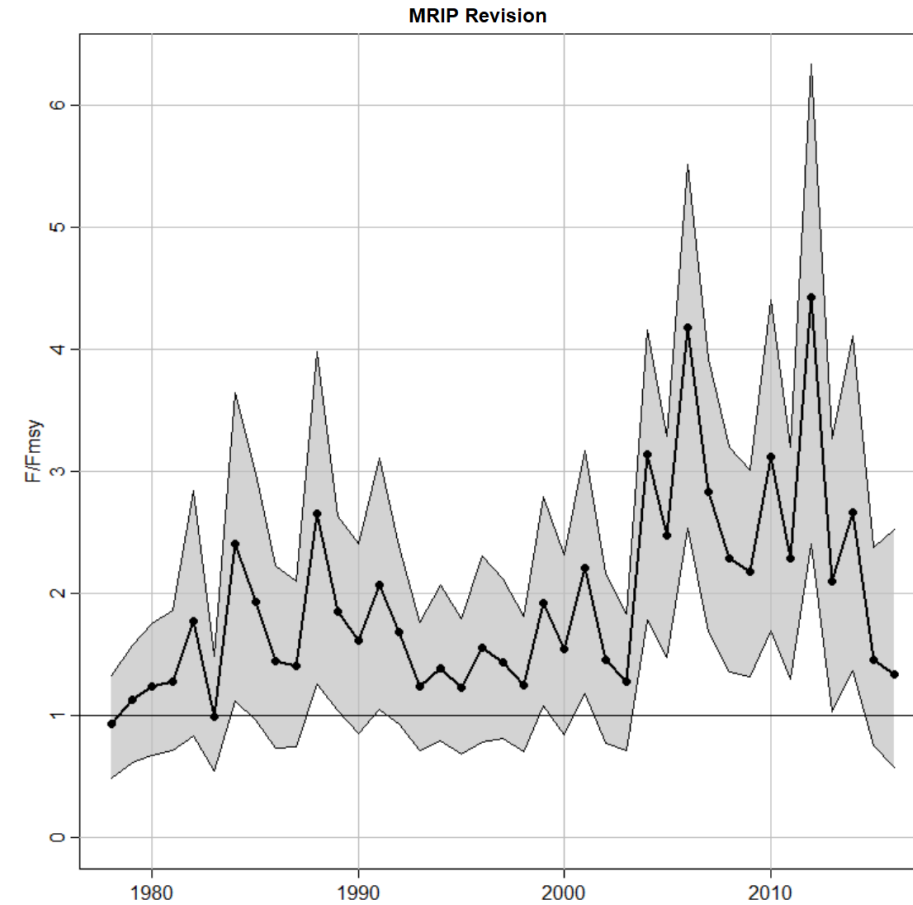
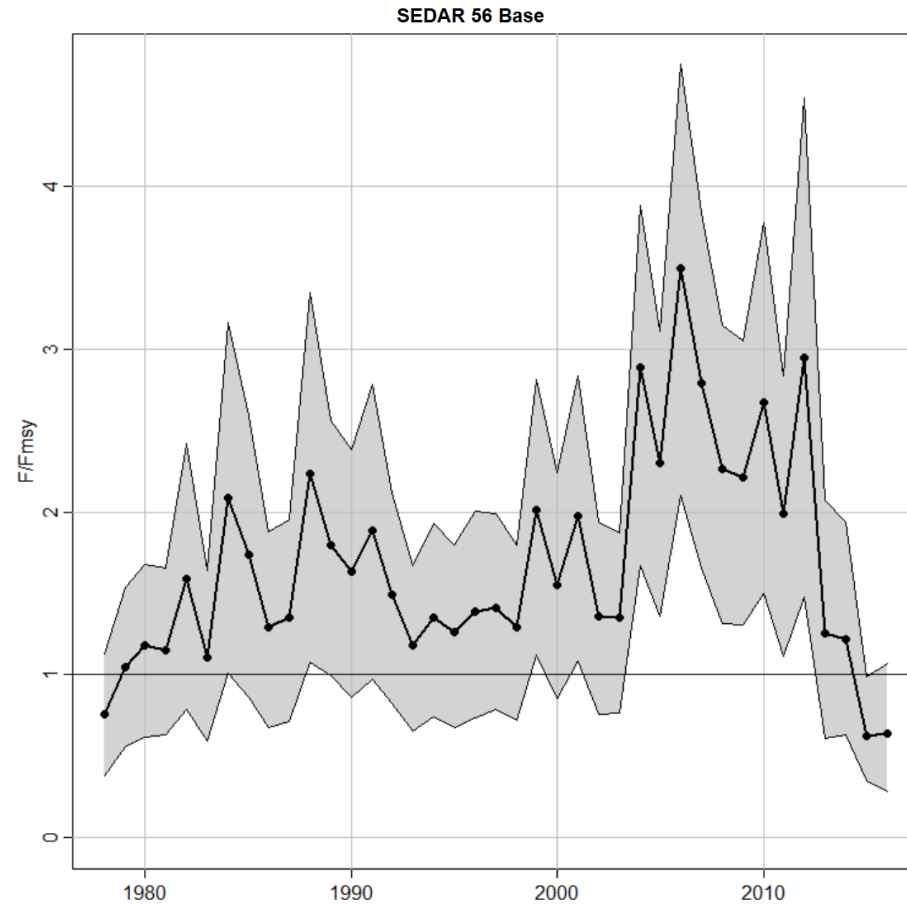


# BSB Apical F

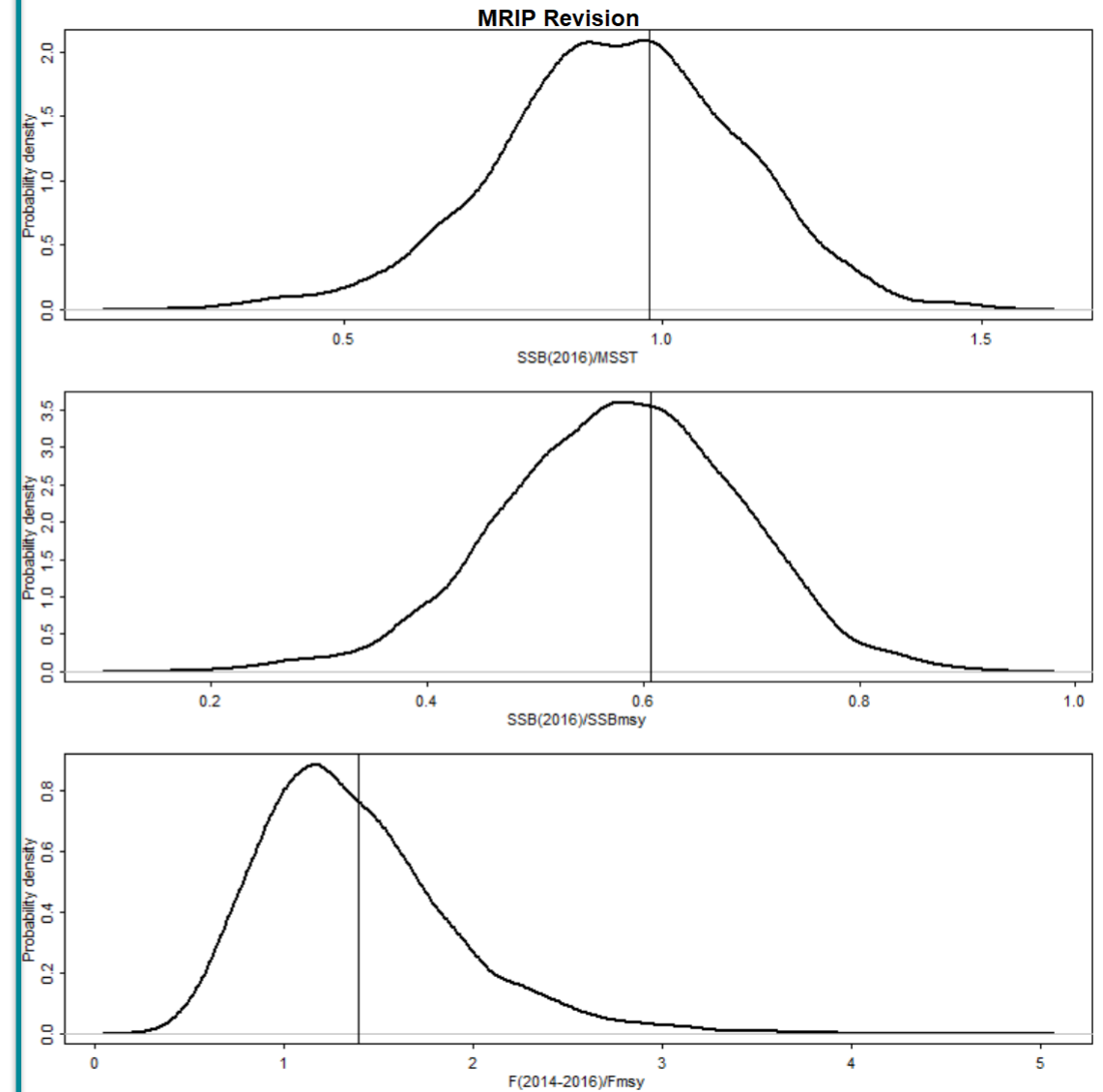
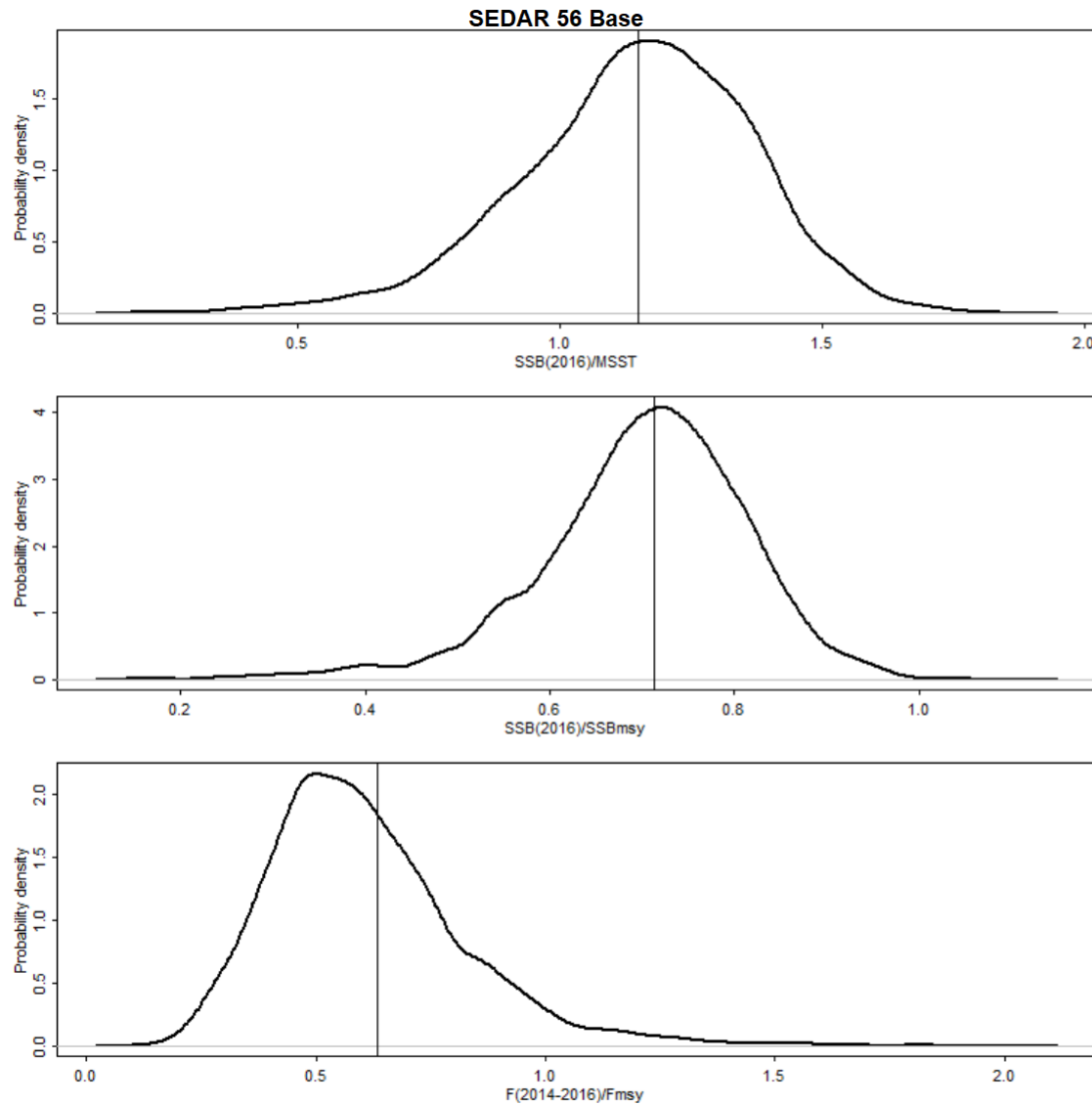




# BSB F relative to $F_{msy}$



# BSB status indicators

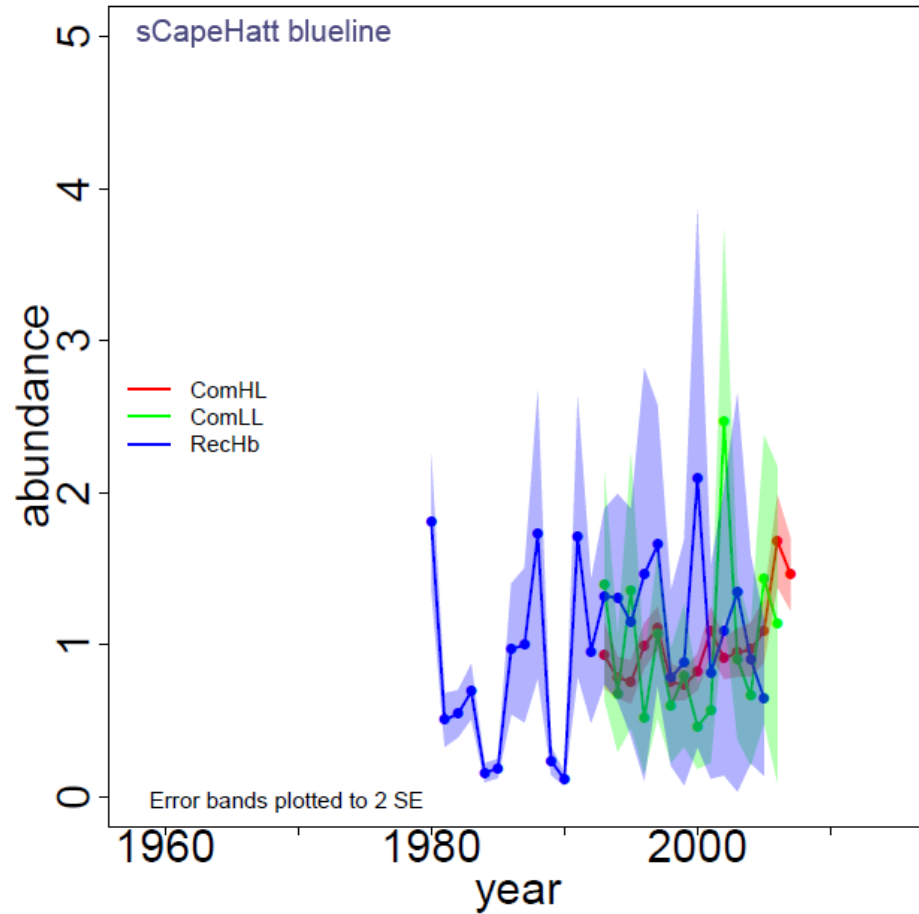


# Blueline Tilefish (BLT): South of Cape Hatteras stock

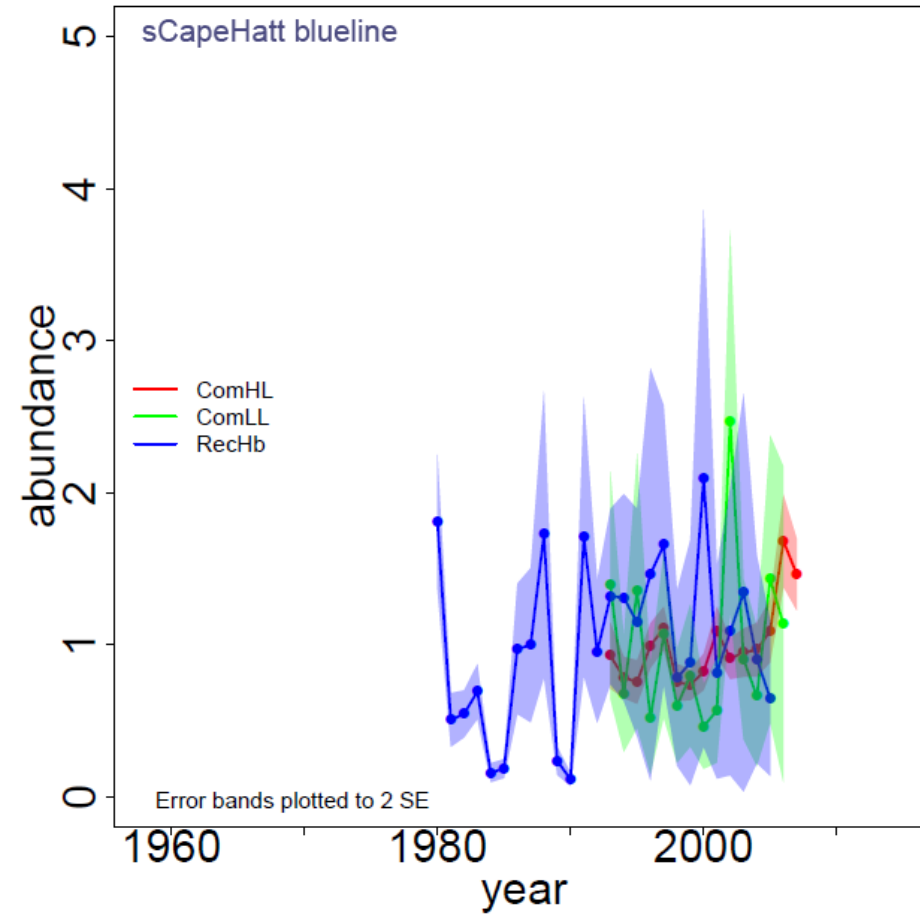


# BLT indices

## SEDAR 50 AW Base

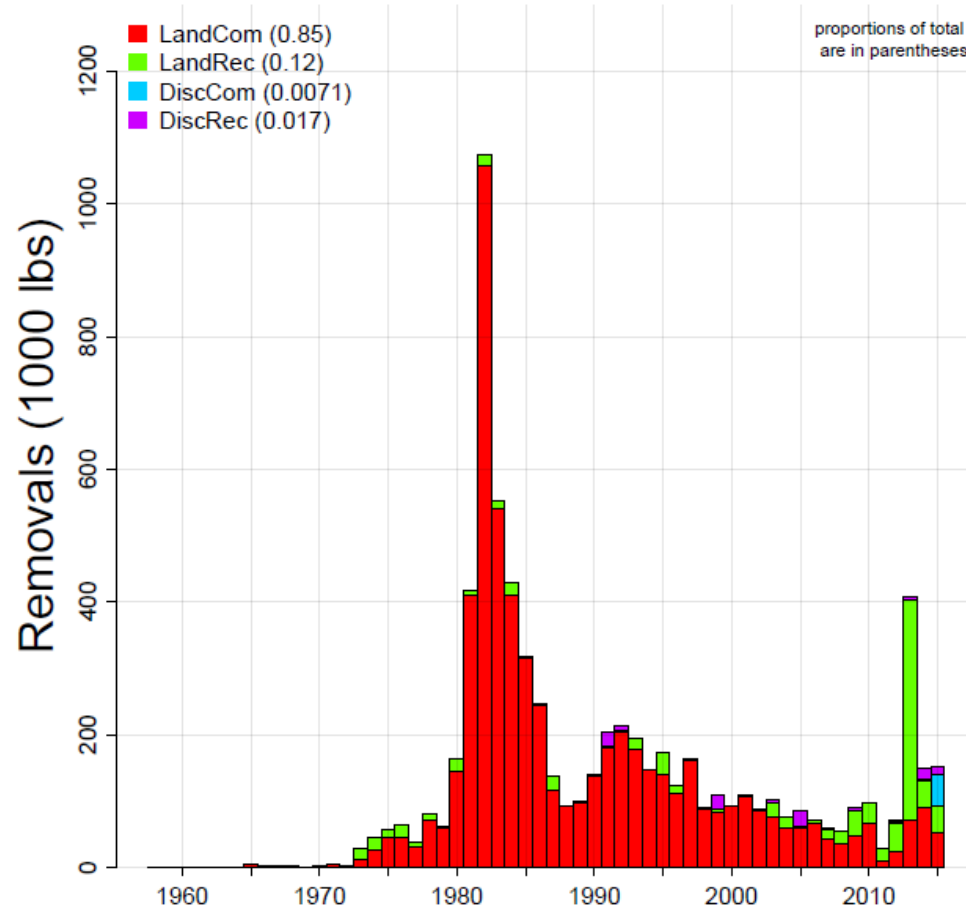


## MRIP Revision

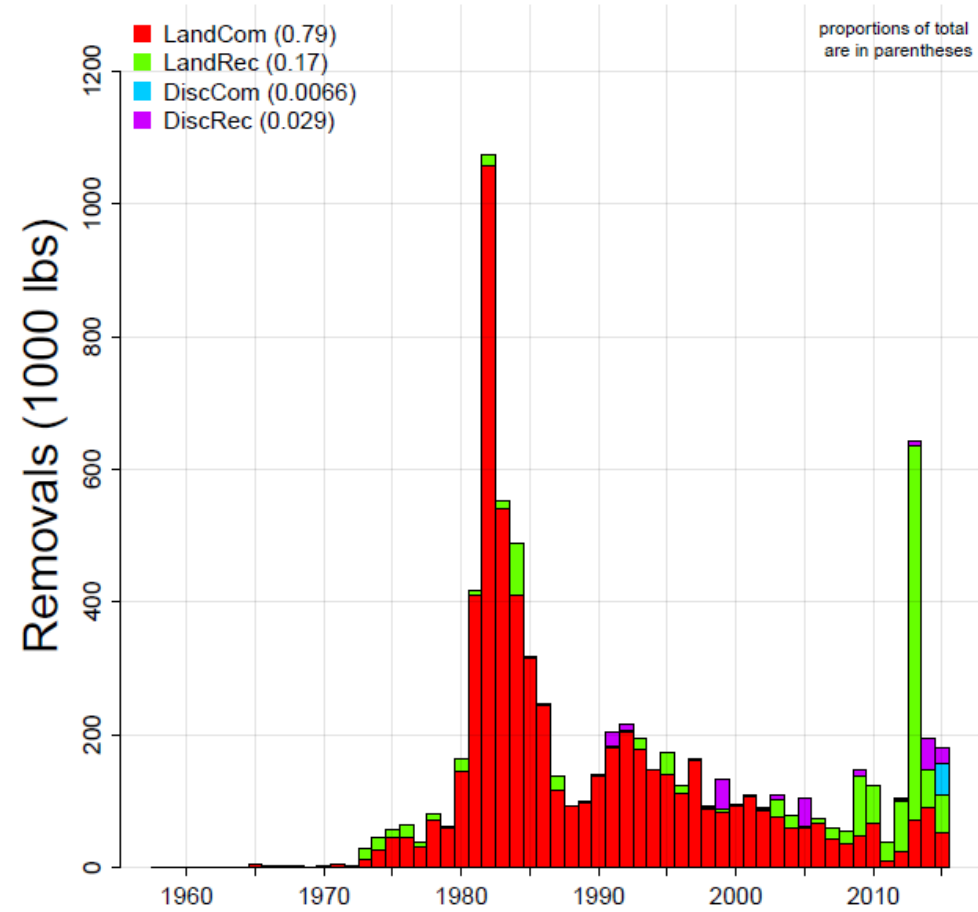


# BLT removals

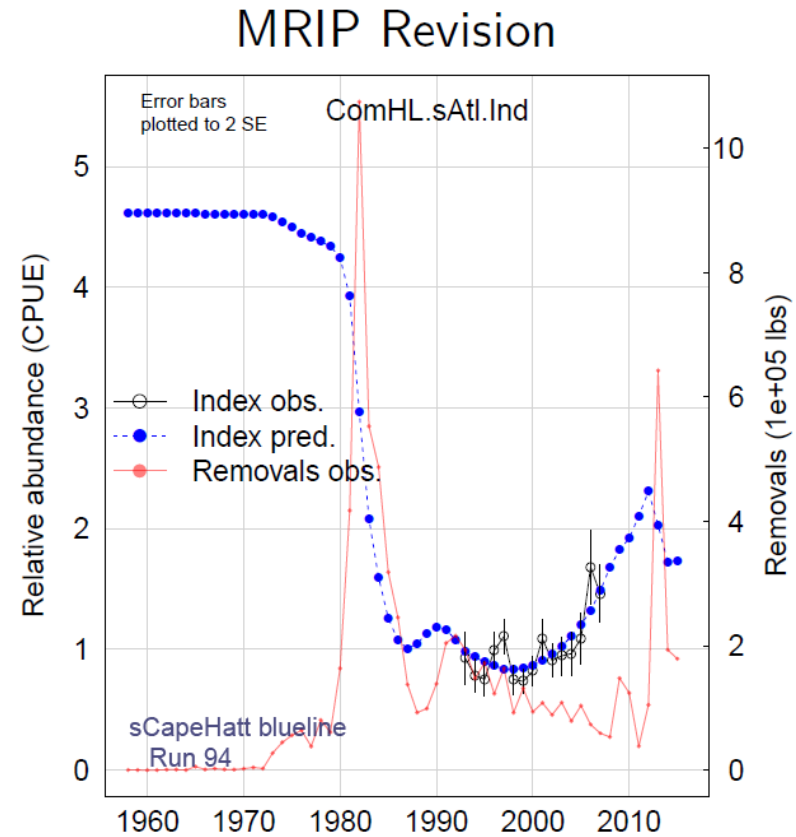
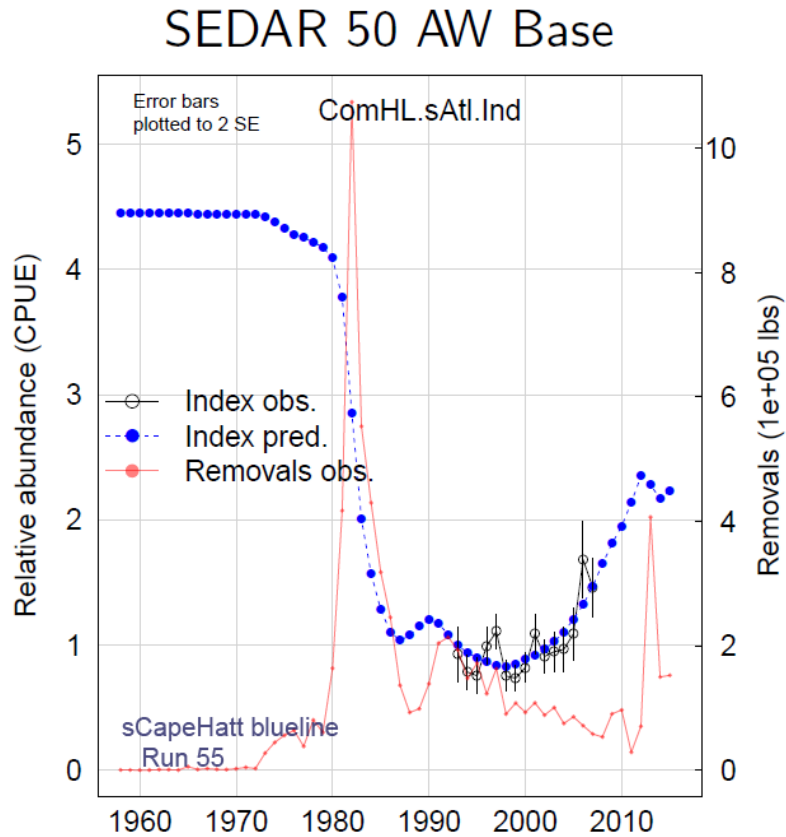
## SEDAR 50 AW Base



## MRIP Revision

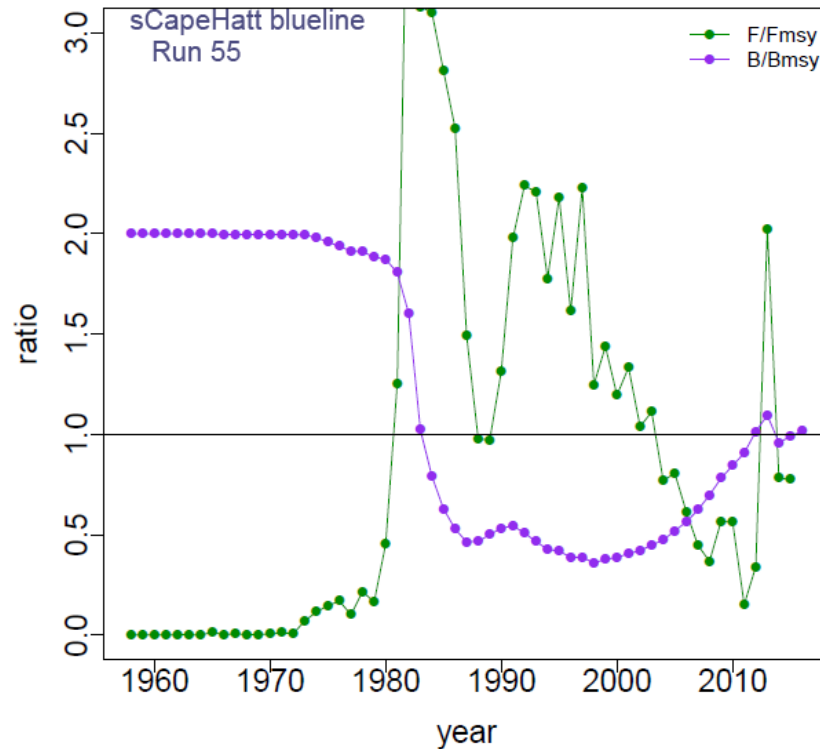


# BLT handline index fit and removals (1 of 2 models)

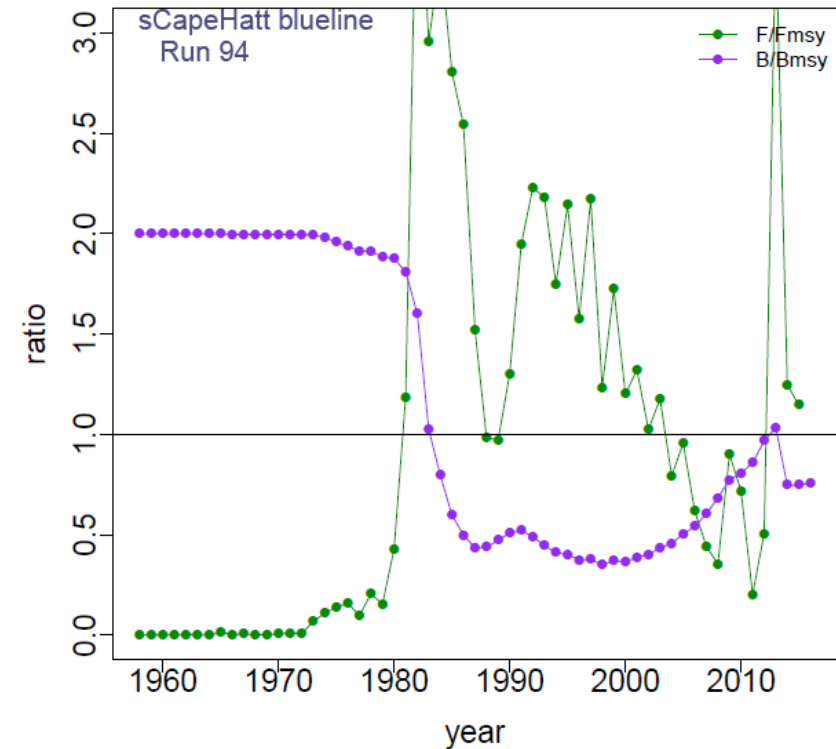


# BLT results (1 of 2 models)

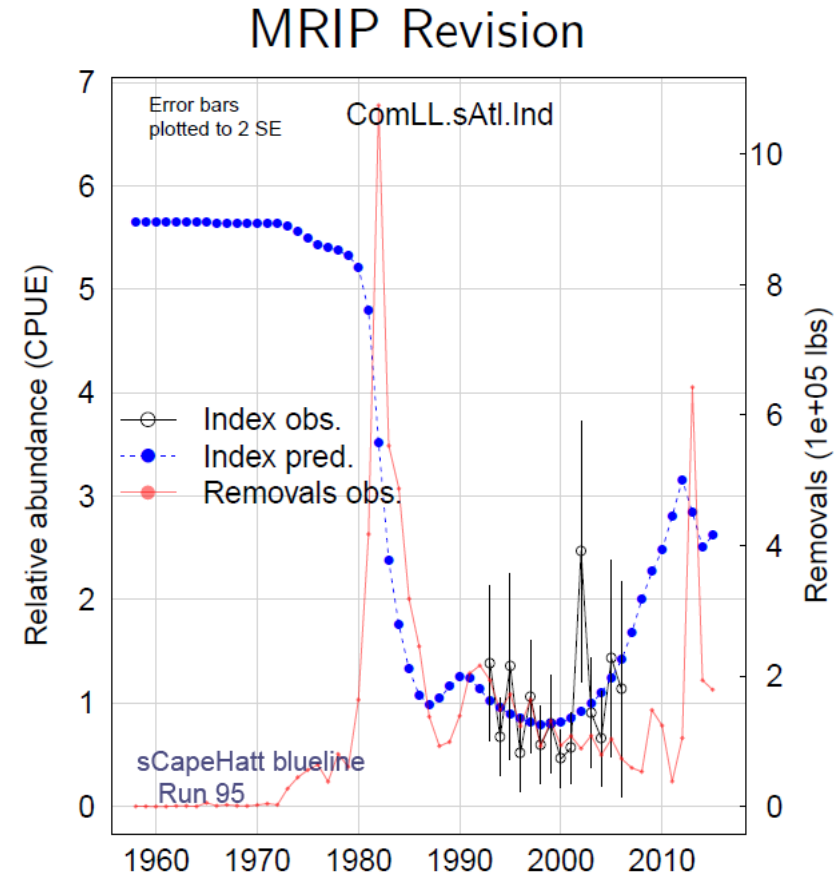
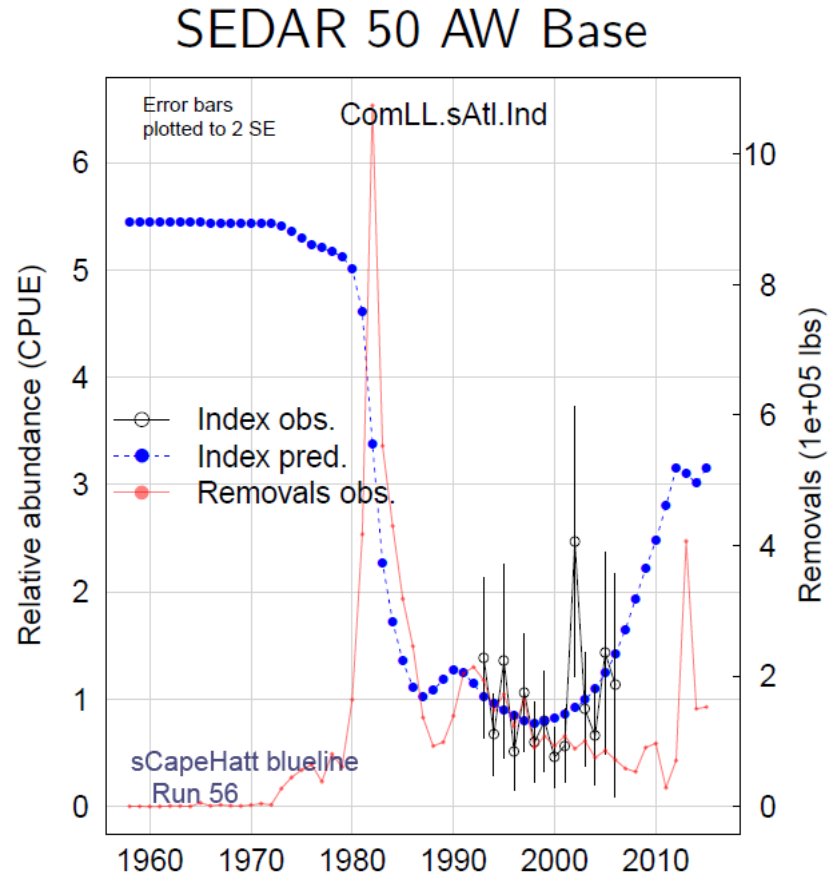
SEDAR 50 AW Base



MRIP Revision



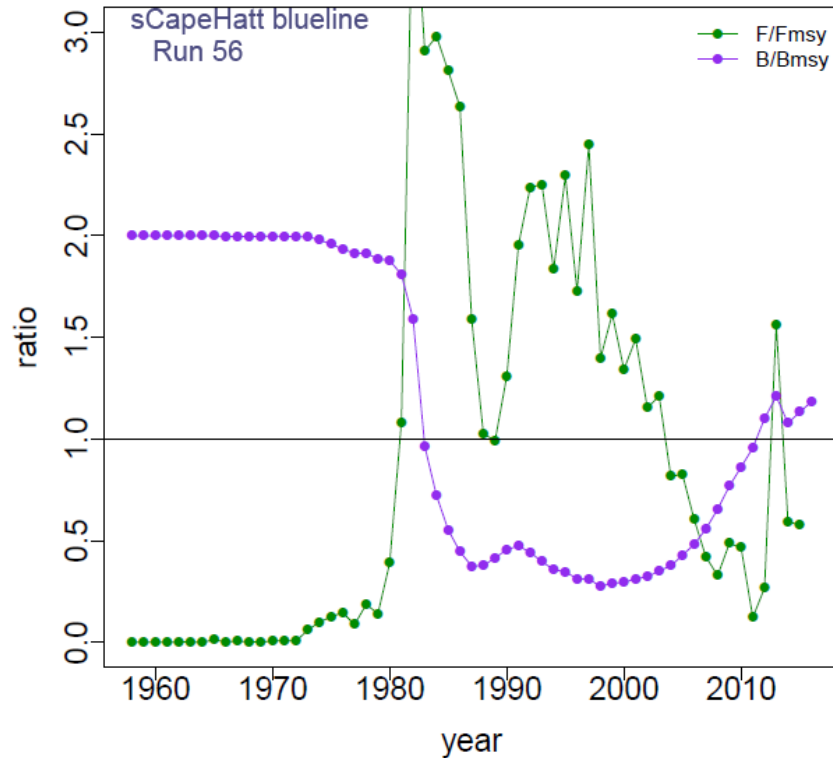
# BLT longline index fit and removals (2 of 2 models)



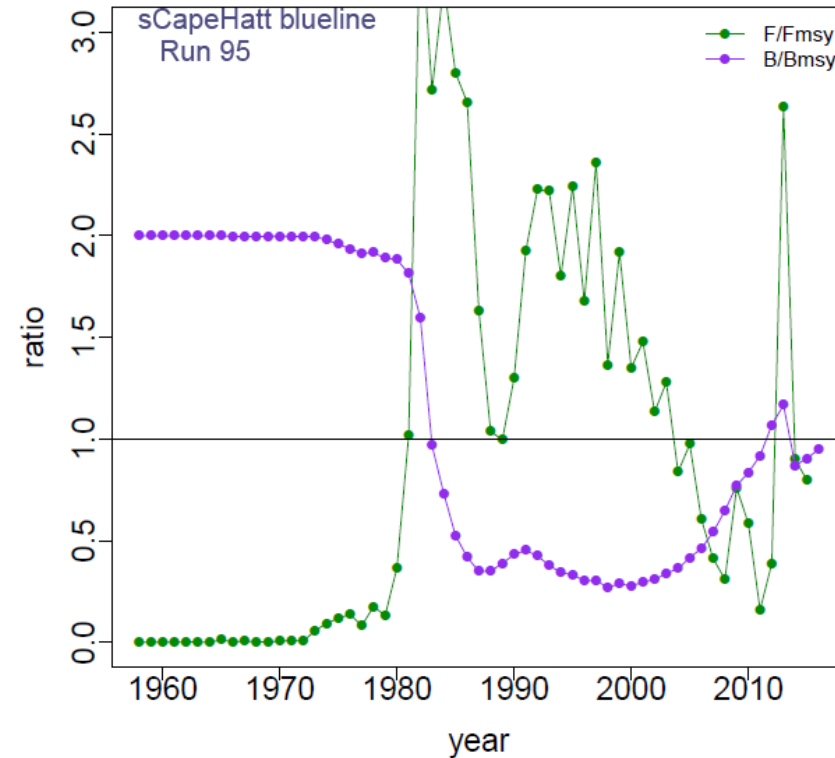


# BLT results (2 of 2 models)

SEDAR 50 AW Base

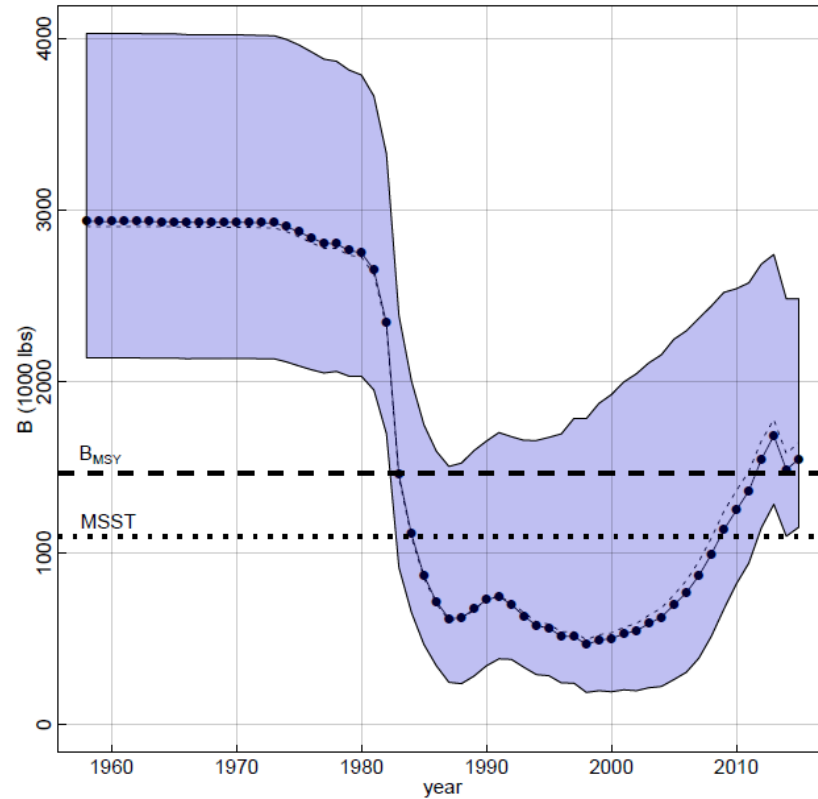


MRIP Revision

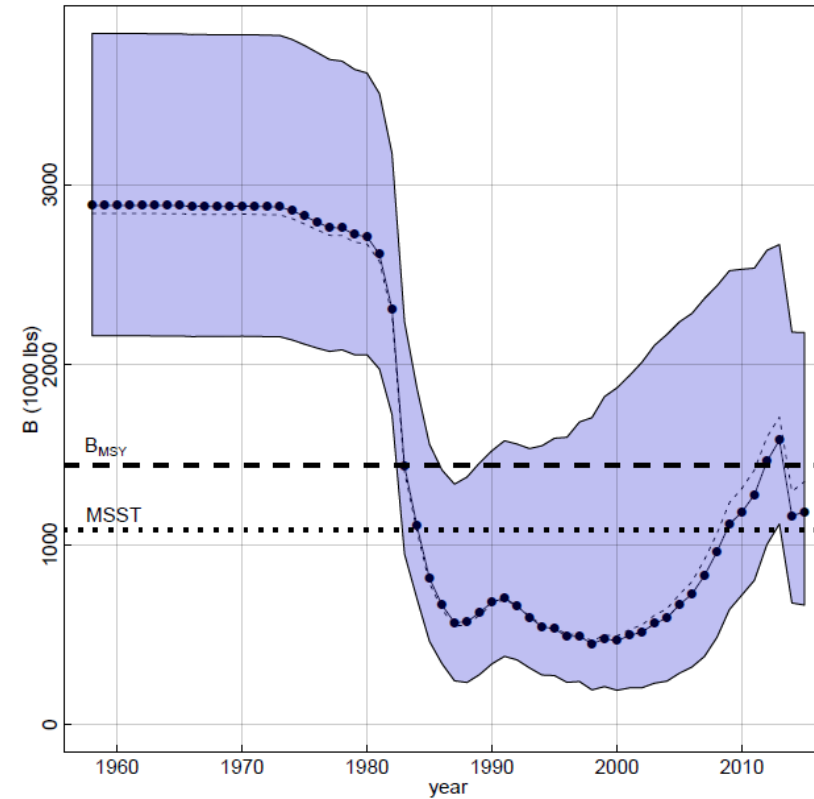


# BLT results (models combined)

SEDAR 50 AW Base

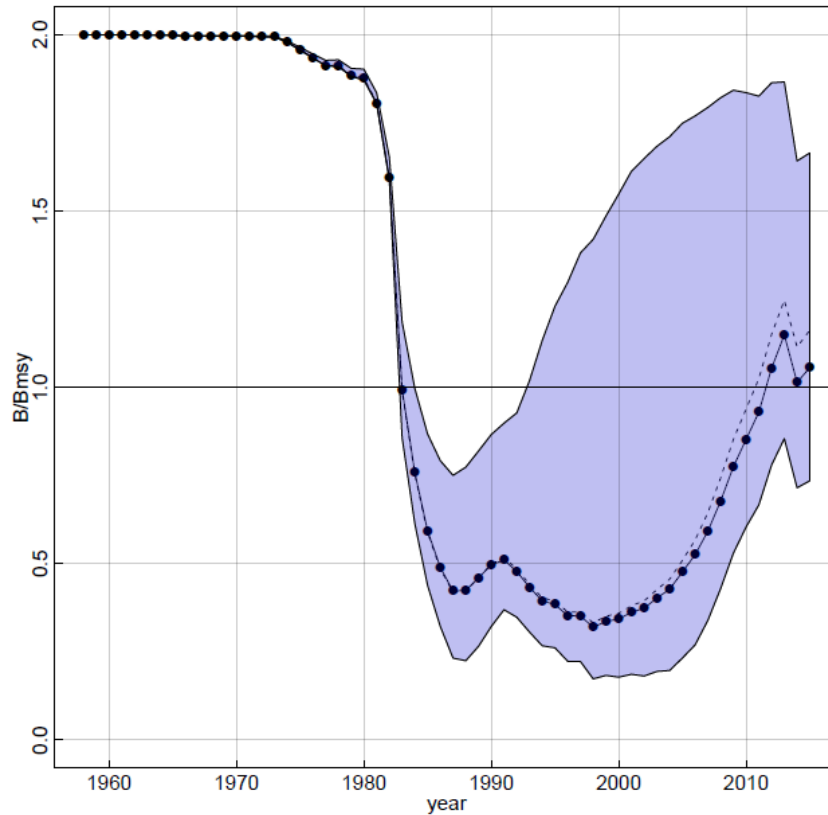


MRIP Revision

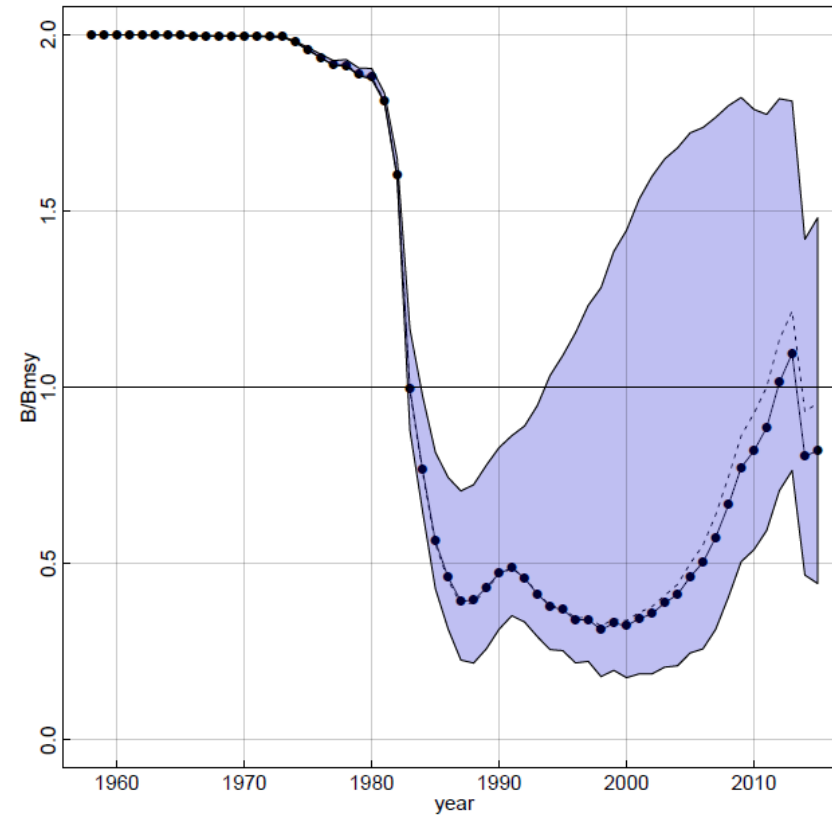


# BLT results (models combined)

SEDAR 50 AW Base

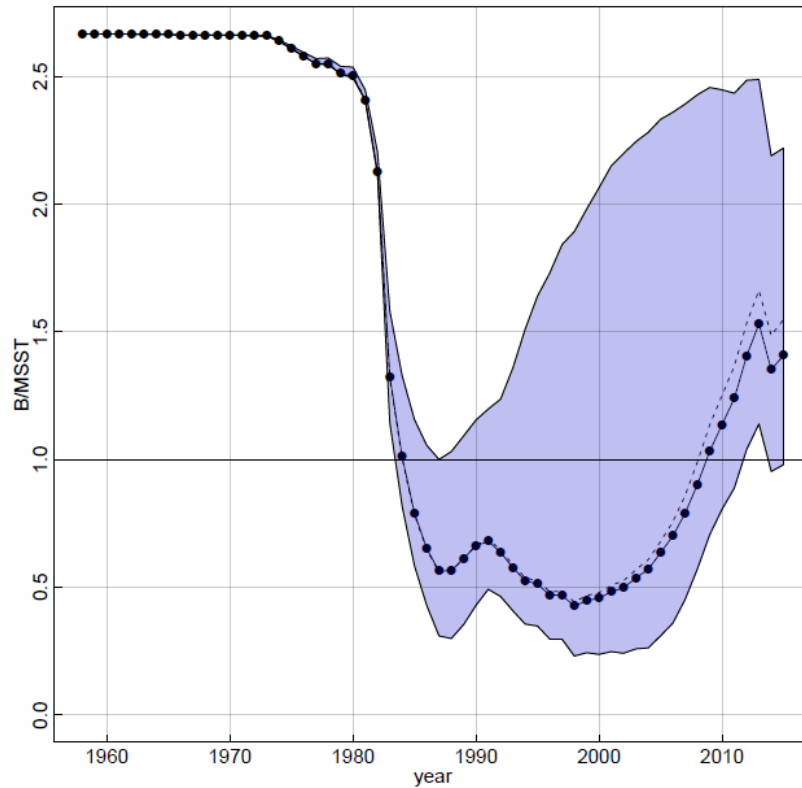


MRIP Revision

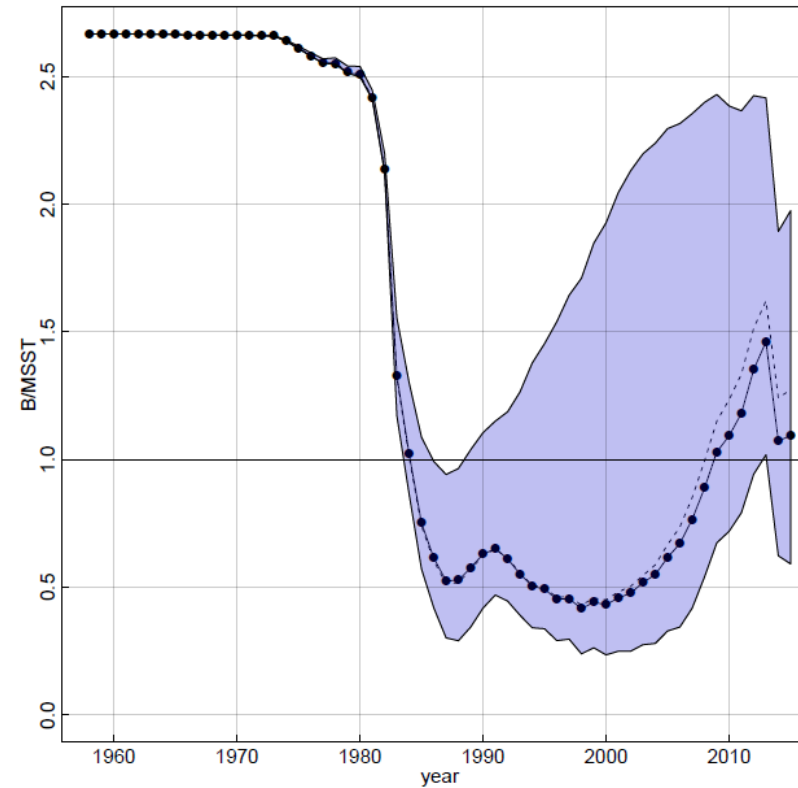


# BLT results (models combined)

SEDAR 50 AW Base

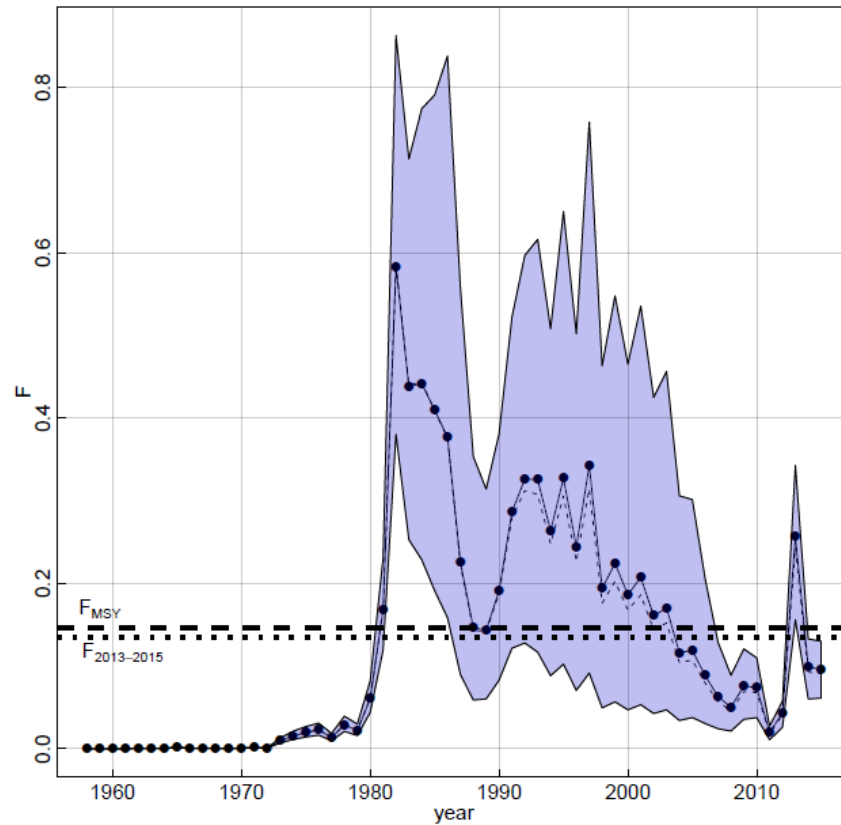


MRIP Revision

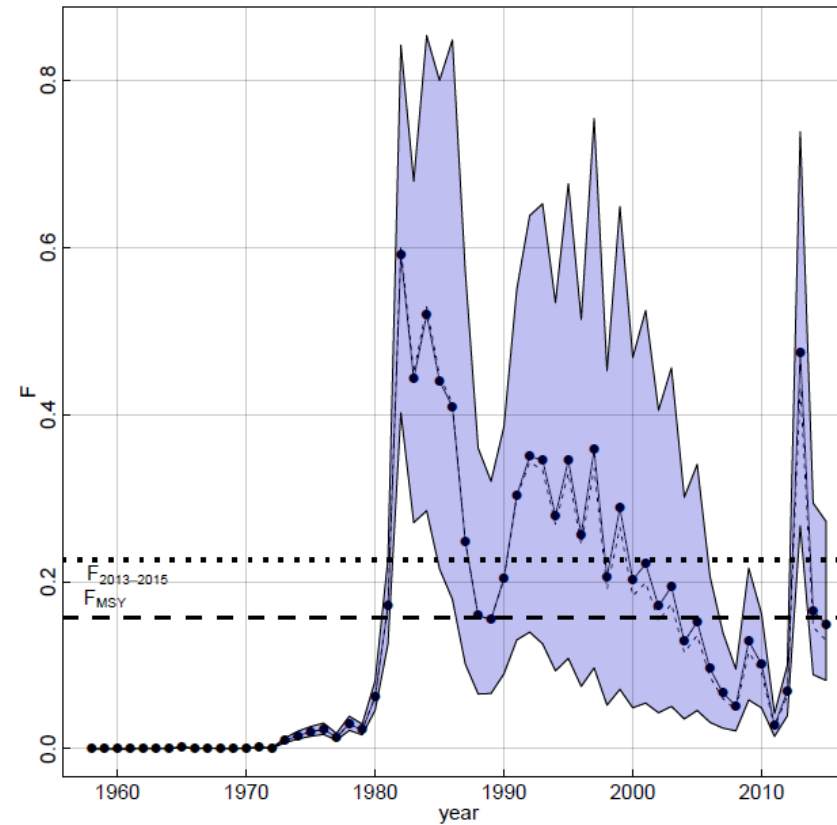


# BLT results (models combined)

SEDAR 50 AW Base

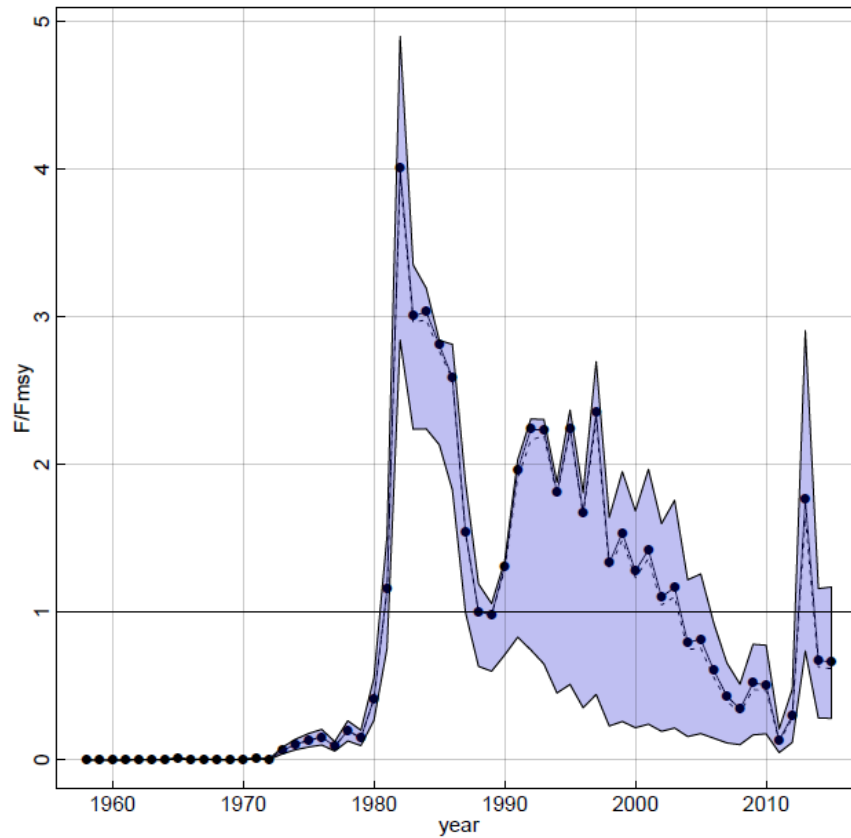


MRIP Revision

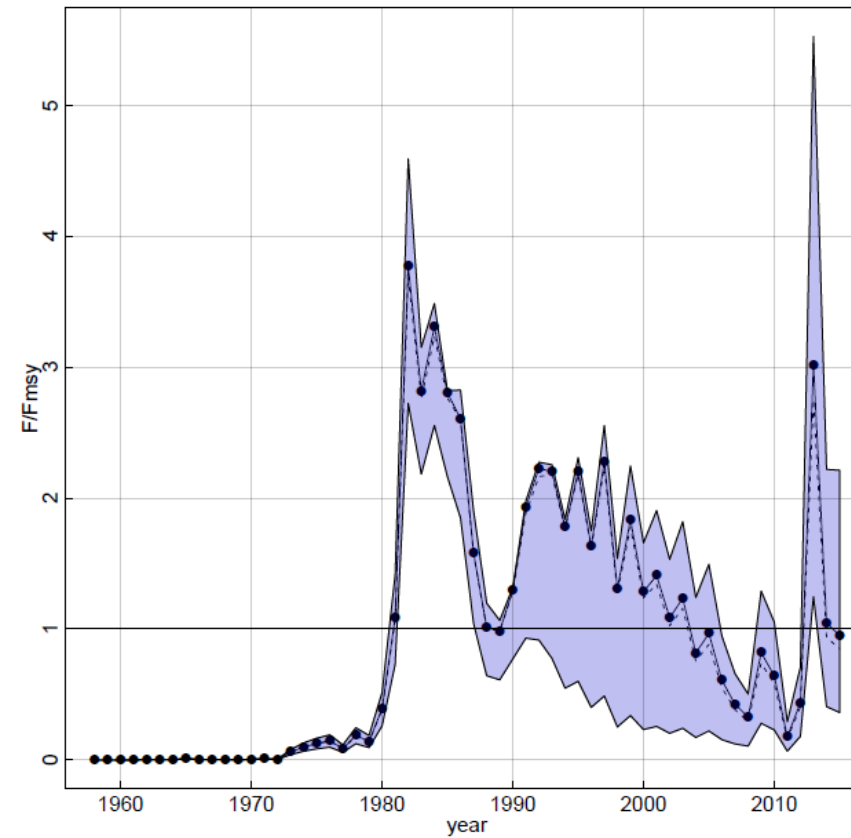


# BLT results (models combined)

SEDAR 50 AW Base

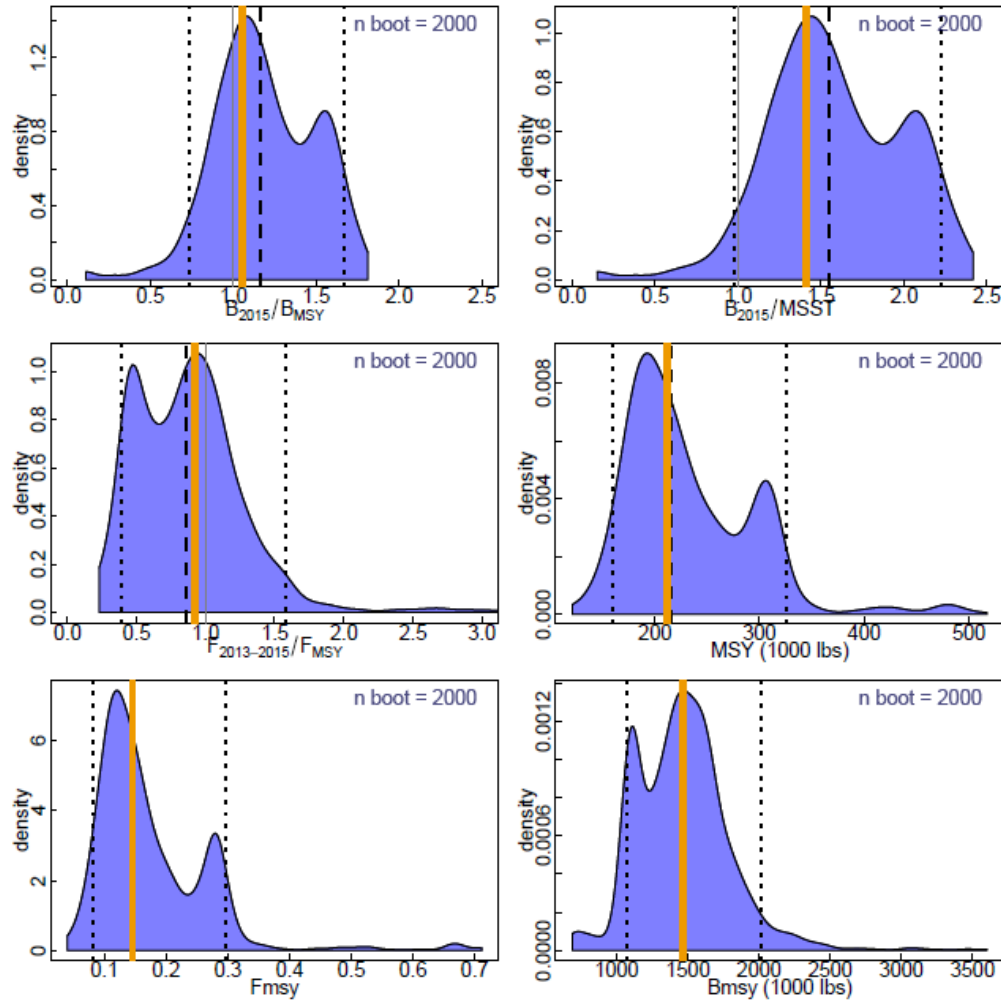


MRIP Revision

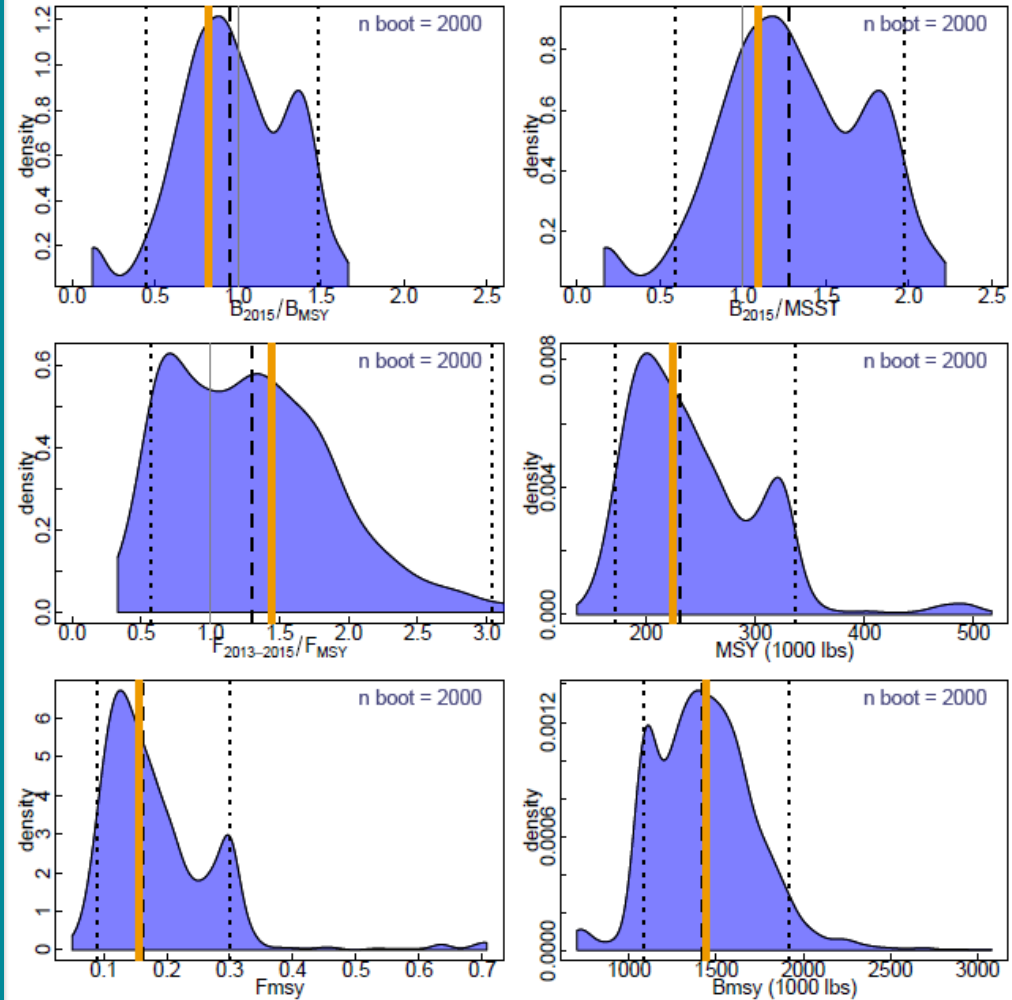


# BLT results (models combined)

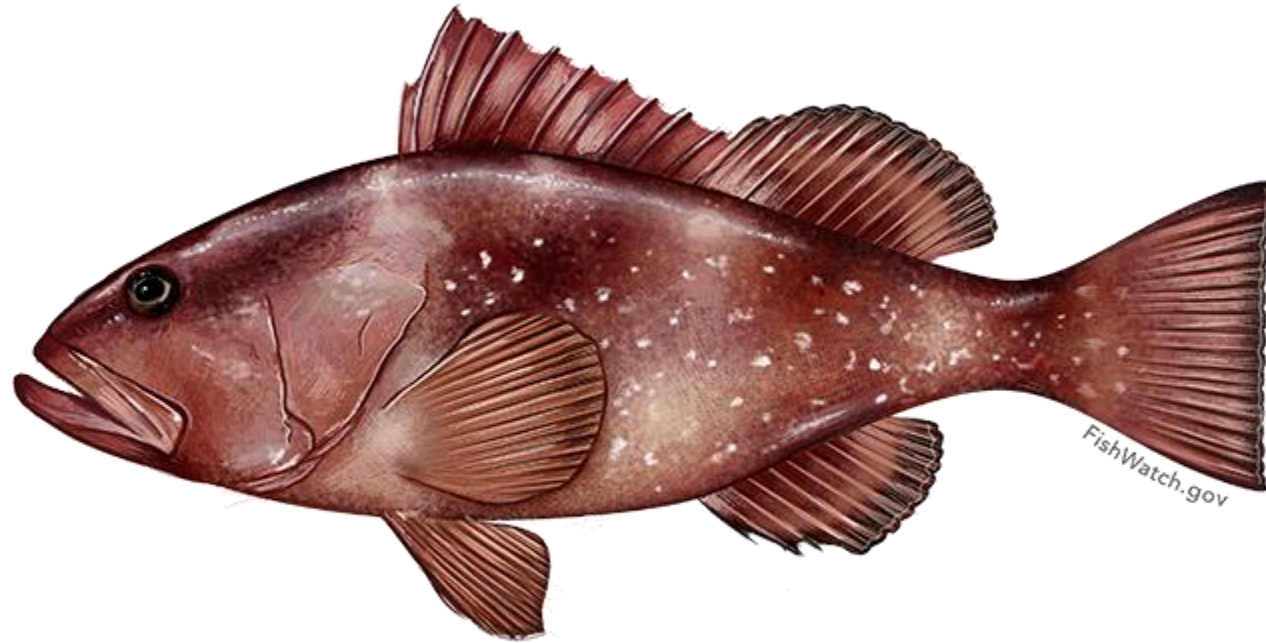
## SEDAR 50 AW Base



## MRIP Revision

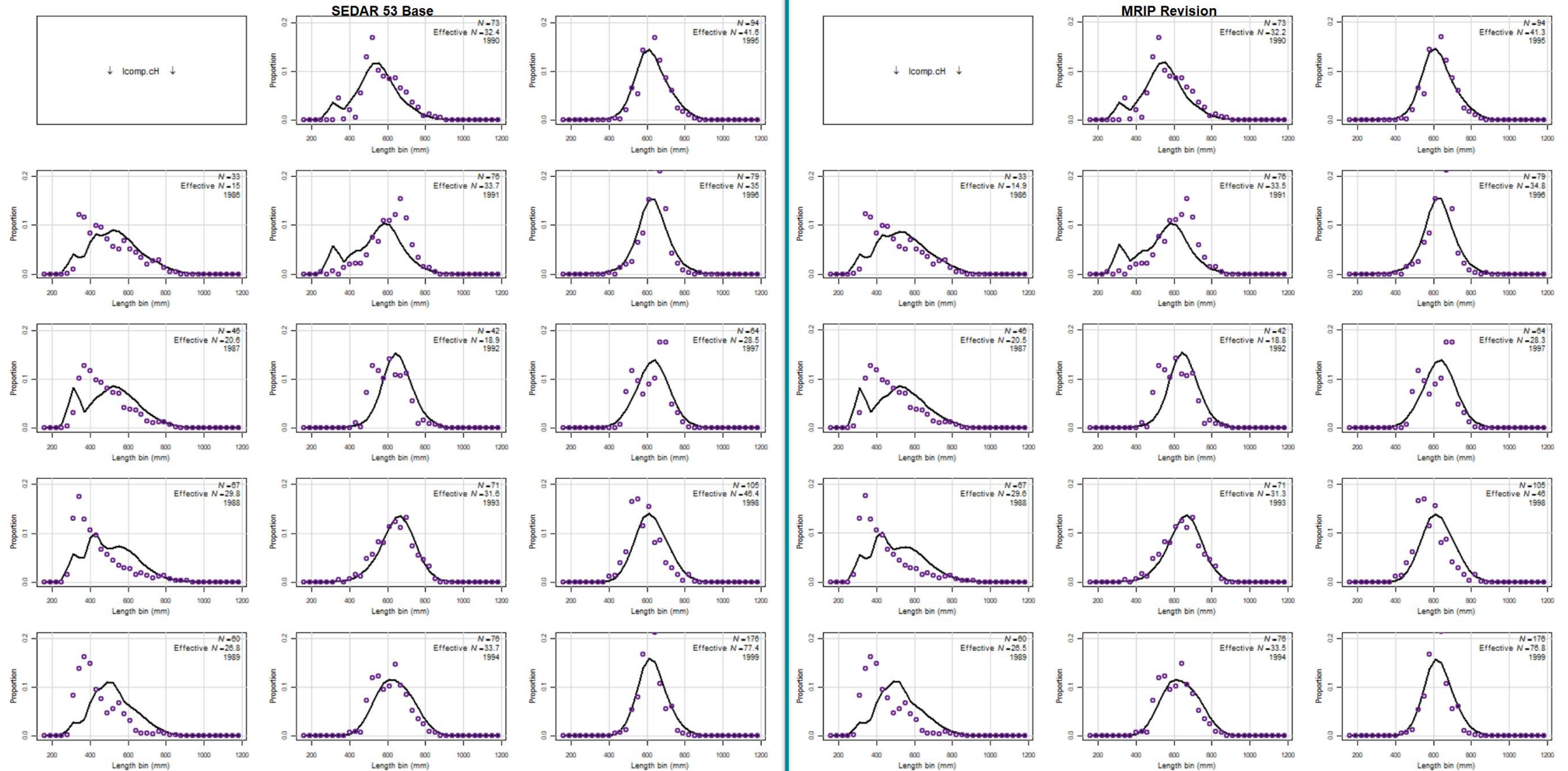


# Red Grouper (RG)

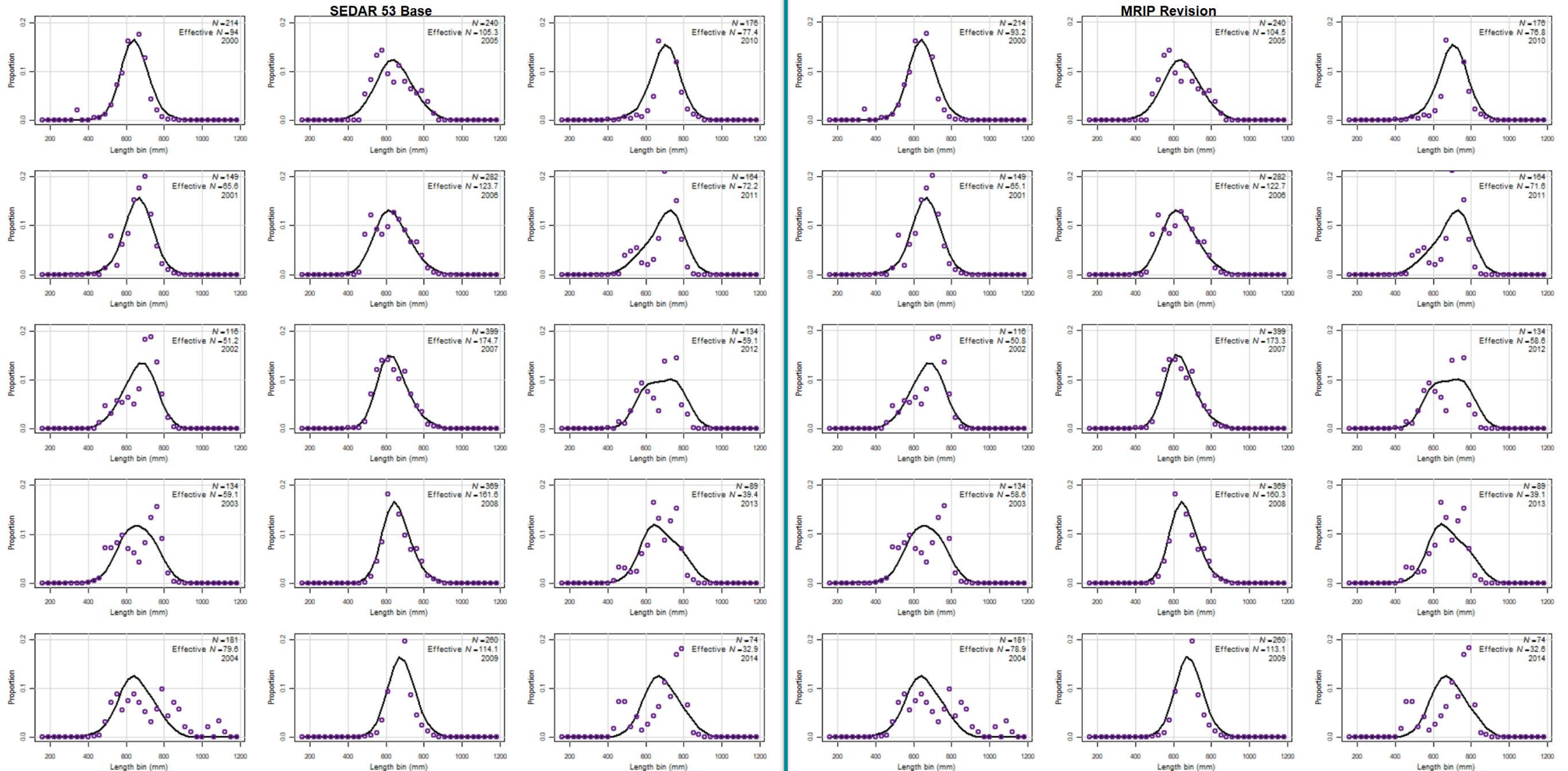




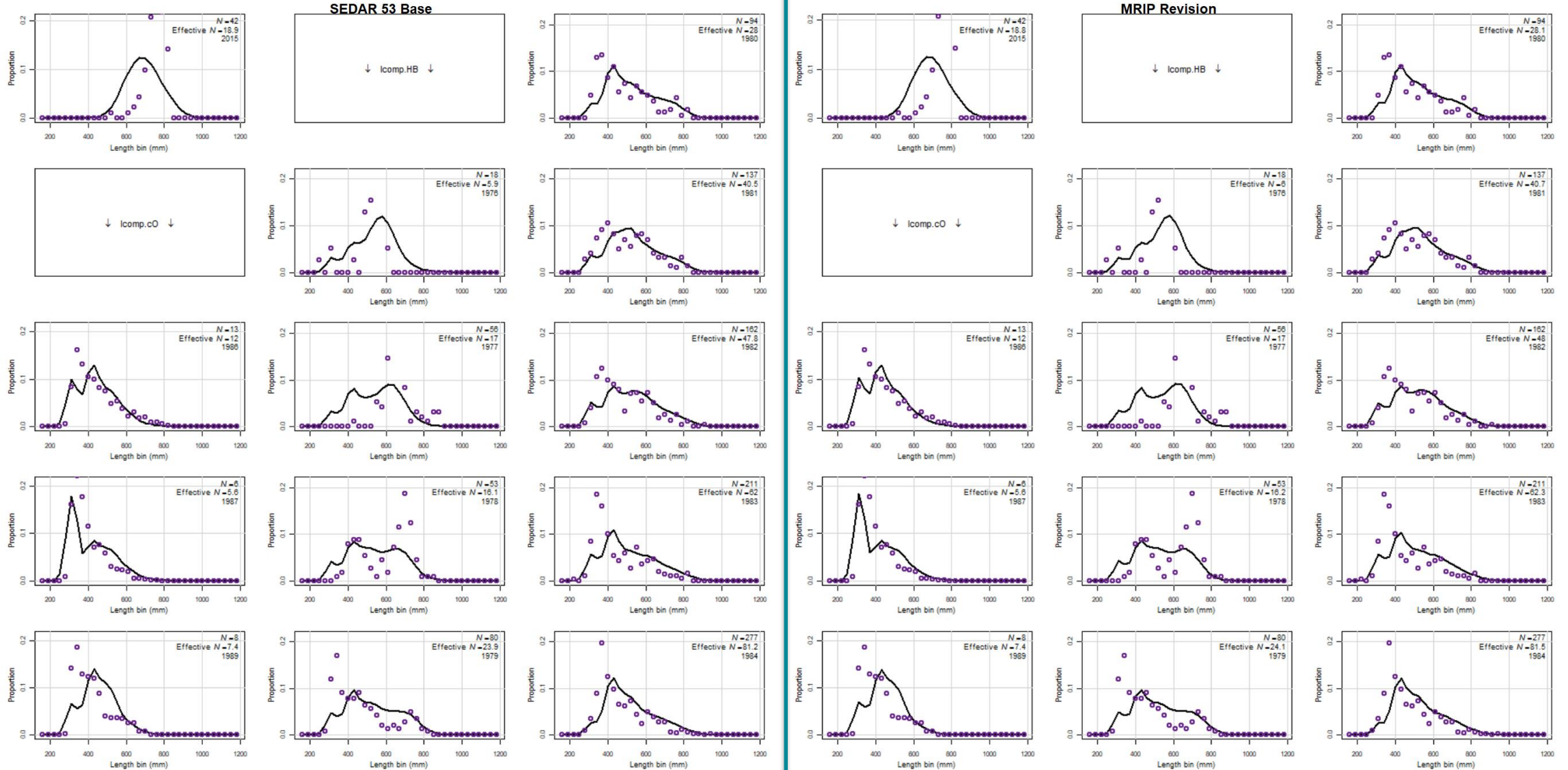
# RG size and age comps



# RG size and age comps

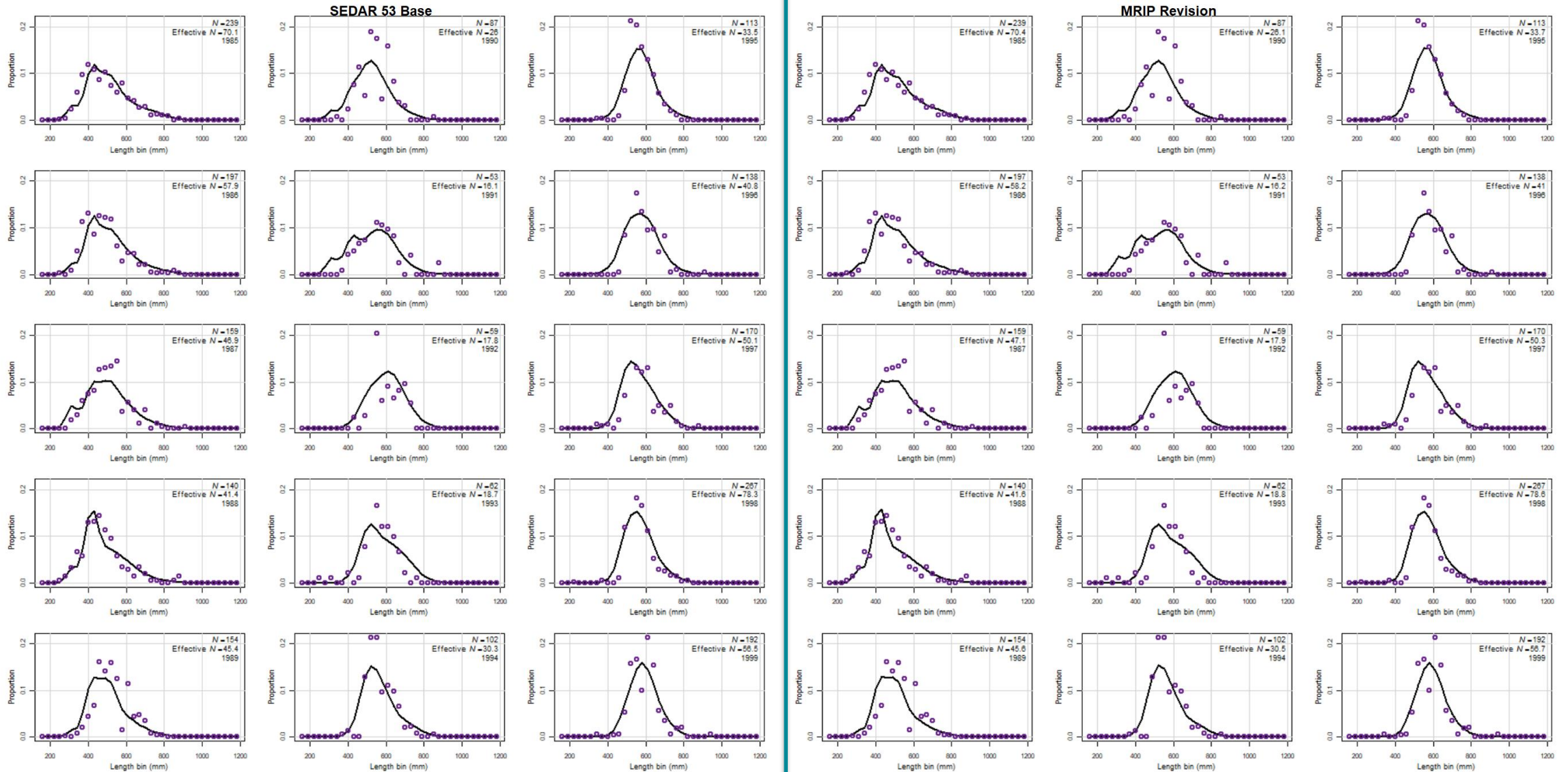


# RG size and age comps

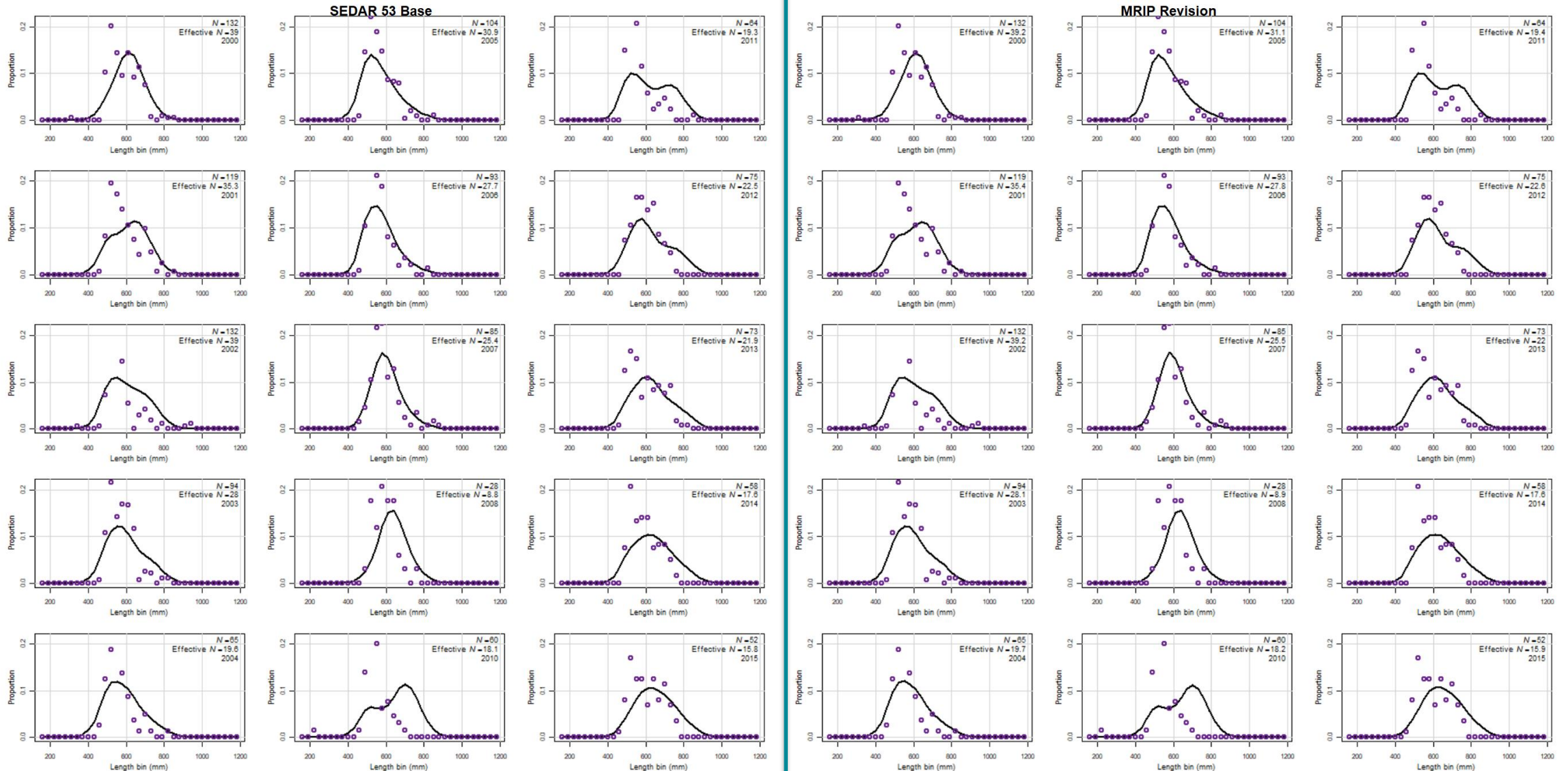




# RG size and age comps

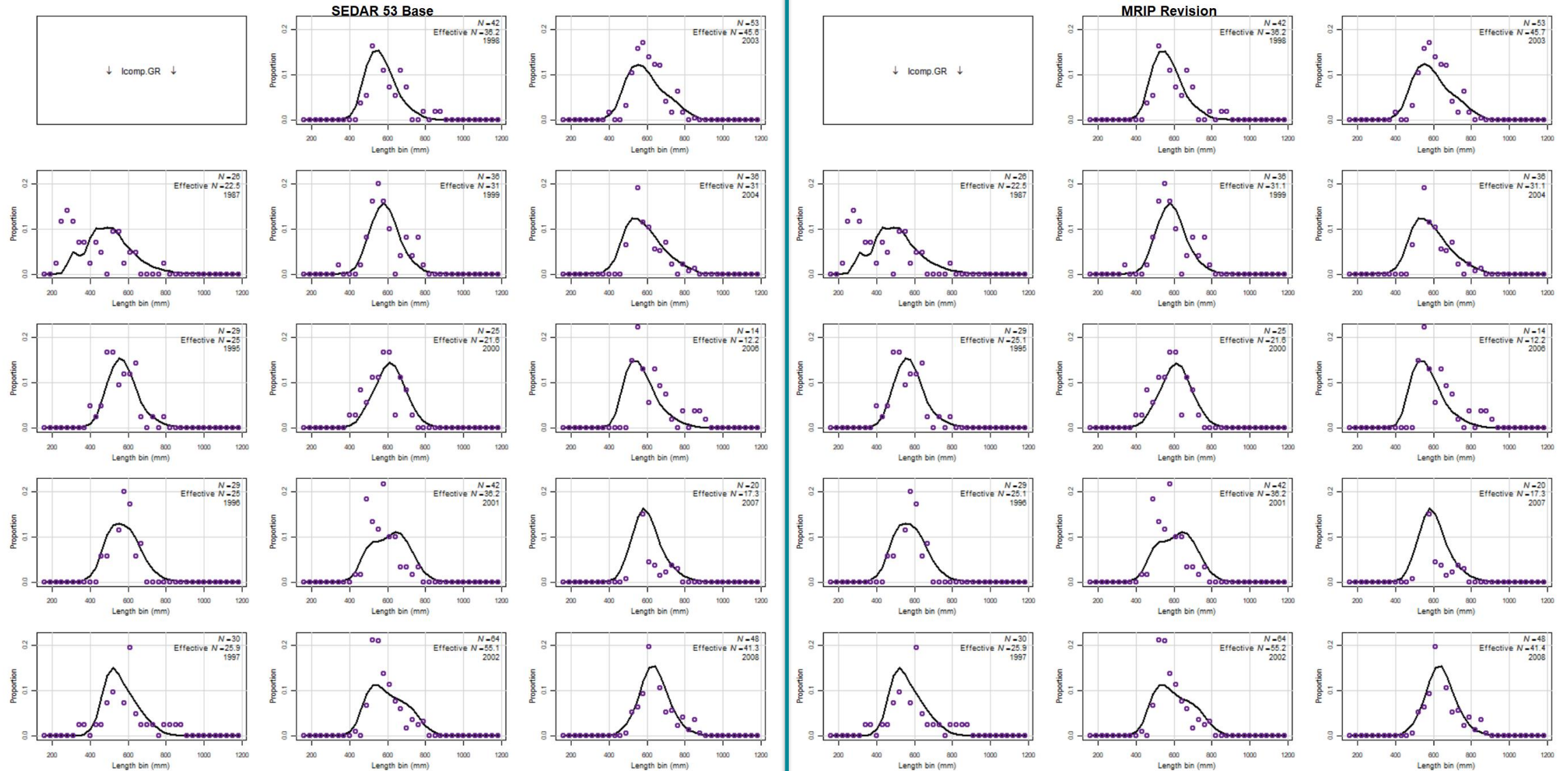


# RG size and age comps

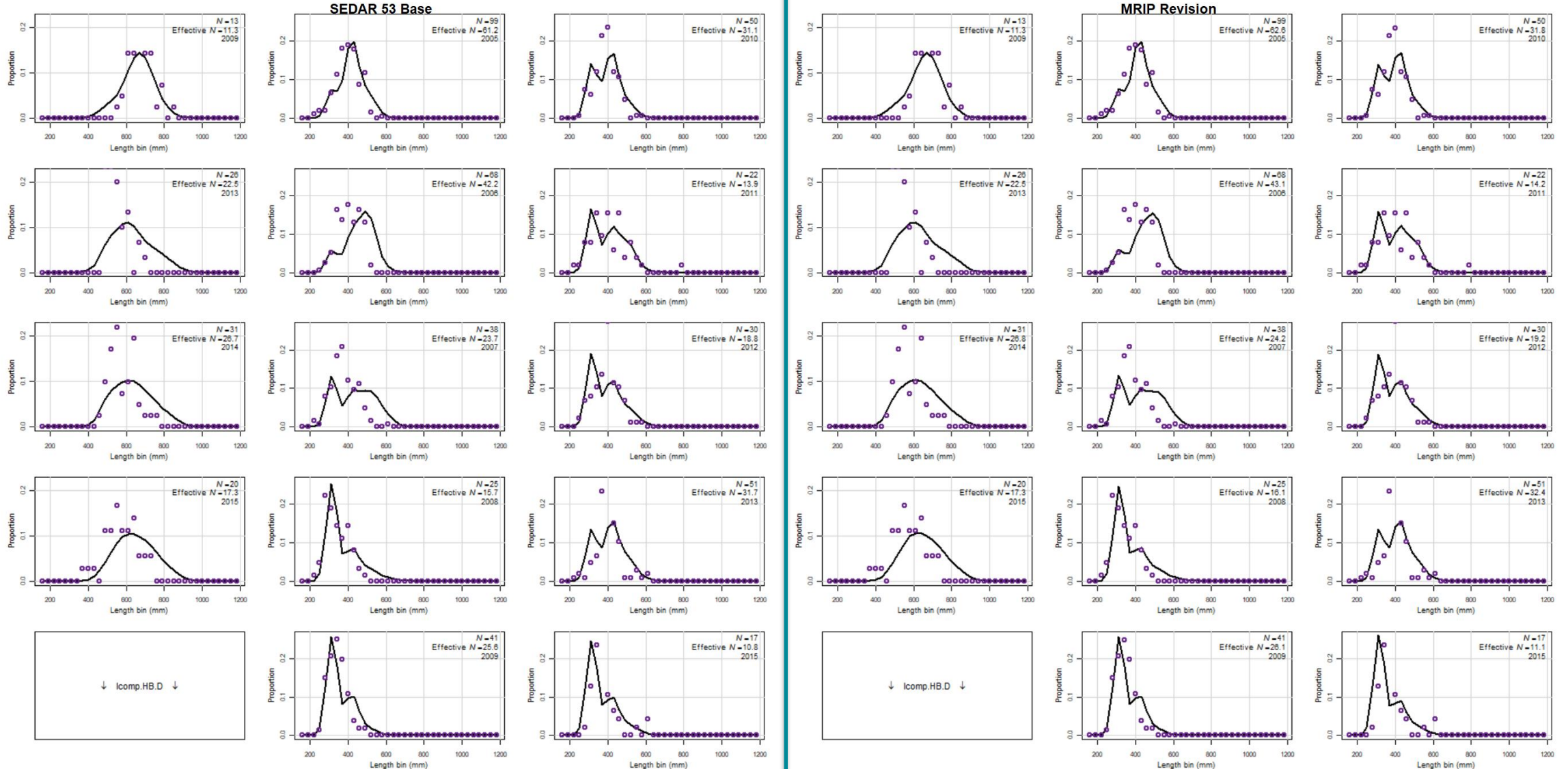




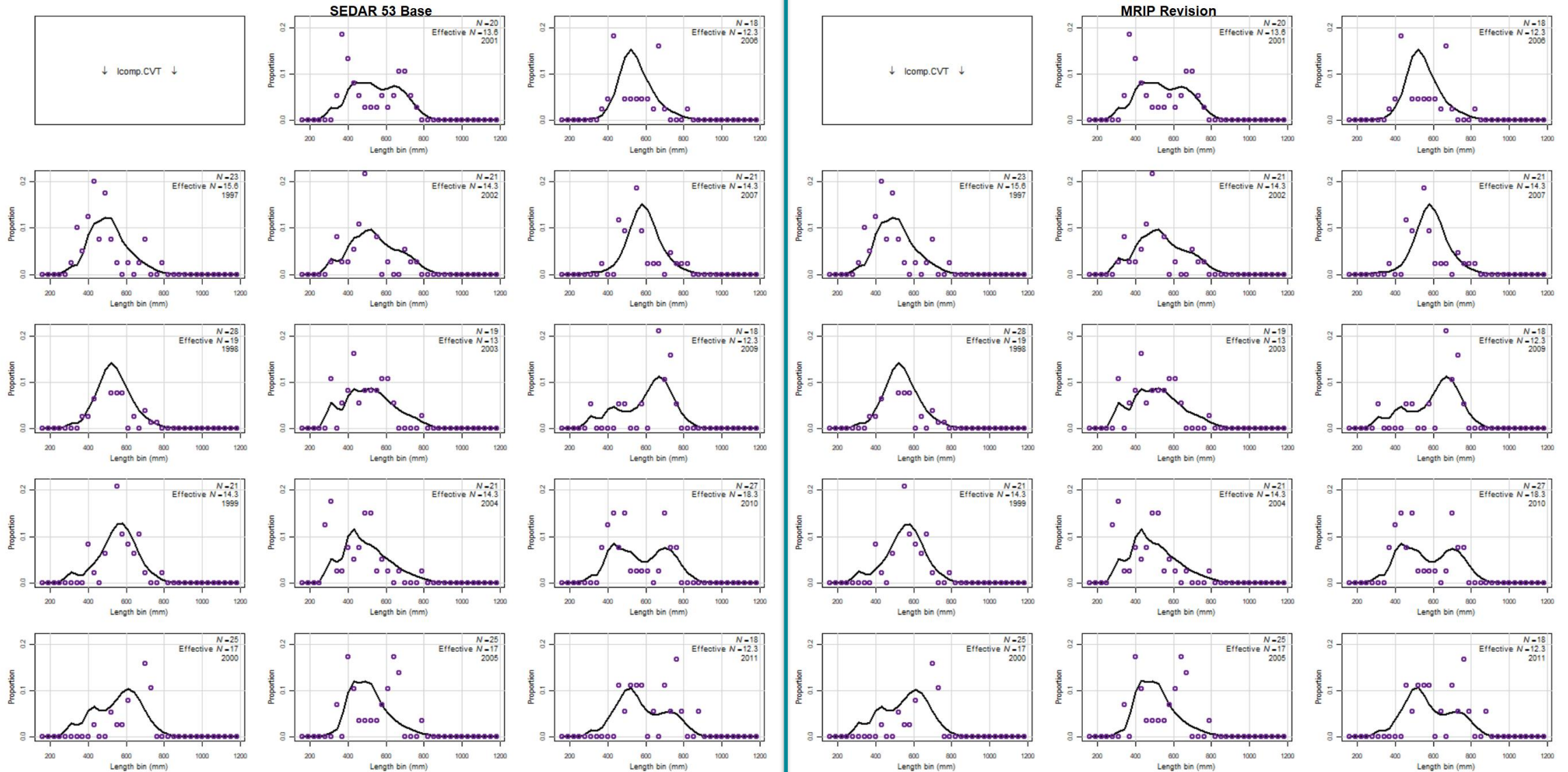
# RG size and age comps



# RG size and age comps

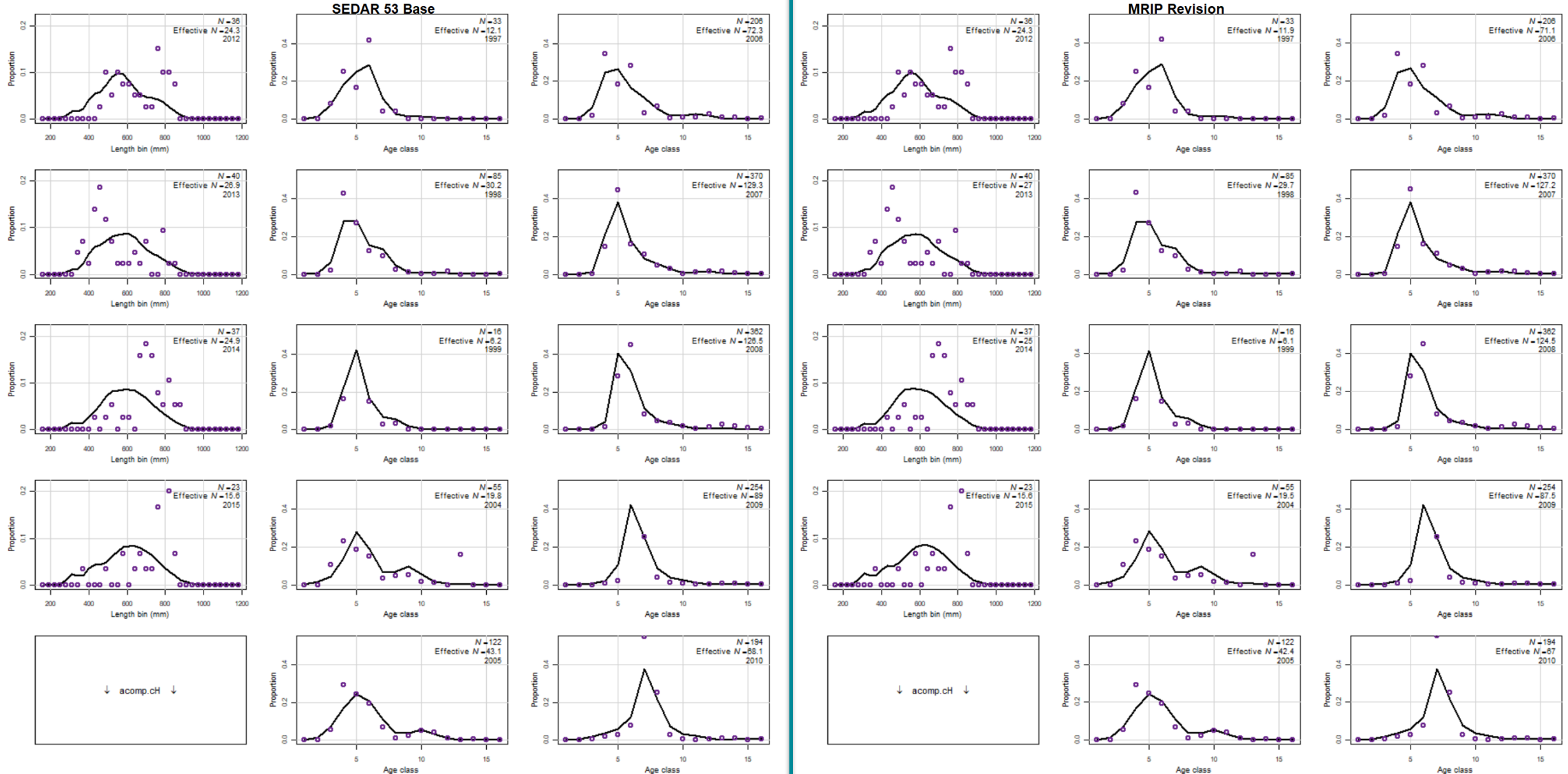


# RG size and age comps

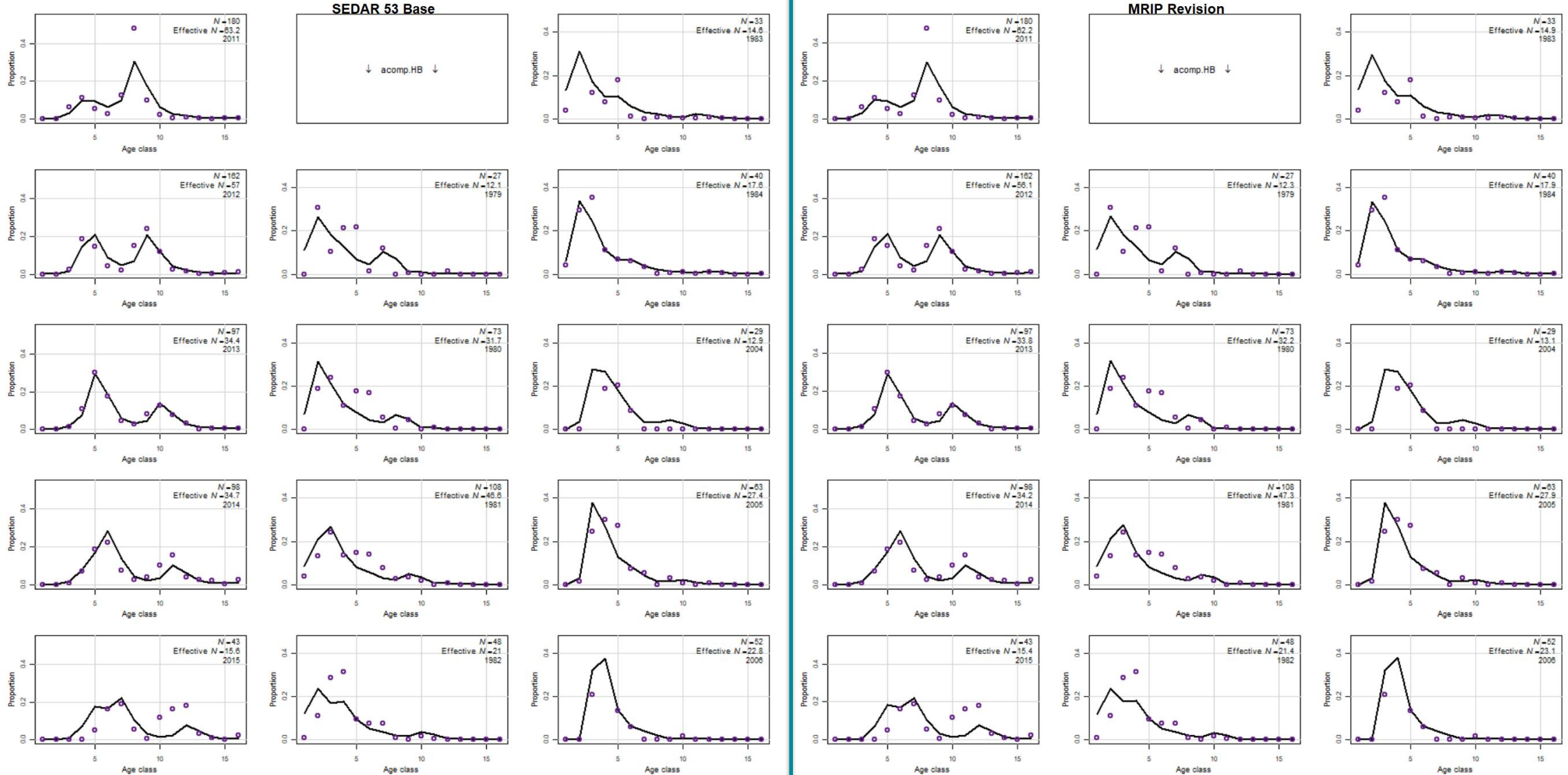




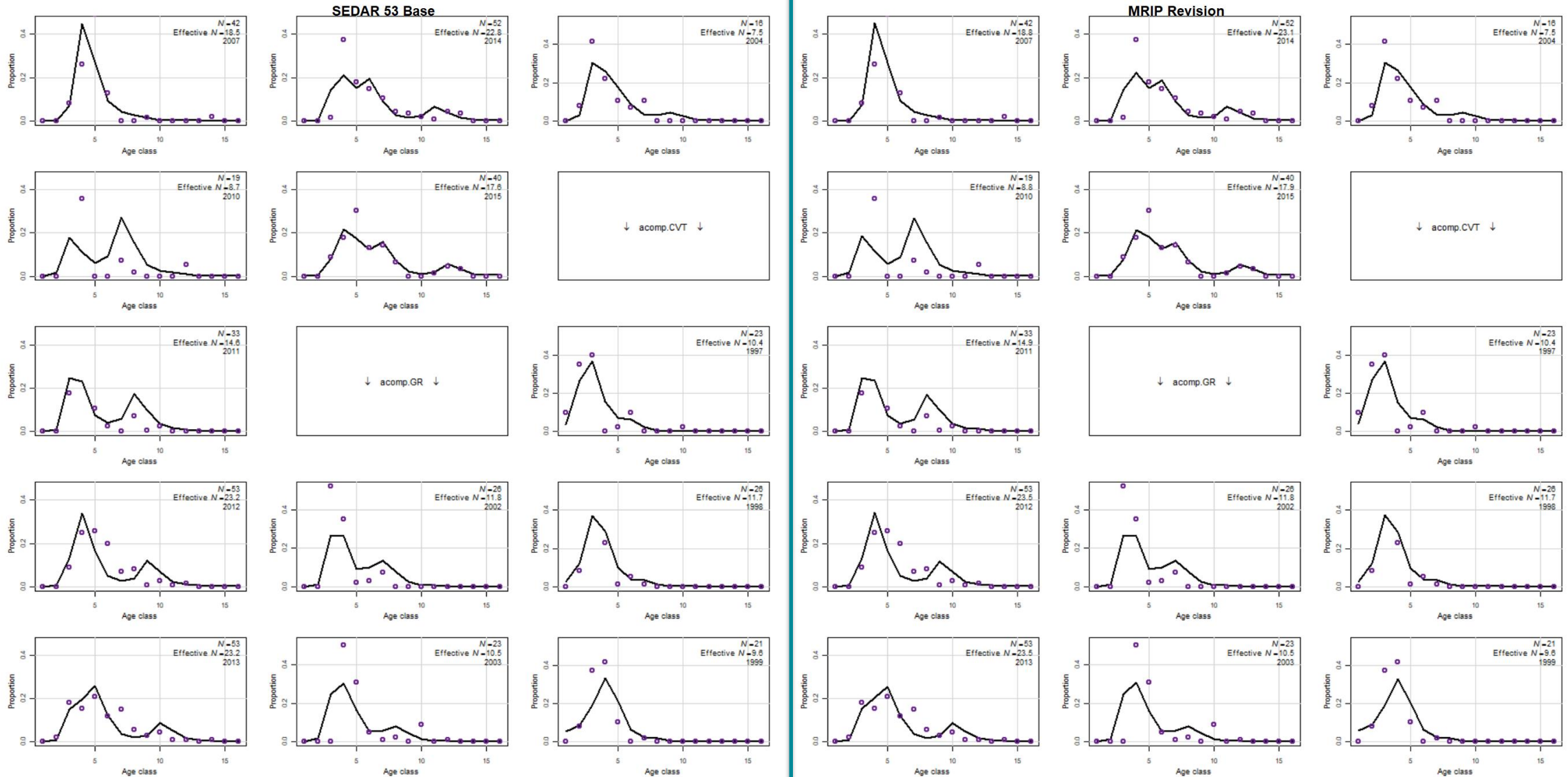
# RG size and age comps



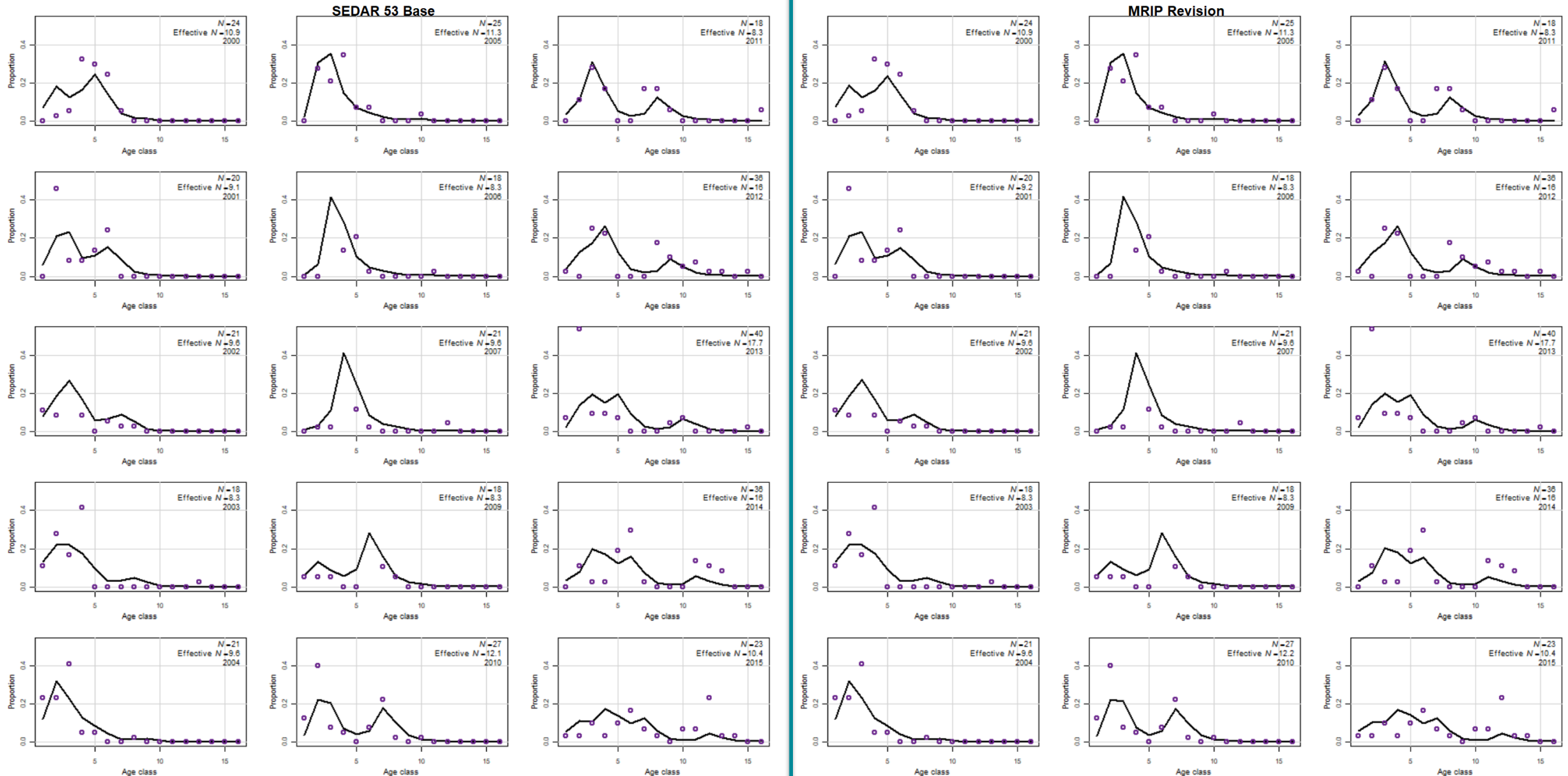
# RG size and age comps



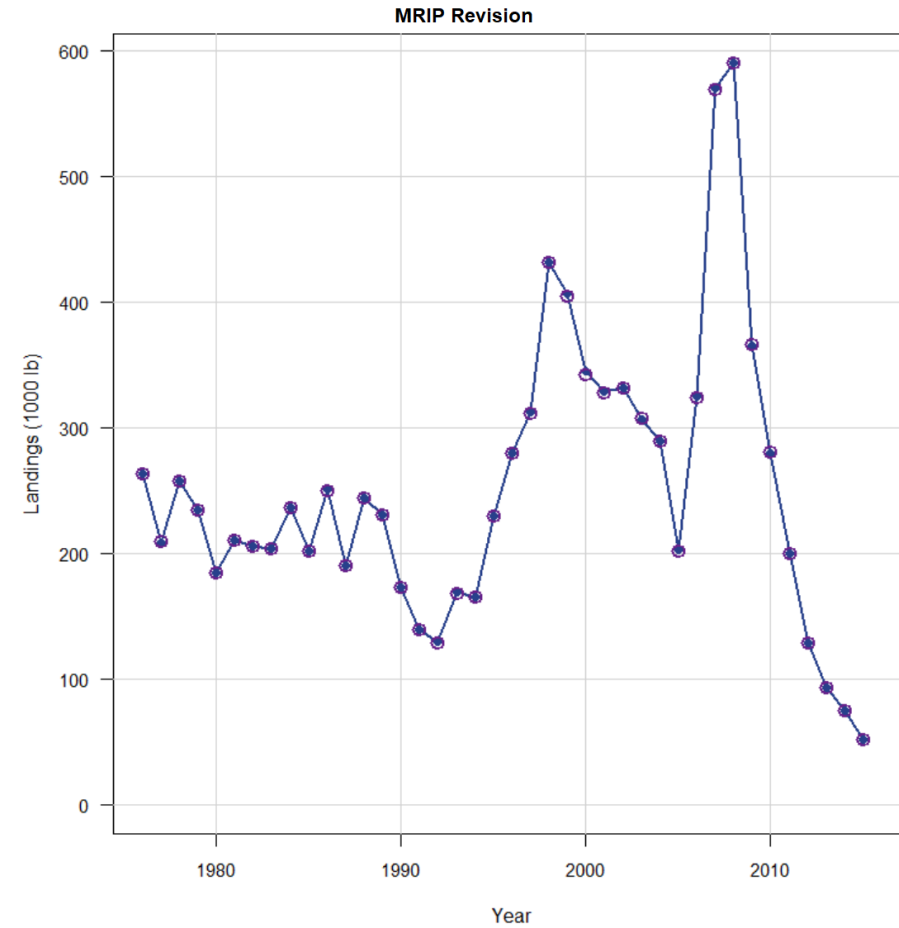
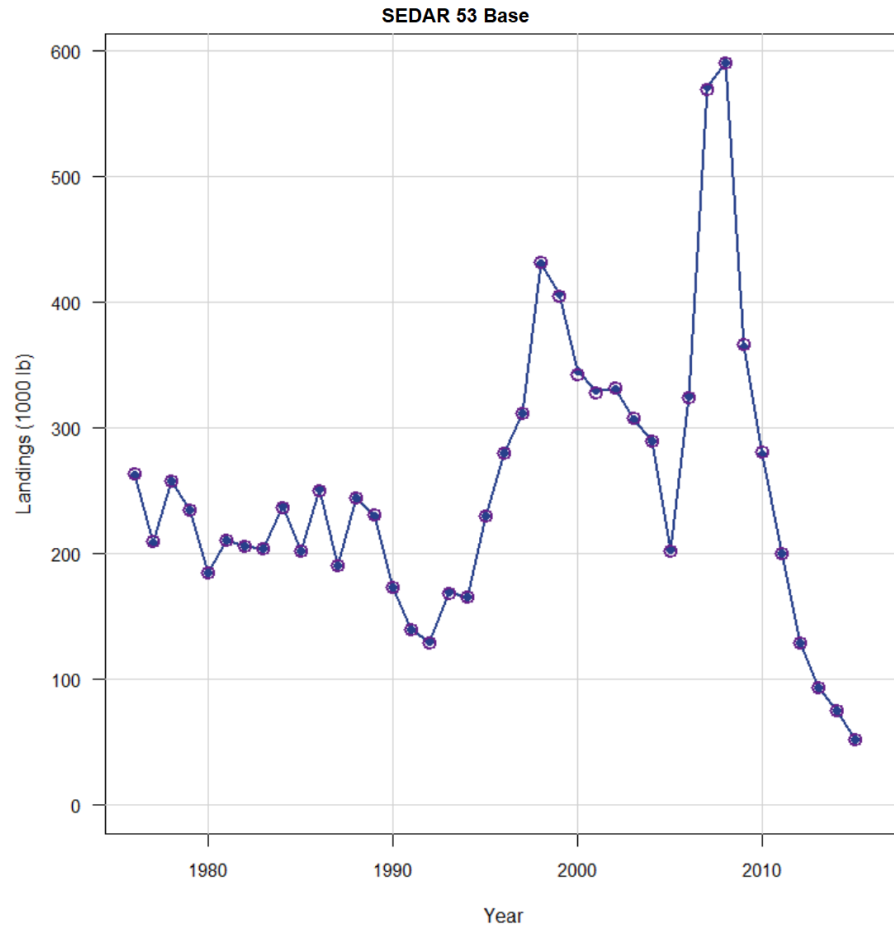
# RG size and age comps



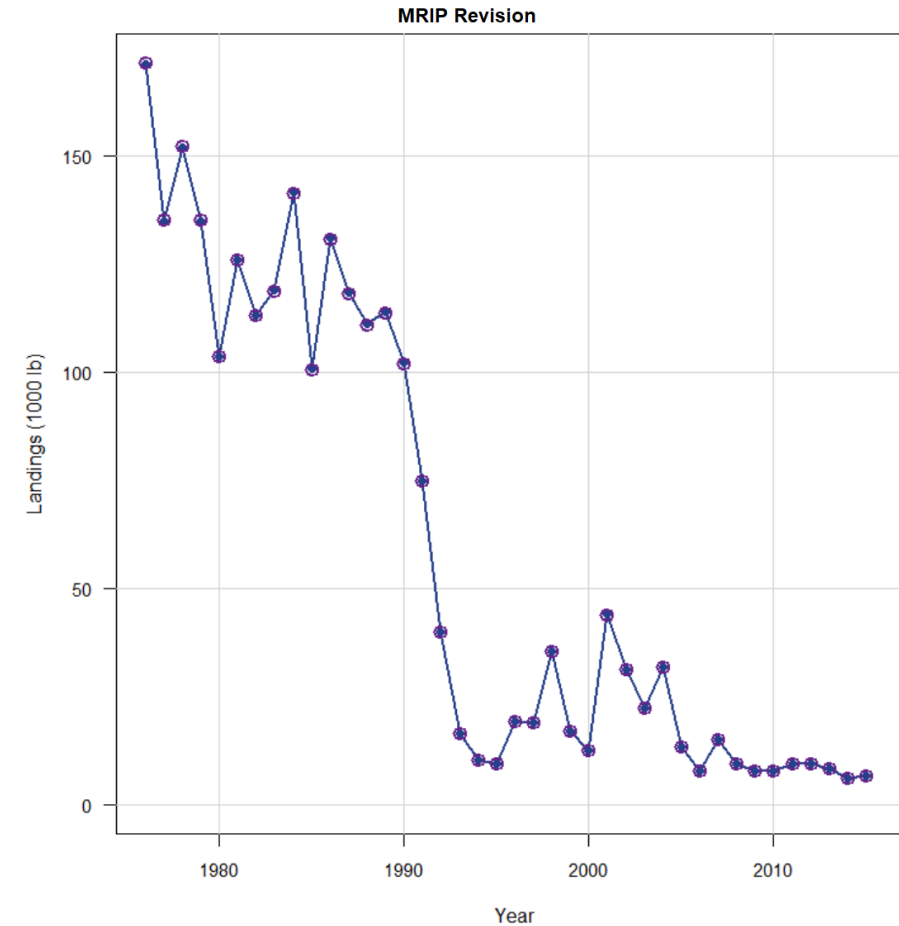
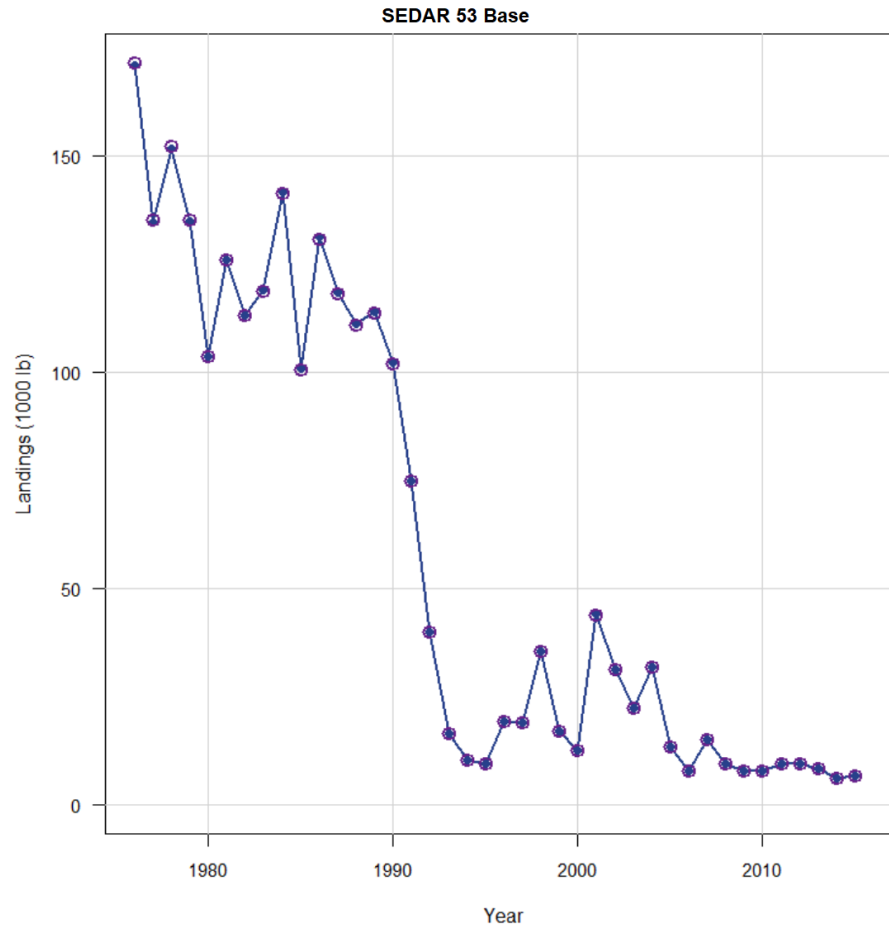
# RG size and age comps



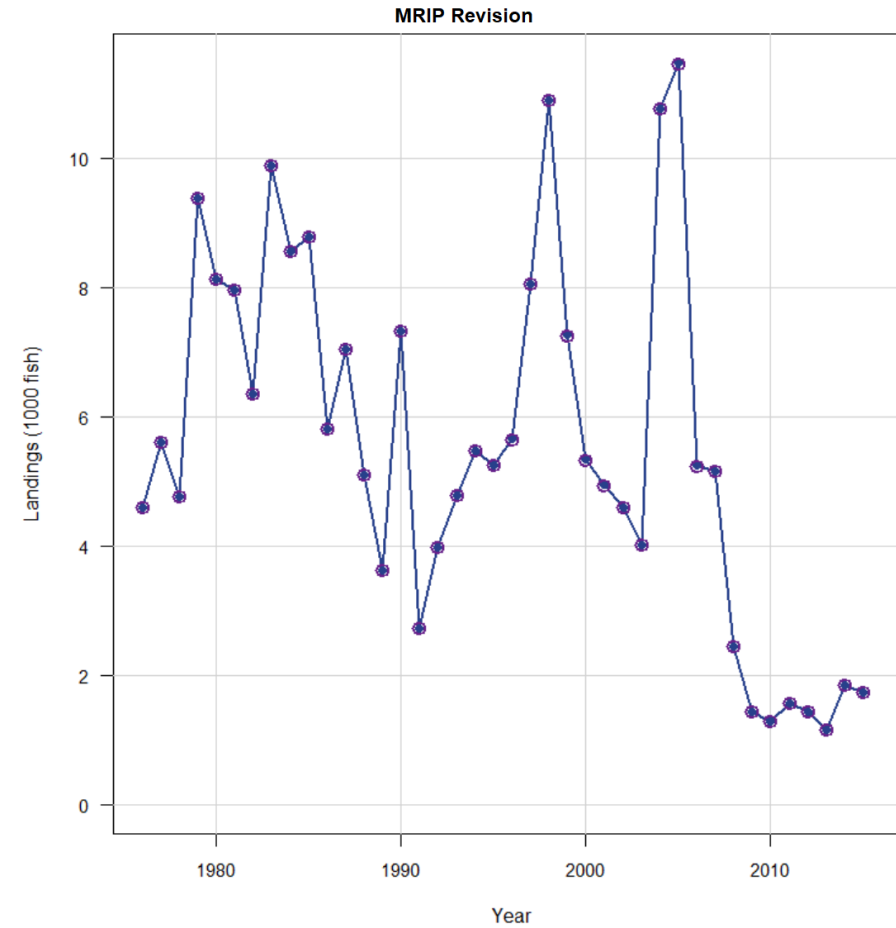
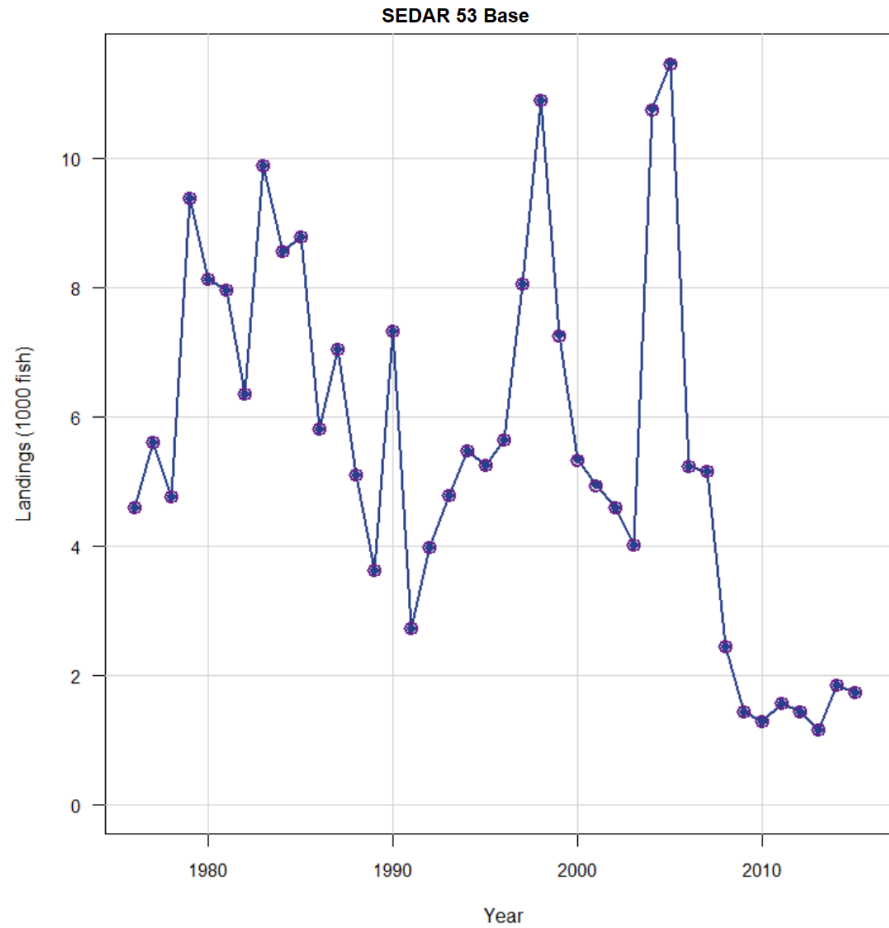
# RG commercial lines landings



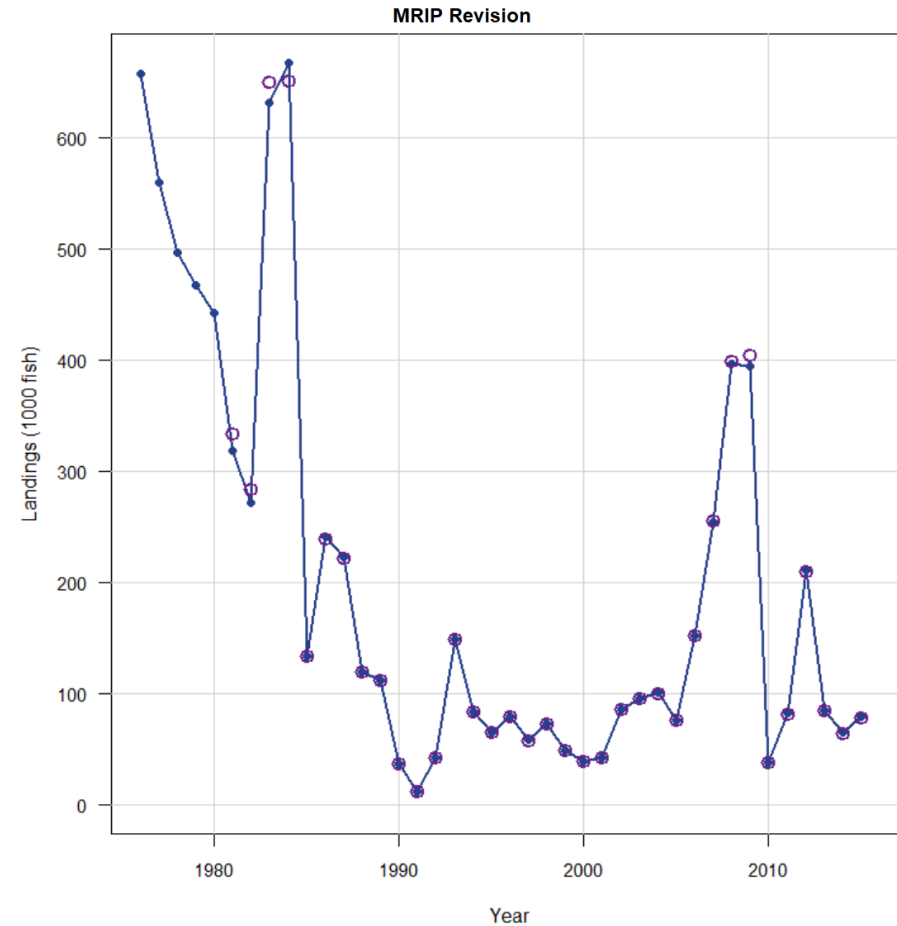
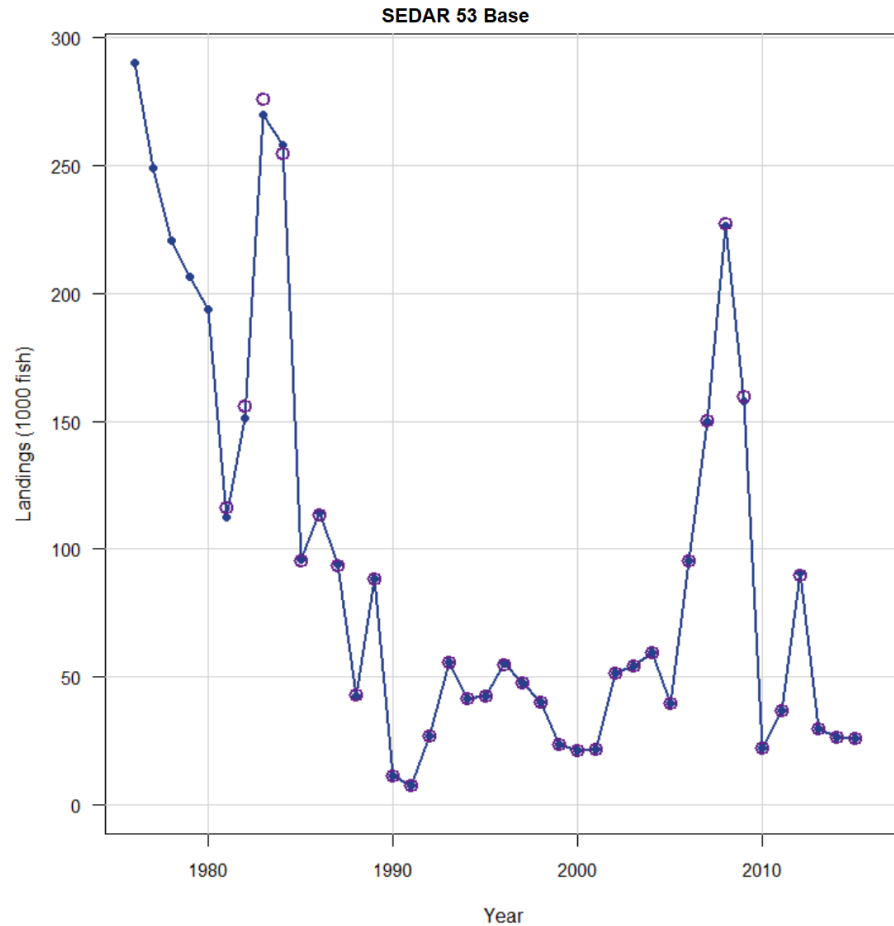
# RG commercial other landings



# RG headboat landings

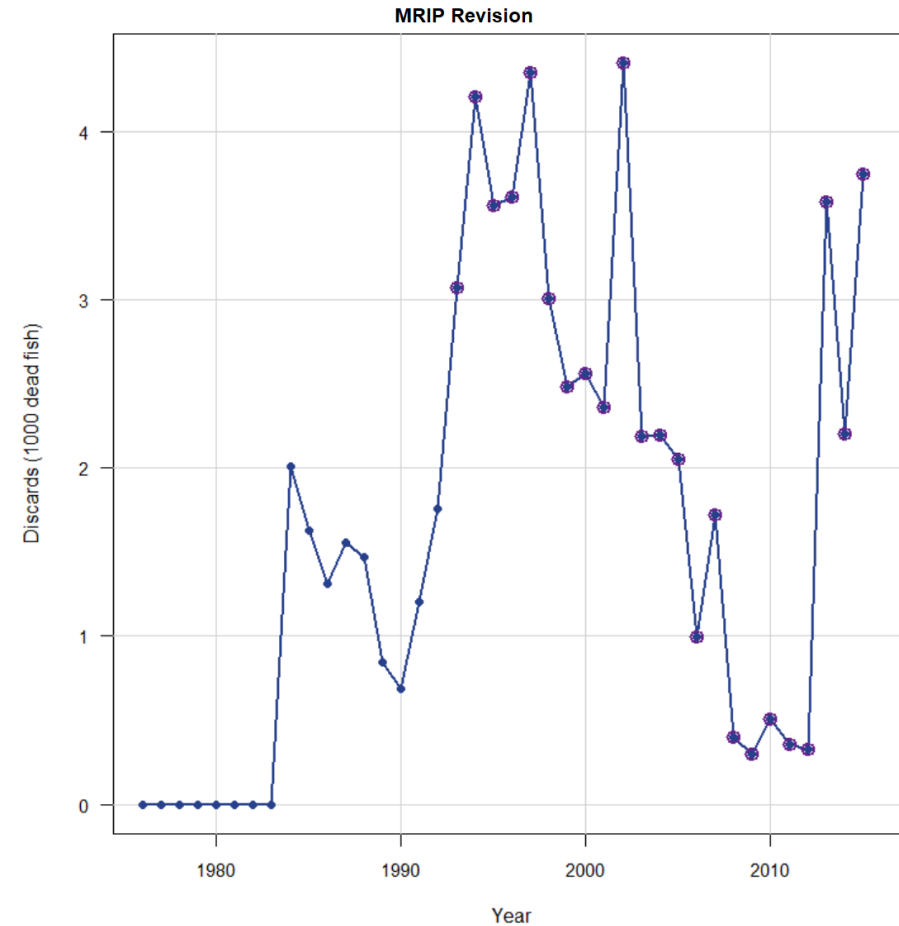
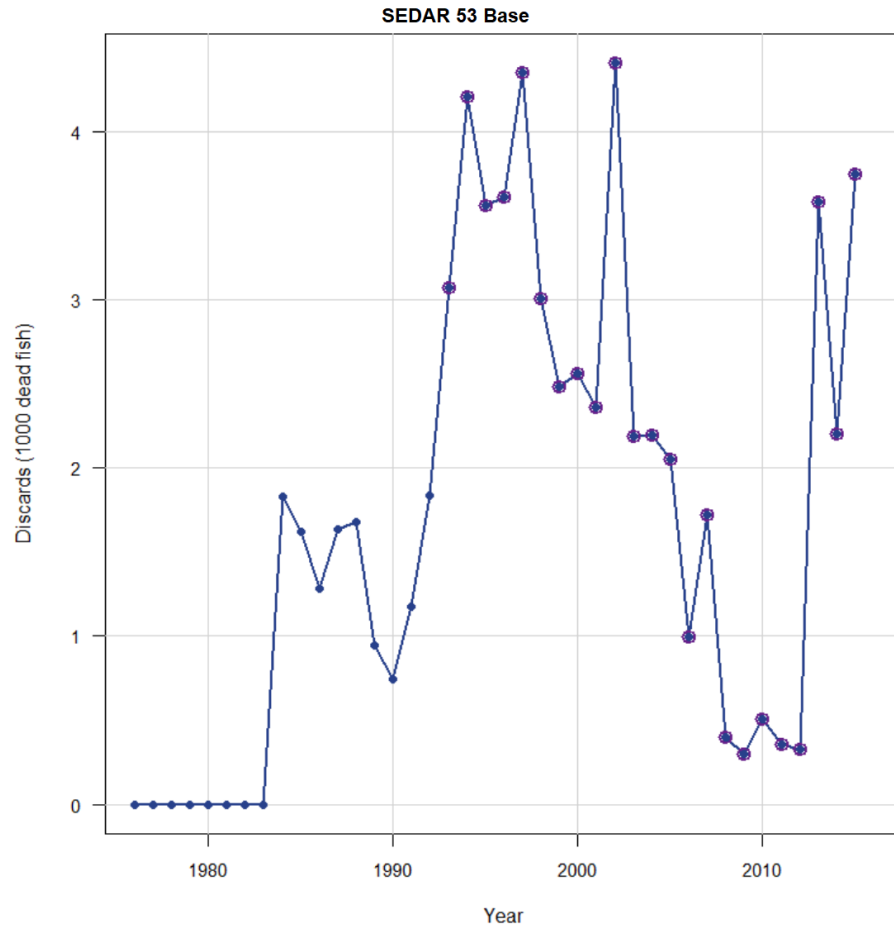


# RG general recreational landings

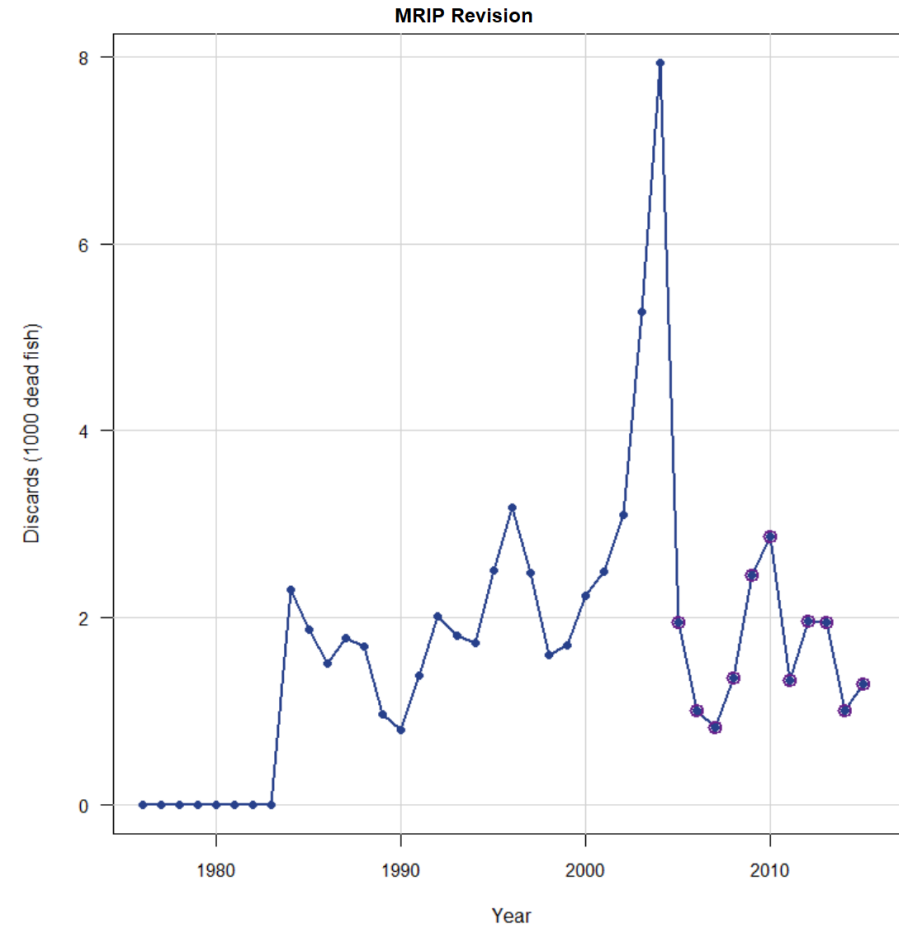
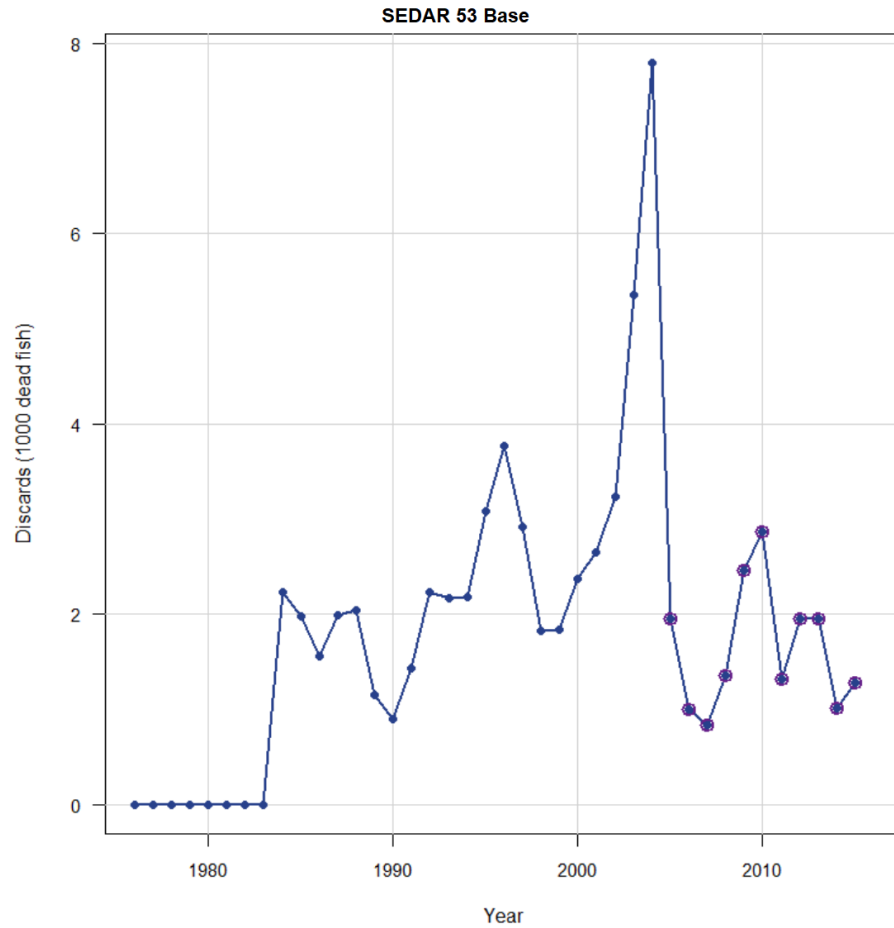




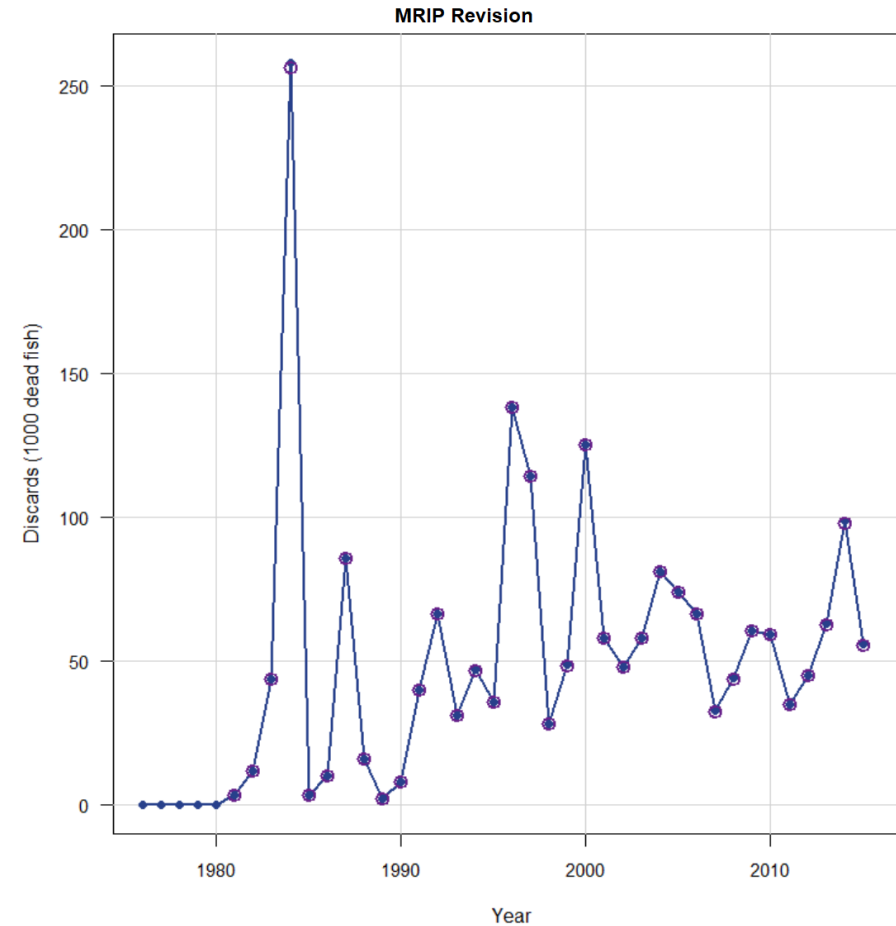
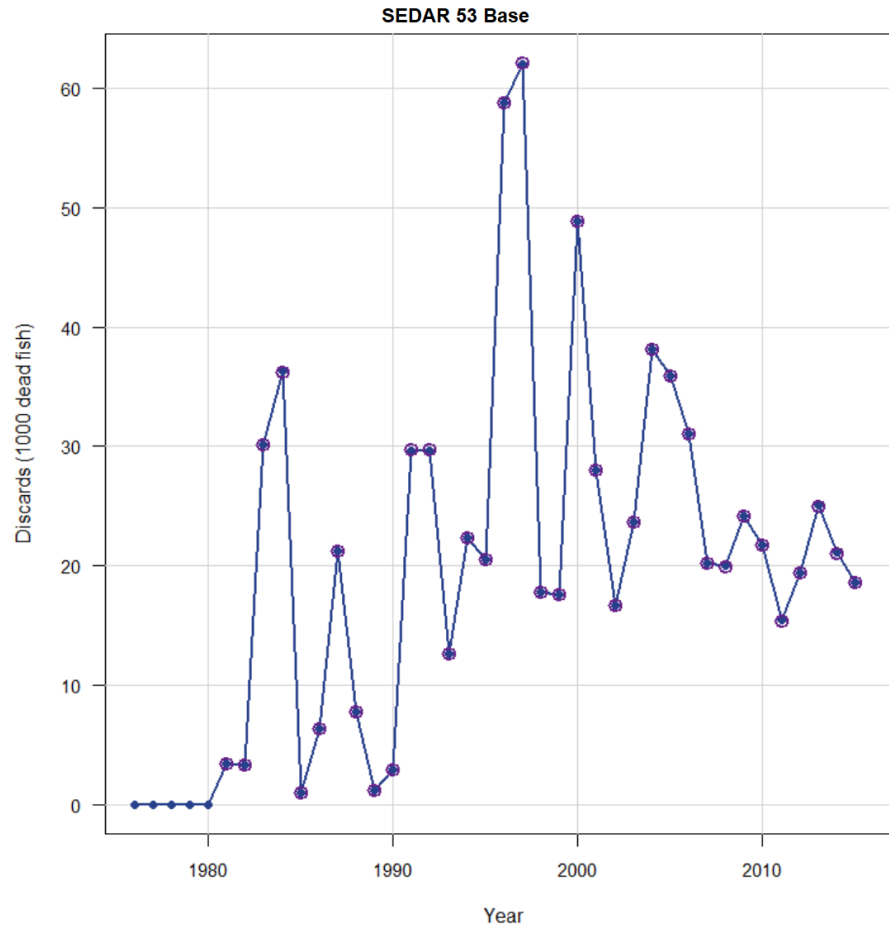
# RG commercial lines discard mortality



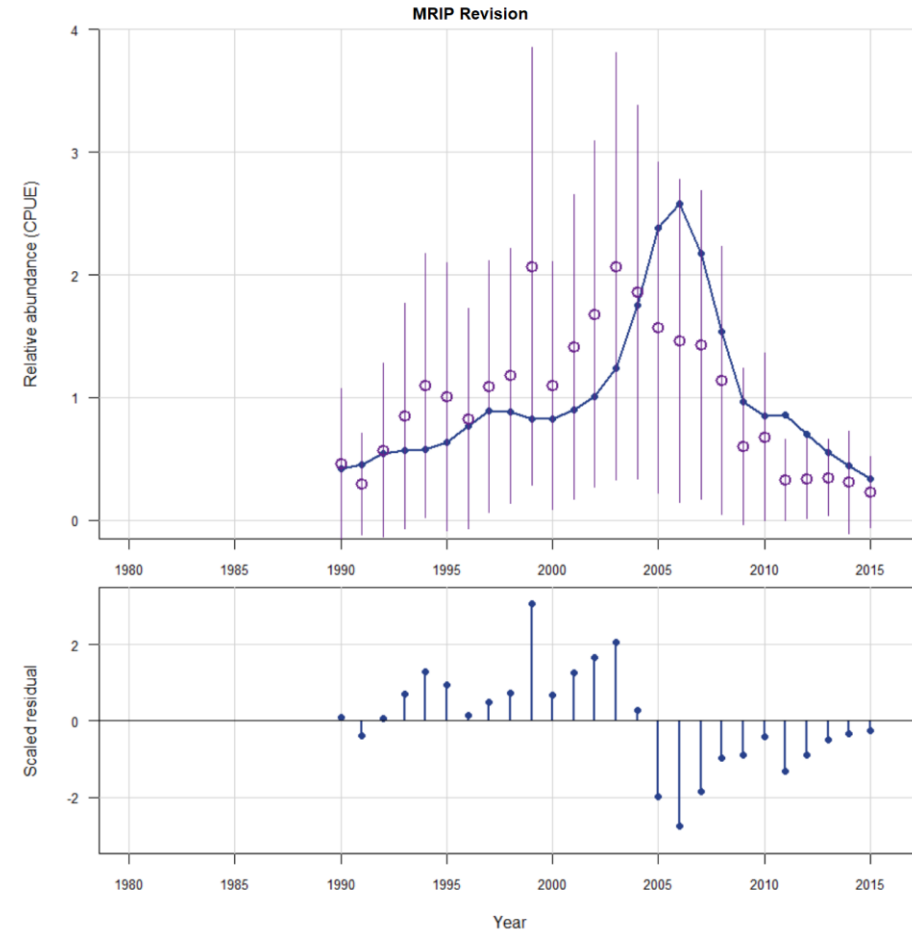
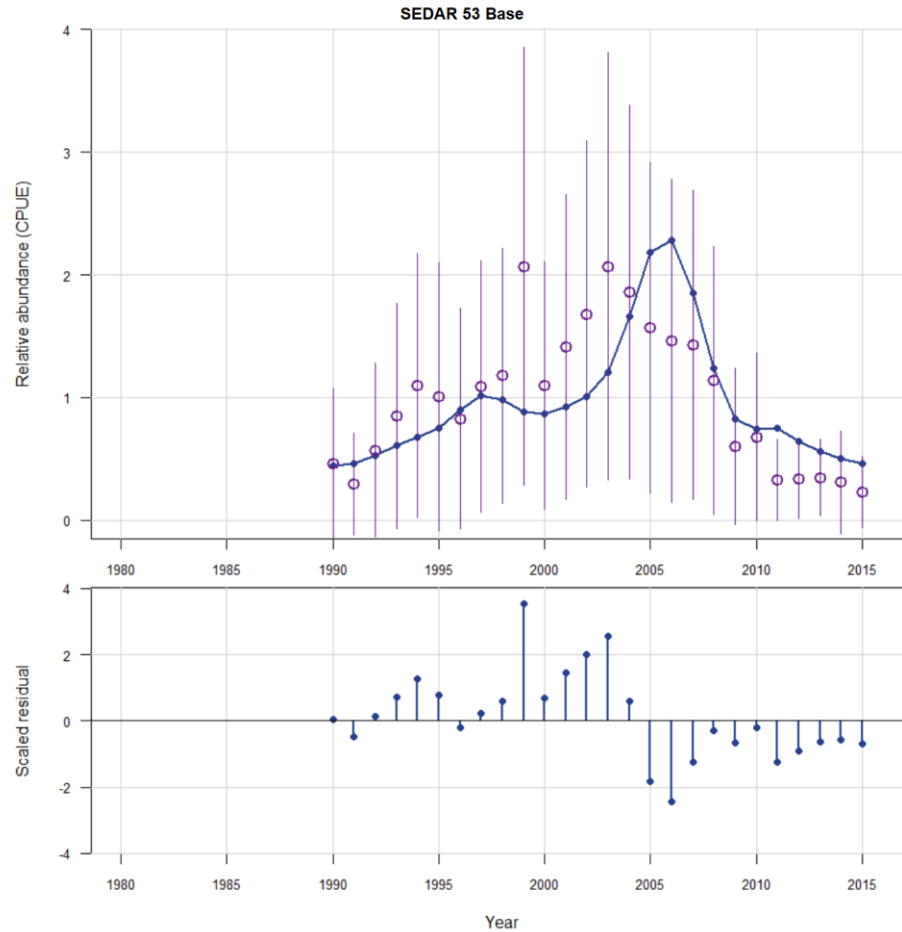
# RG headboat discard mortality



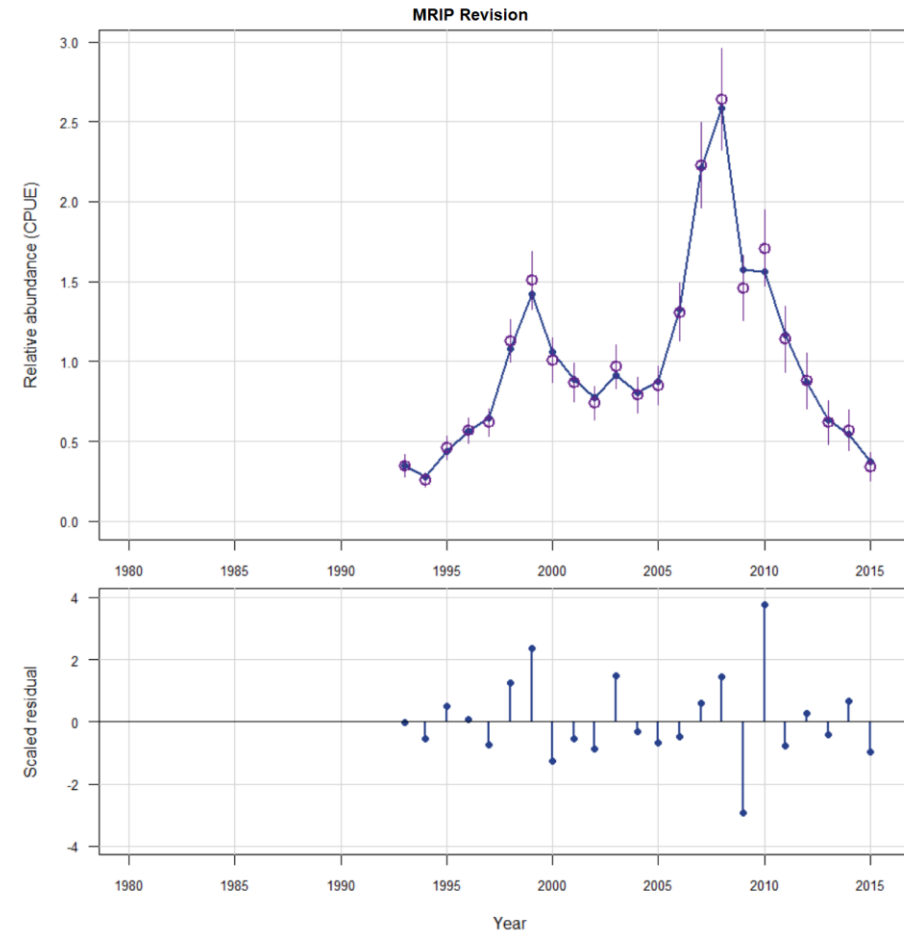
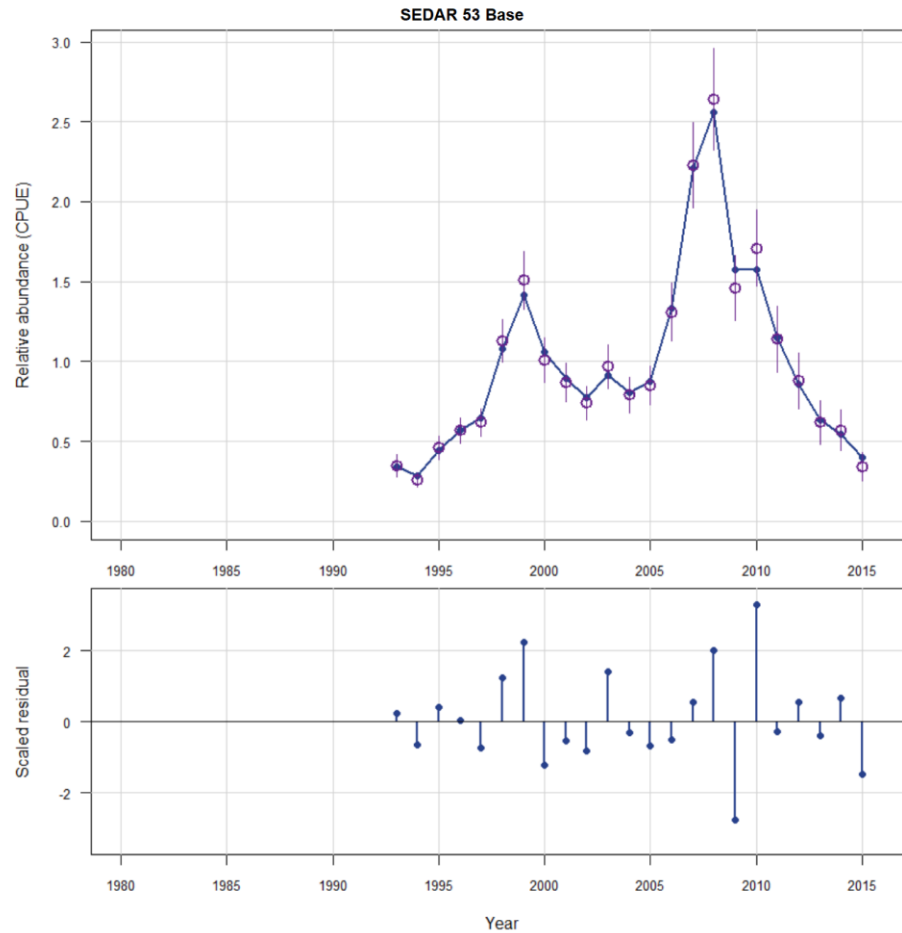
# RG general recreational discard mortality



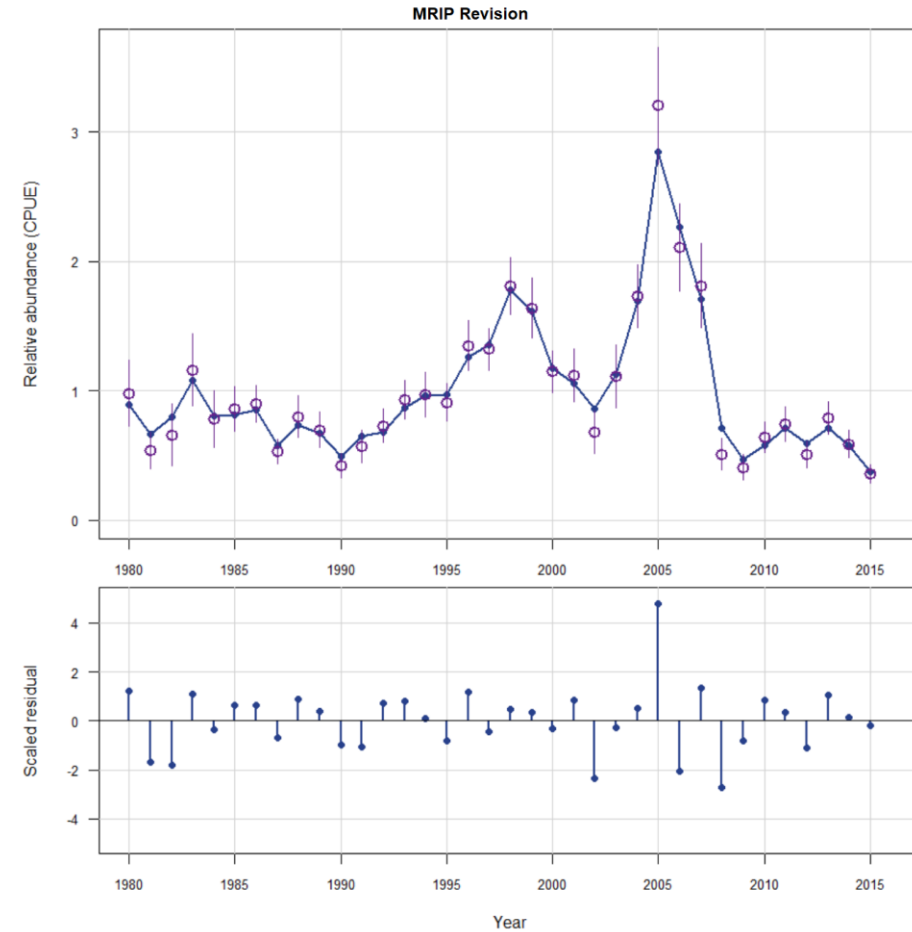
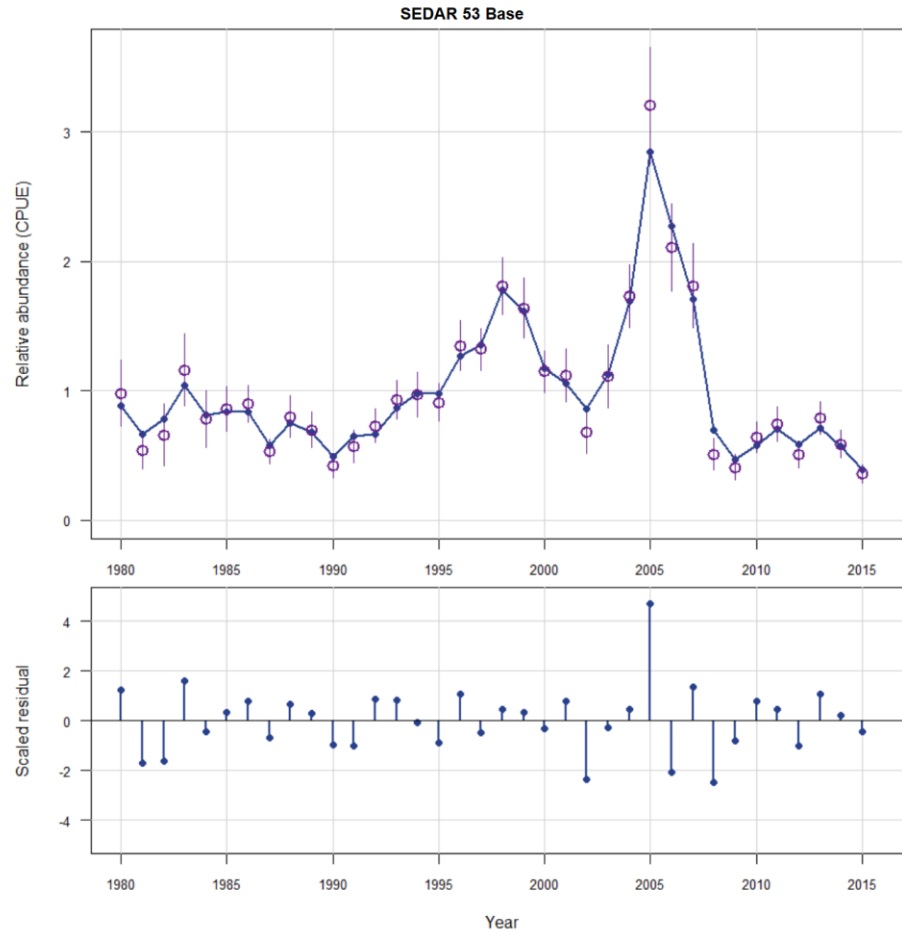
# RG SERFS chevron trap/video index



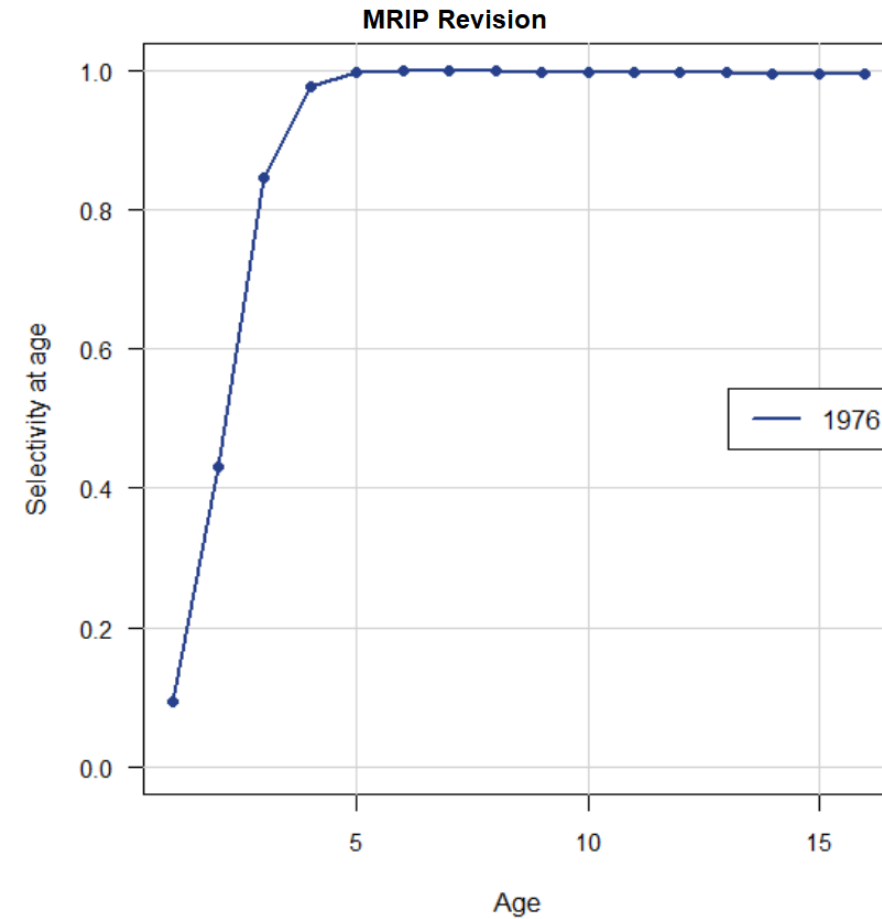
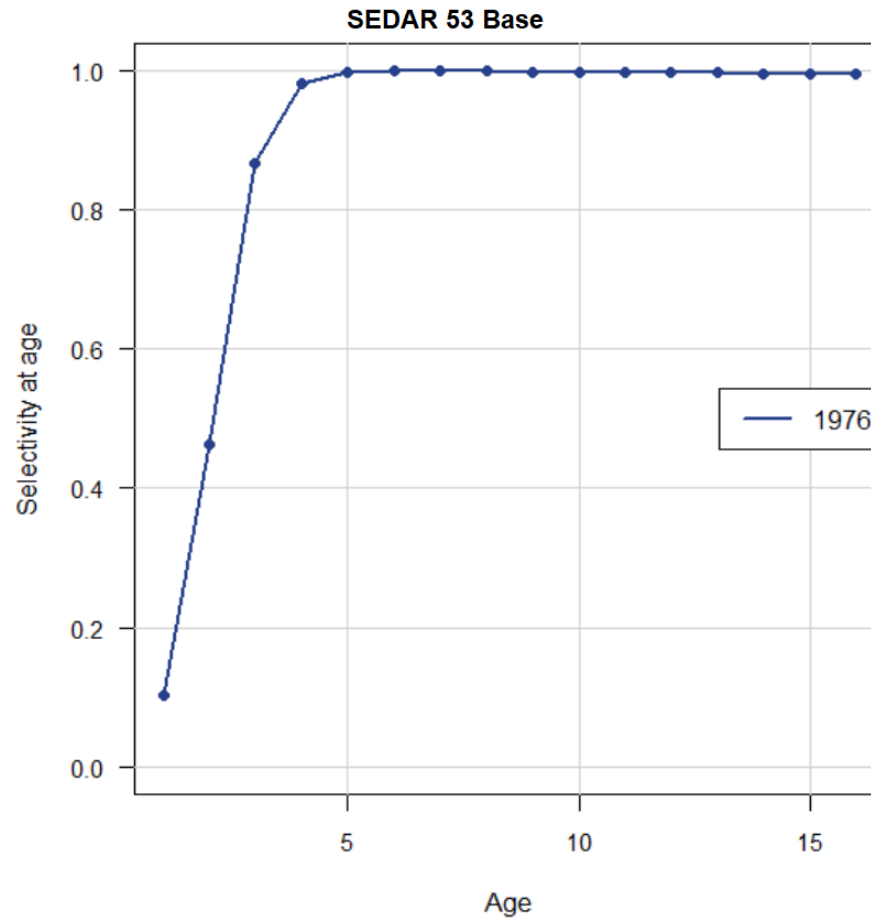
# RG comm handline index



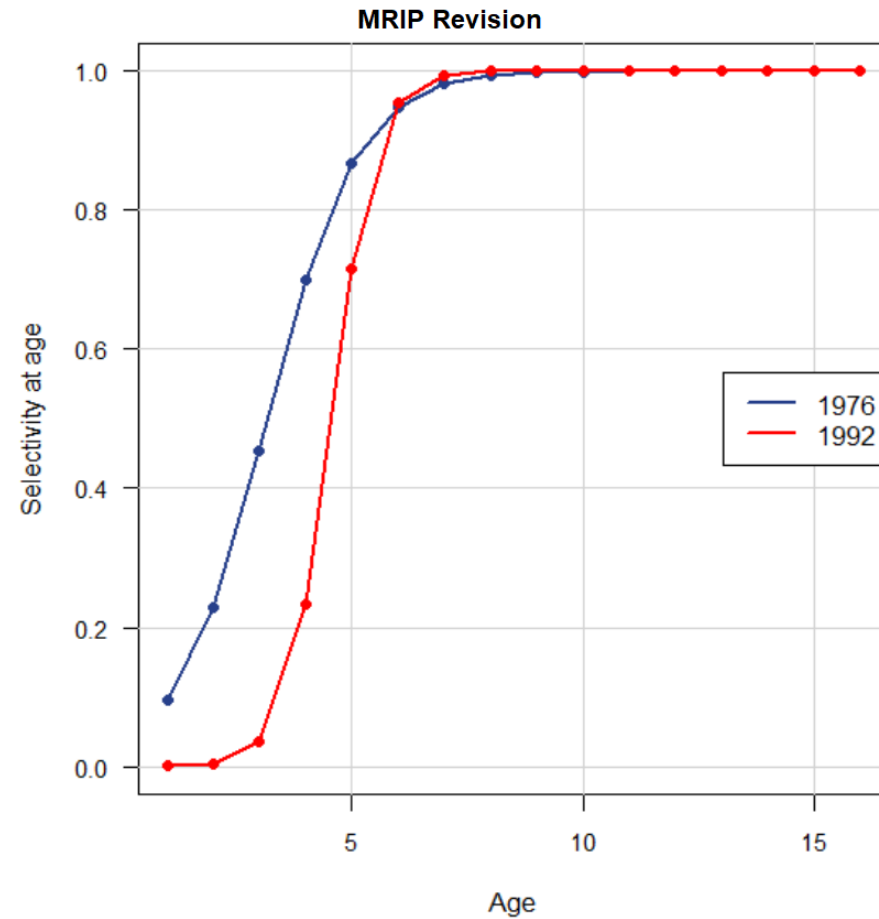
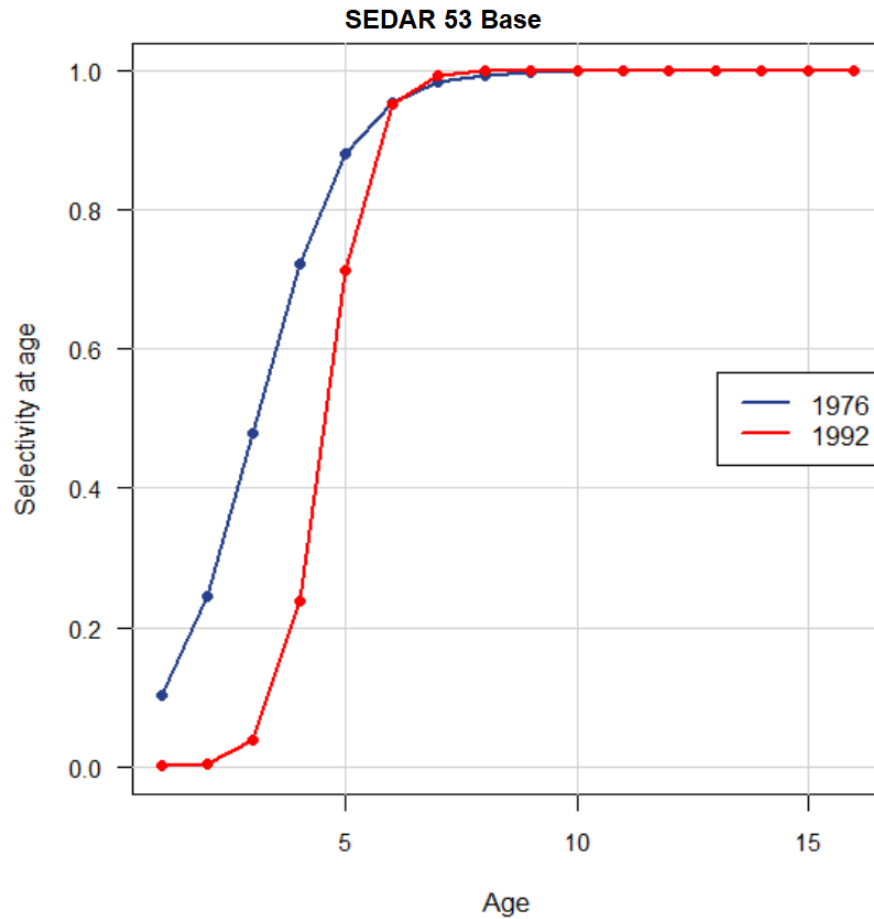
# RG headboat index



# RG SERFS chevron trap/video selectivity

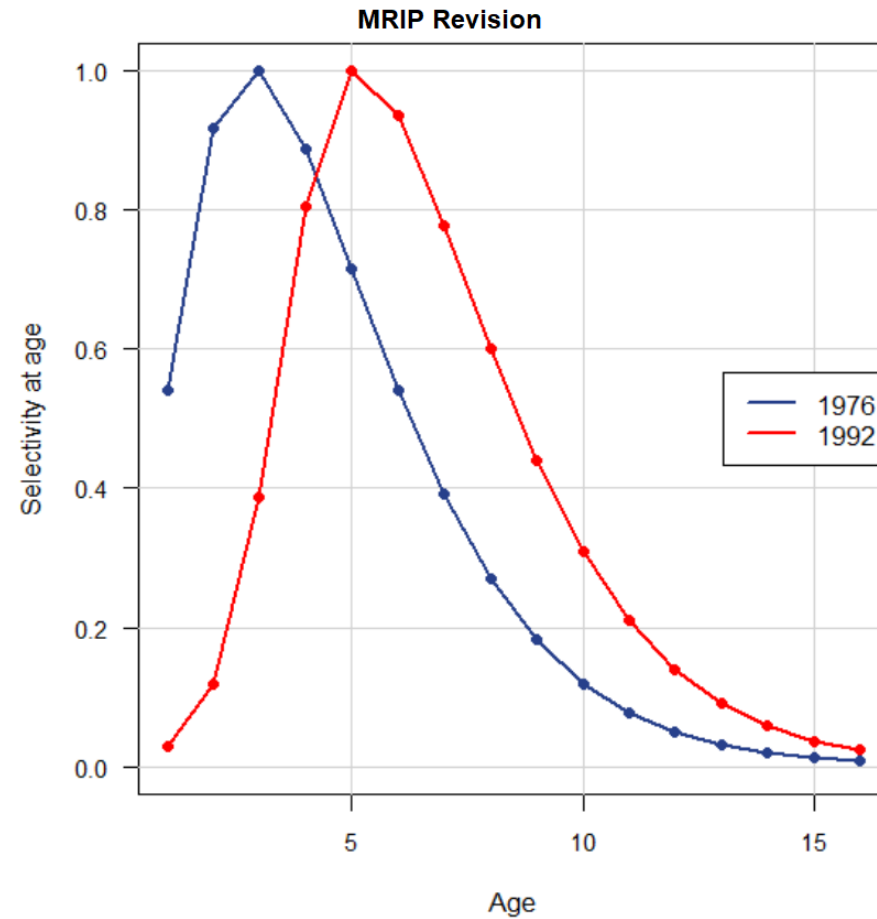
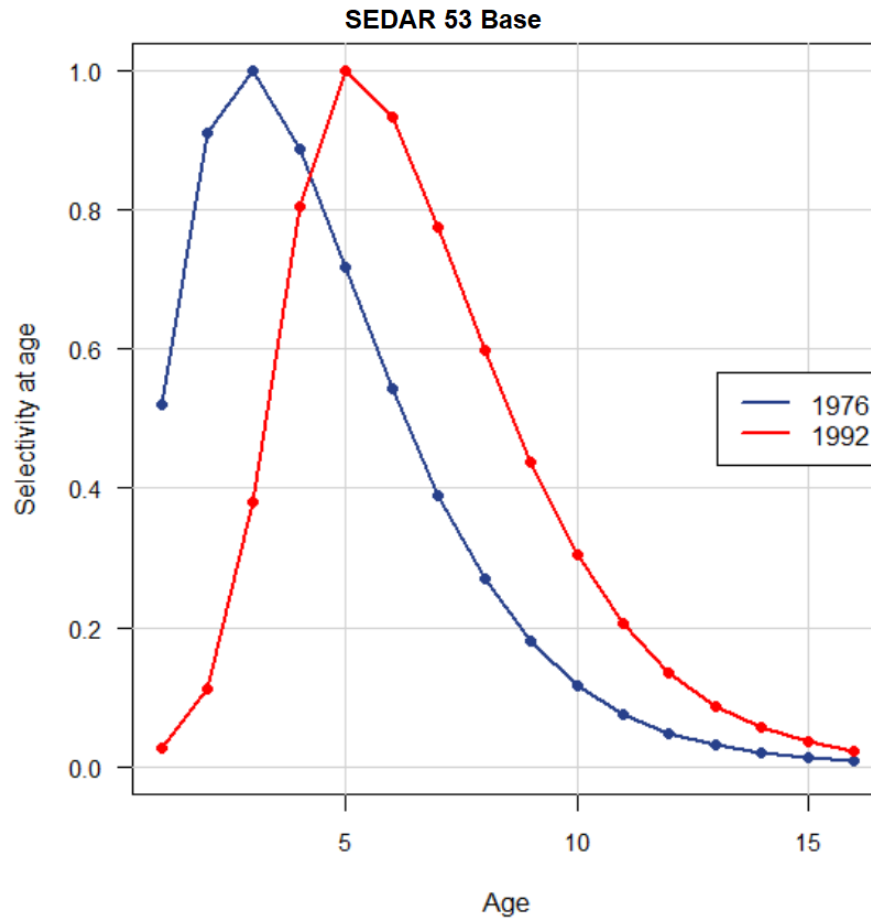


# RG comm lines landings selectivity

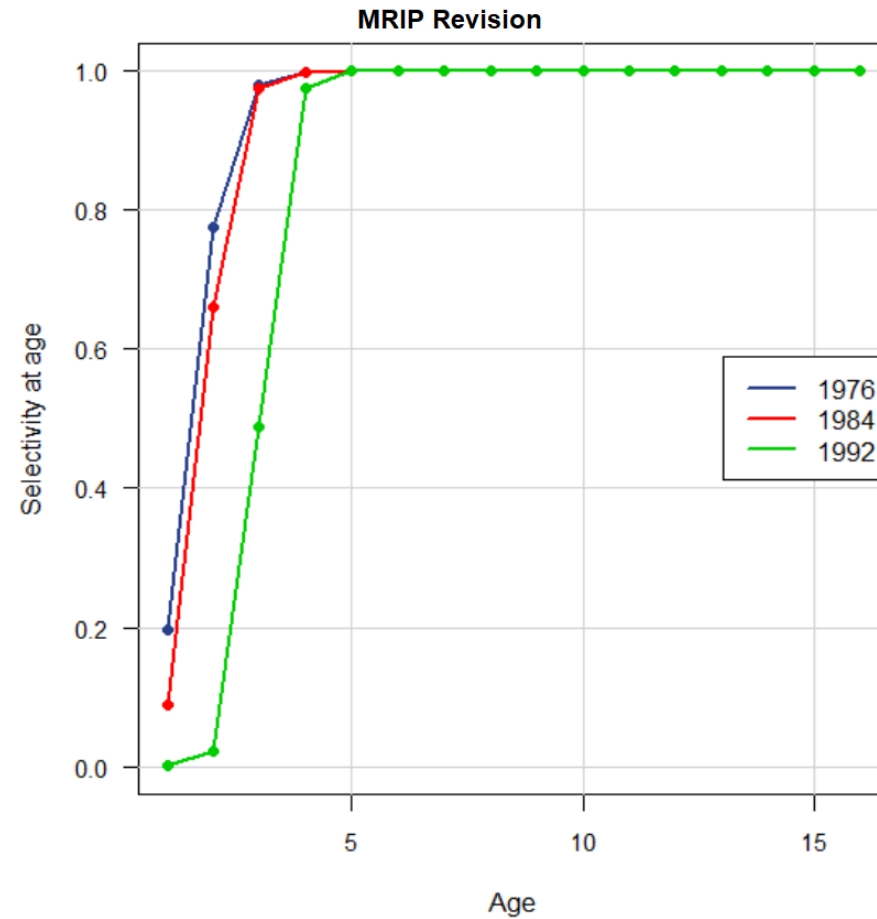
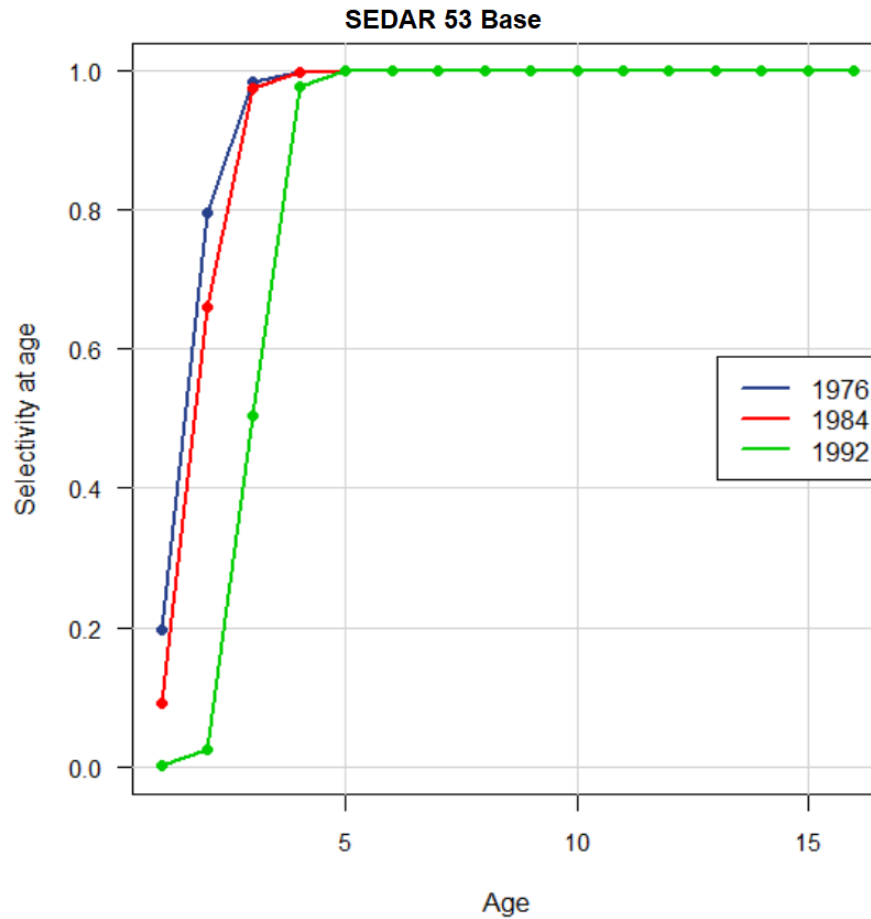




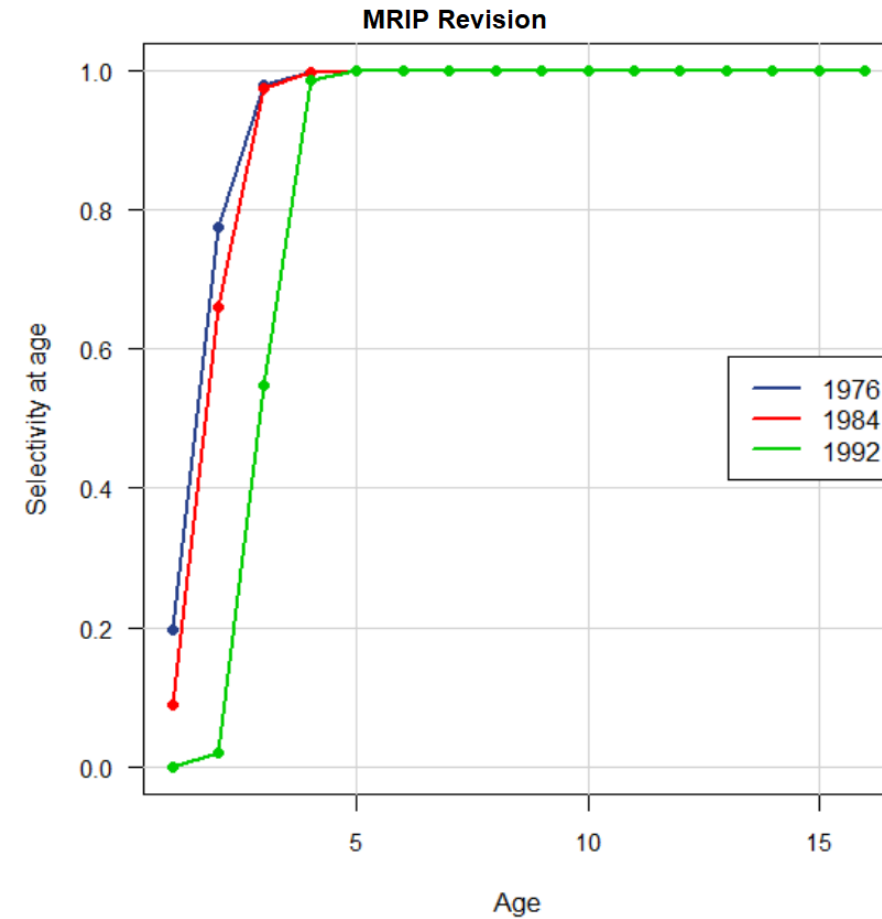
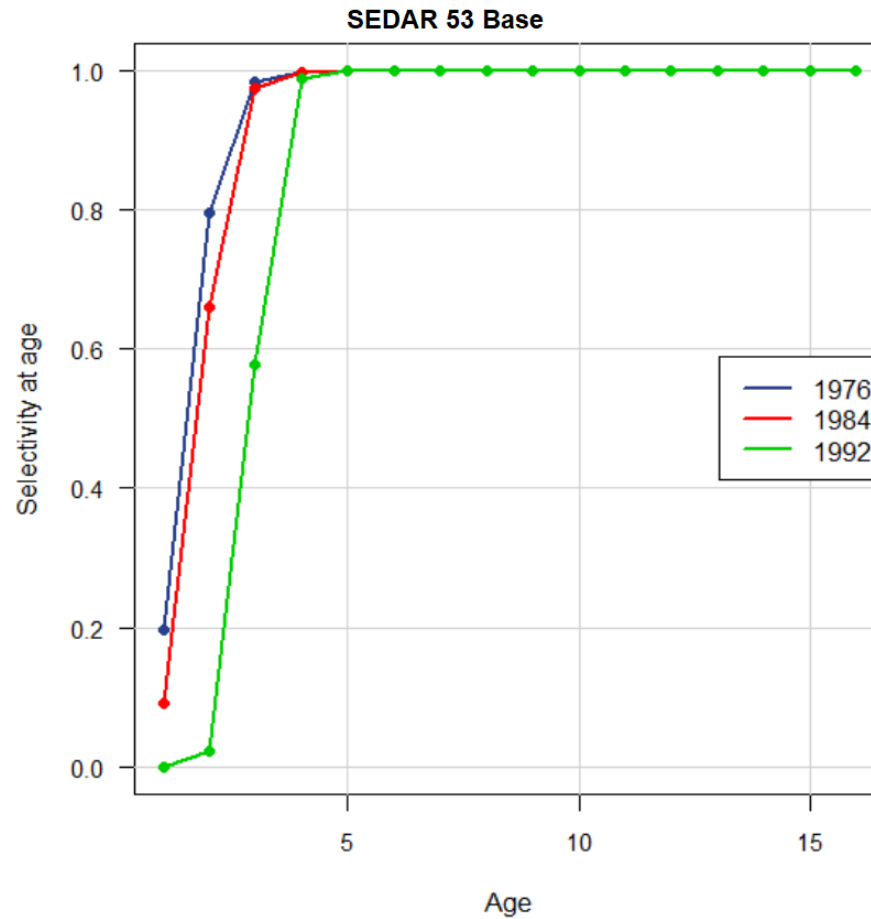
# RG comm other landings selectivity



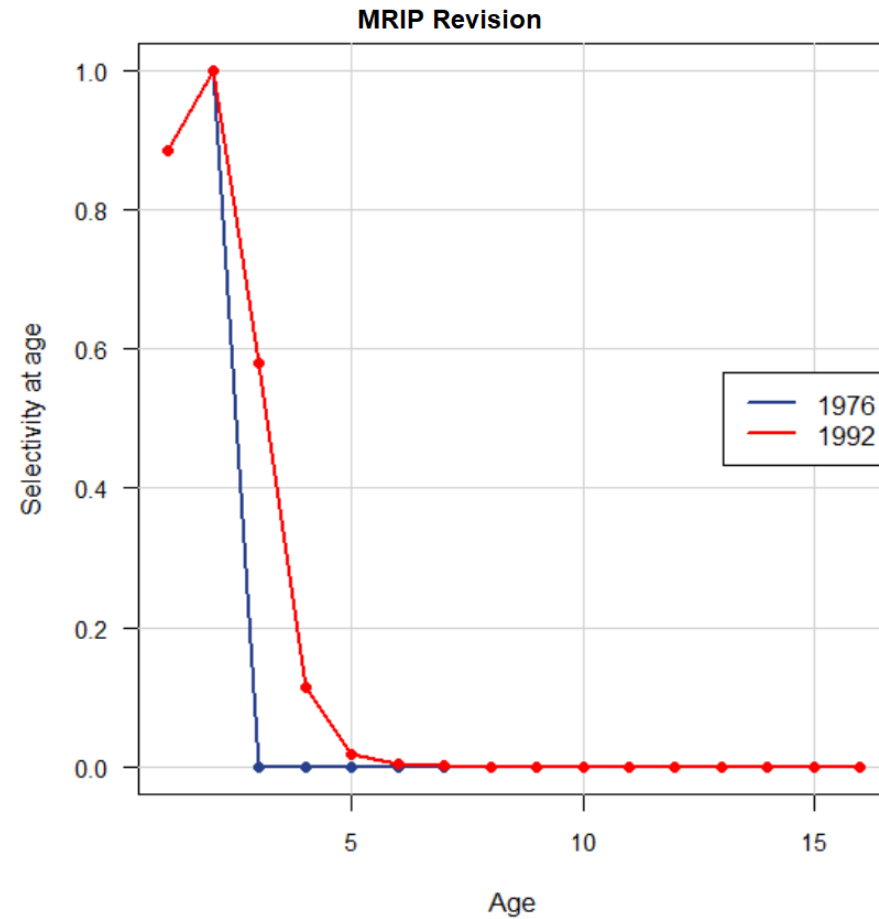
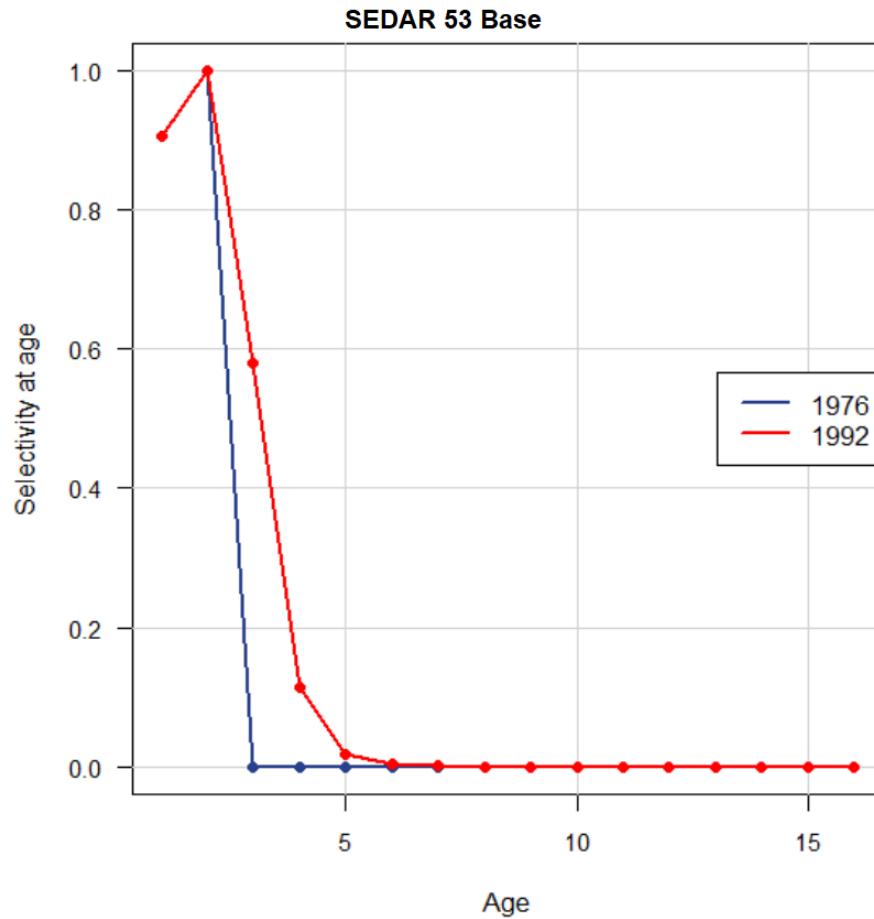
# RG headboat landings selectivity



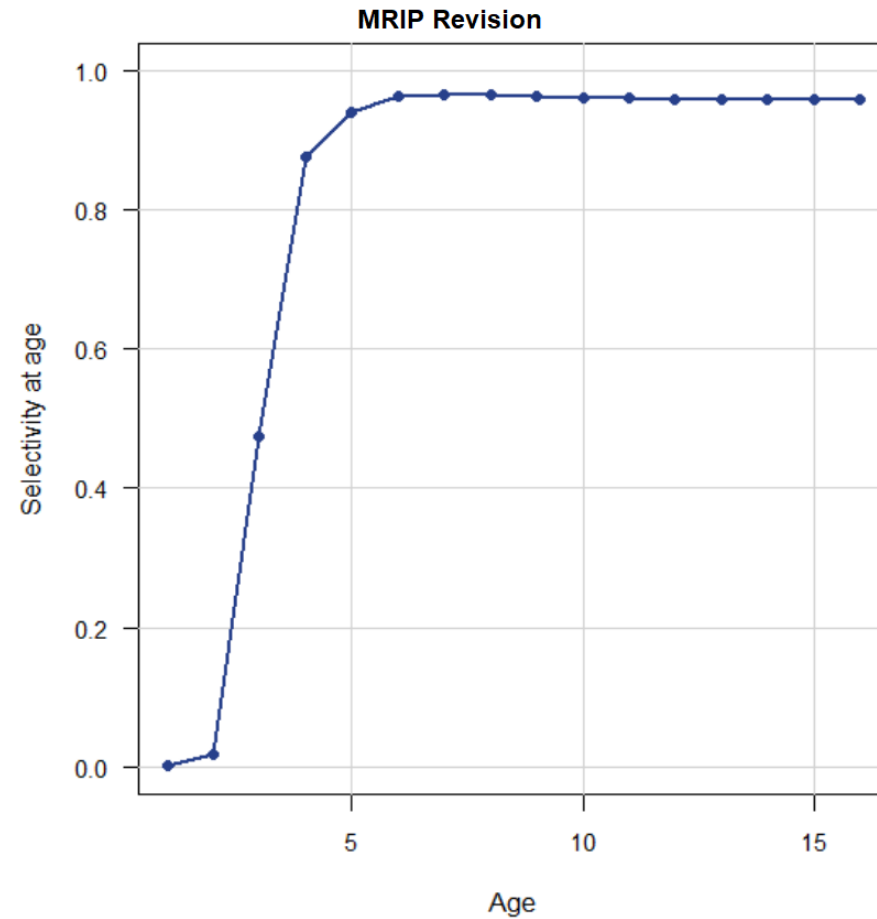
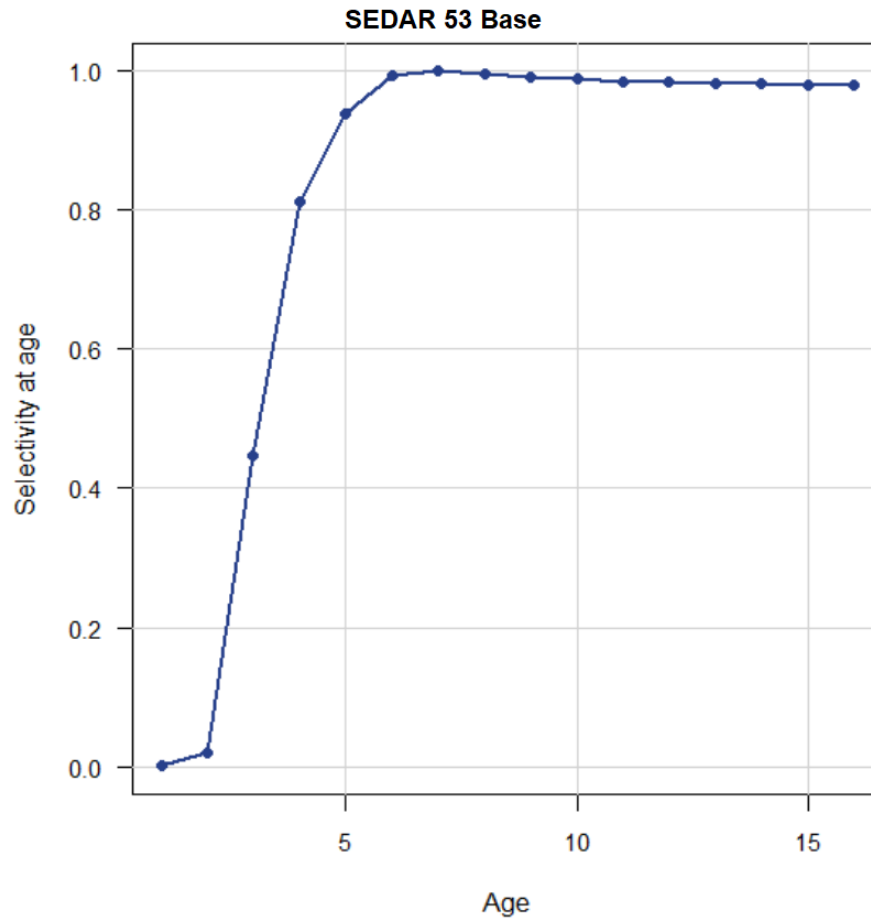
# RG general recreational landings selectivity



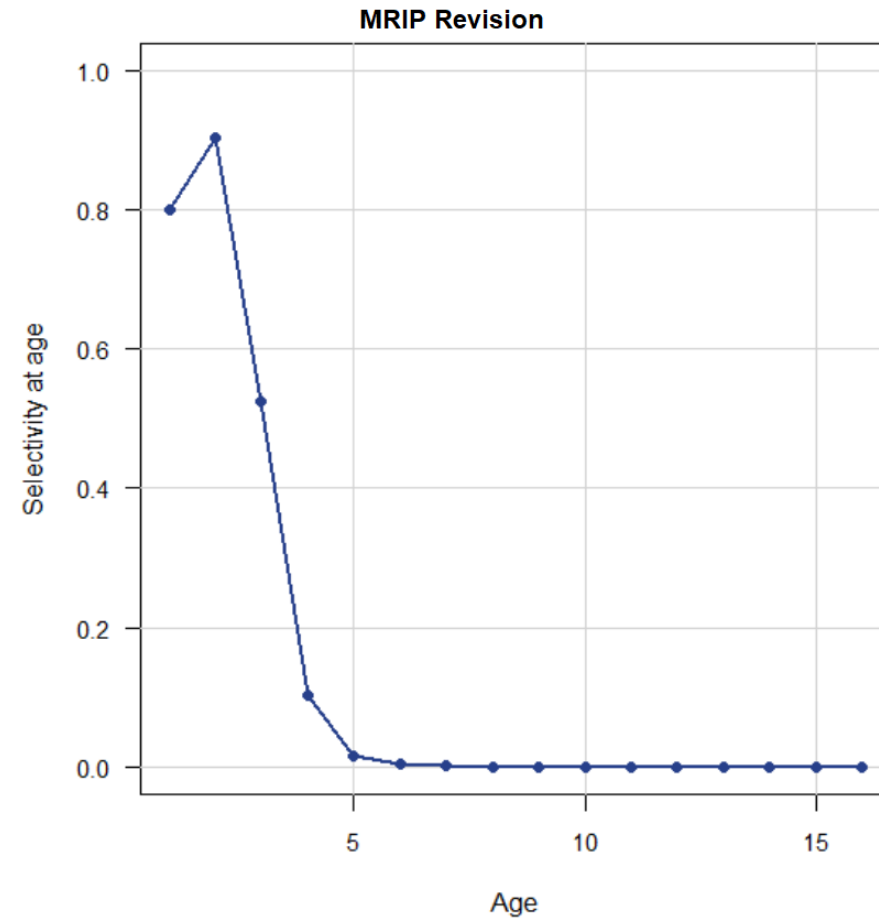
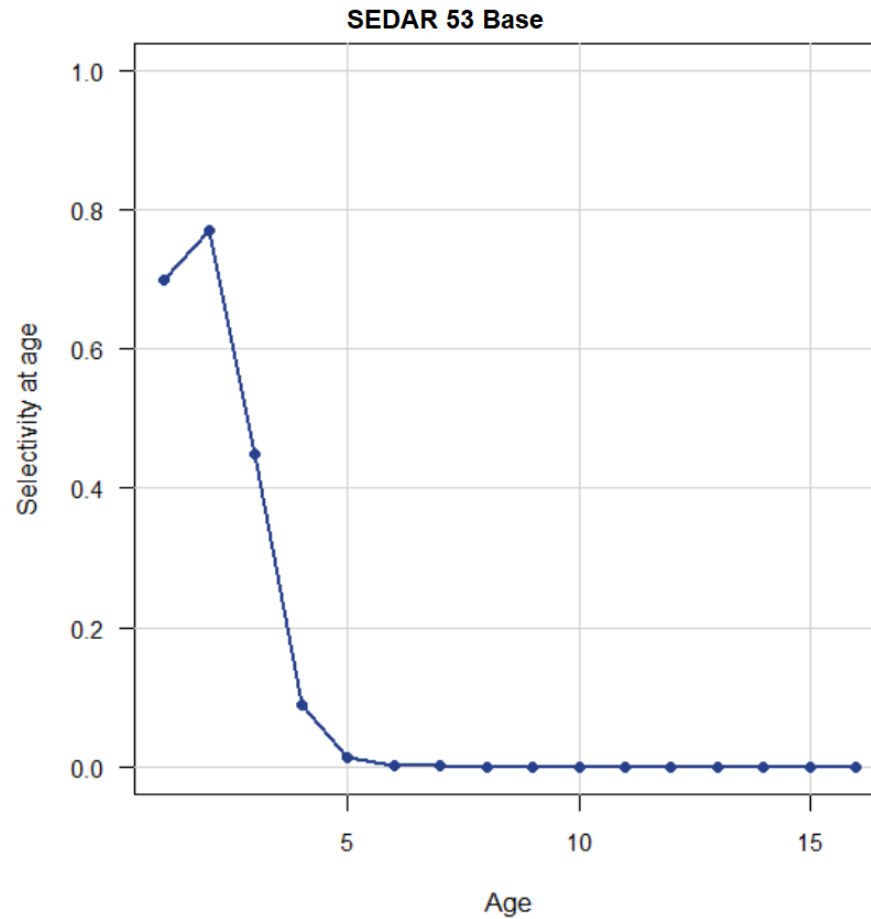
# RG discard selectivity (all fleets)



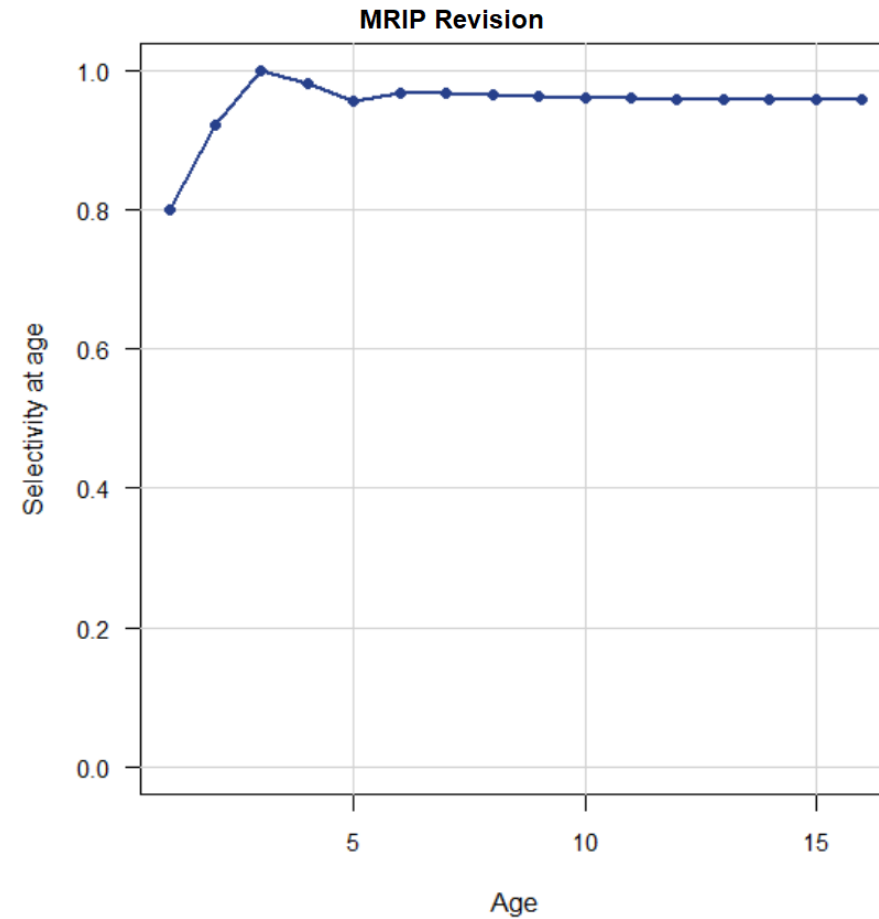
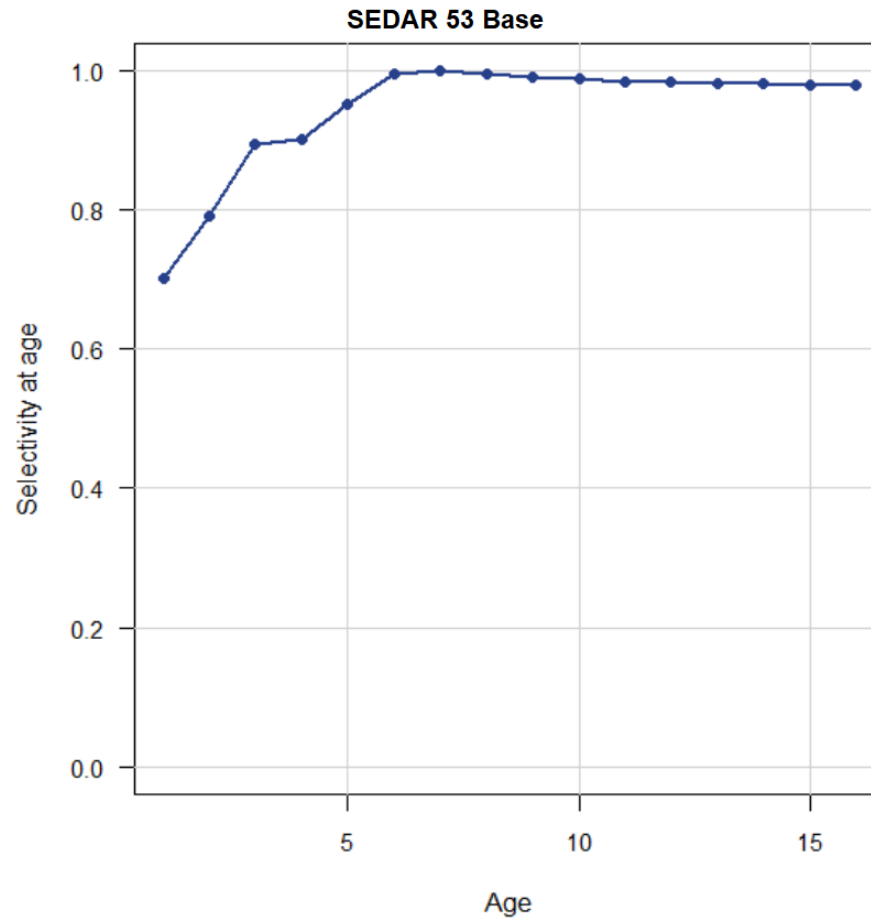
# RG weighted landings selectivity



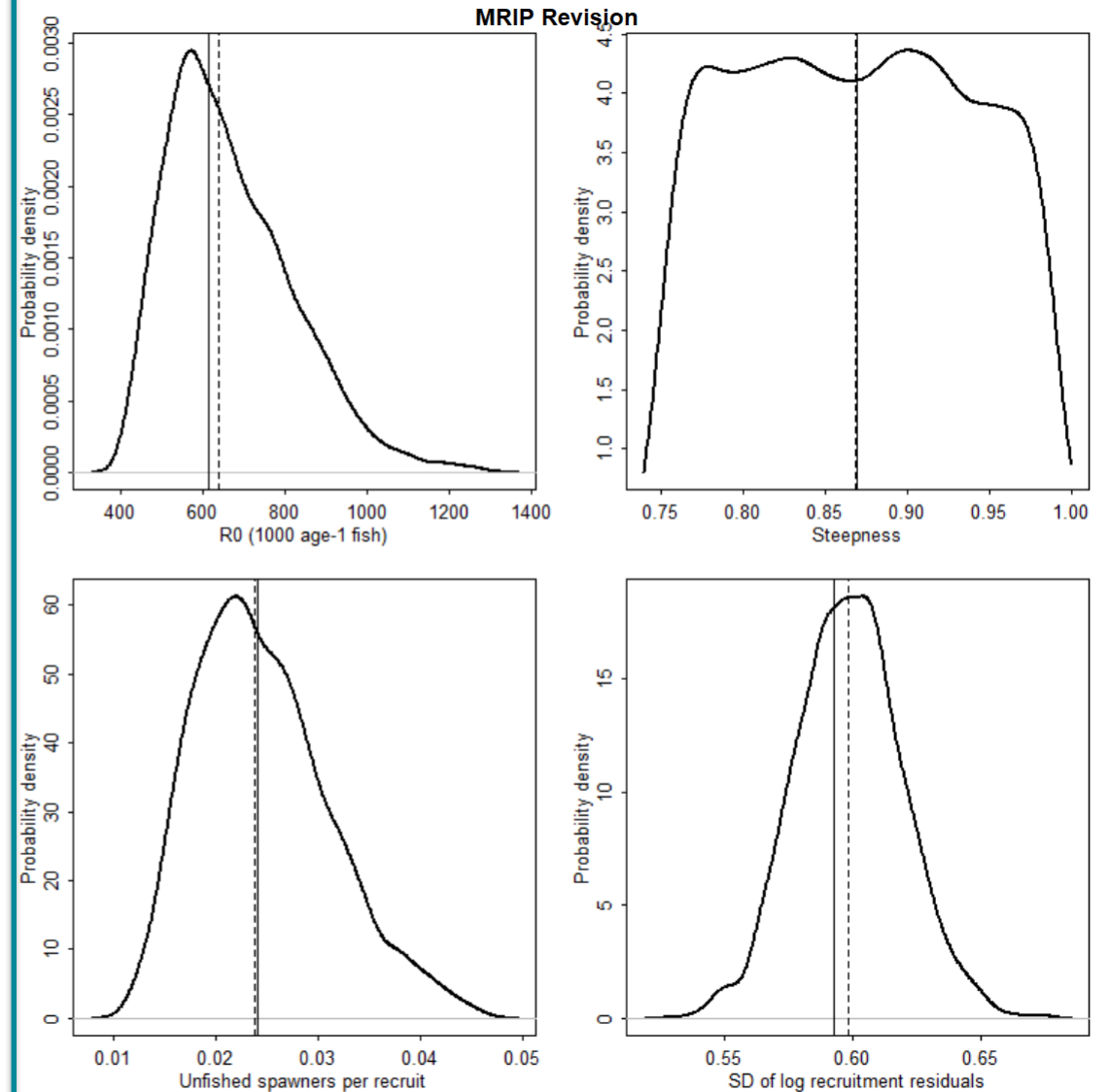
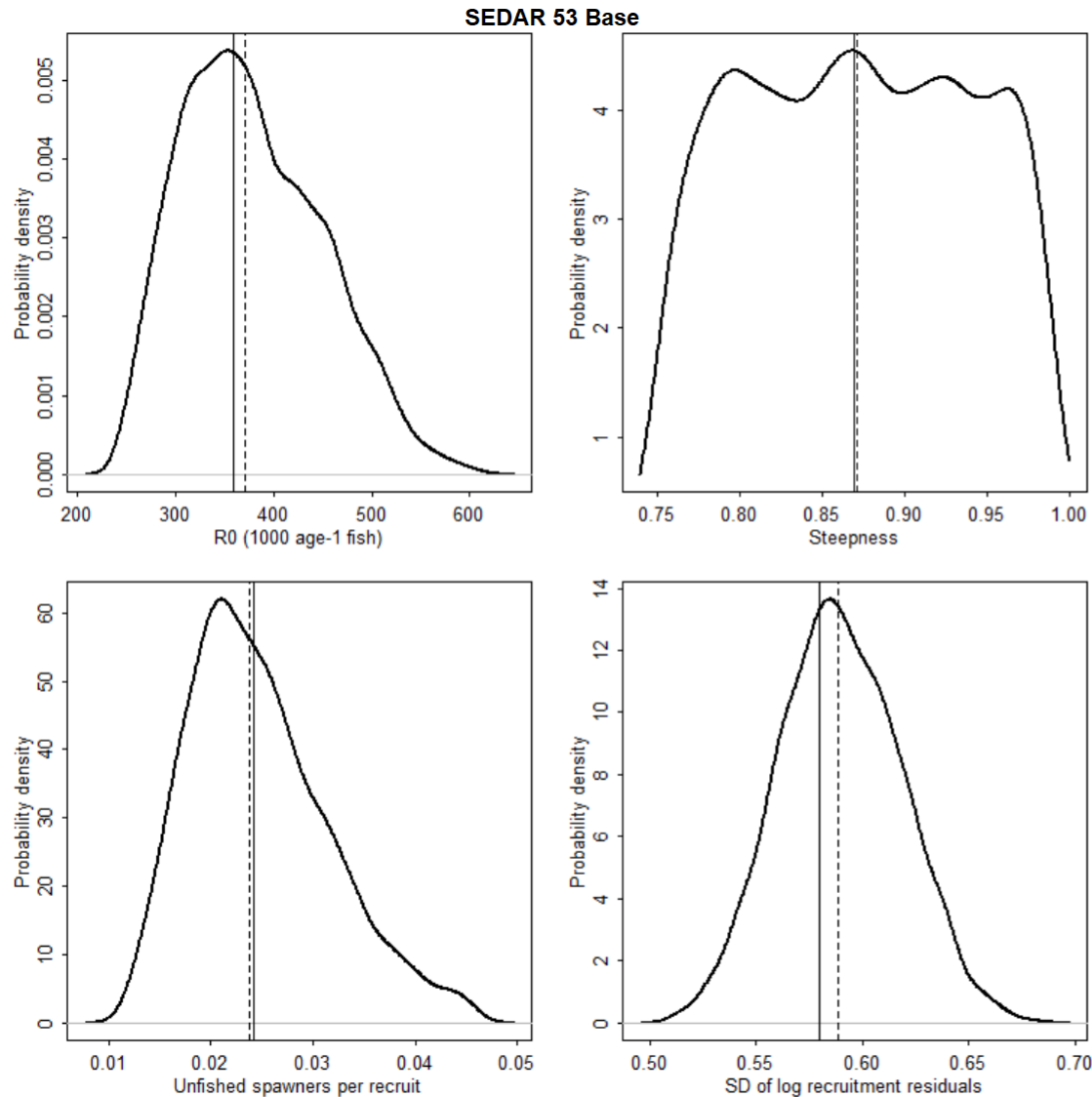
# RG weighted discard selectivity



# RG weighted total (L+D) selectivity

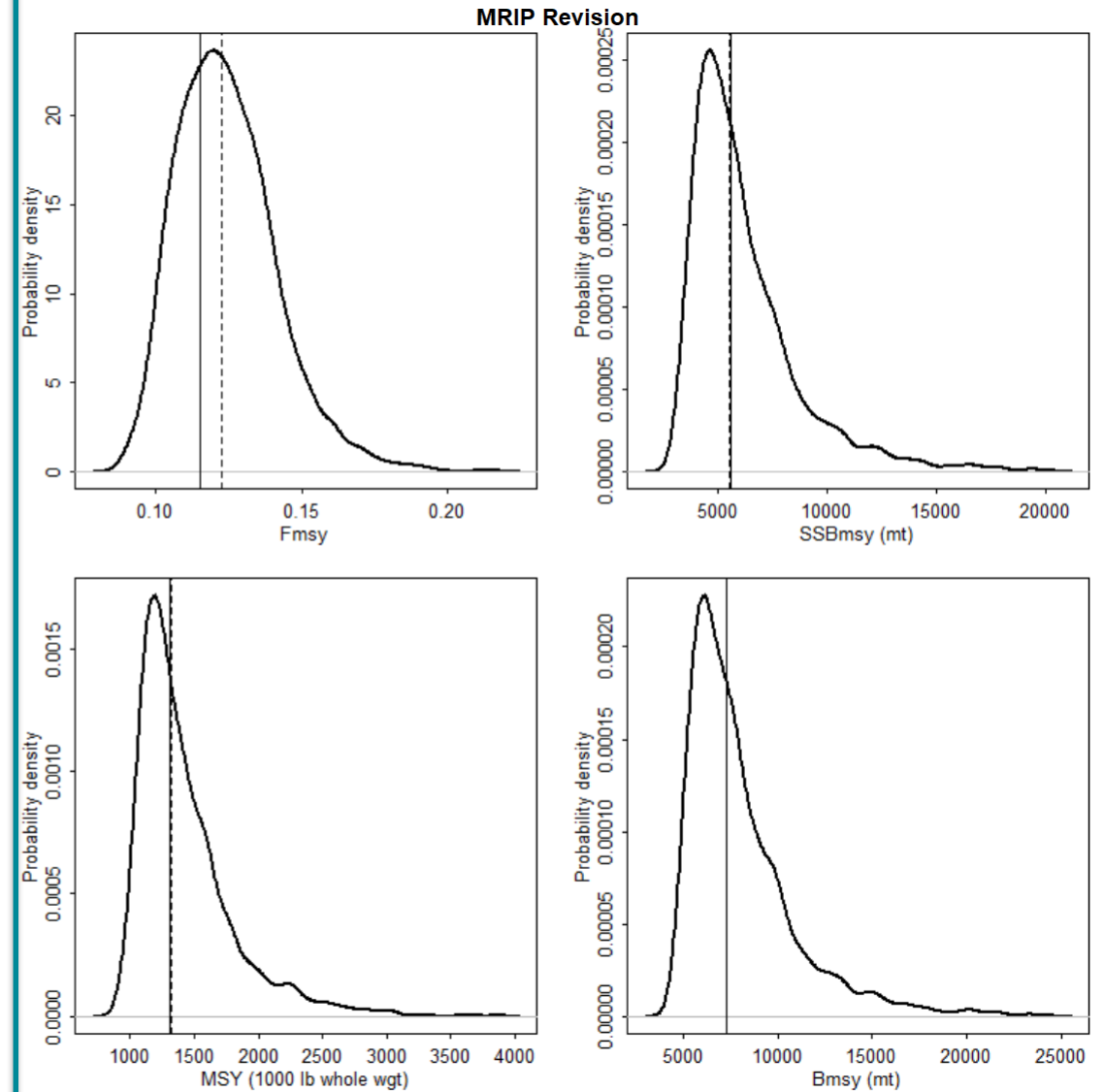
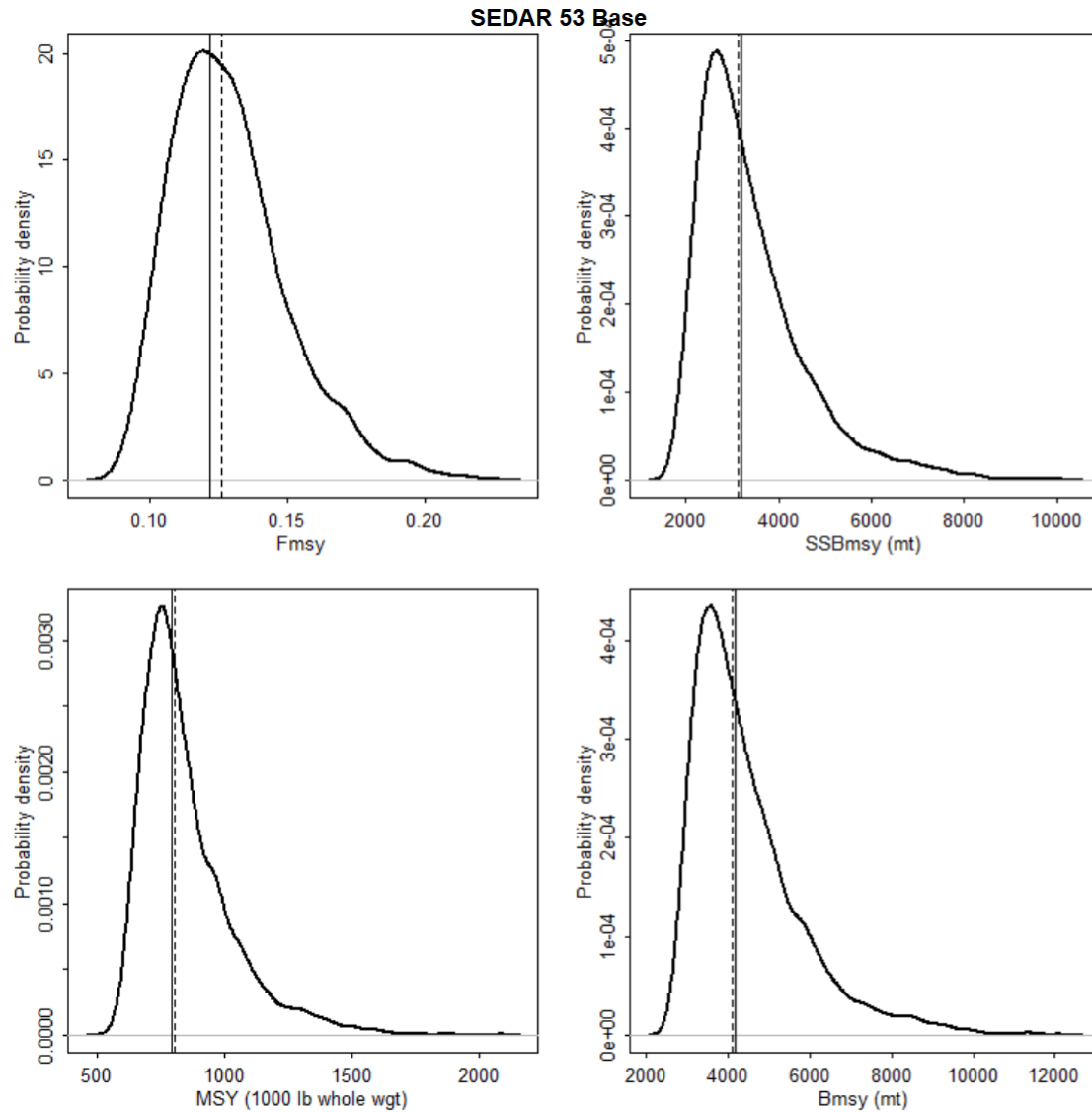


# RG spawner-recruit quantities

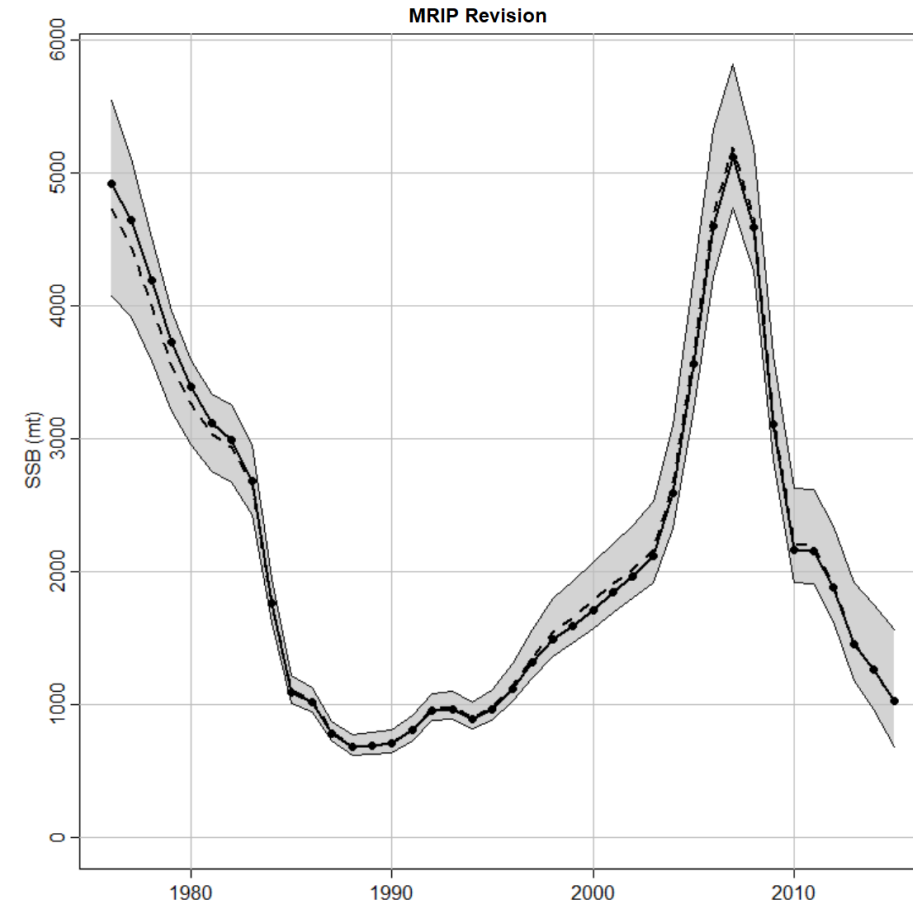
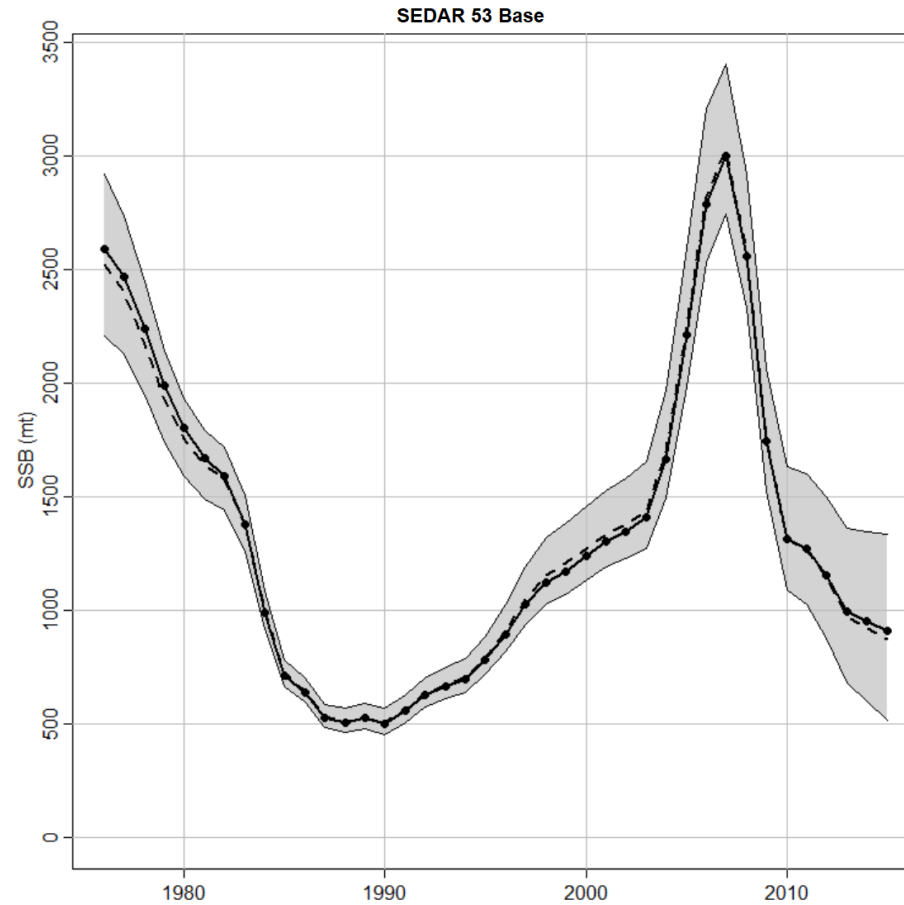




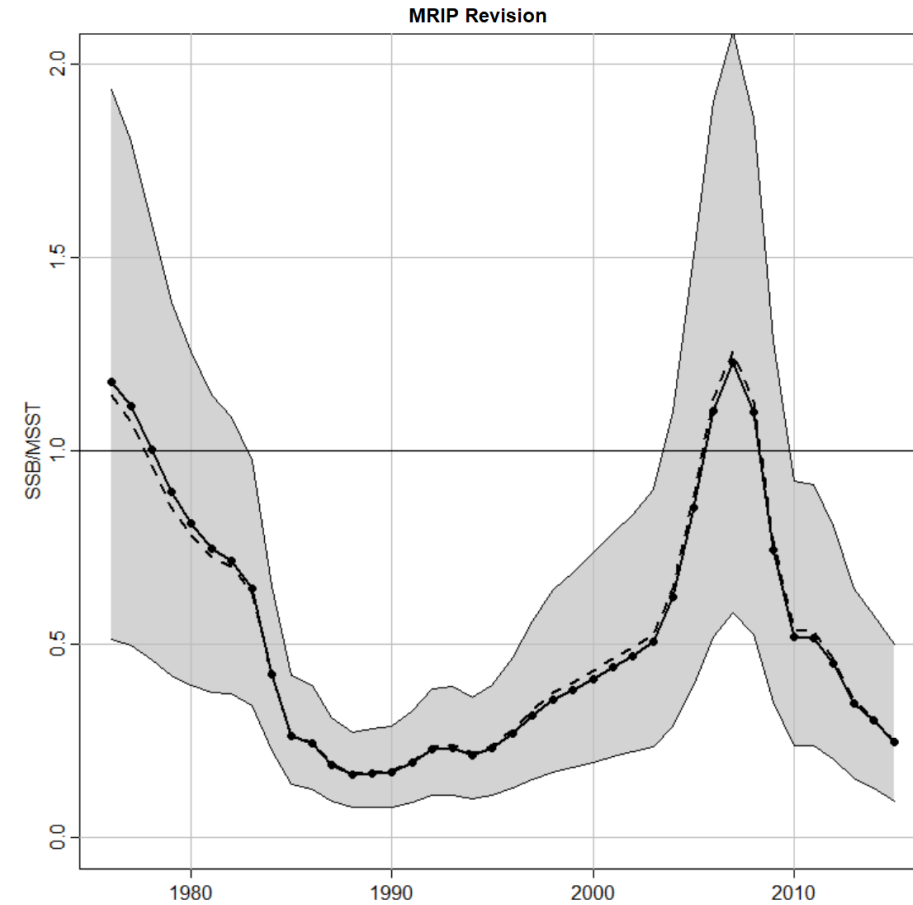
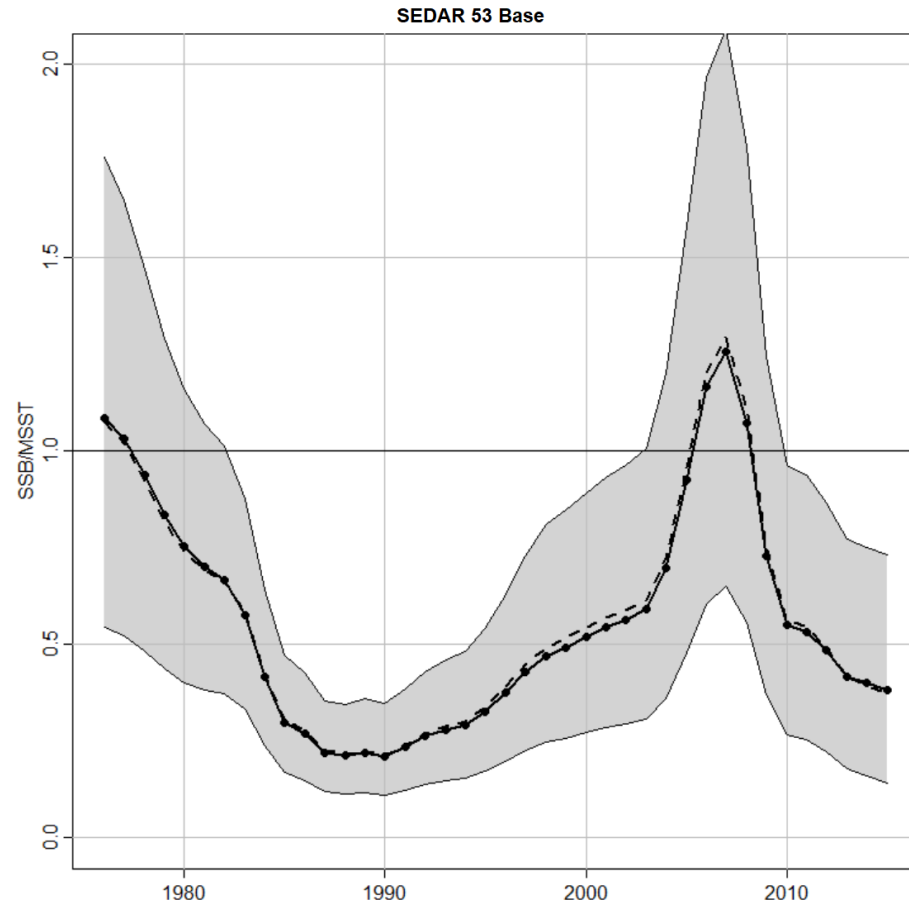
# RG MSY quantities



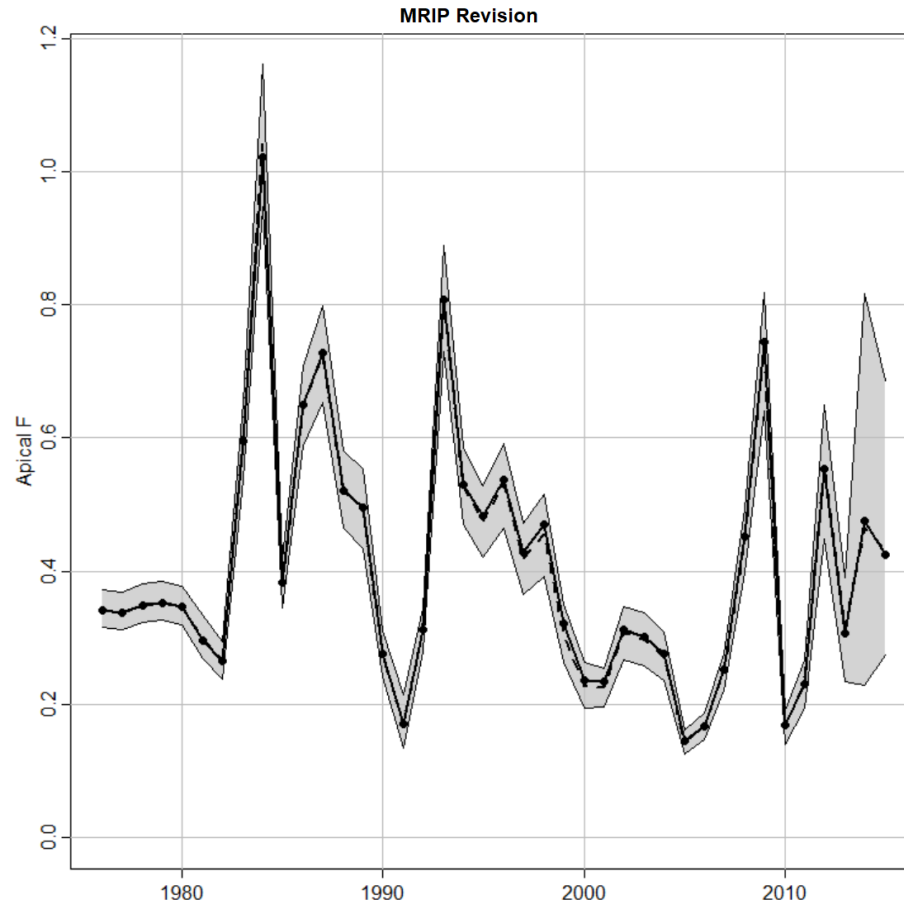
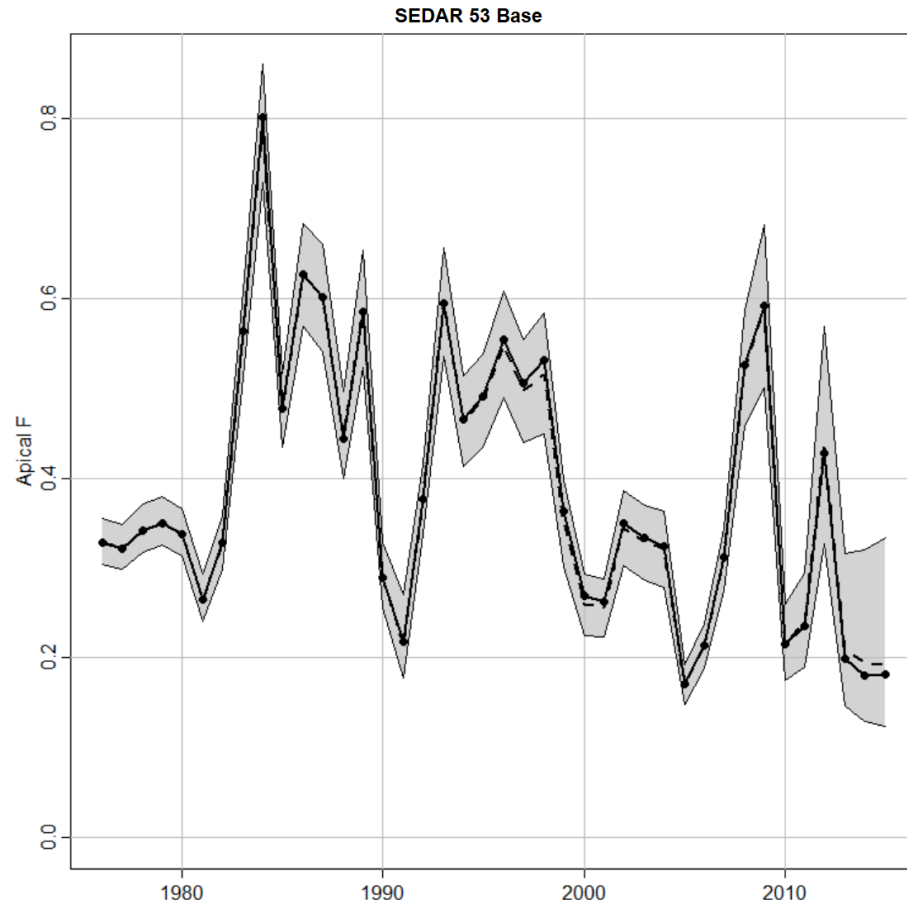
# RG SSB



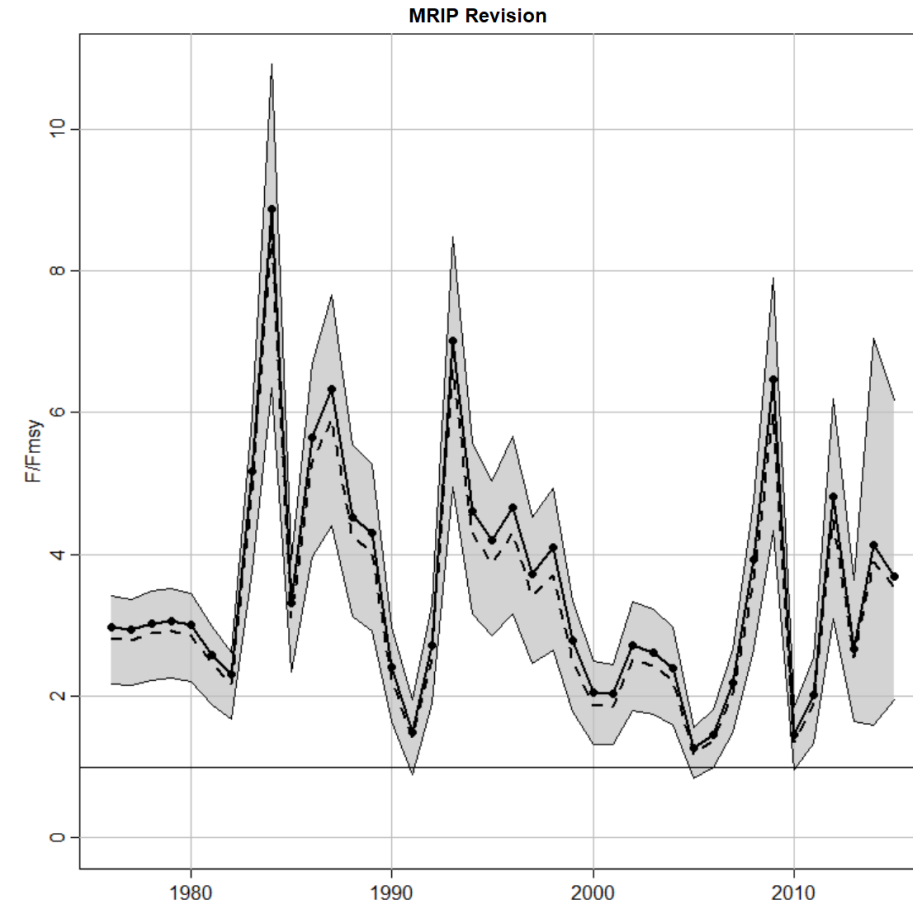
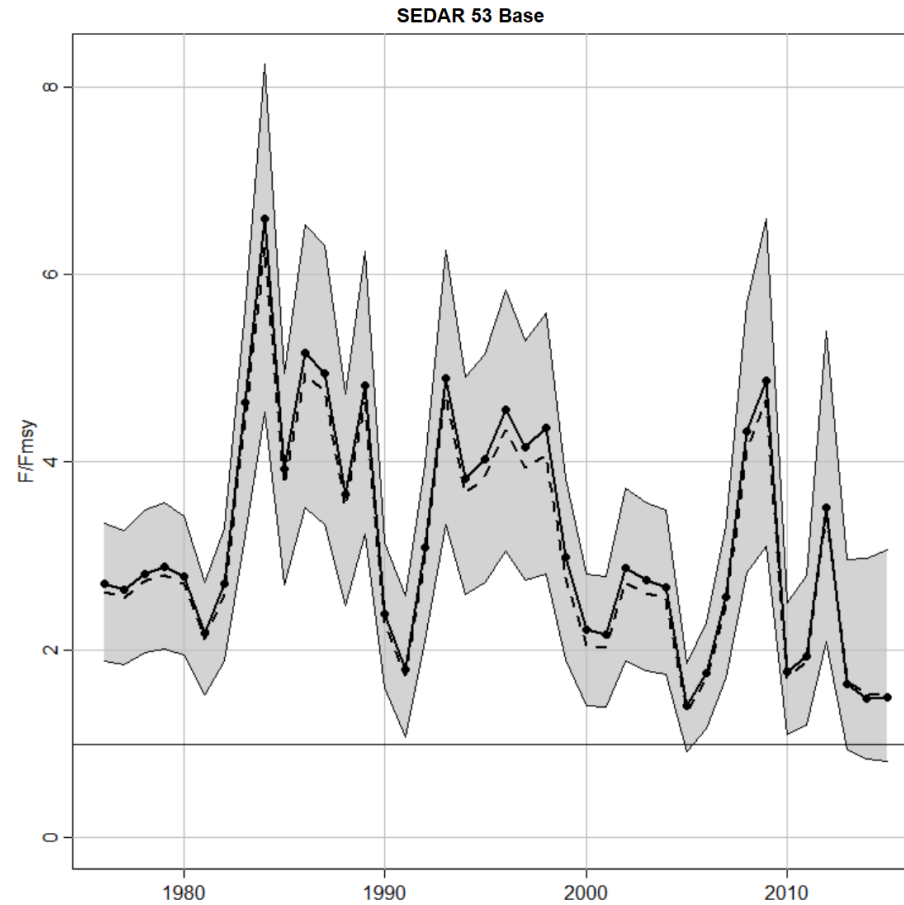
# RG SSB relative to MSST



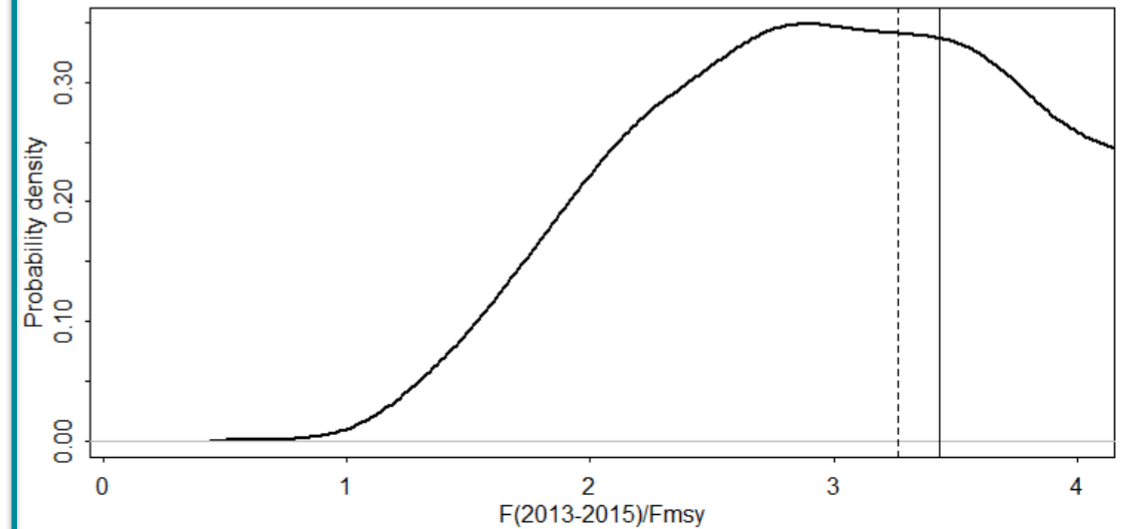
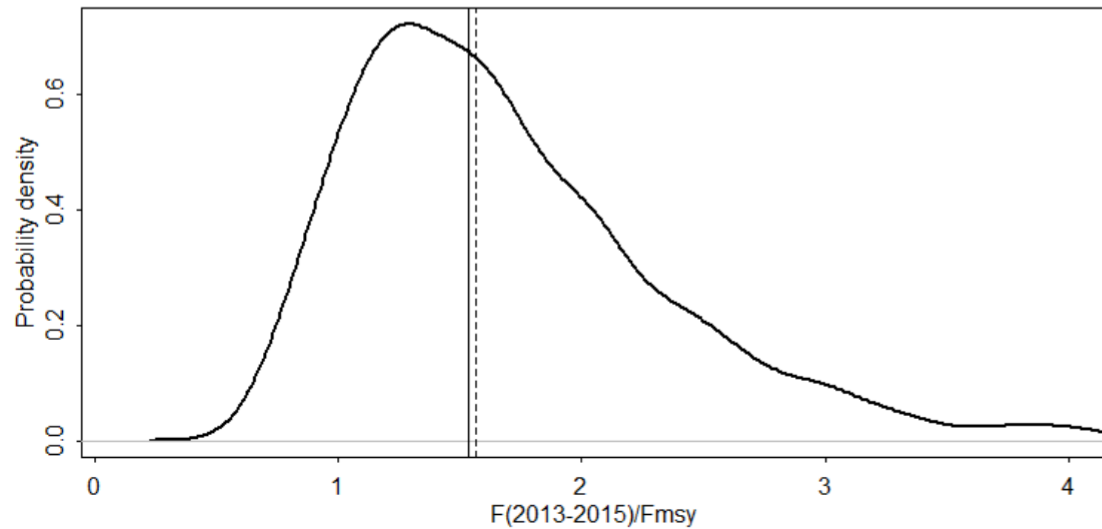
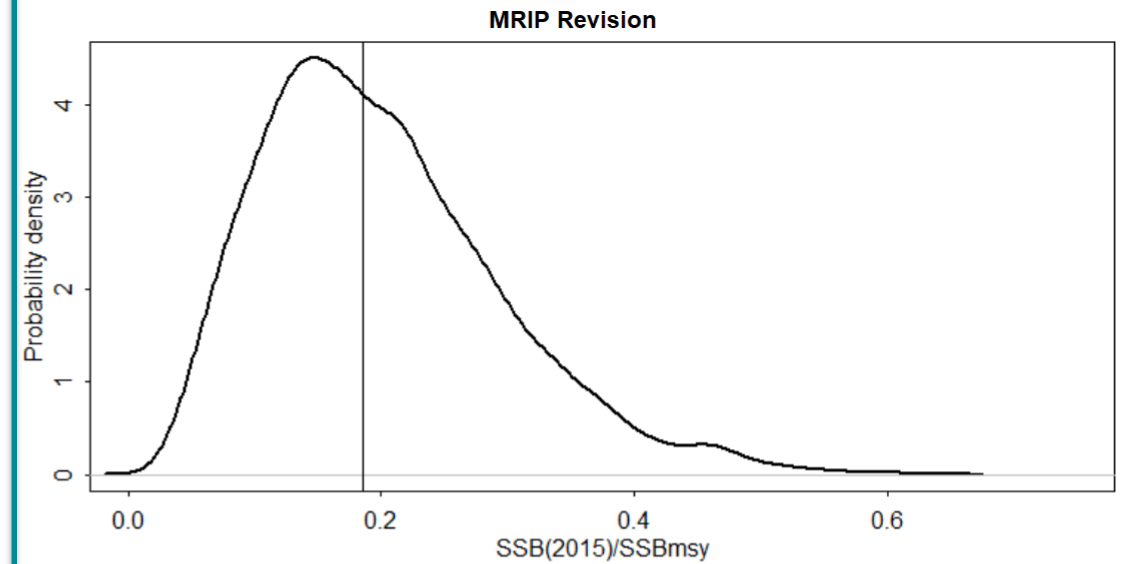
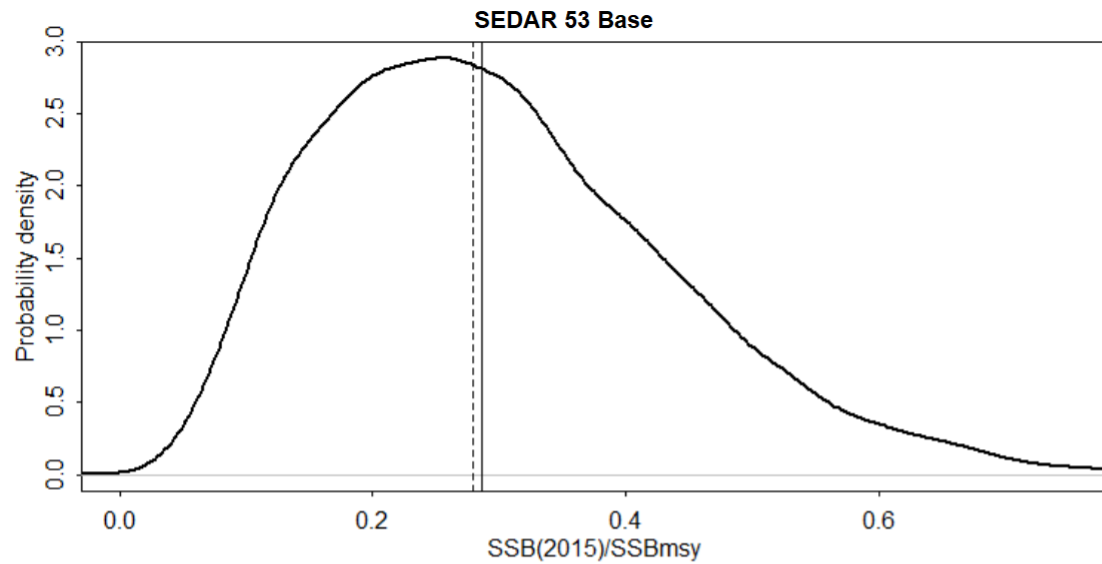
# RG Apical F



# RG F relative to Fmsy



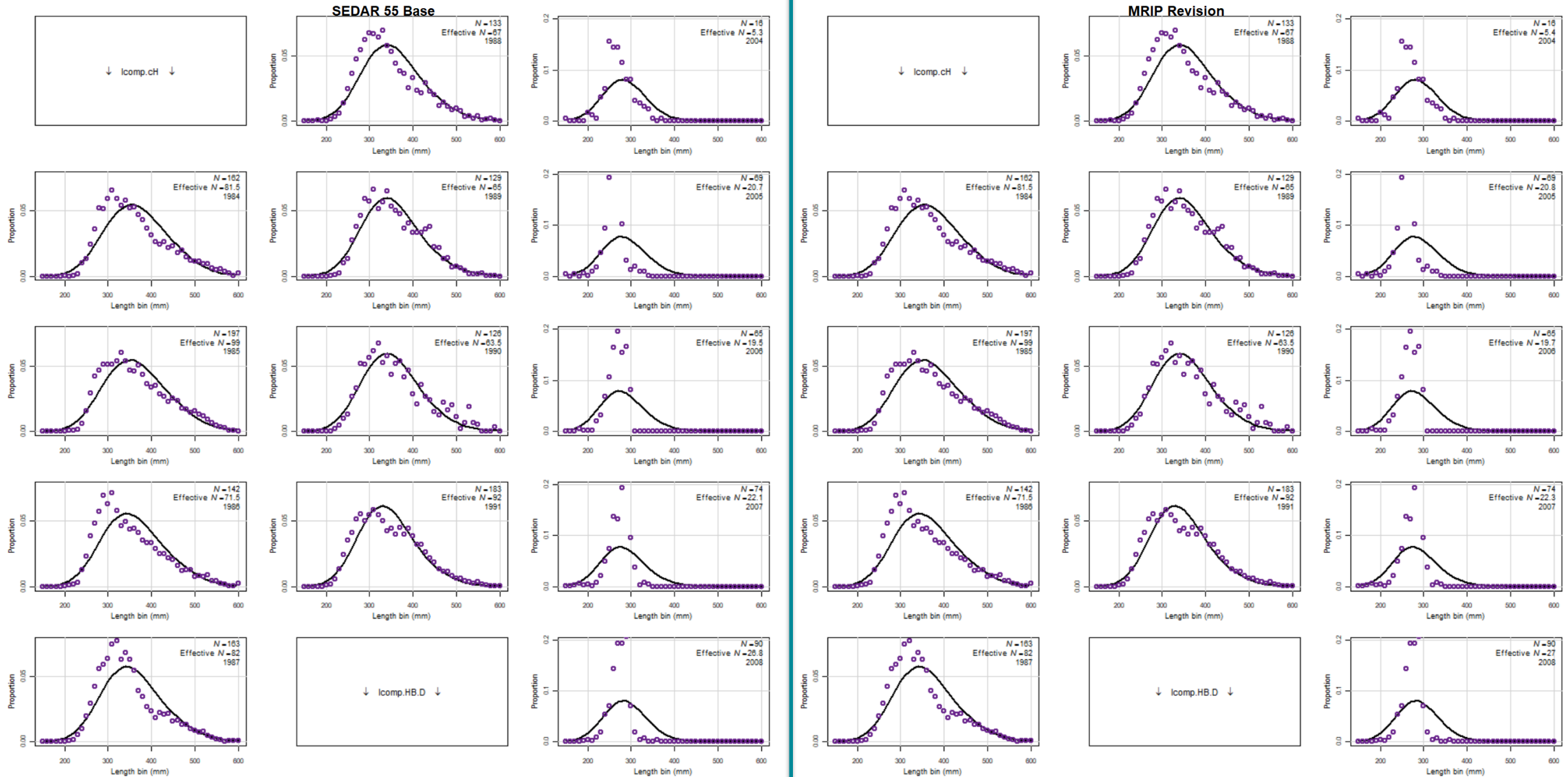
# RG status indicators



# Vermilion Snapper (VS)

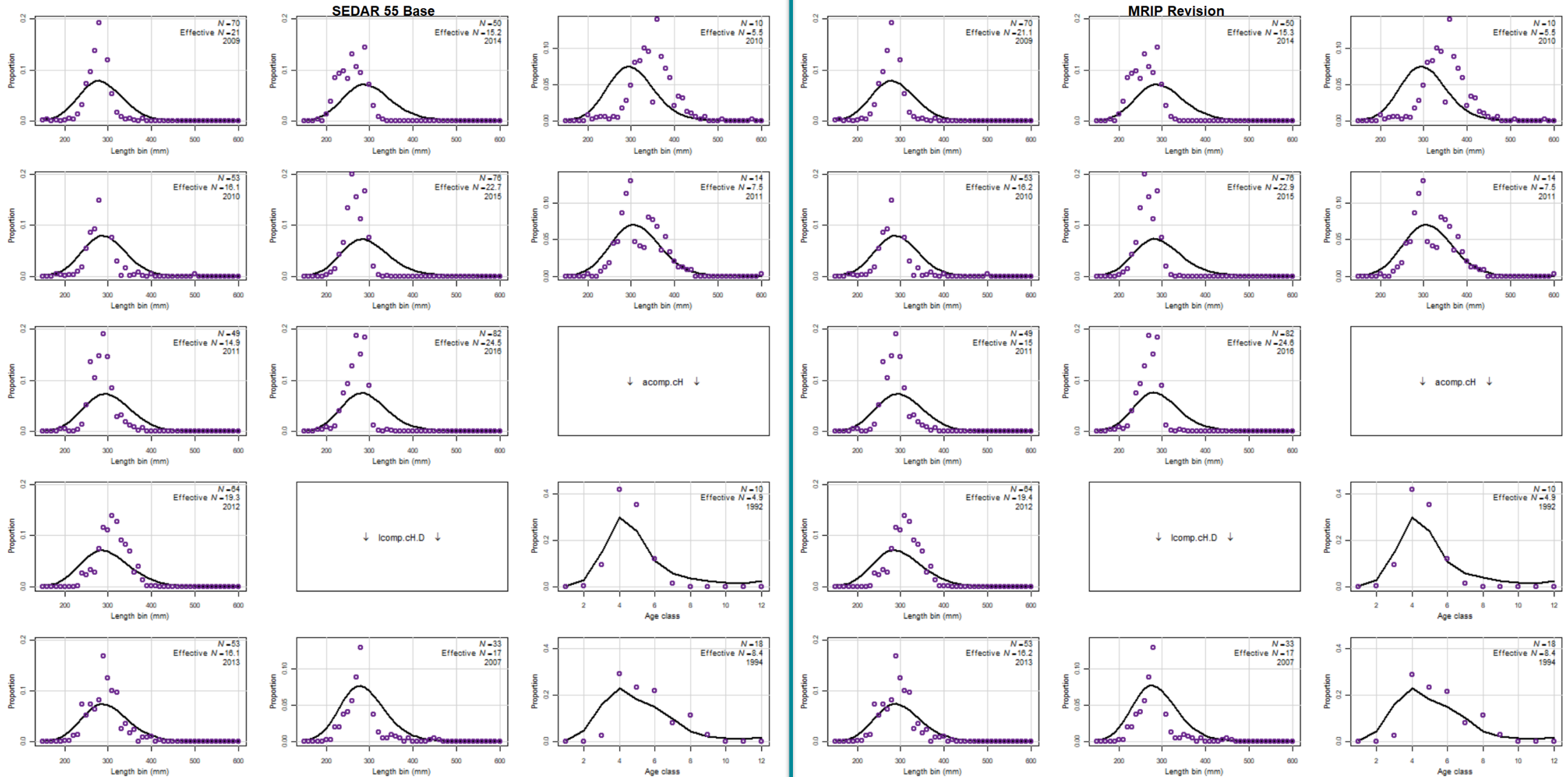


# VS size and age comps

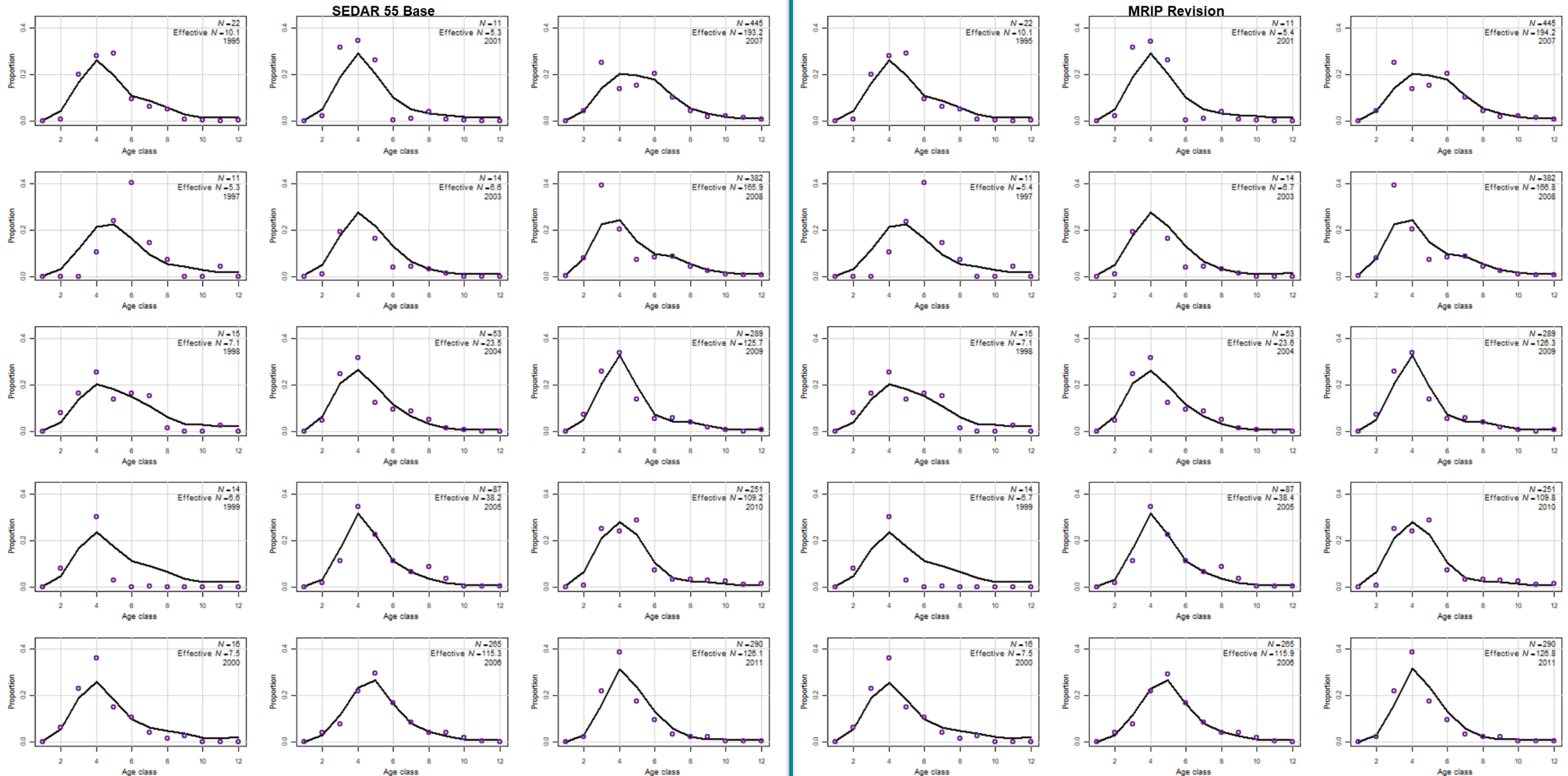




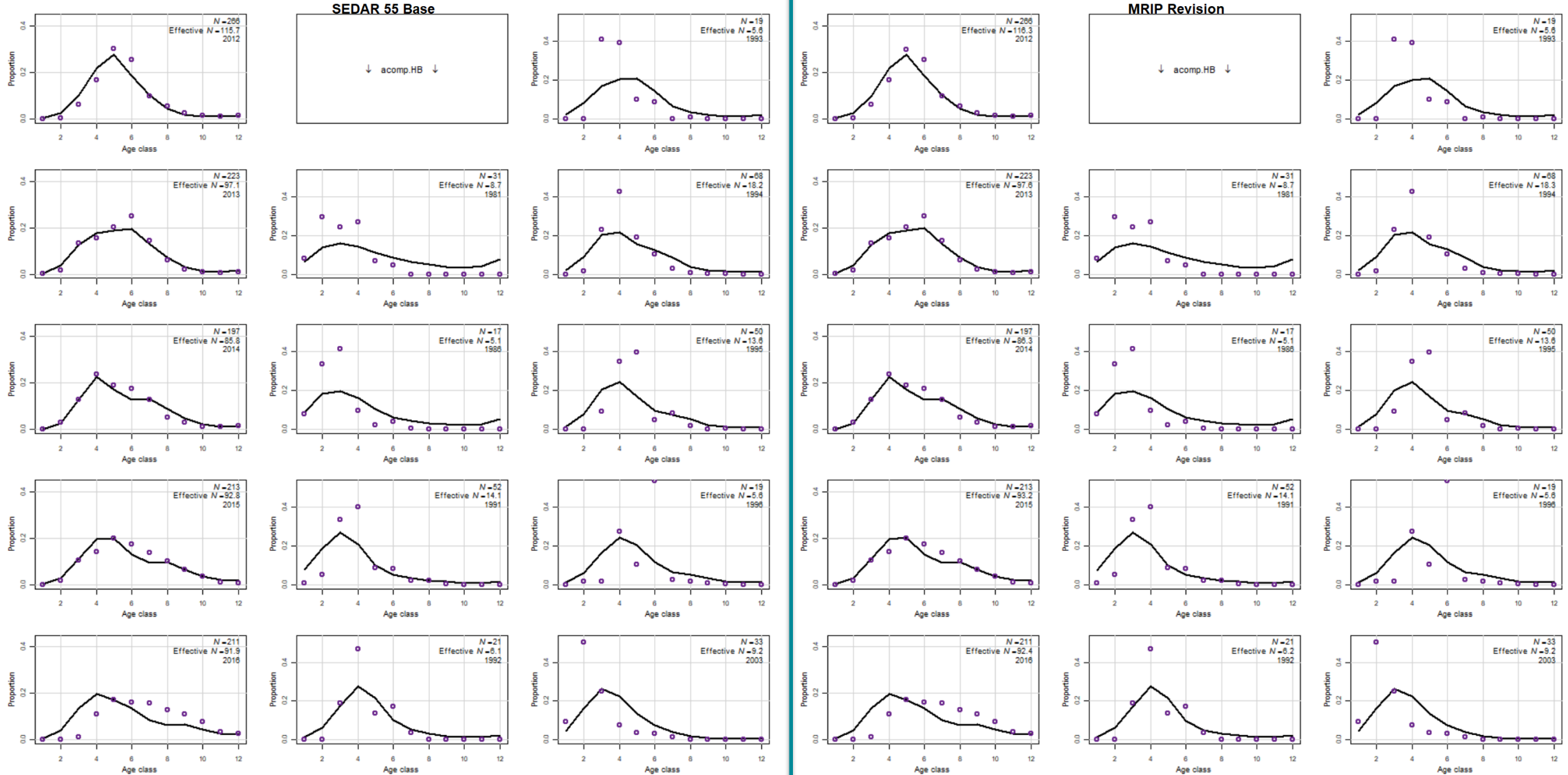
# VS size and age comps



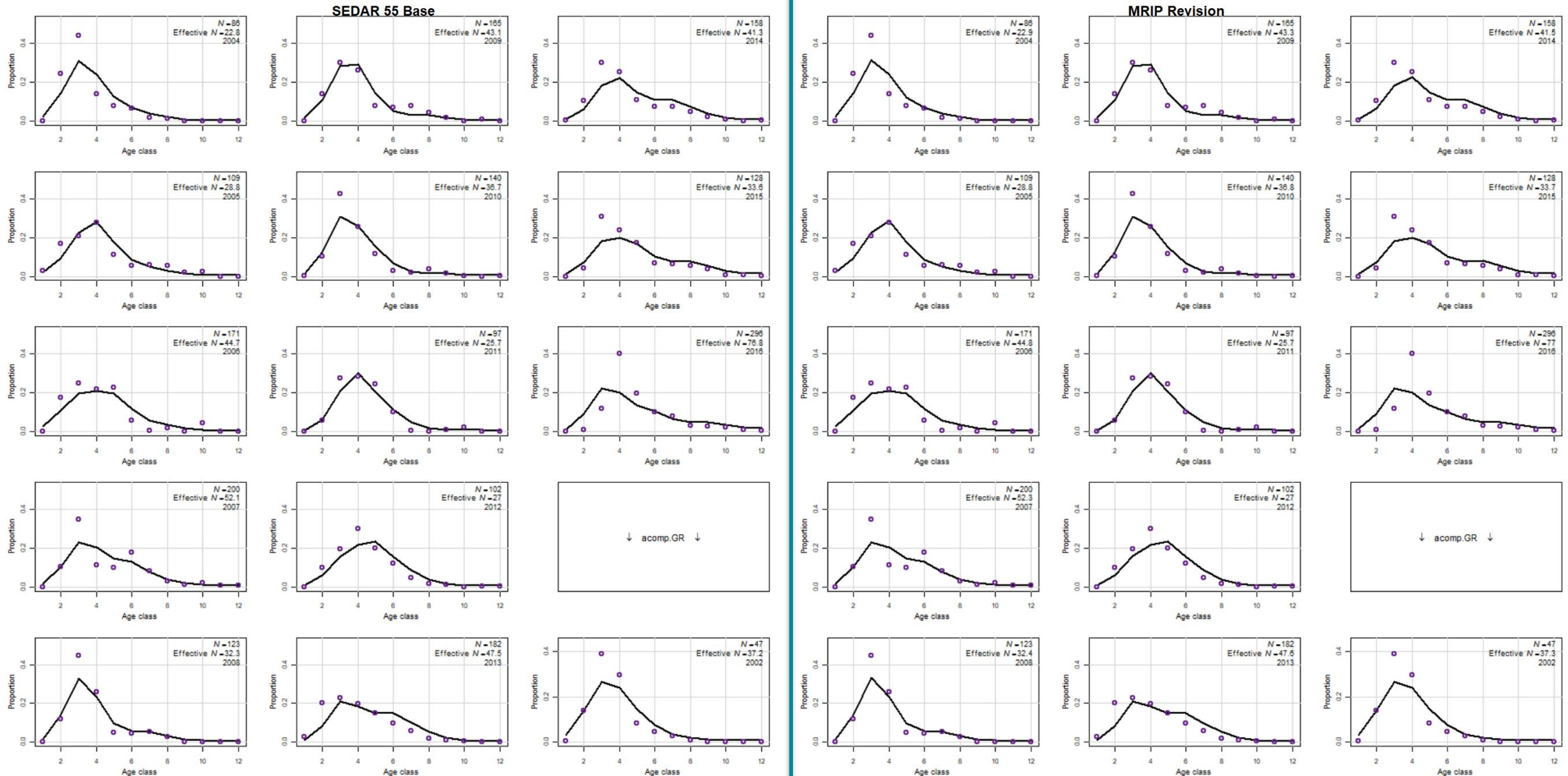
# VS size and age comps



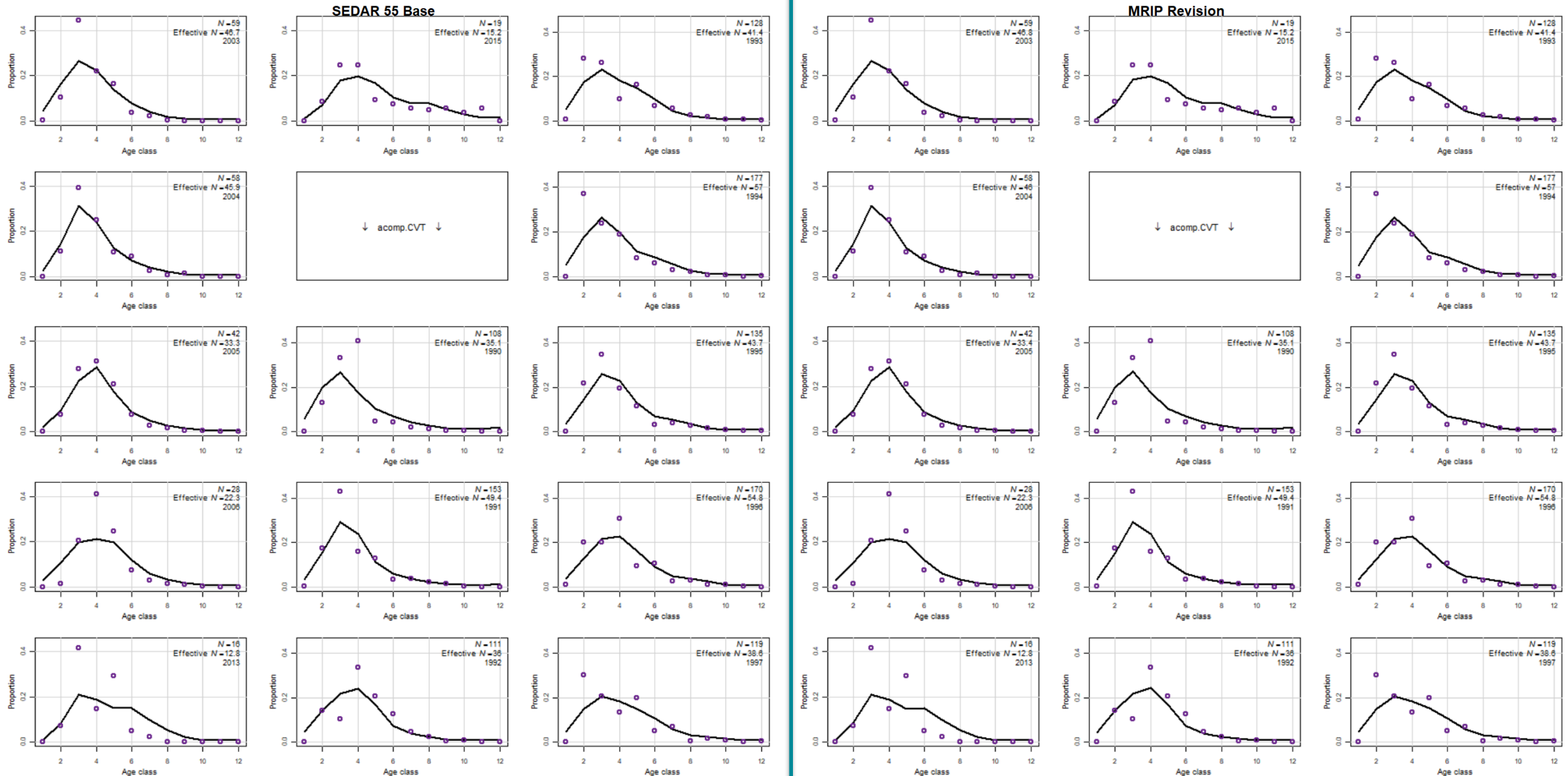
# VS size and age comps



# VS size and age comps

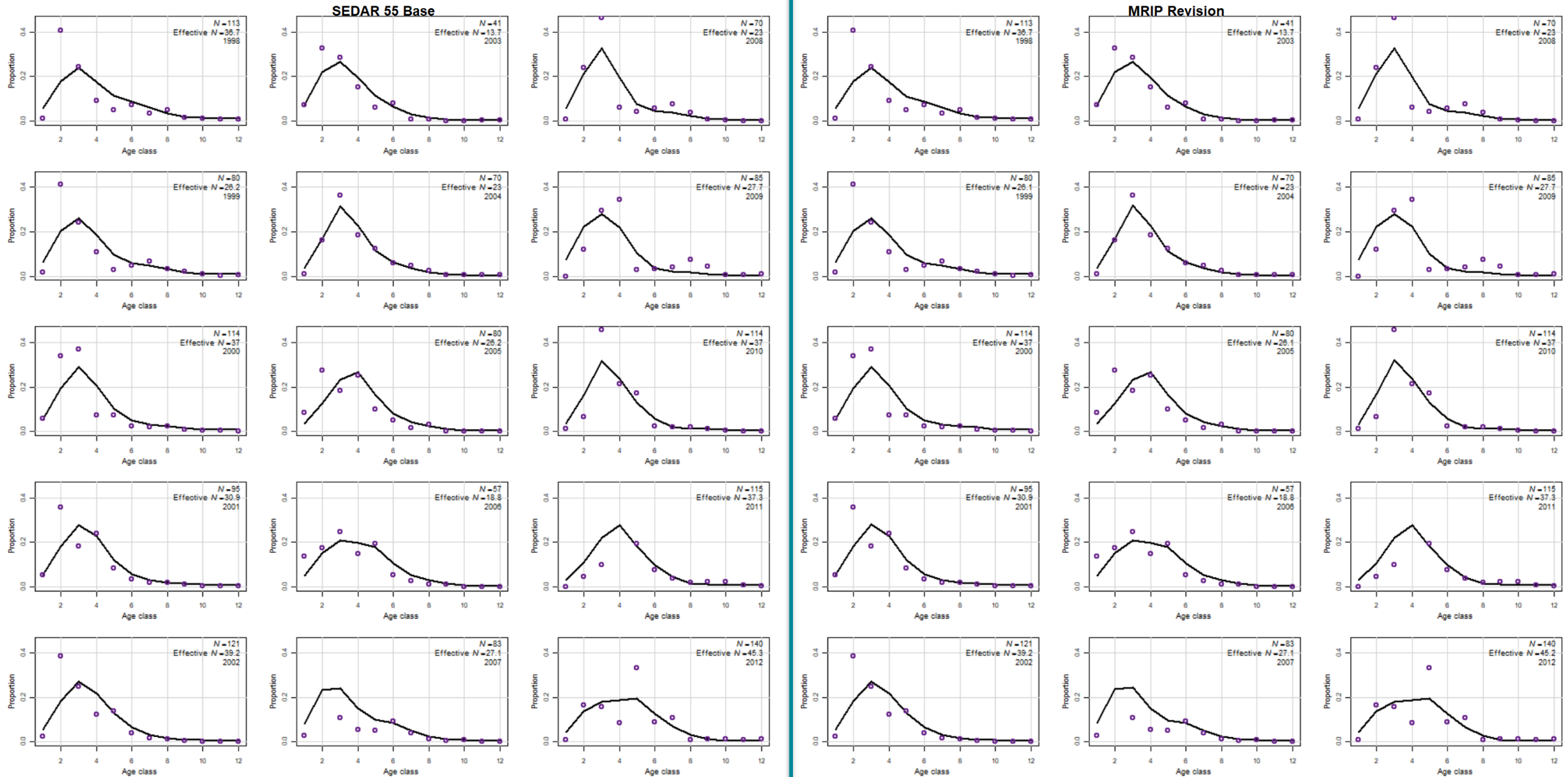


# VS size and age comps



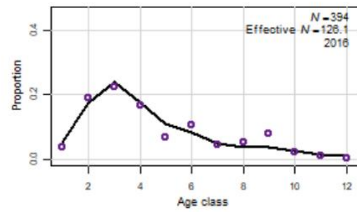
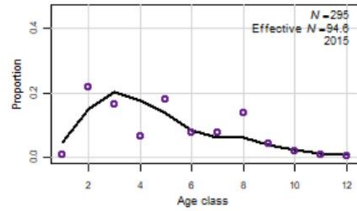
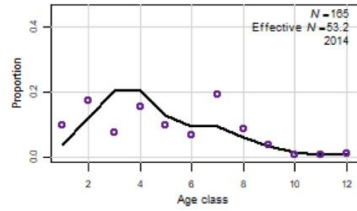
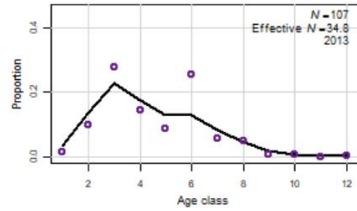


# VS size and age comps

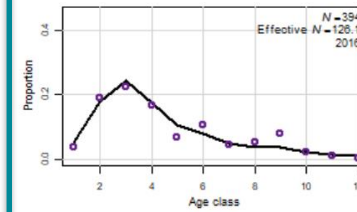
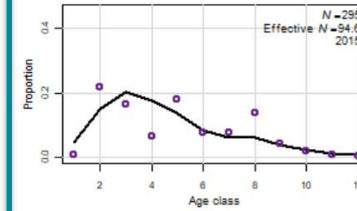
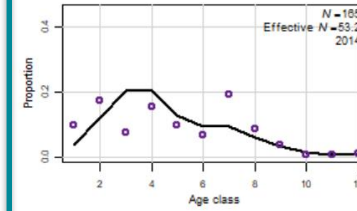
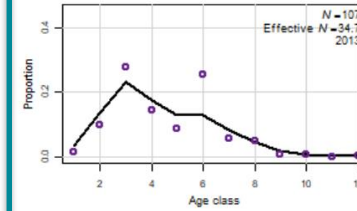


# VS size and age comps

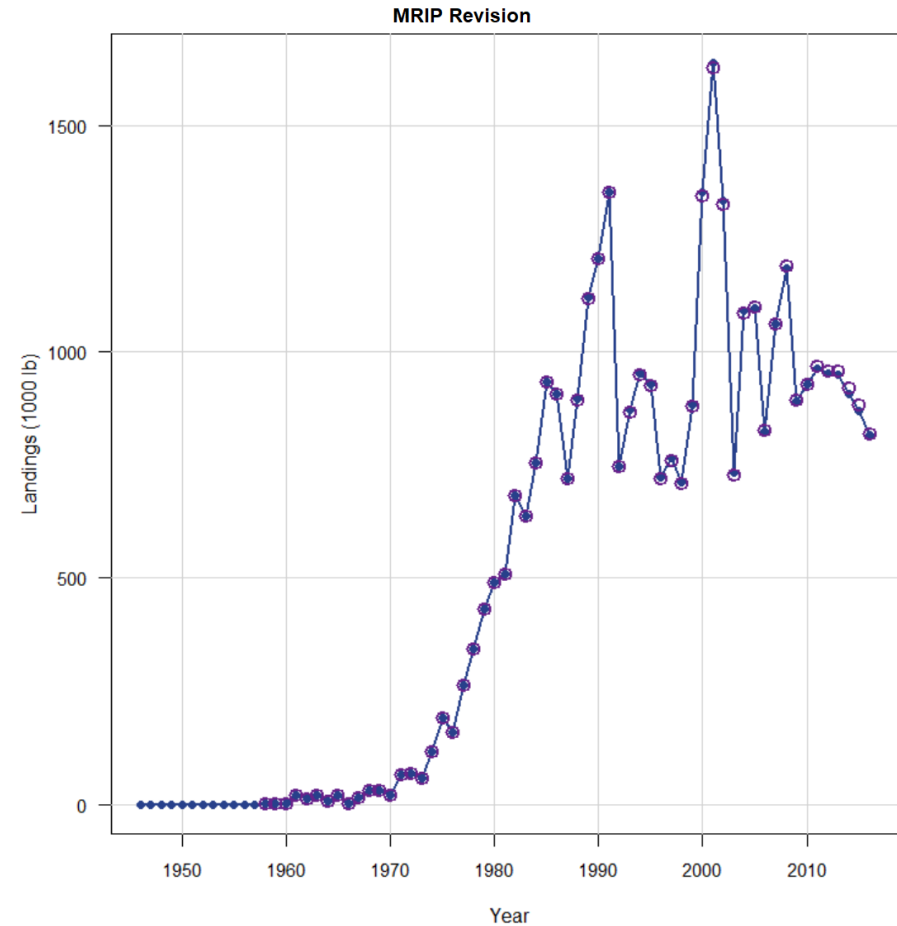
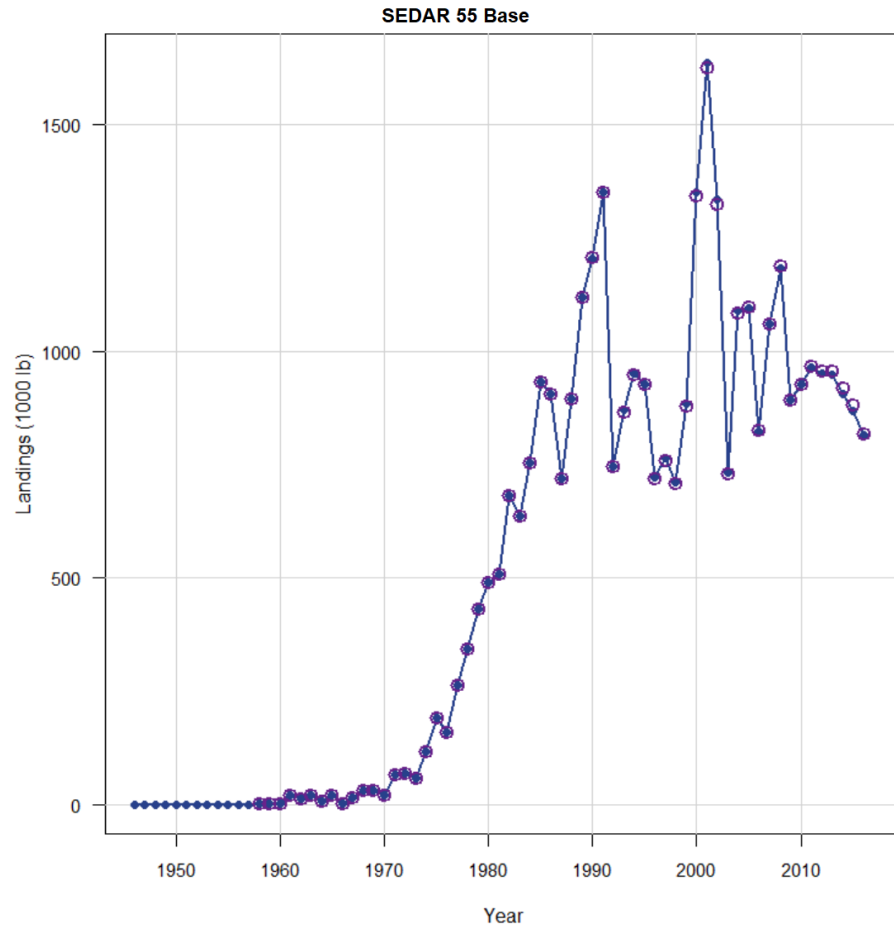
SEDAR 55 Base



MRIP Revision

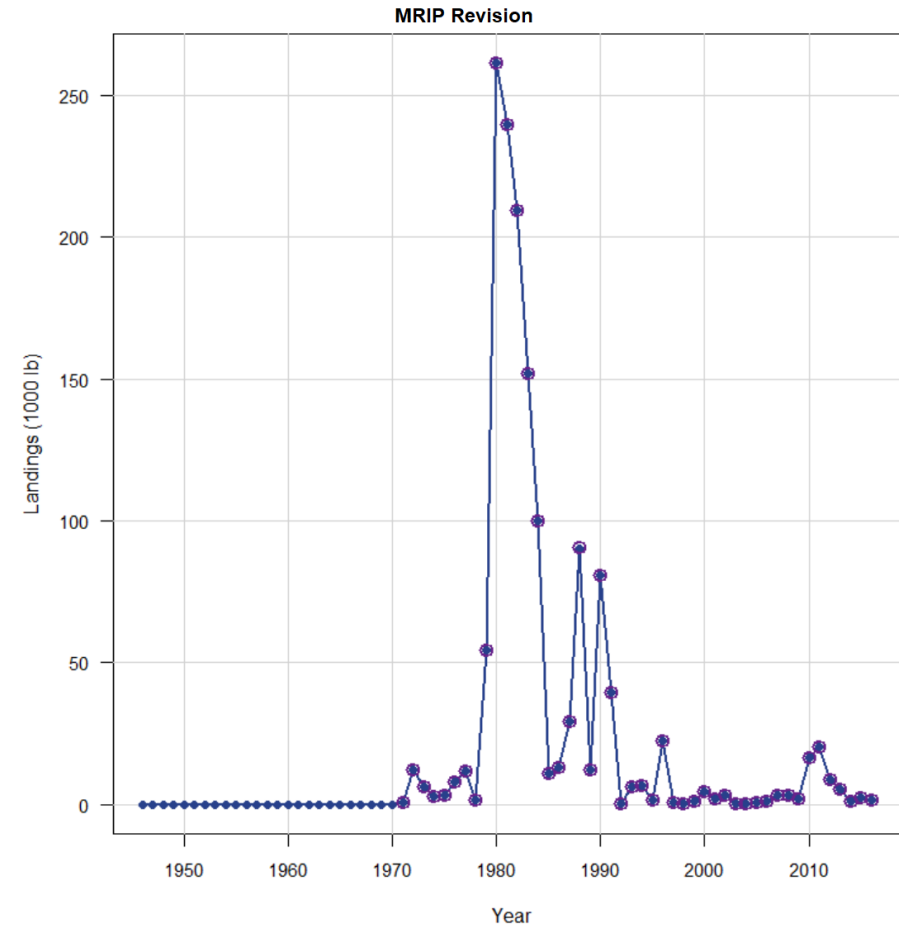
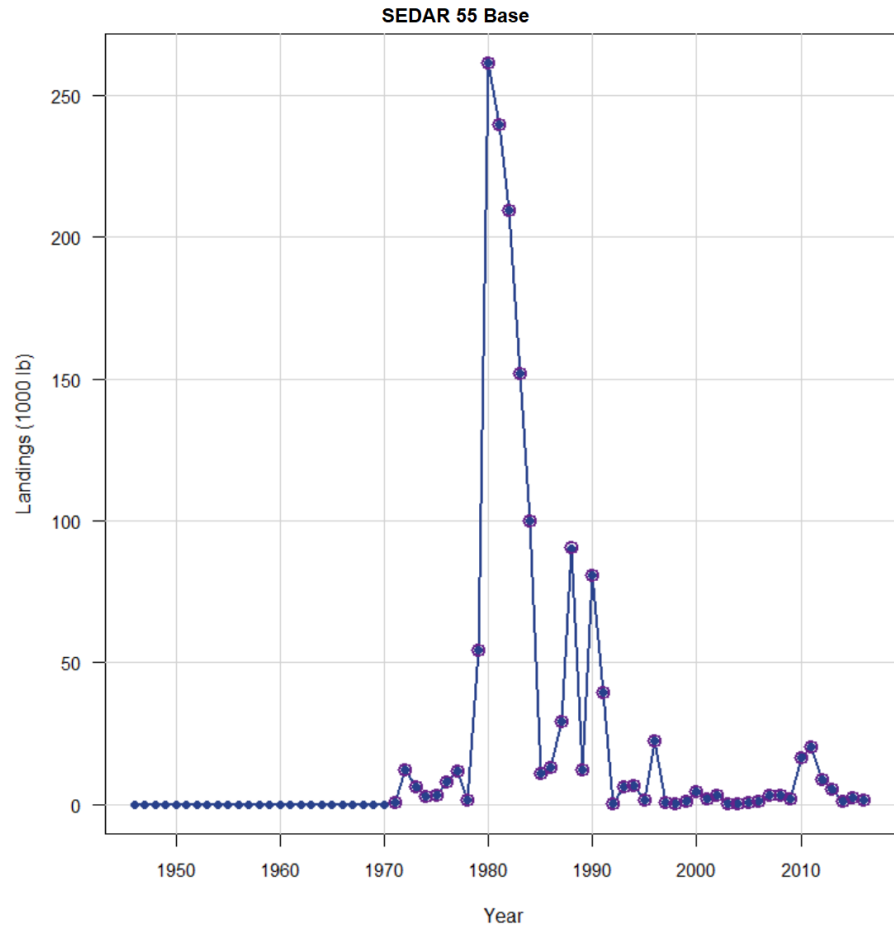


# VS comm handline landings

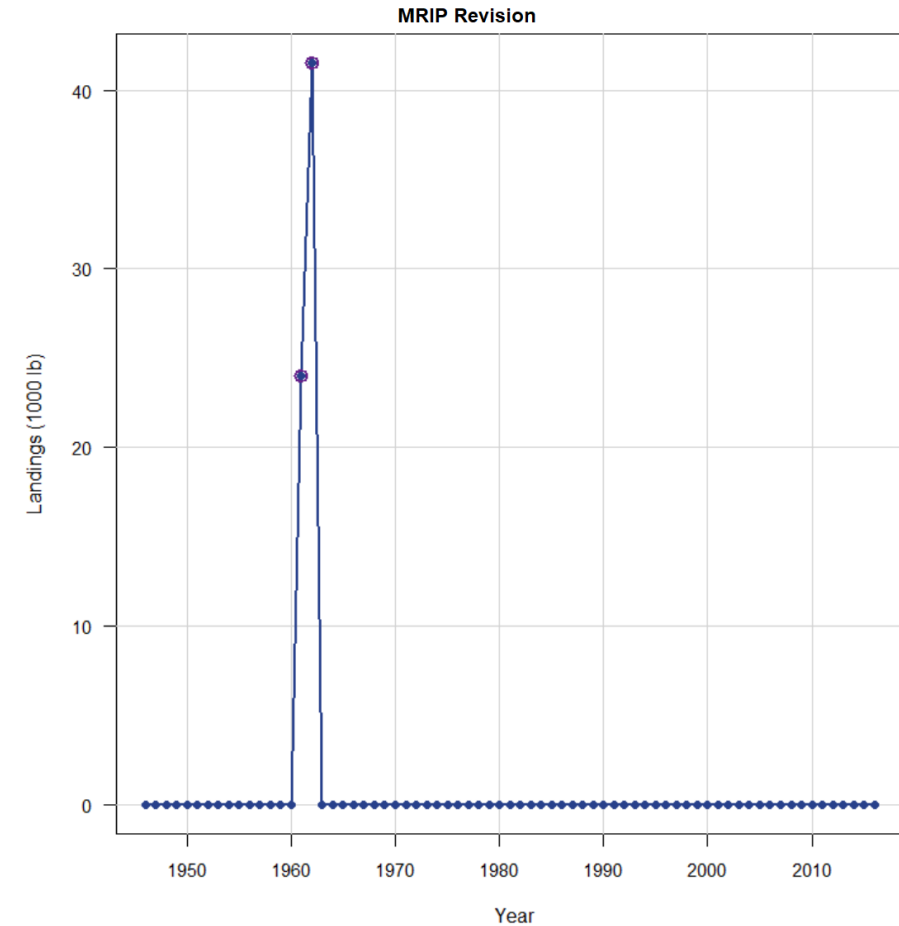
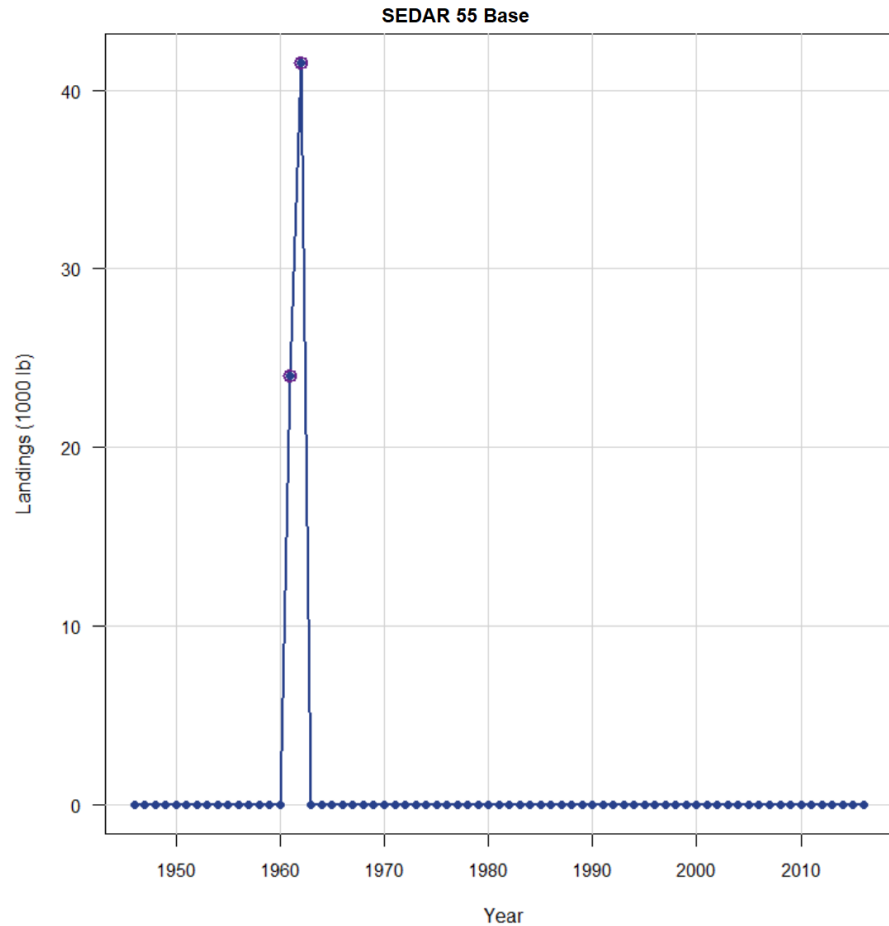




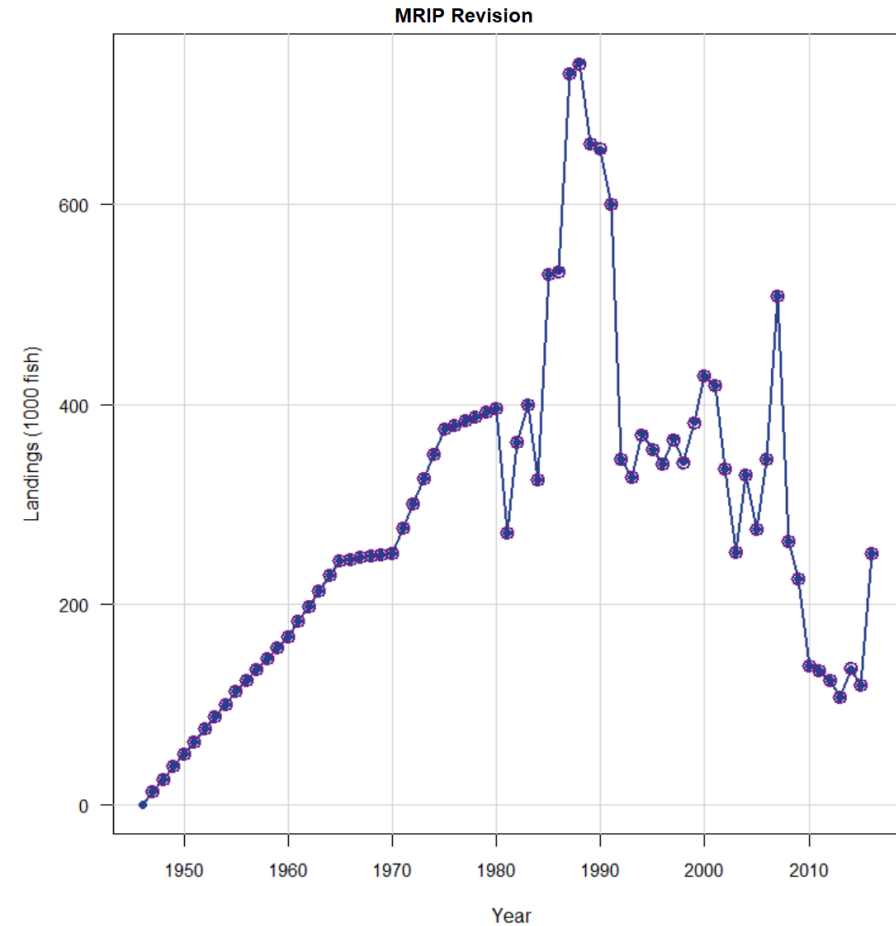
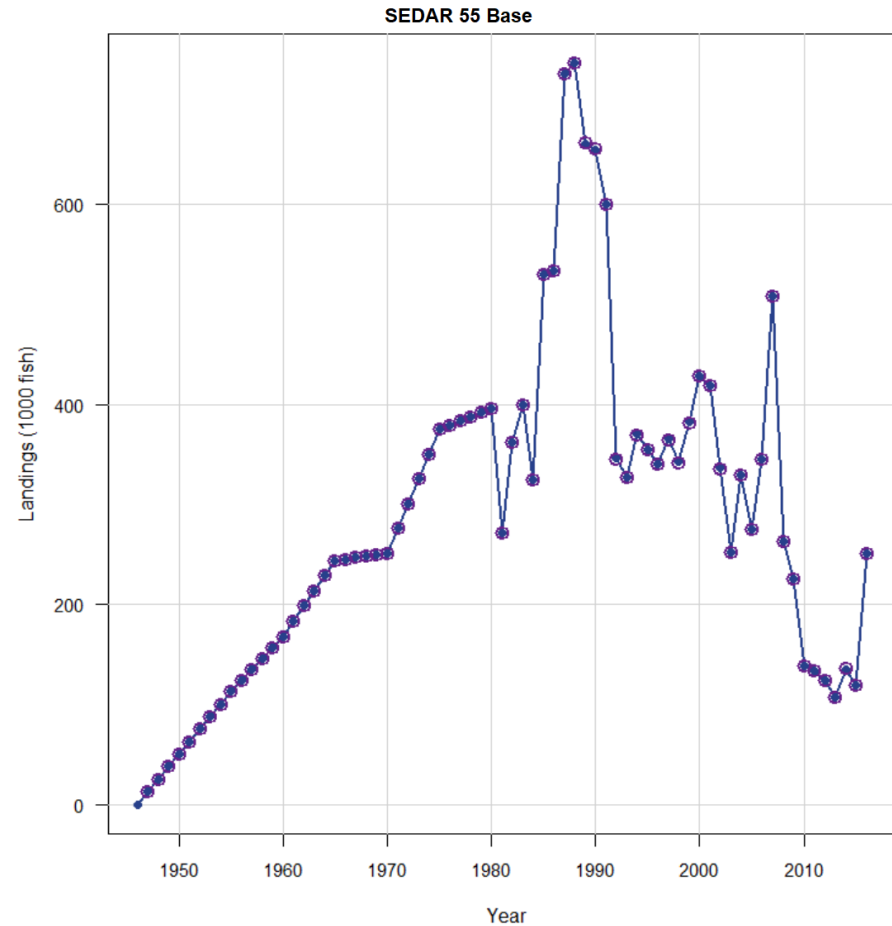
# VS comm other landings



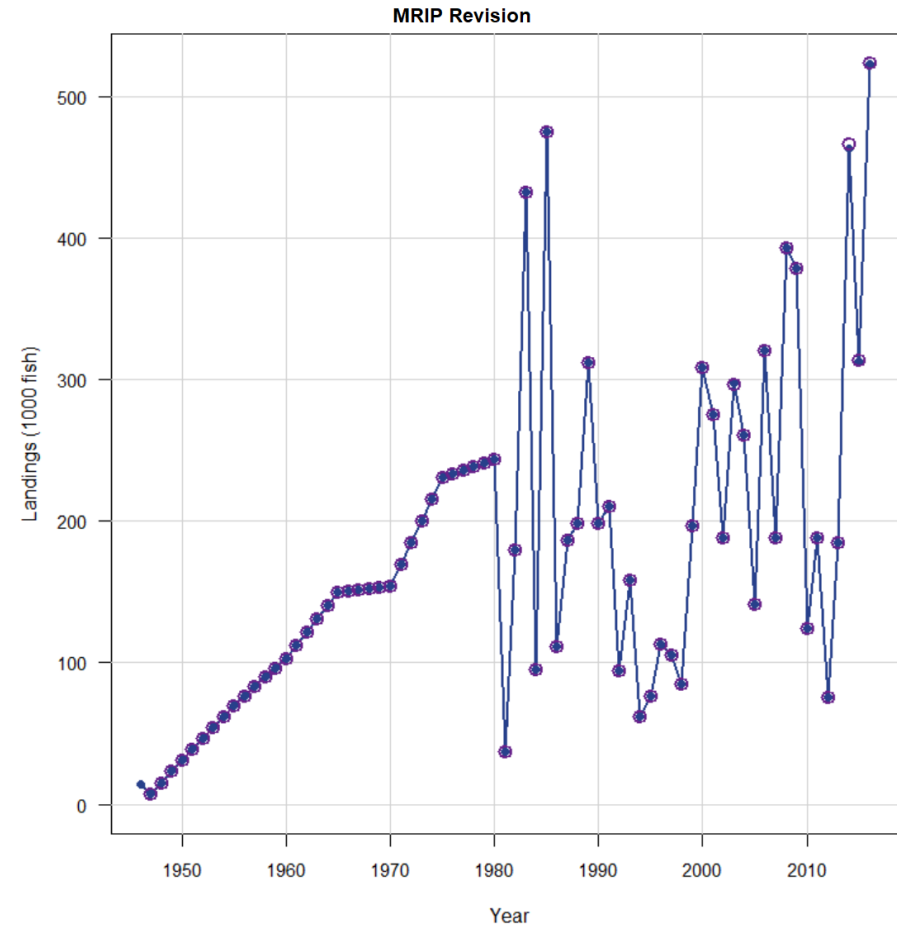
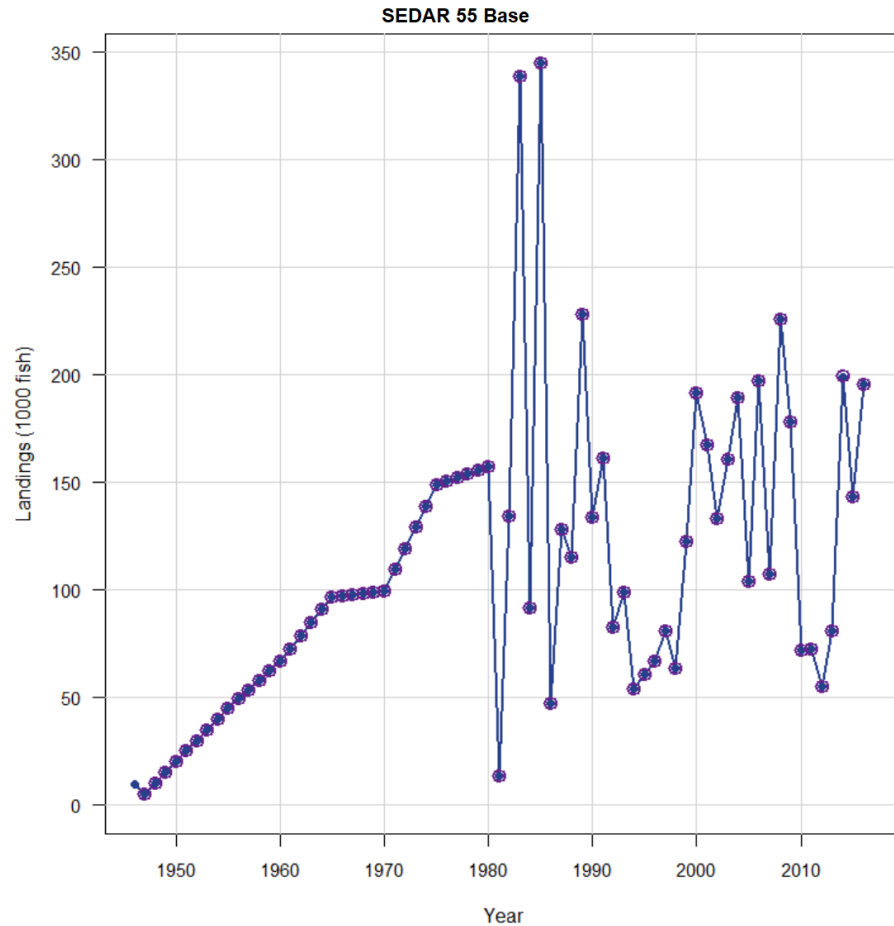
# VS comm historic trawl landings



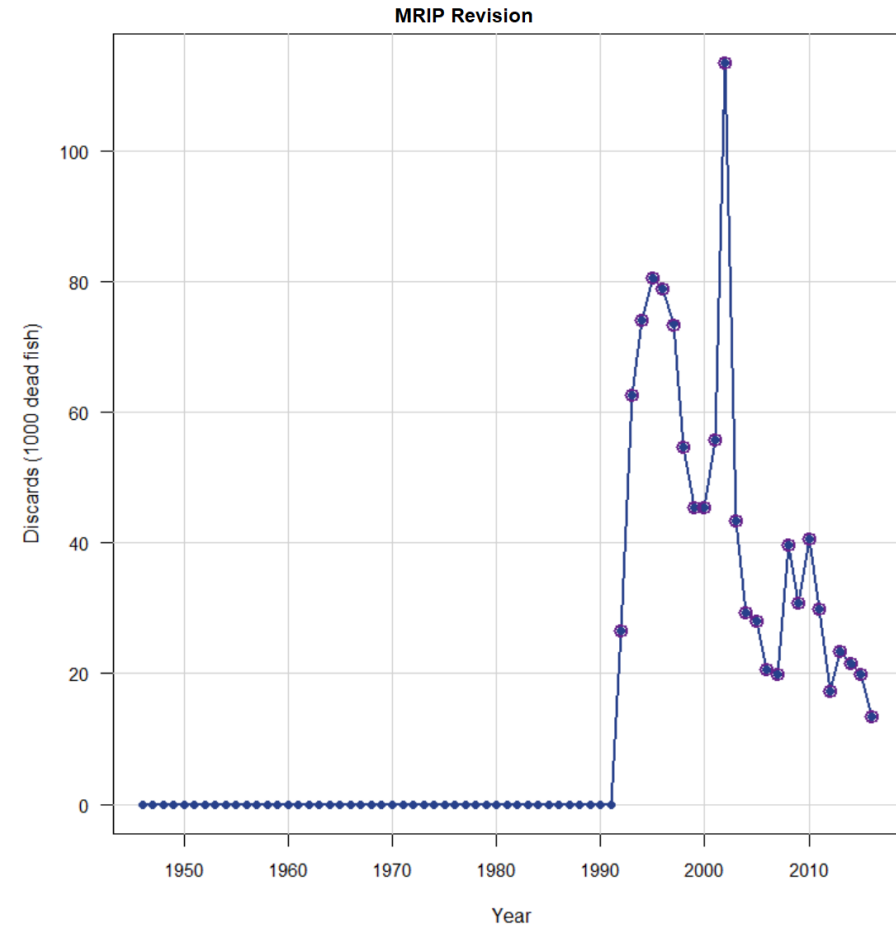
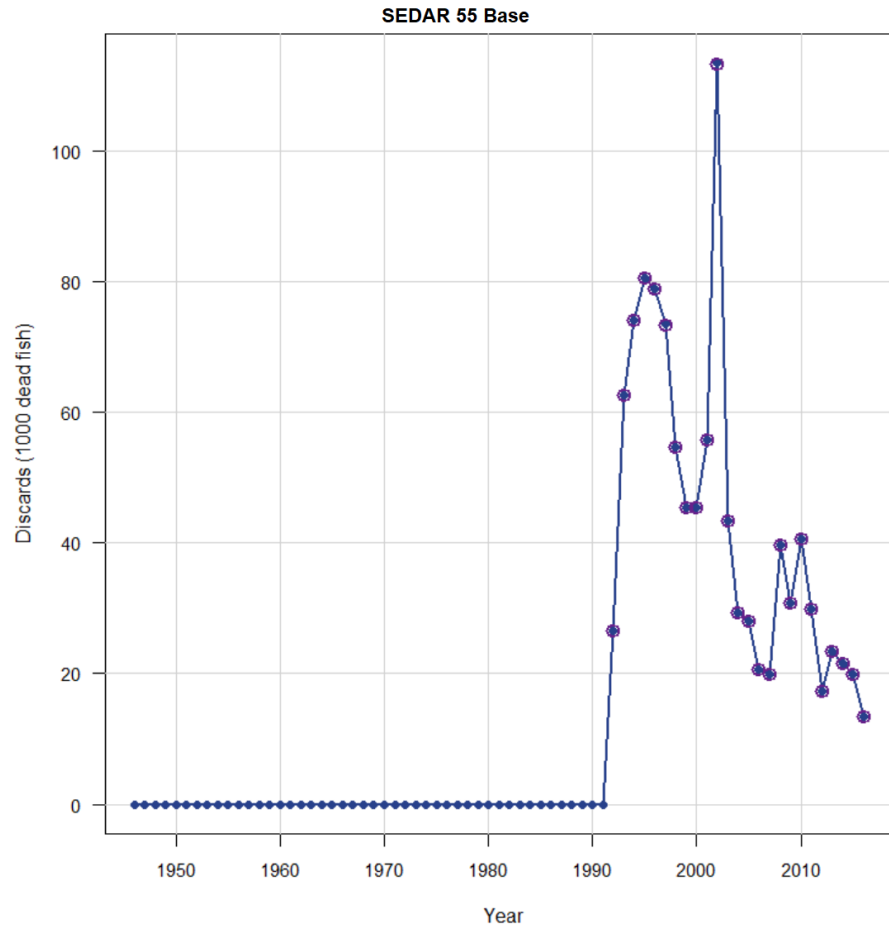
# VS headboat landings



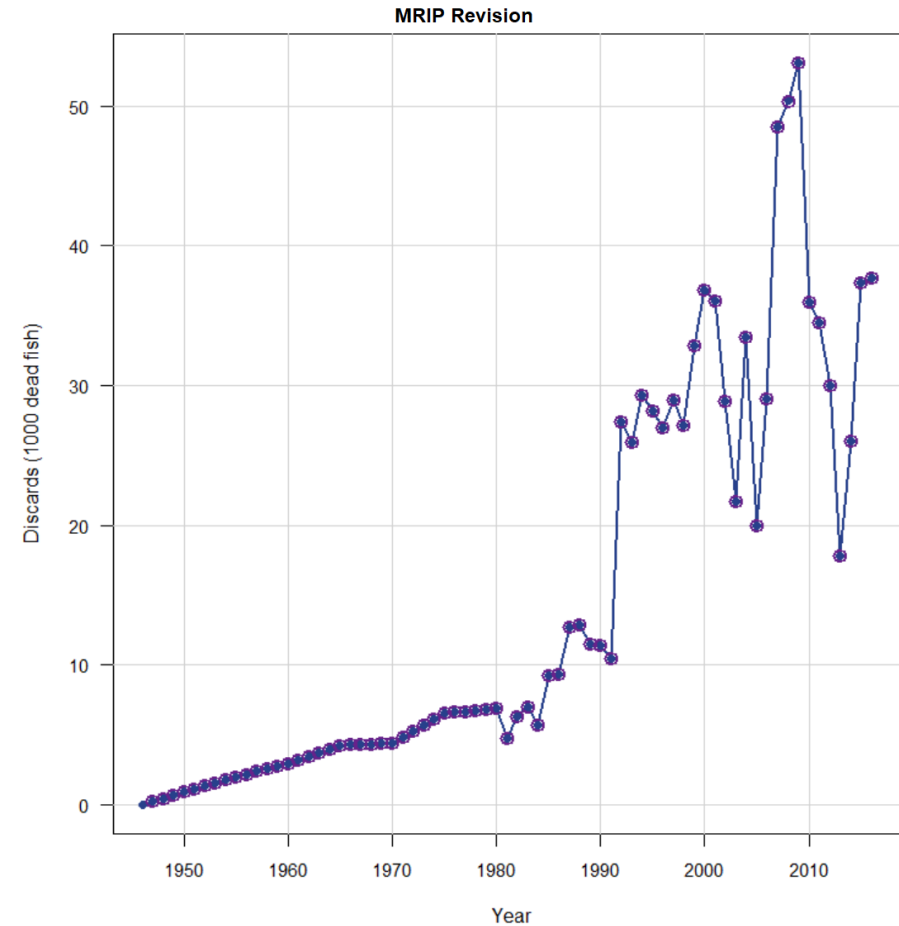
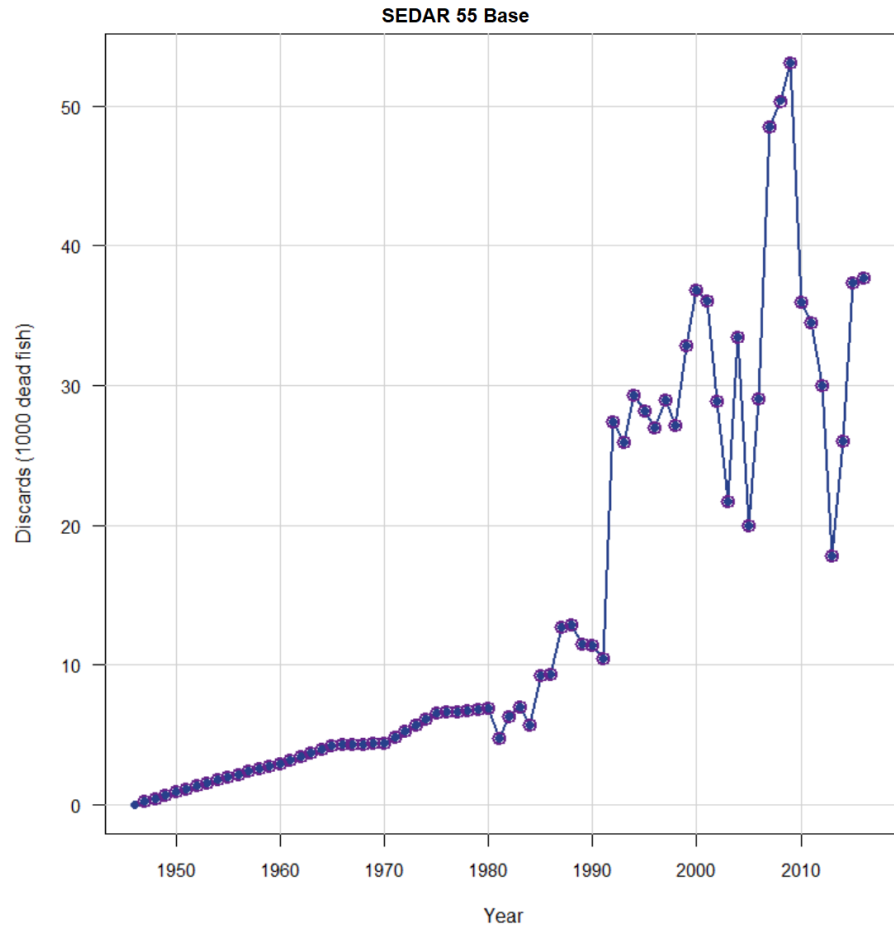
# VS general recreational landings



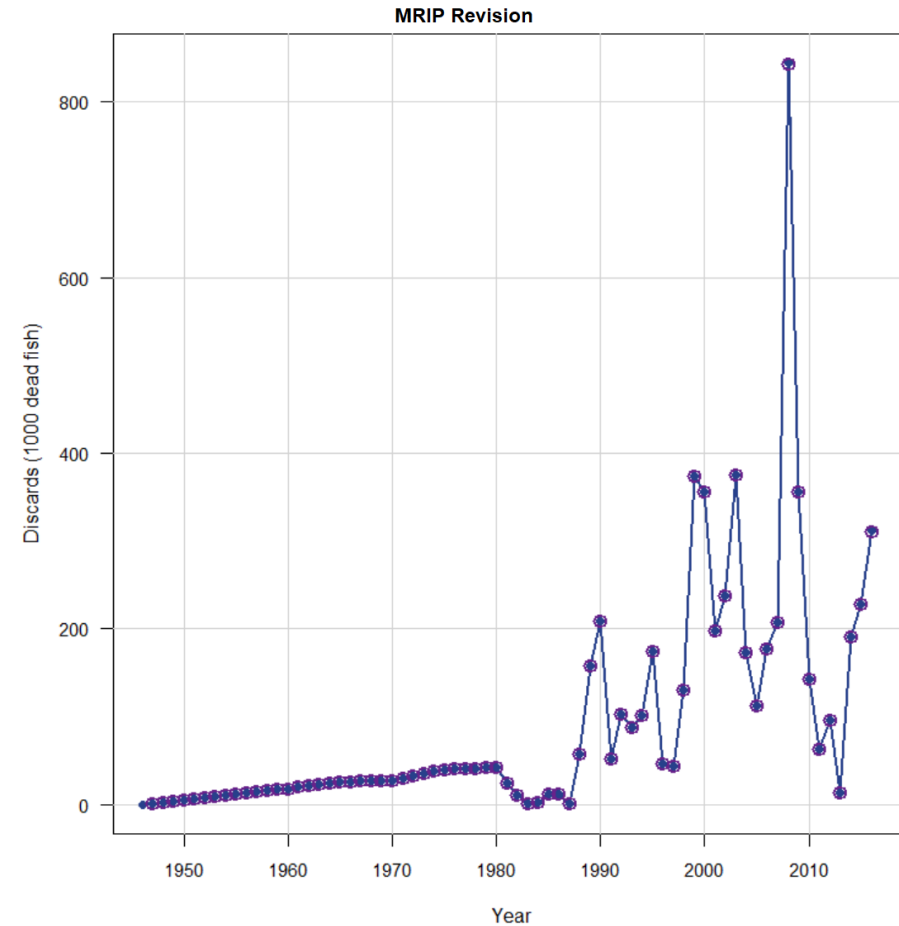
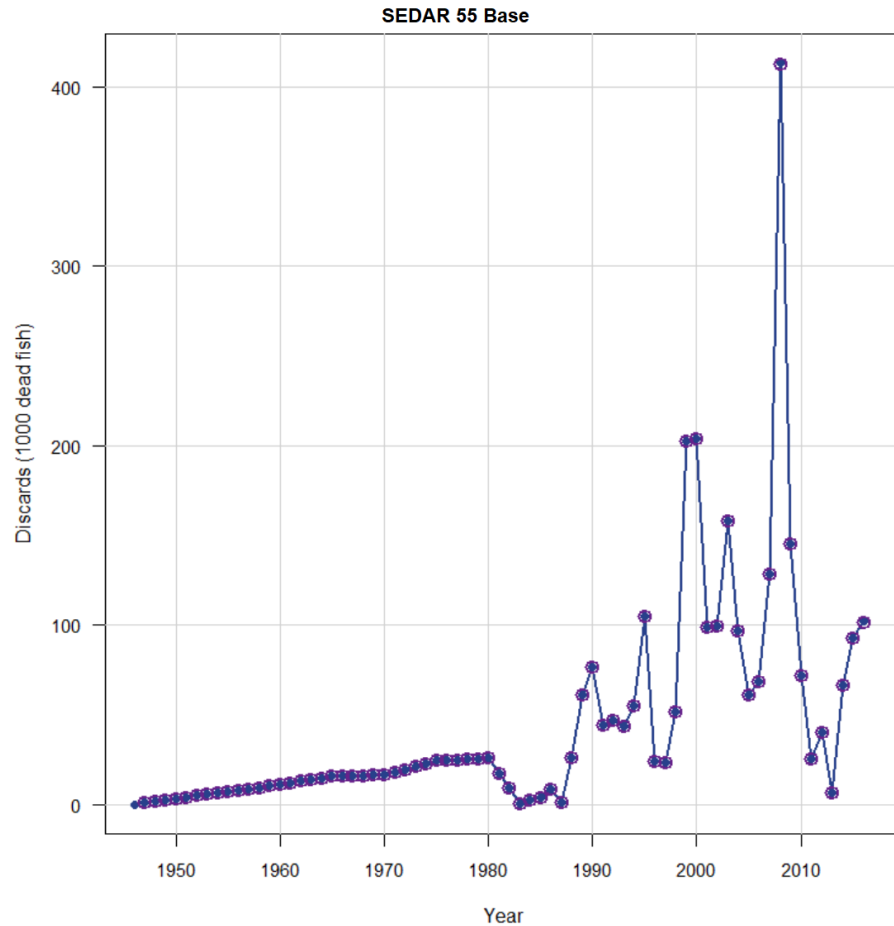
# VS comm handline discard mortality



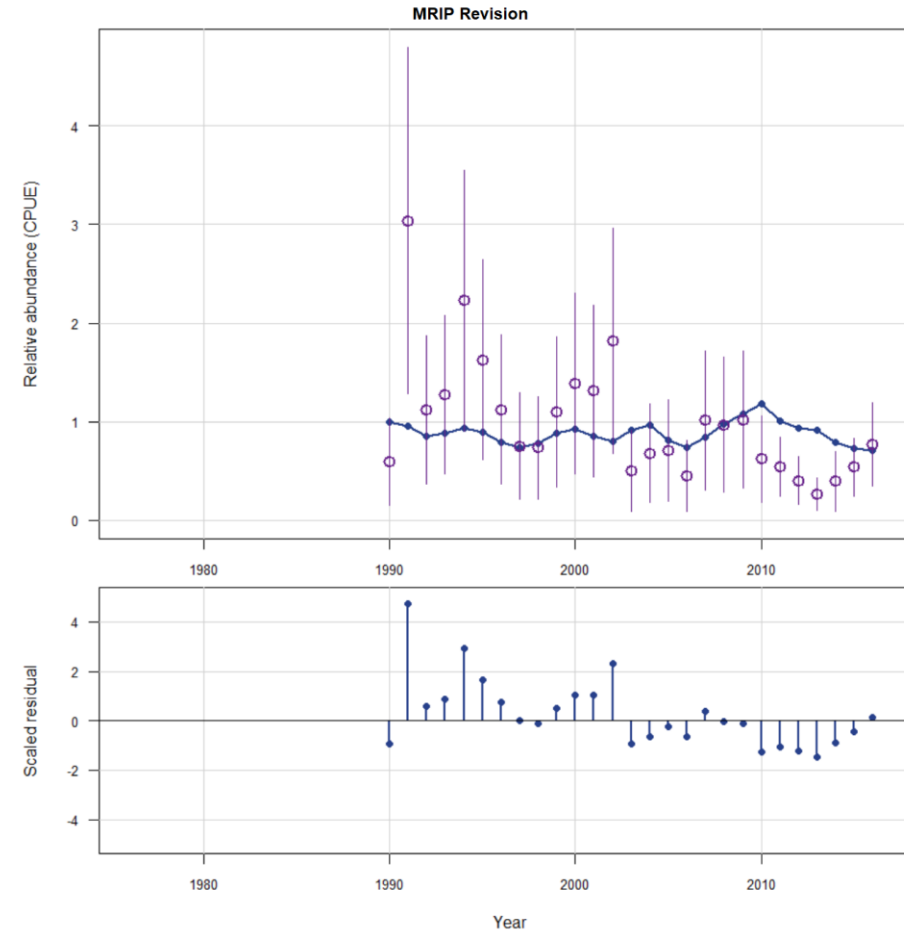
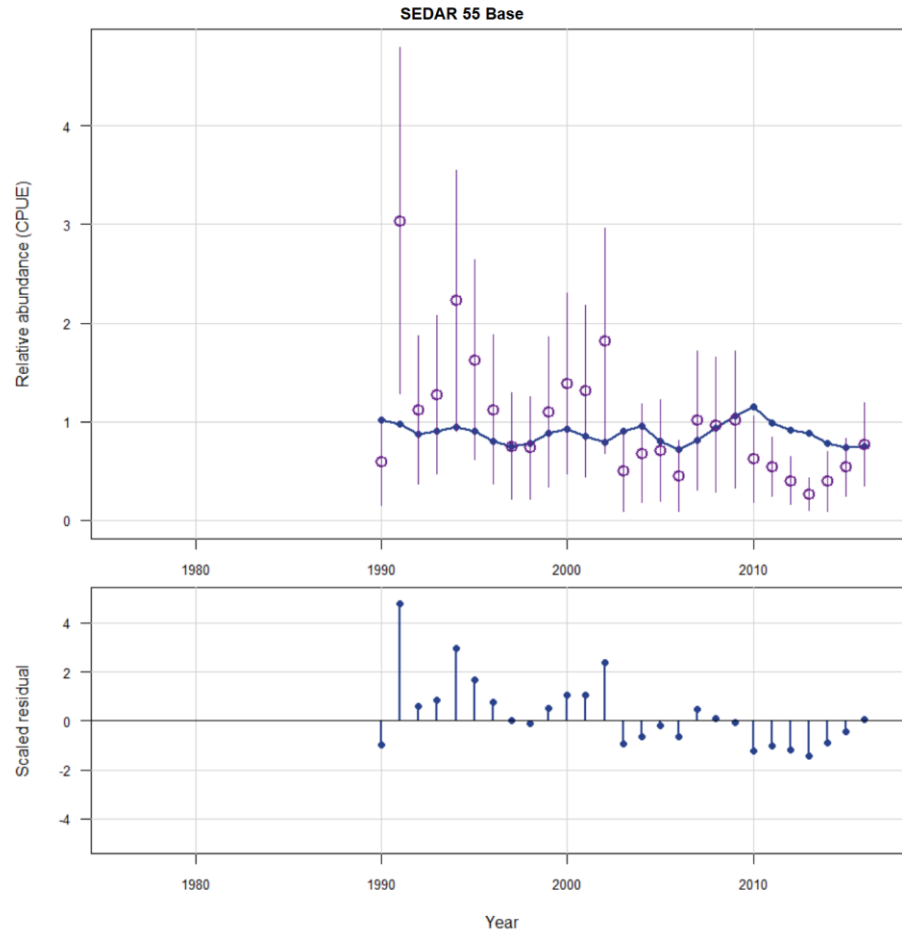
# VS headboat discard mortality



# VS general recreational discard mortality

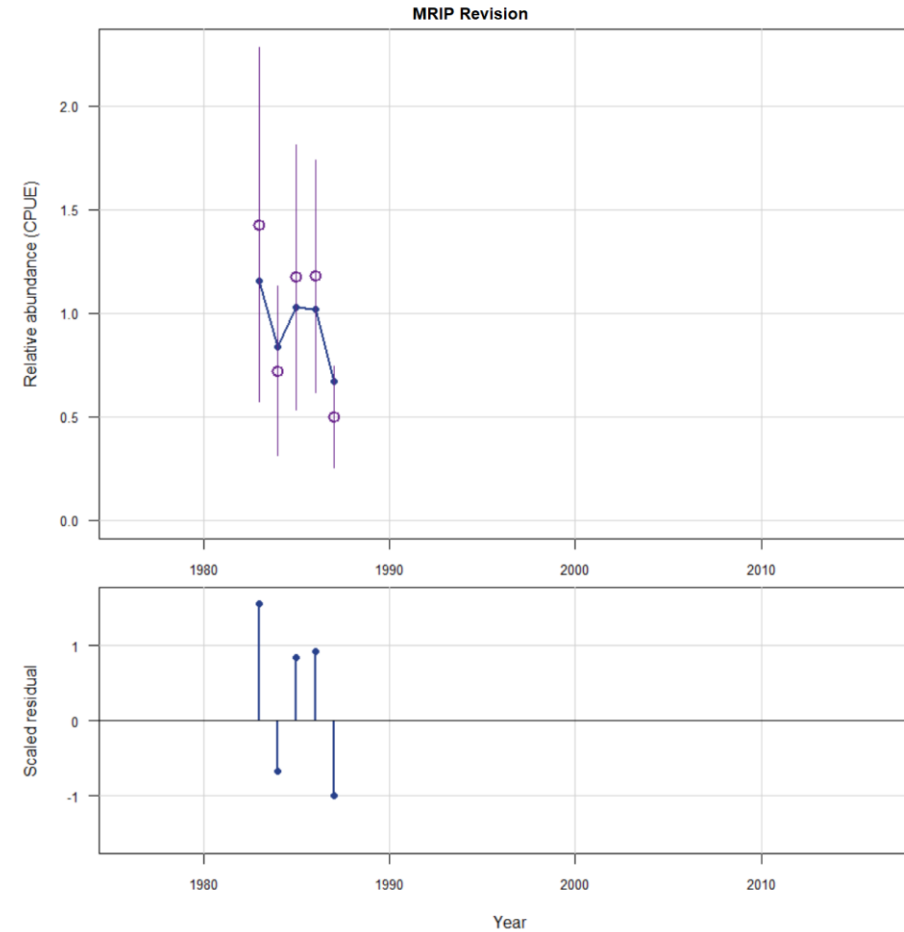
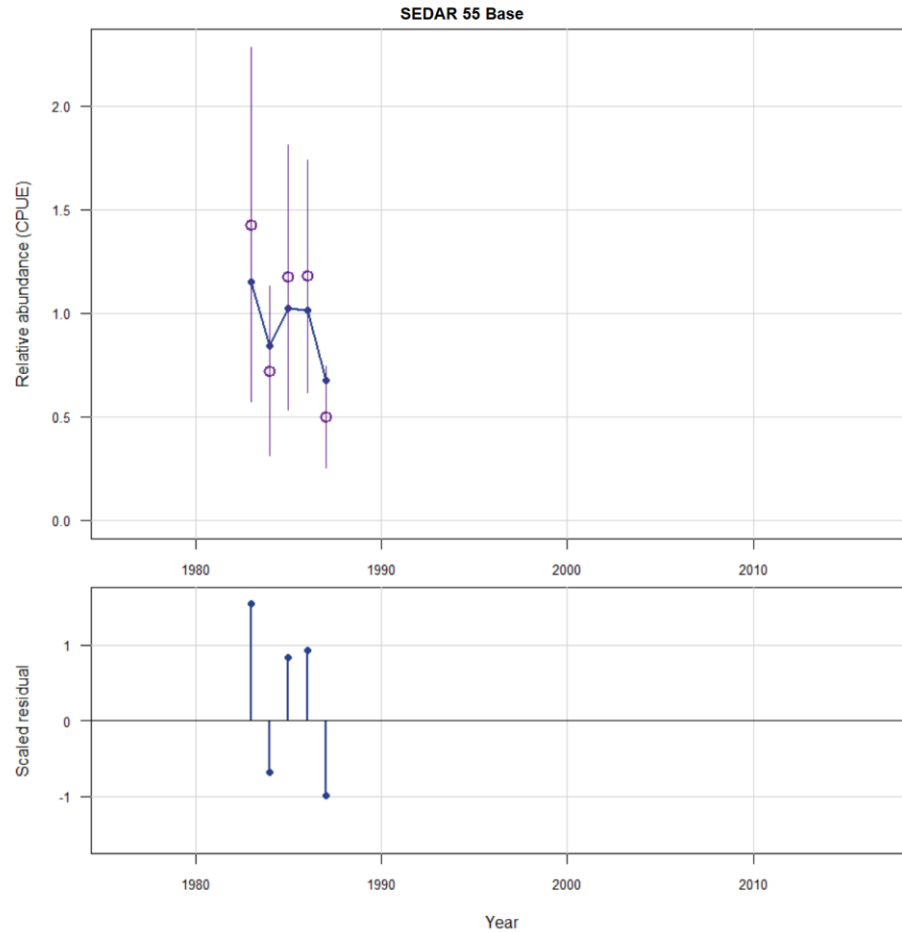


# VS SERFS chevron trap/video index

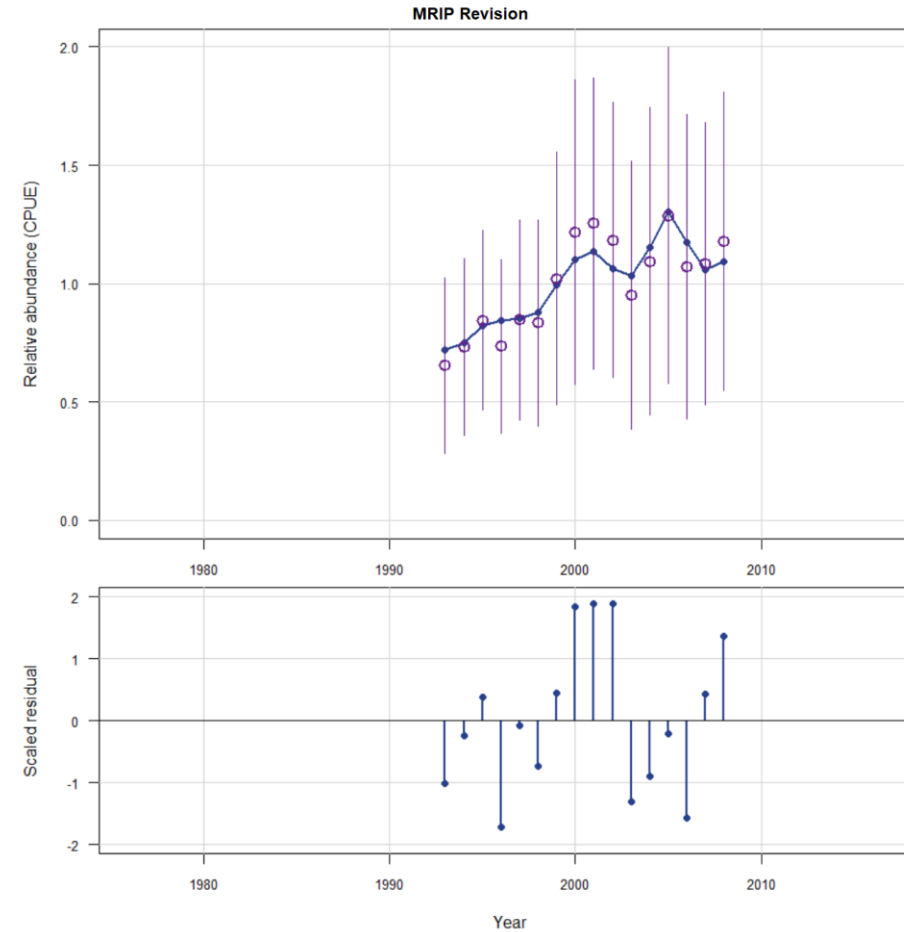
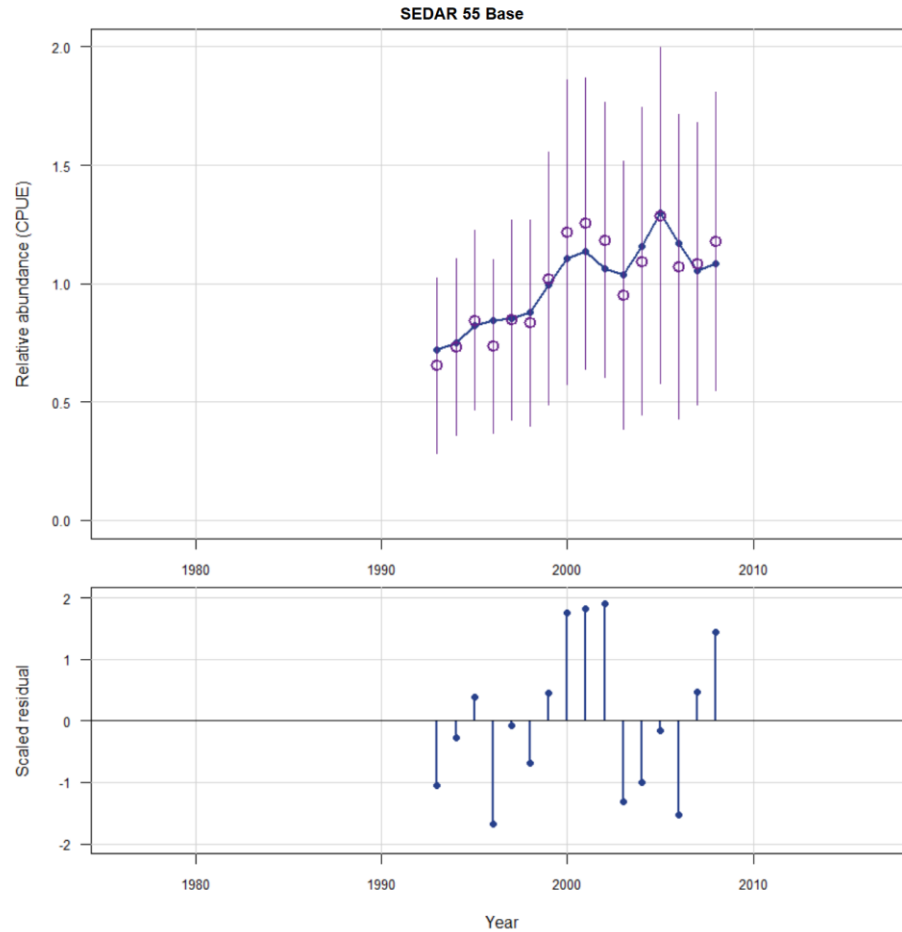




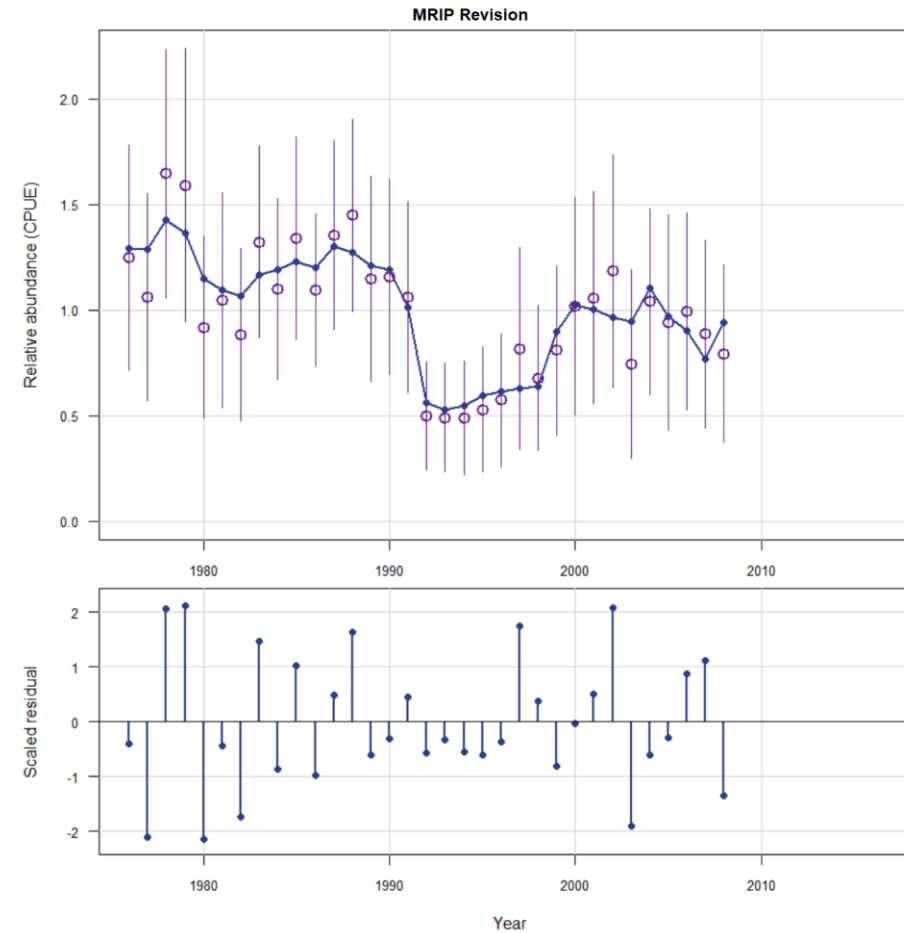
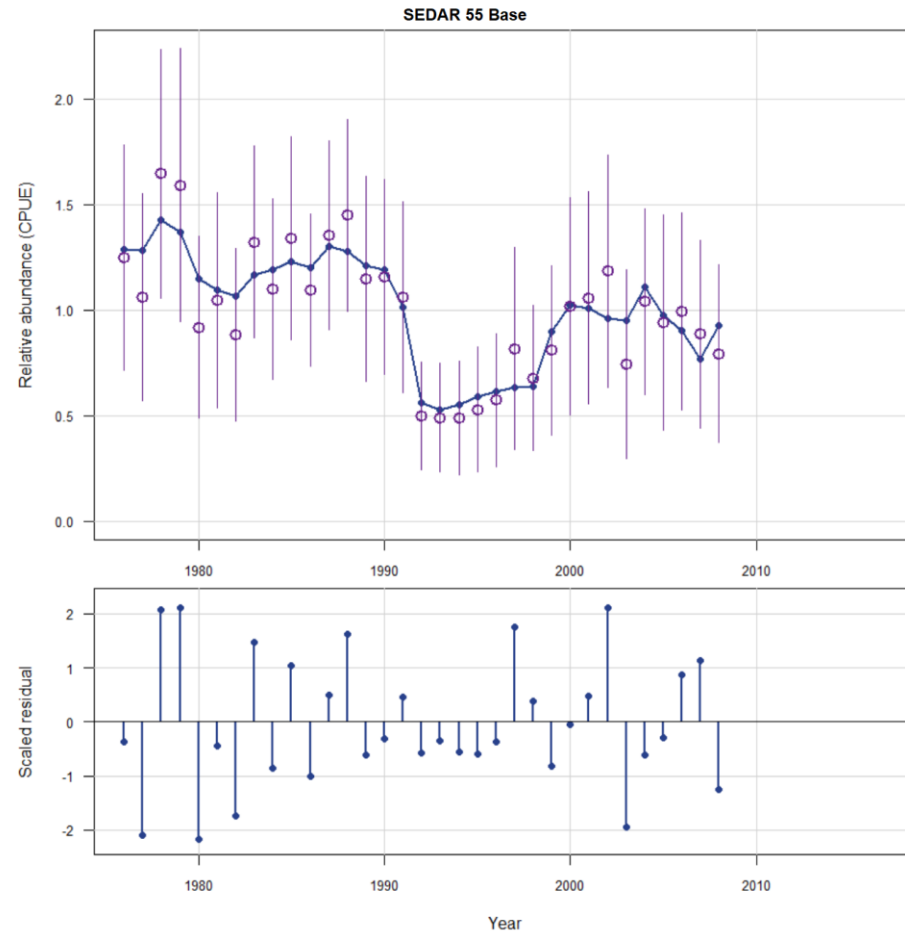
# VS MARMAP snapper trap index



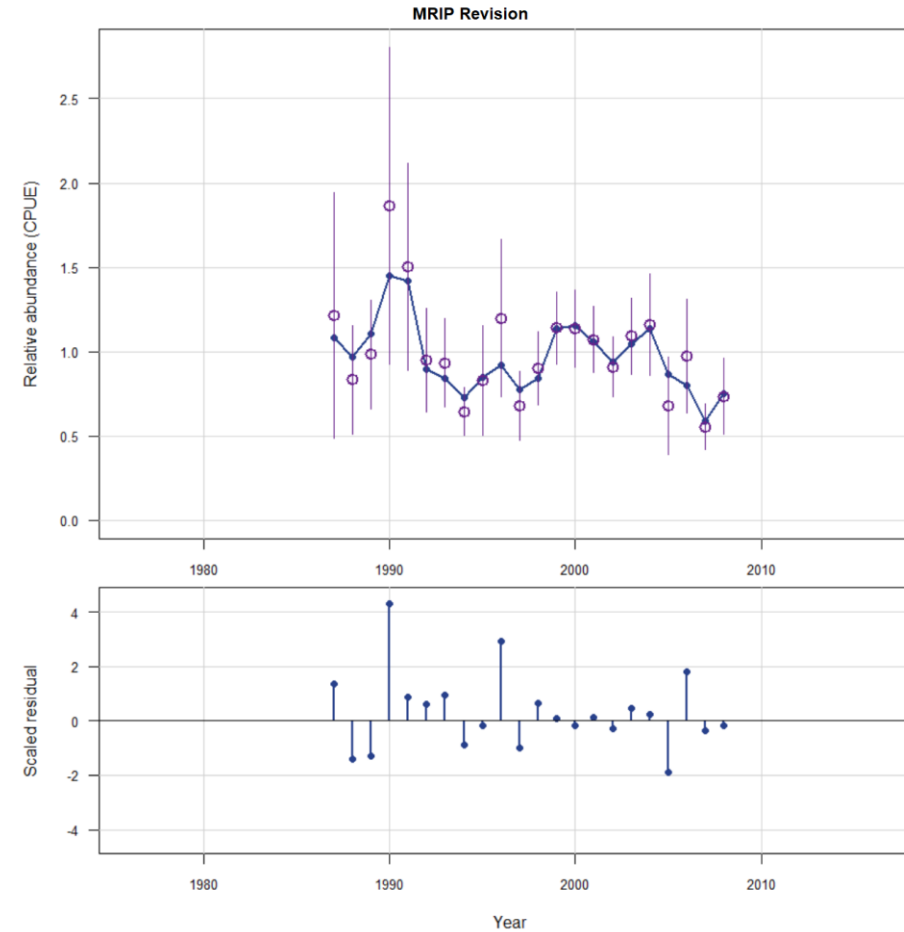
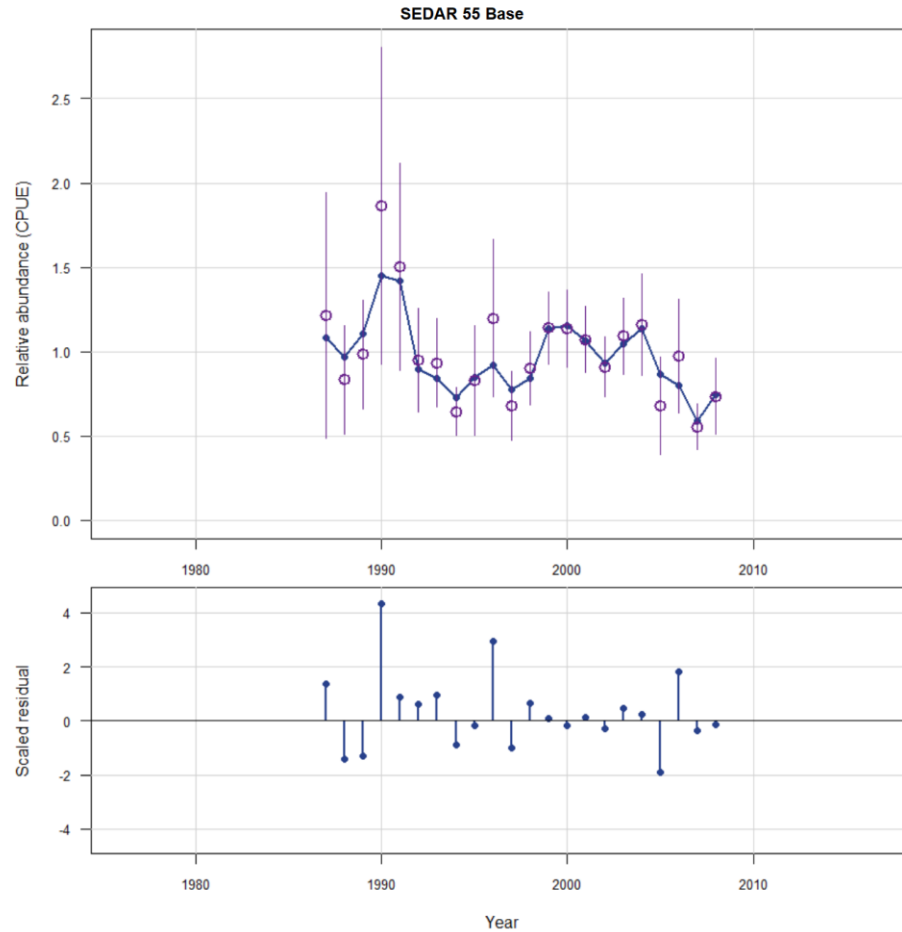
# VS commercial handline index



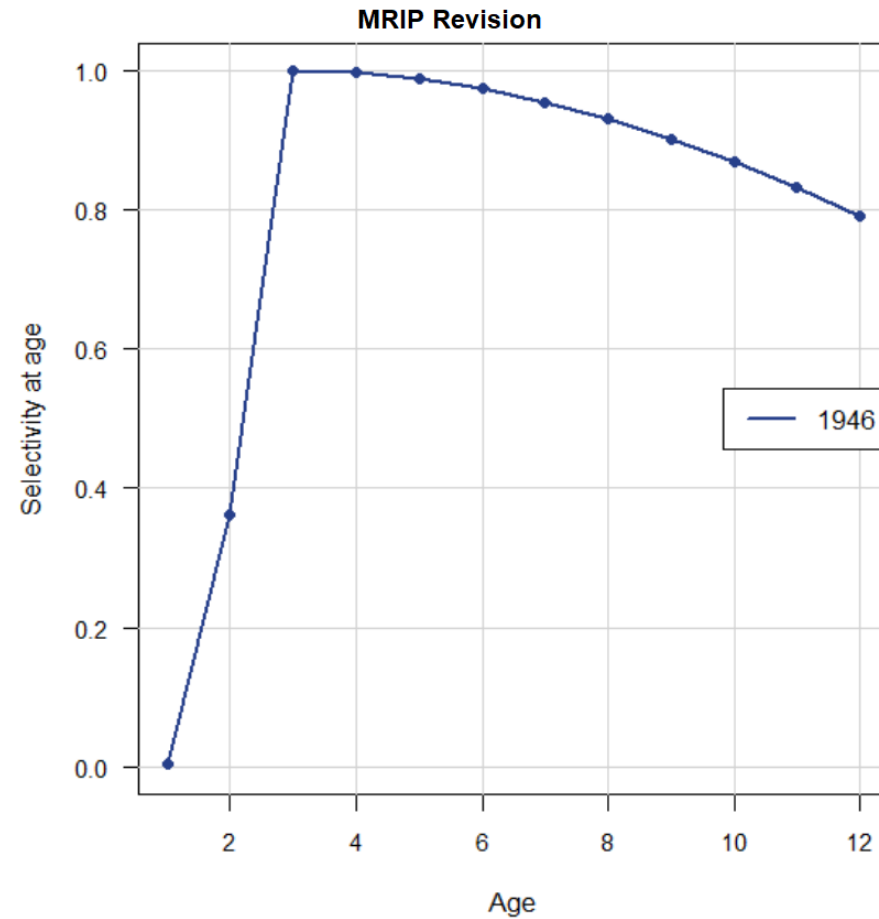
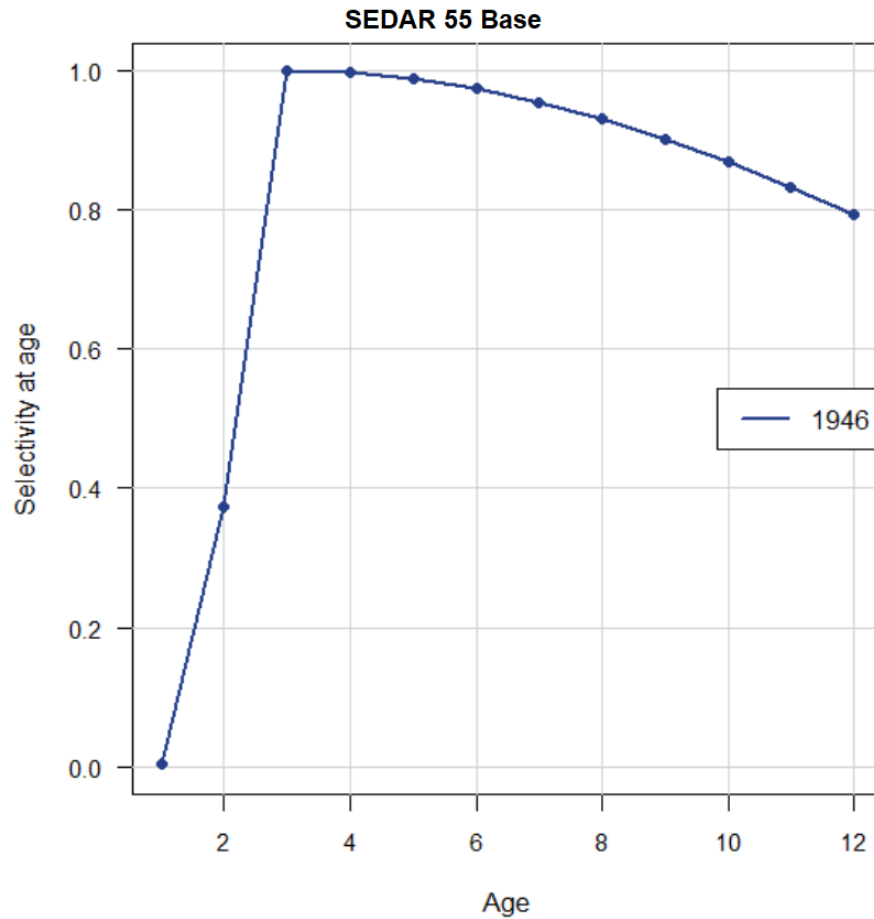
# VS headboat index



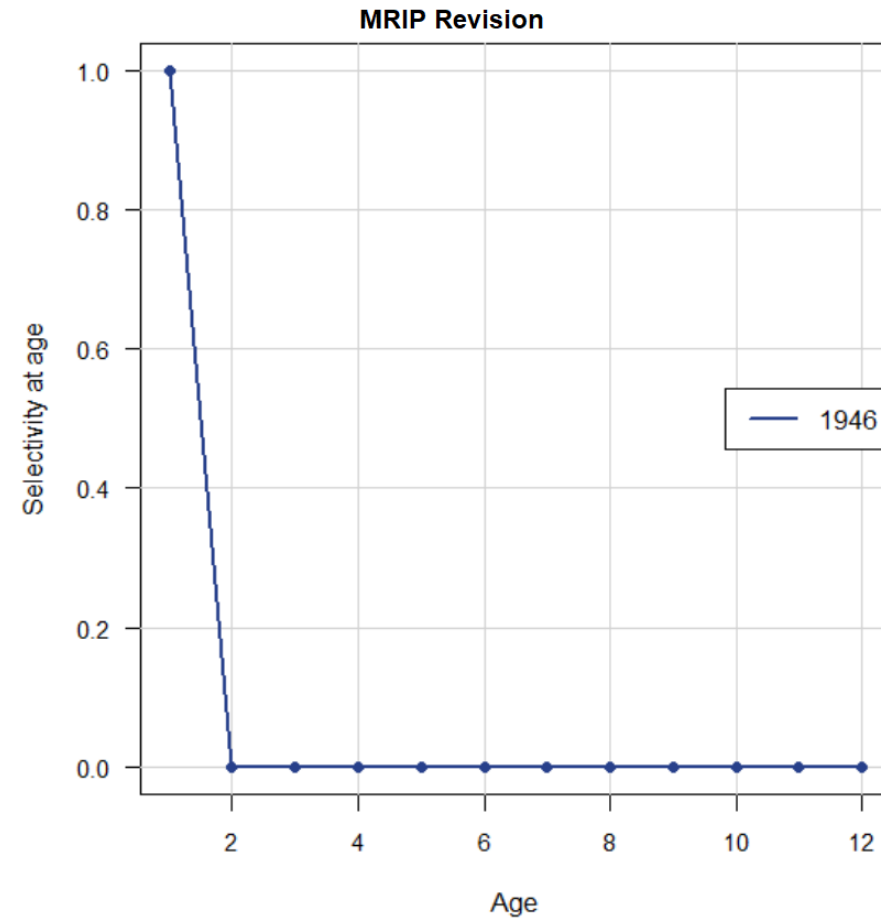
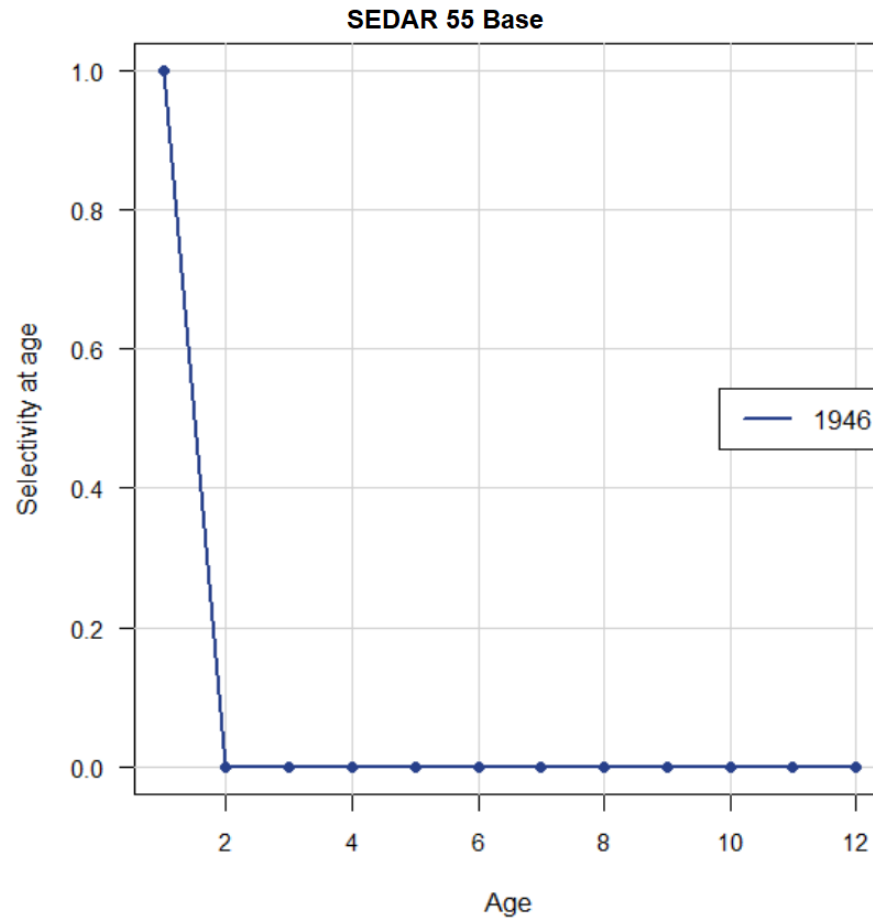
# VS general recreational index



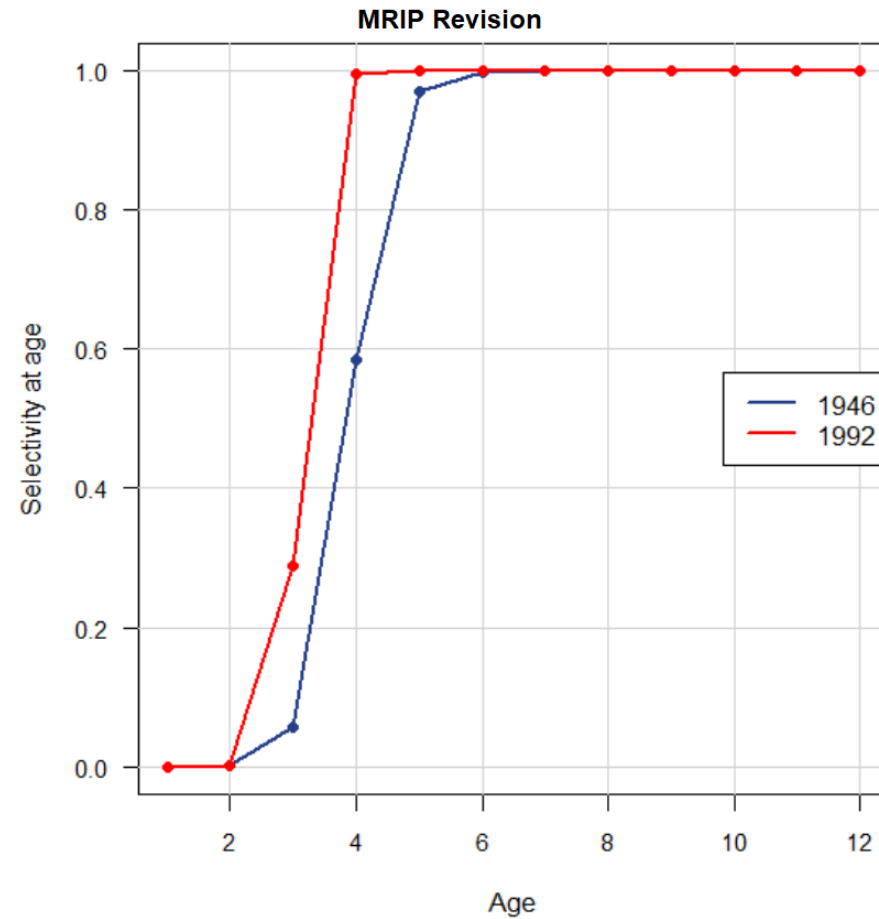
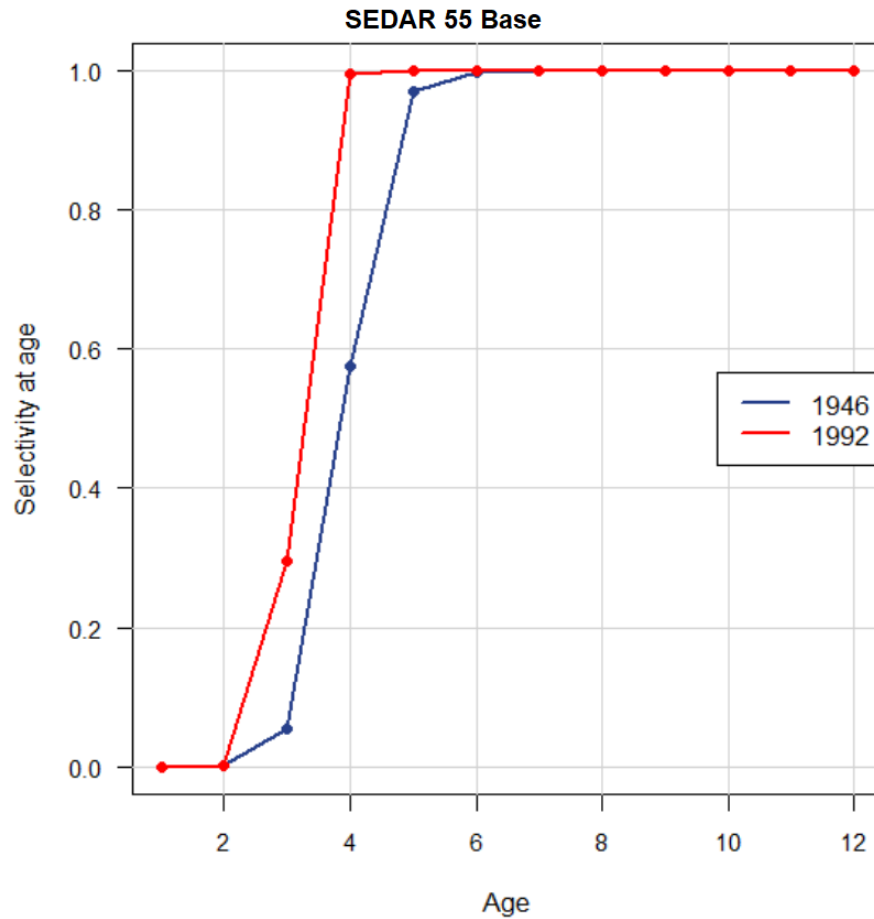
# VS SERFS chevron trap/video selectivity



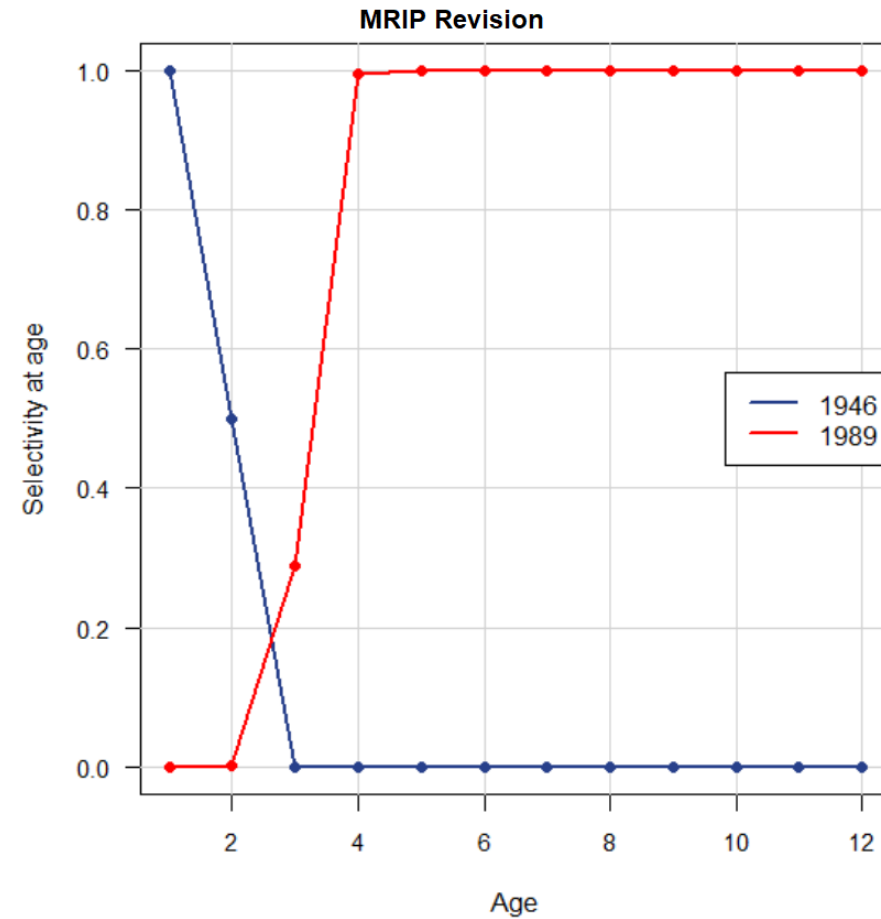
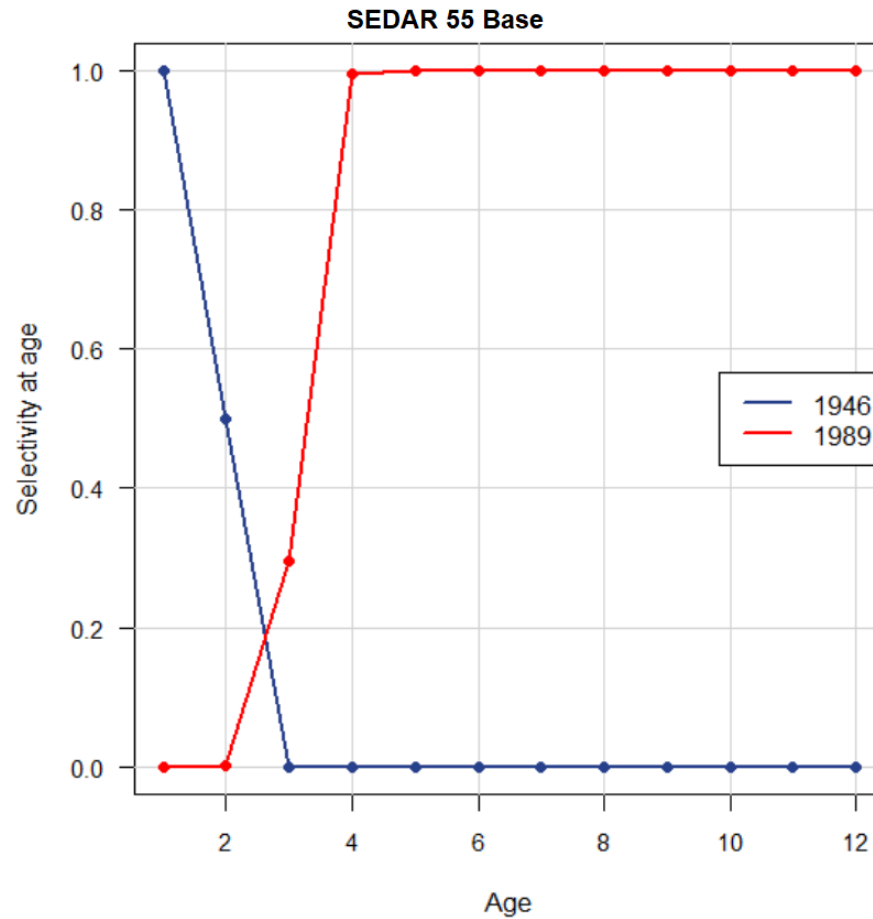
# VS MARMAP snapper trap selectivity



# VS commercial handline landings selectivity

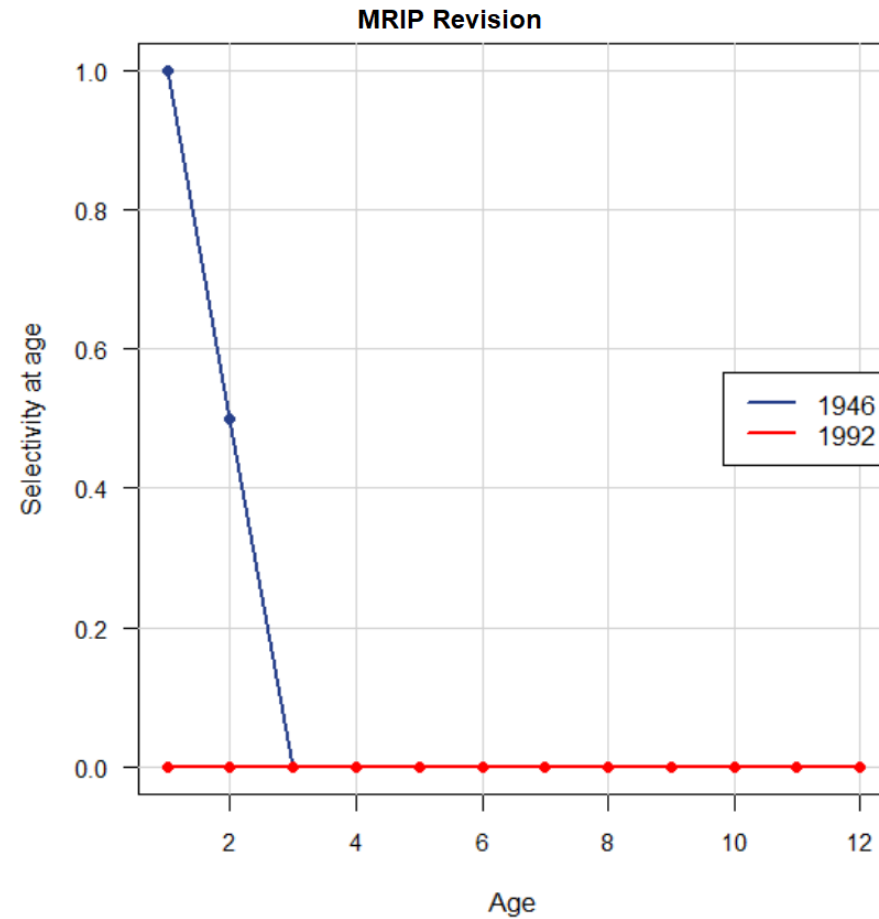
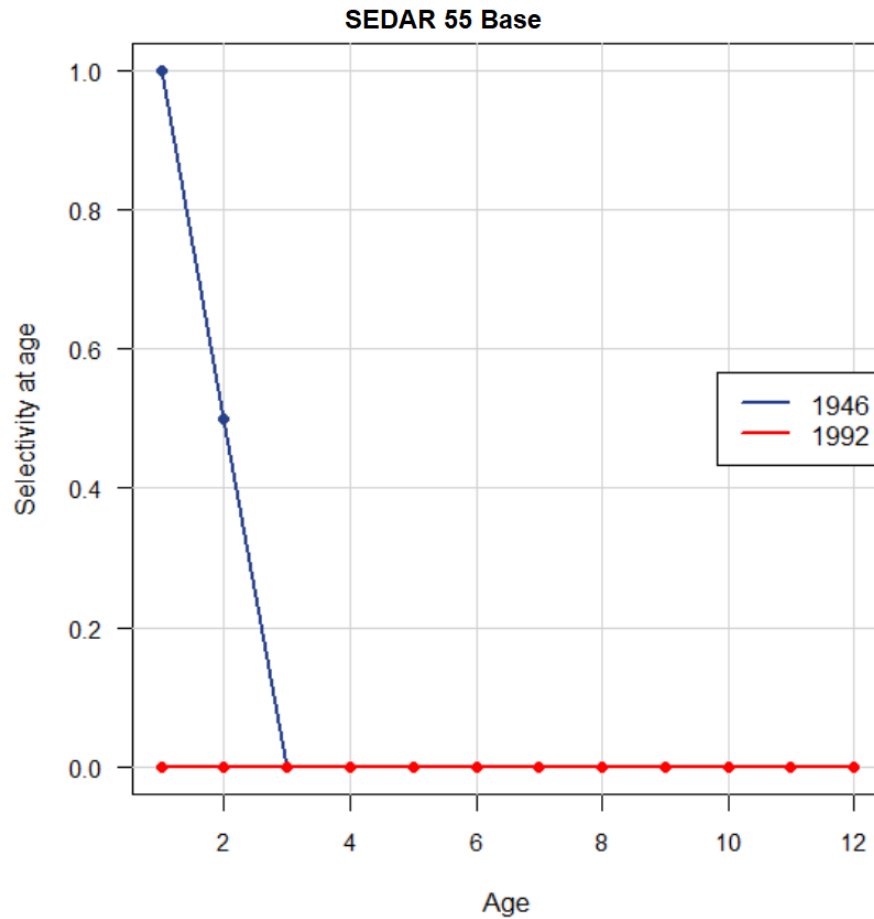


# VS commercial other landings selectivity

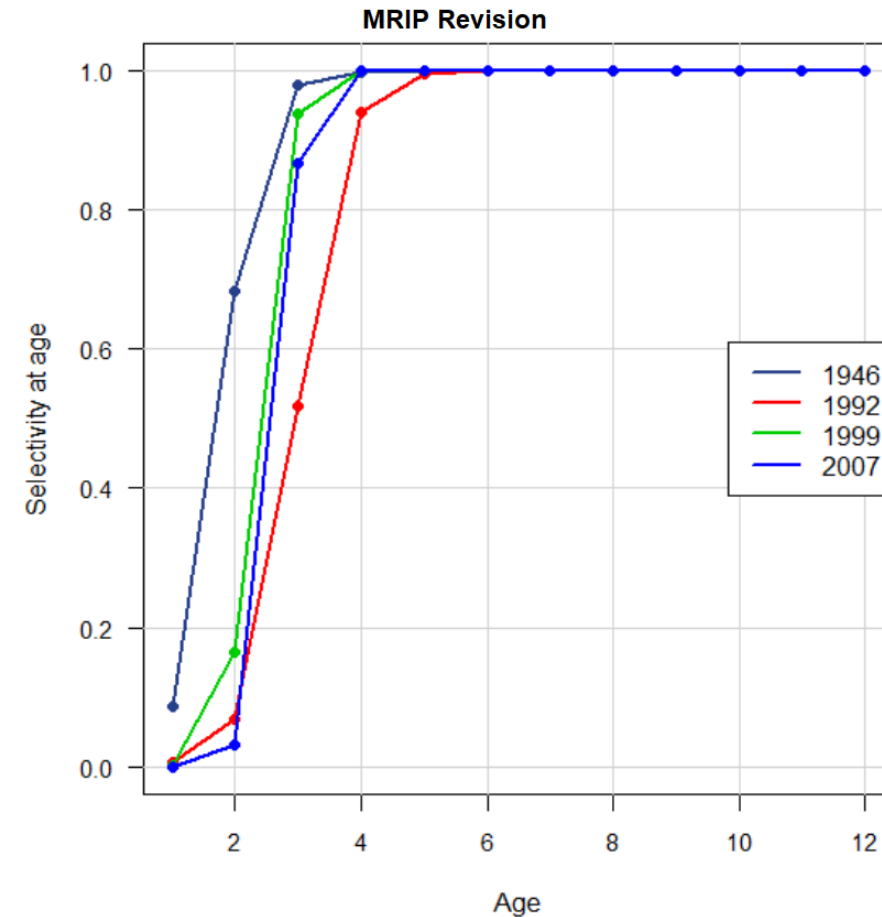
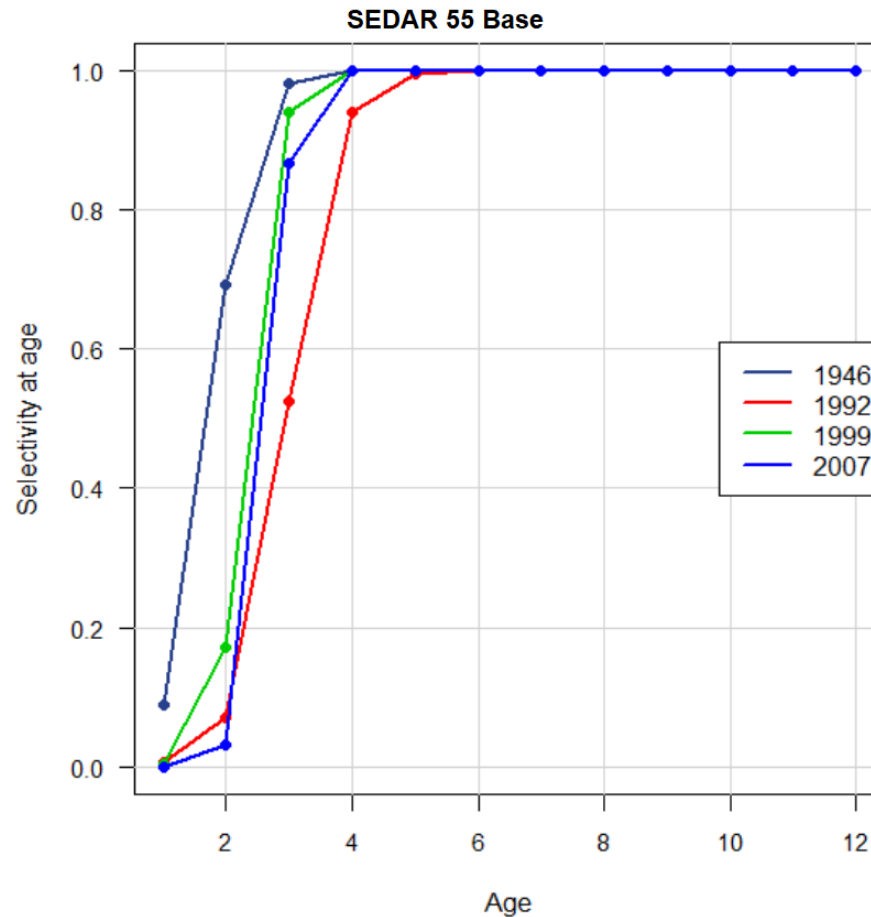




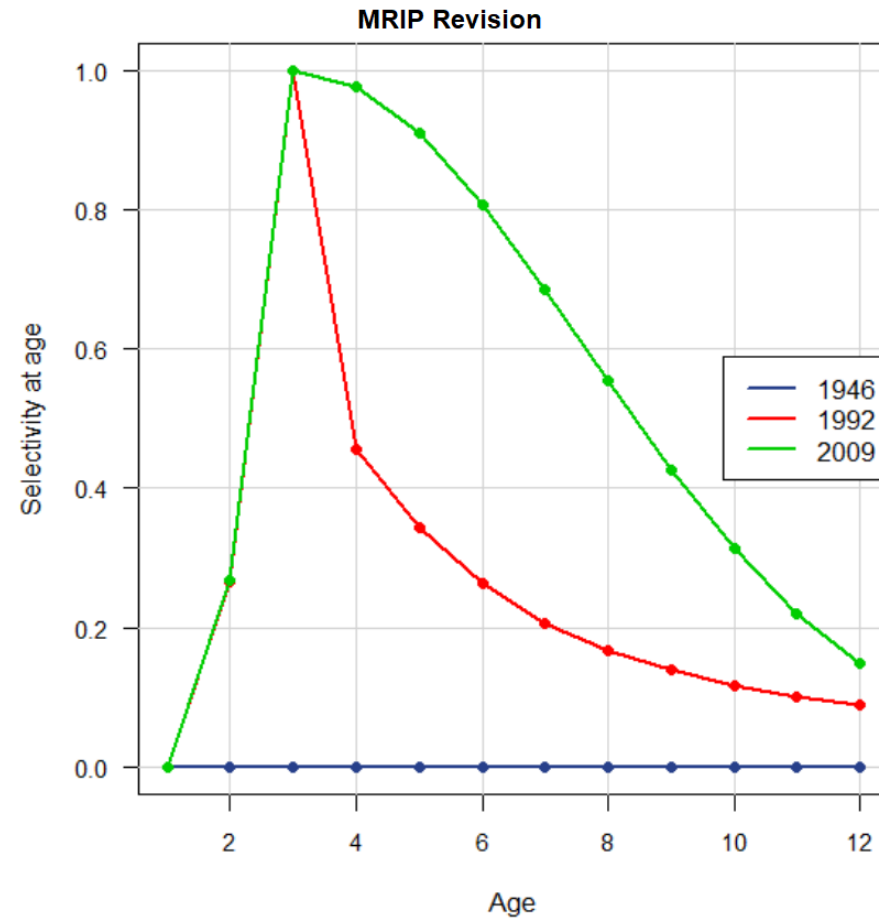
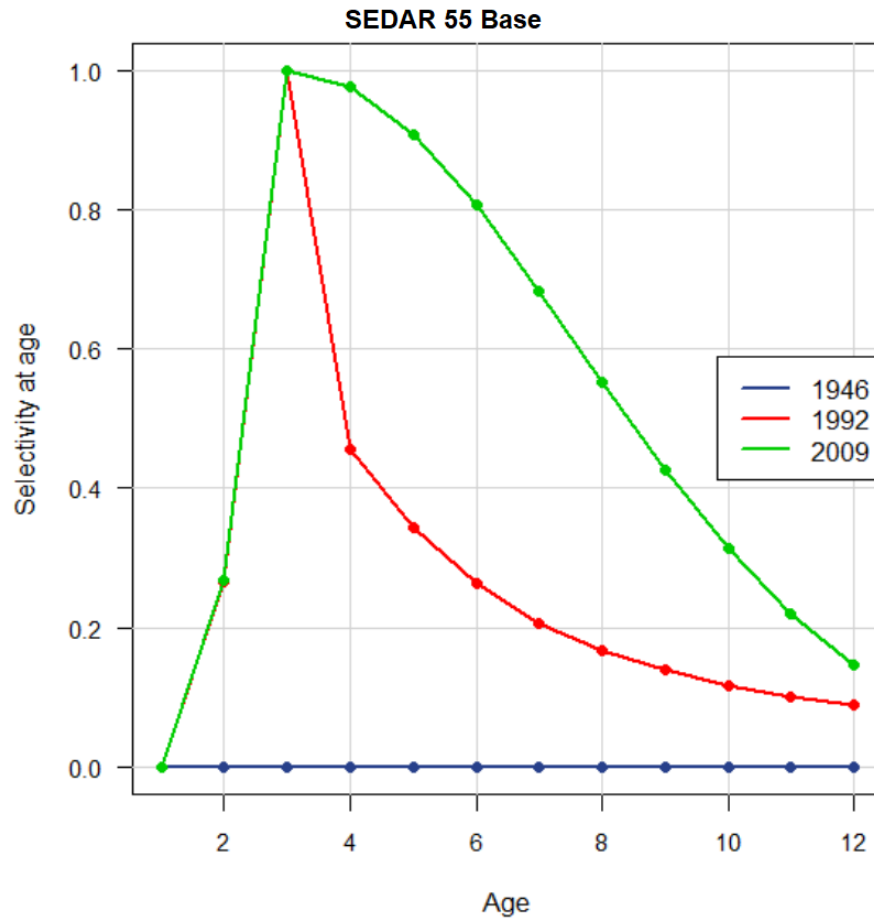
# VS historic trawl landings selectivity



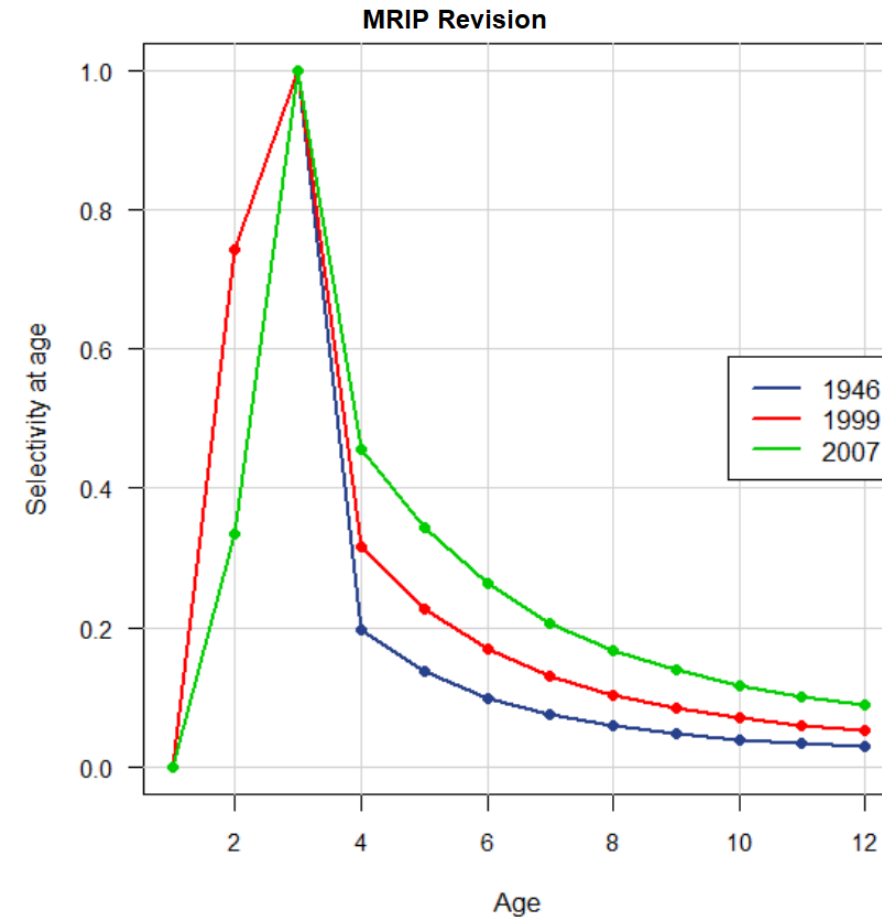
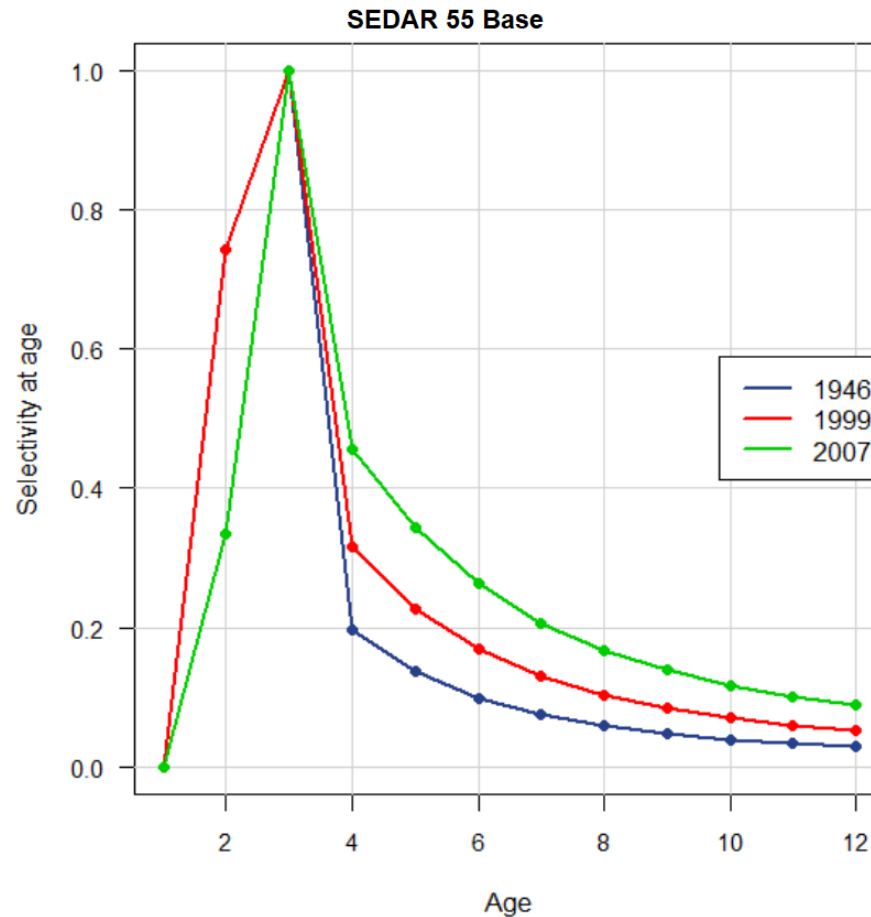
# VS headboat and general recreational landings selectivity



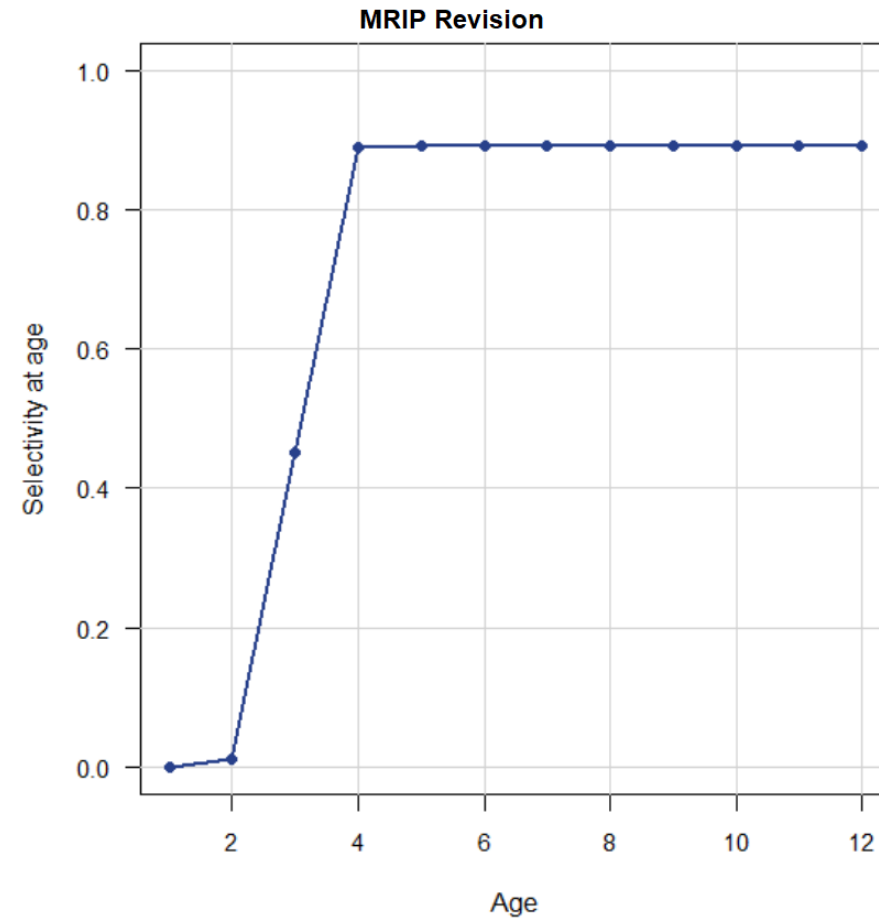
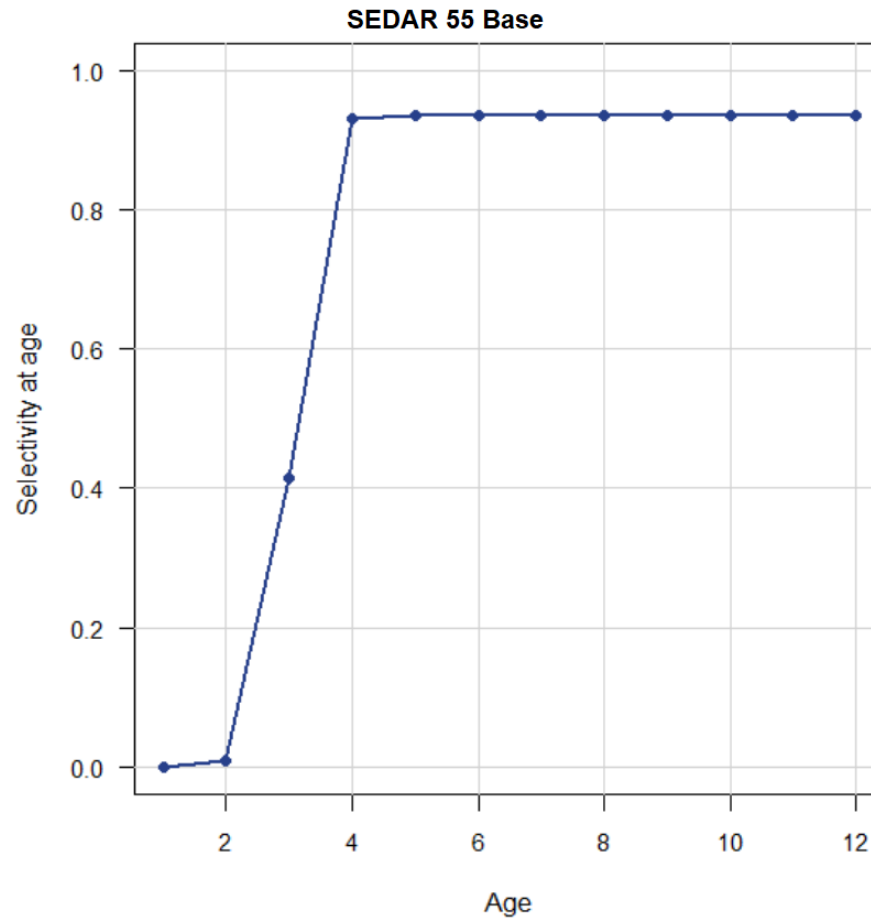
# VS commercial handline discard selectivity



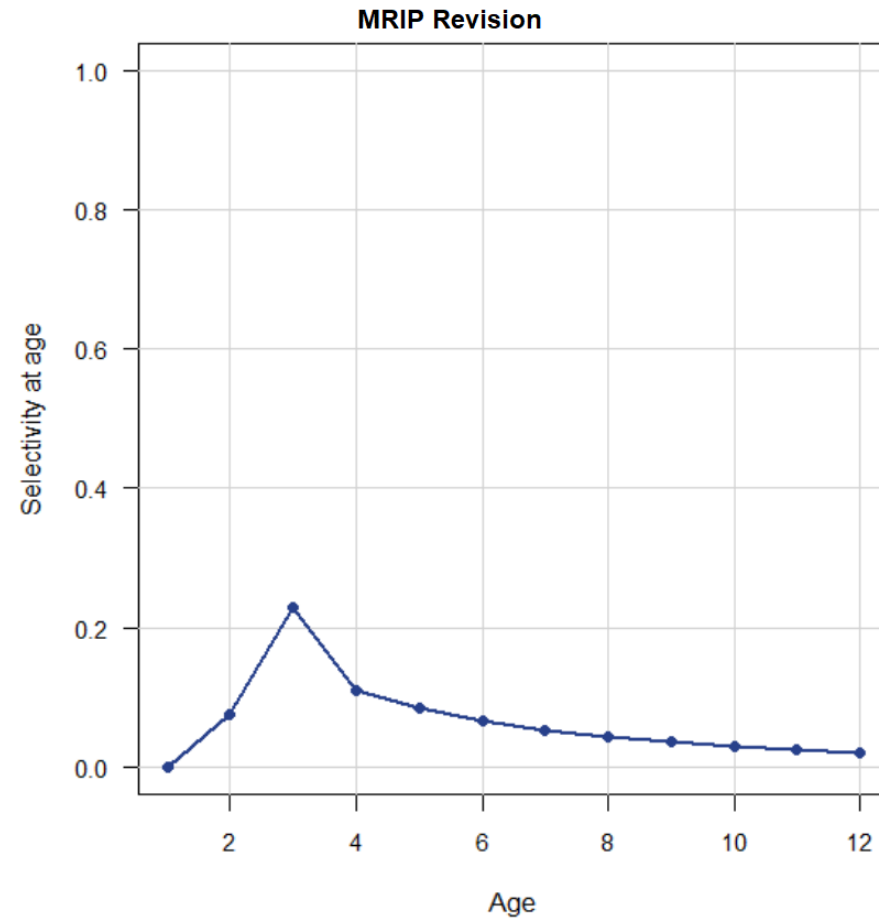
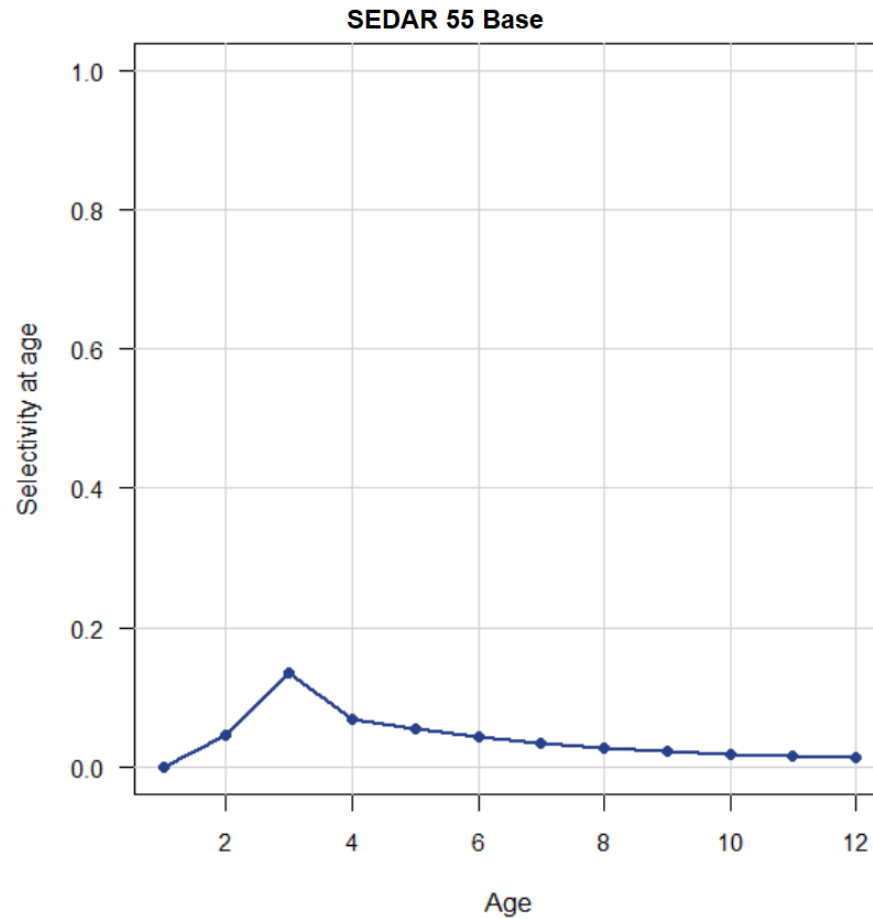
# VS headboat and general recreational discard selectivity



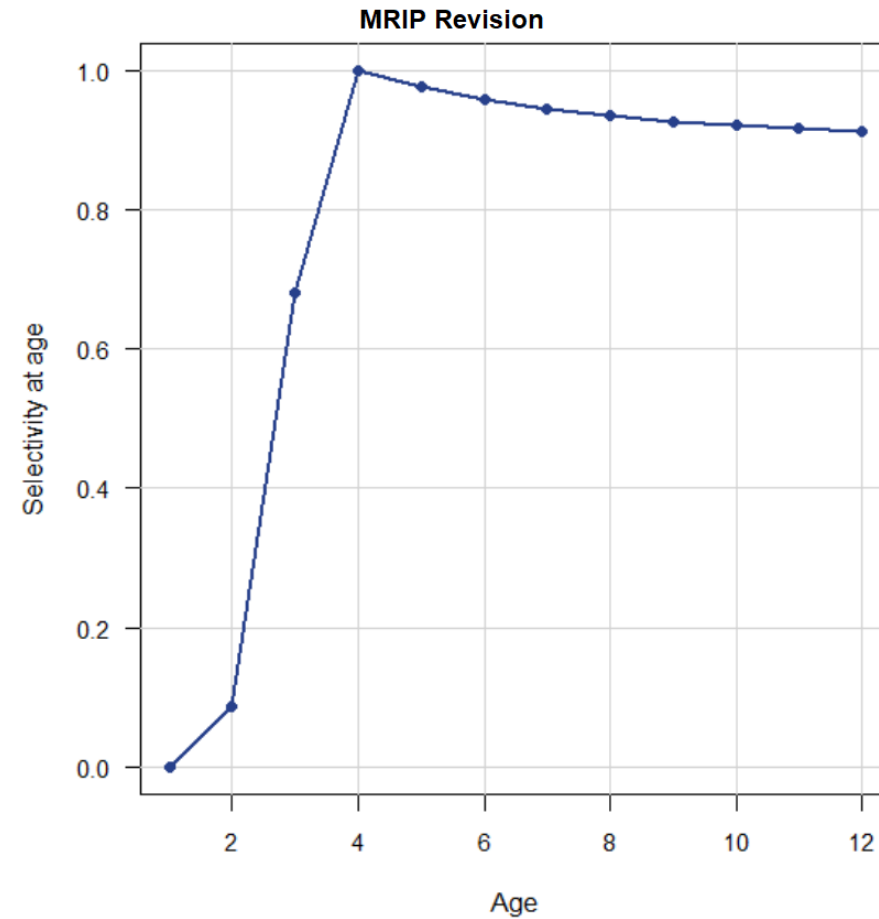
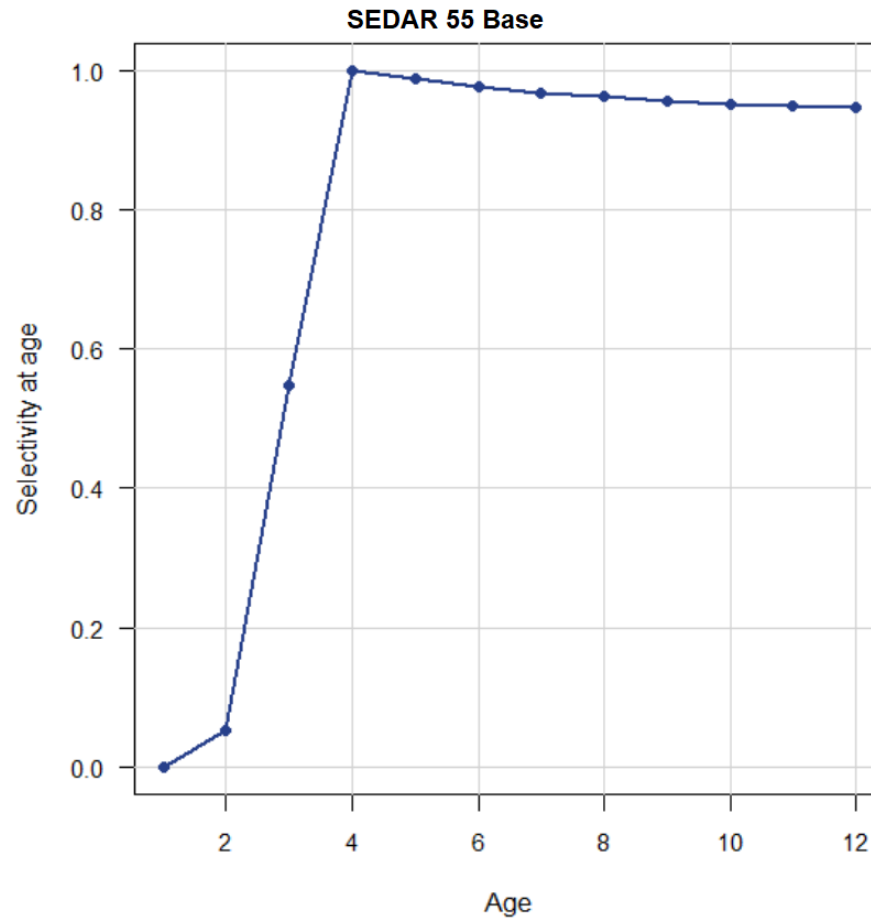
# VS weighted landings selectivity



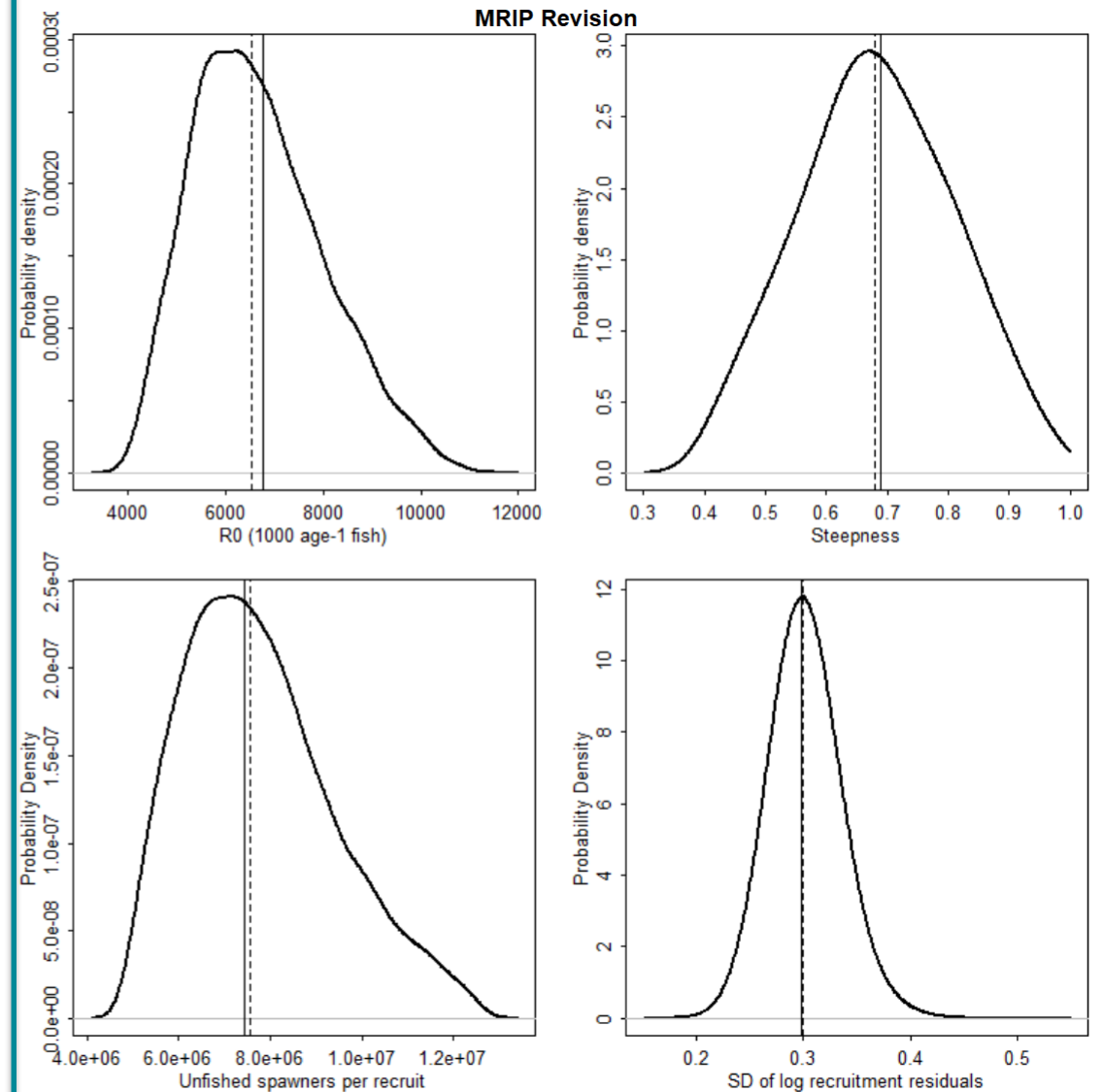
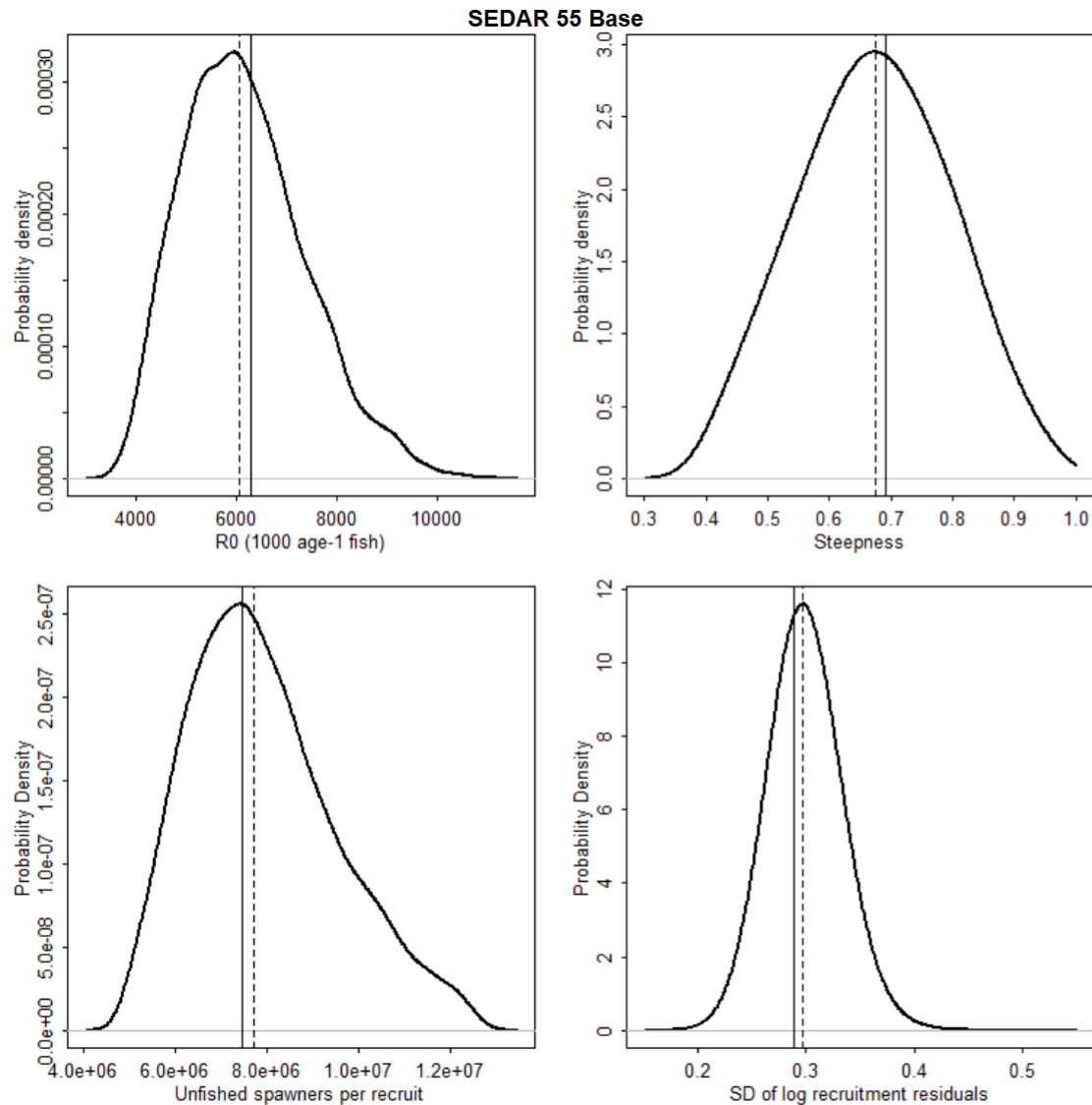
# VS weighted discard selectivity



# VS weighted total (L+D) selectivity

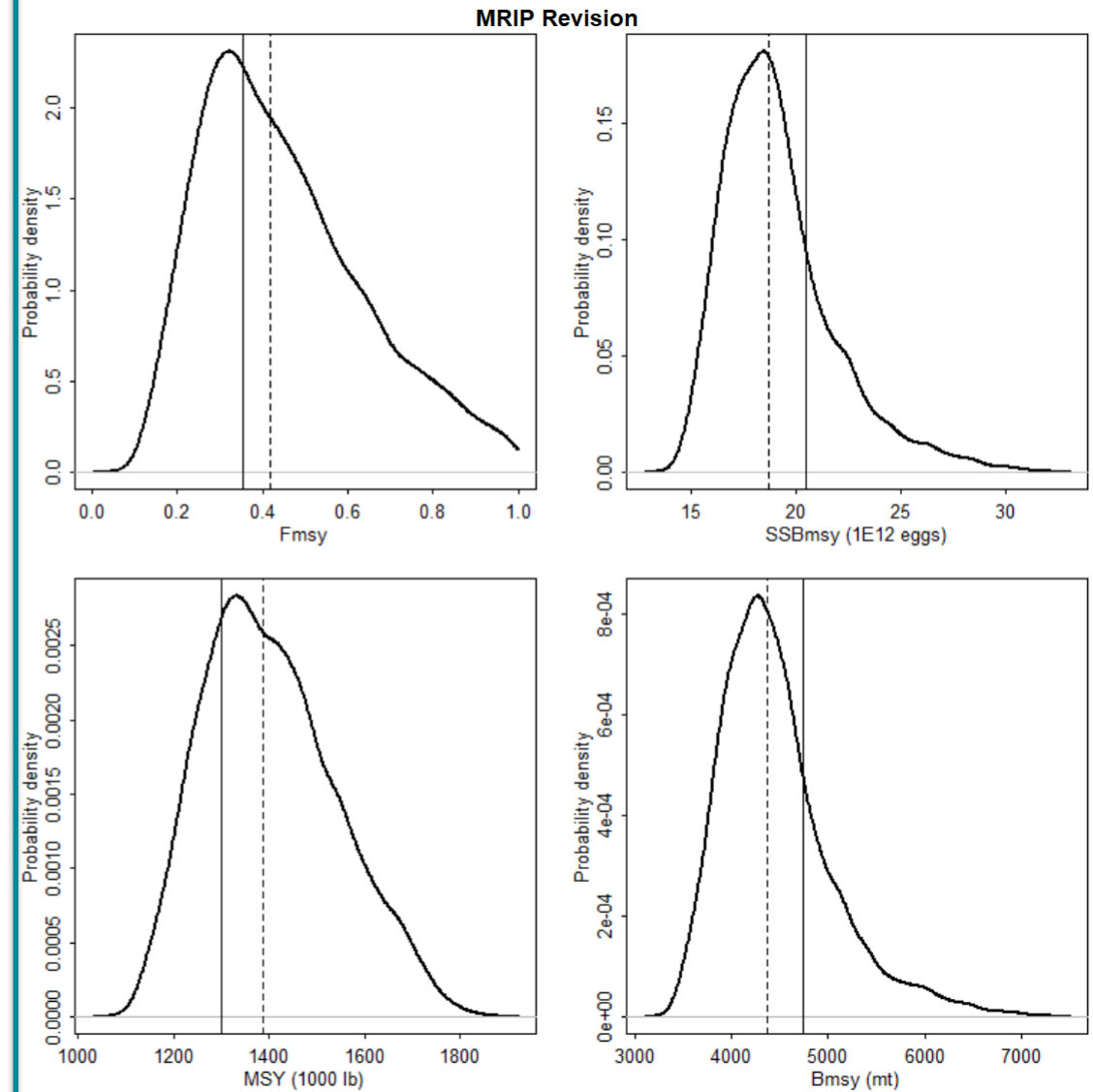
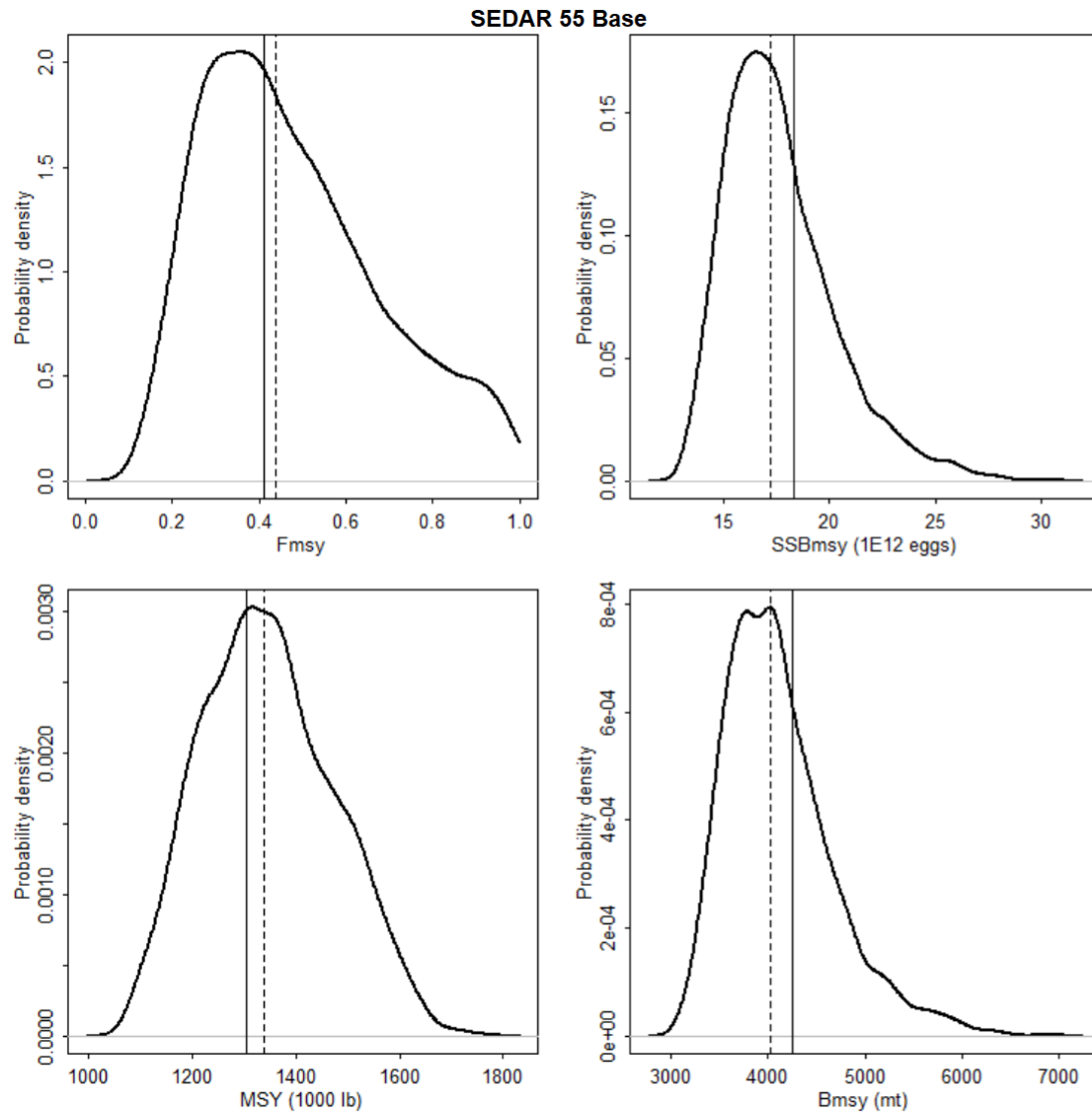


# VS spawner-recruit quantities

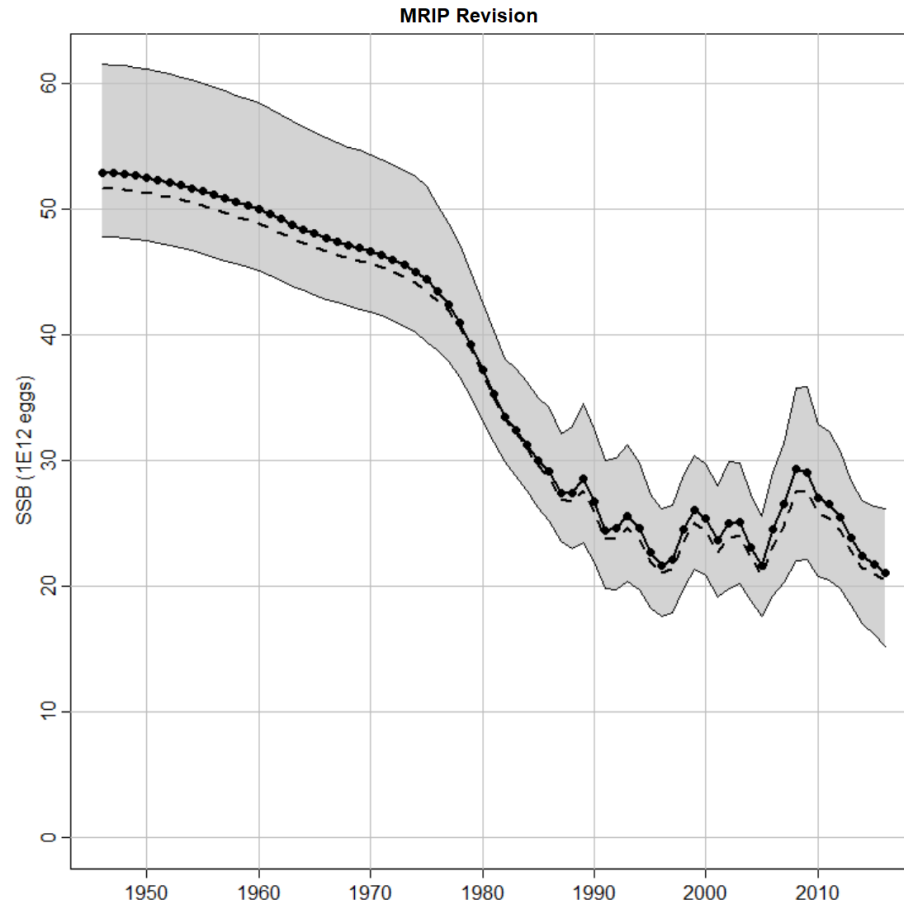
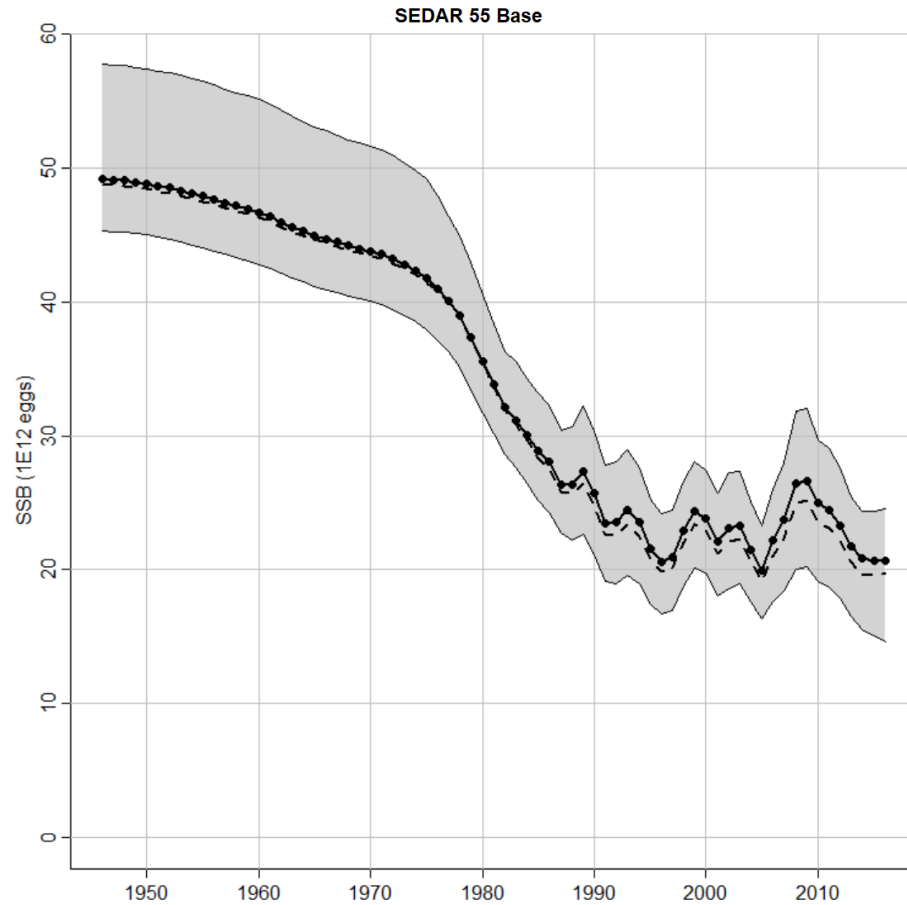




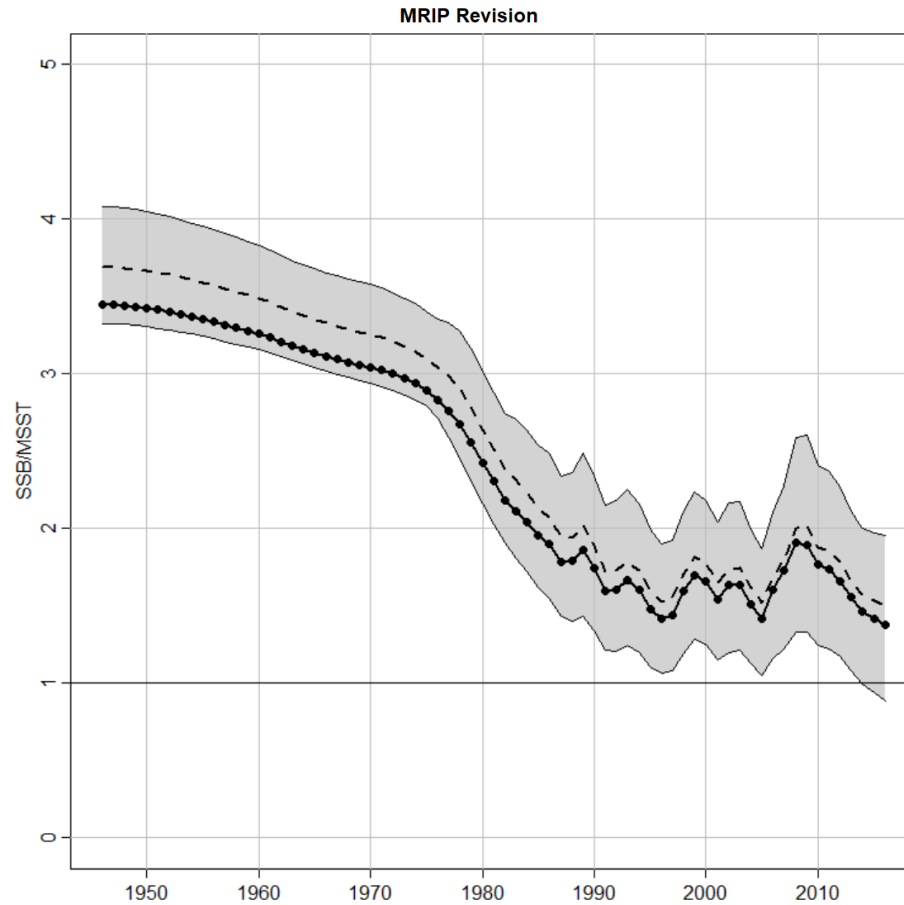
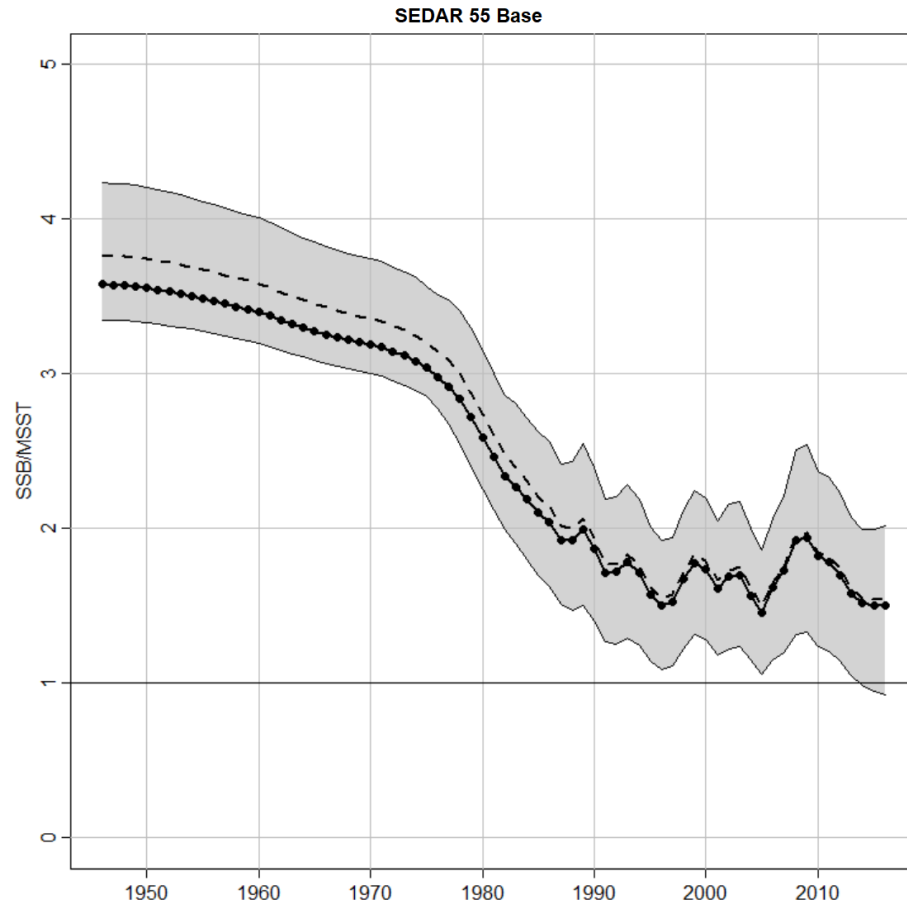
# VS MSY quantities



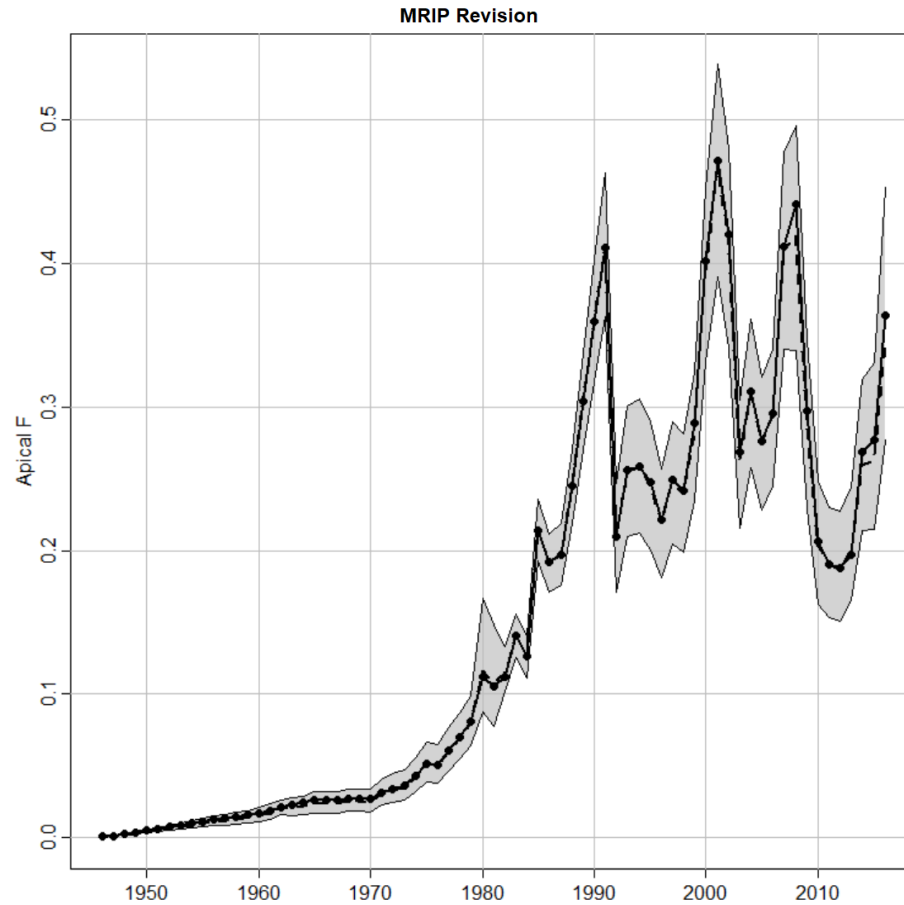
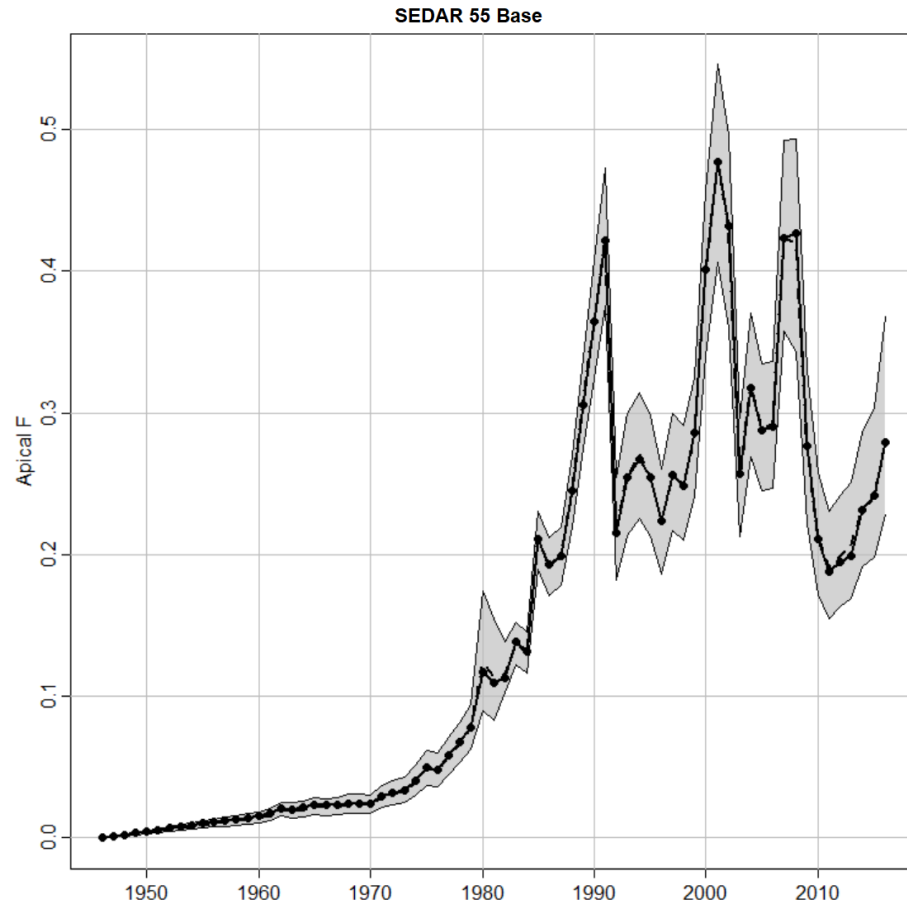
# VS SSB



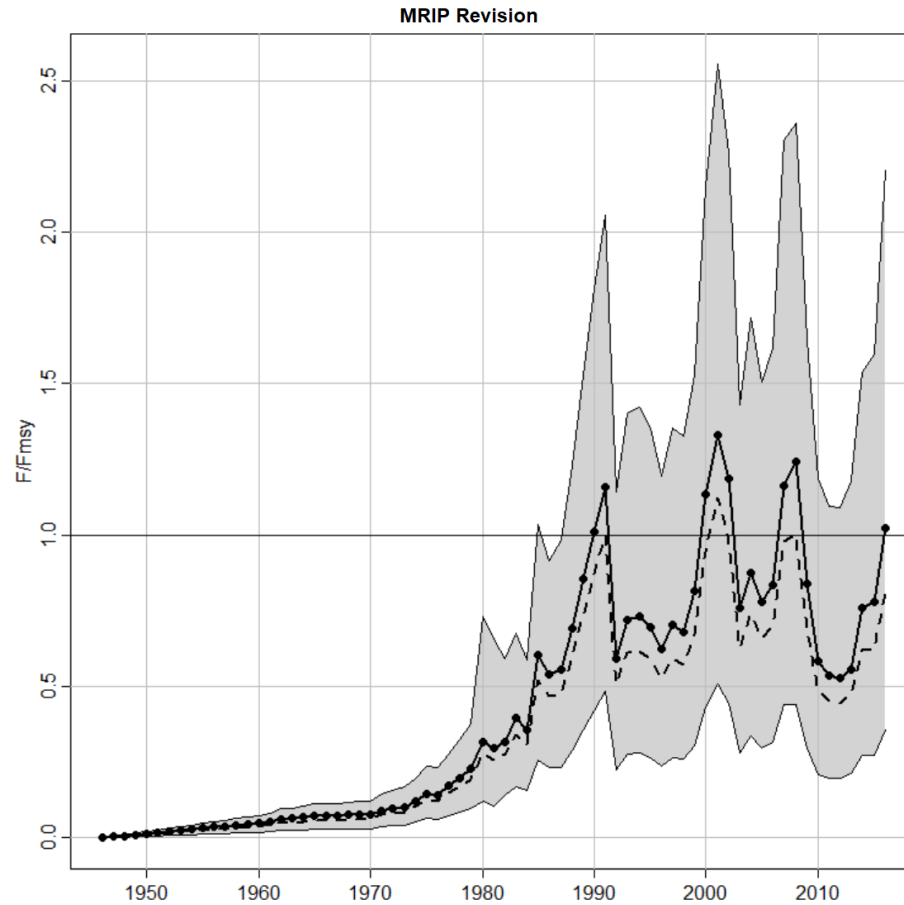
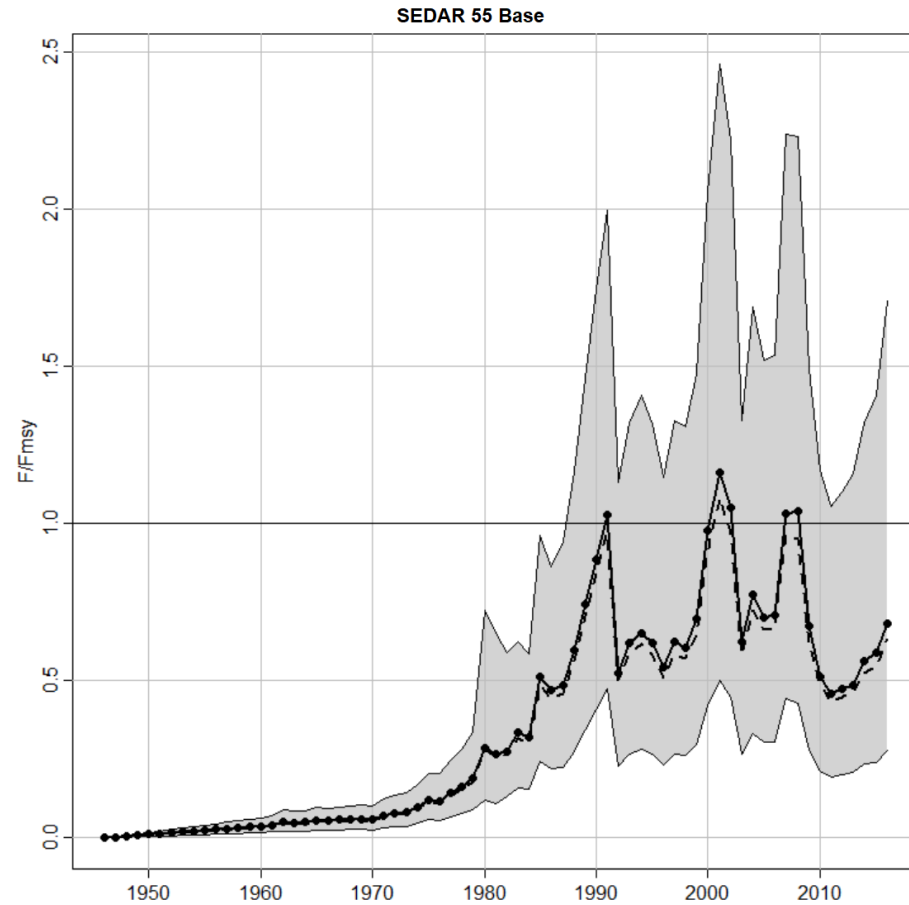
# VS SSB relative to MSST



# VS Apical F



# VS F relative to Fmsy



# VS status indicators

