

# Assessment work for Eastern Jack Mackerel

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# Outline

## Assessment work for Eastern Jack Mackerel

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- Stock assessment work for Eastern Jack Mackerel:
  - 1 Statistical Catch-at-age model (SCAA)

Uses data presented in annual report on fishery  
(Ward and Grammer 2016)

# Project objectives

## Assessment work for Eastern Jack Mackerel

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- Develop appropriate assessment methods for SPF spp.
- Detailed focus on Eastern Jack Mackerel
- Explore appropriate bioeconomic reference points
- Update MSE results given revised status and BRPs

# Available data

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- Catch biomass (PS, MWT) and effort (MWT) 1984–2014
- Catch-at-age (CAA) for both fleets 1984–2009
- DEPM estimate of SSB for 2014 - 157,000t
- Biological bits (maturity, growth,  $M$  etc.)

# Why go age structured?

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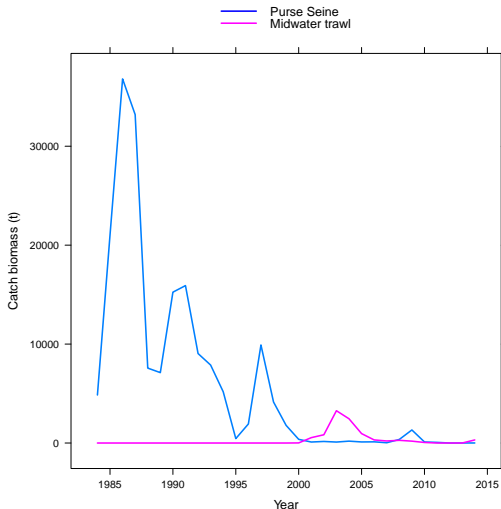
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- Benefits of modelling length/age:
  - Can use all the data
  - Can better interpret what SSB is (for DEPM)
  - Deal with and/or estimate recruitment variability
  - Assessment & MSE Operating Model **the same**

# Data: catch biomass

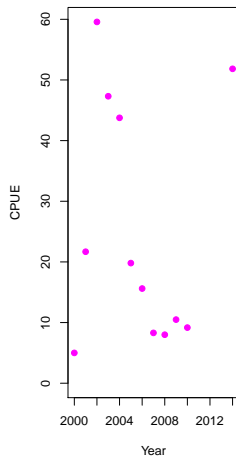
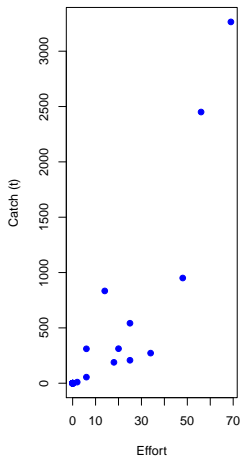
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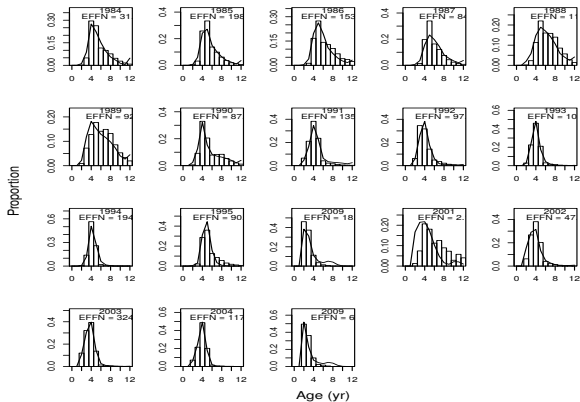
# Data: catch and effort

- Effort explored for Midwater trawl only:



# SCAA fits for best model

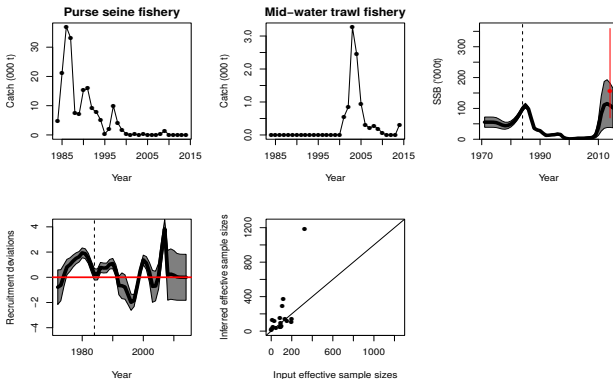
## ■ Fits to the CAA data:





# SCAA status summary for best model

## ■ Catches, SSB and recruitment estimates:



# SCAA general status summary

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- Current depletion at or above unfished state  $SSB_0$
- Strong (+vely autocorrelated) trends in recruitment
- Historically driven by trends in catch and CAA
- Conditional on **stationary selectivity**
- Negative bias in  $\mathbb{E}(SSB_{2014})$  wrt DEPM (ca. 40–50%)
  - Addressed by changing recruitment assumptions

# Bioeconomic Reference Points (BRPs)

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- Interpreting PS effort: arguably pointless
- Mid-water trawl? Looks like effort dominates, not biomass