



**NOAA  
FISHERIES**

**SEFSC**

**Gulf Branch  
Miami, FL**

# **SEDAR 68 – Gulf Scamp (*Mycteroperca phenax*)**

**Research Track  
Assessment Review**

January 5, 2022

*Modified for the Reef Fish AP by Ryan Rindone*

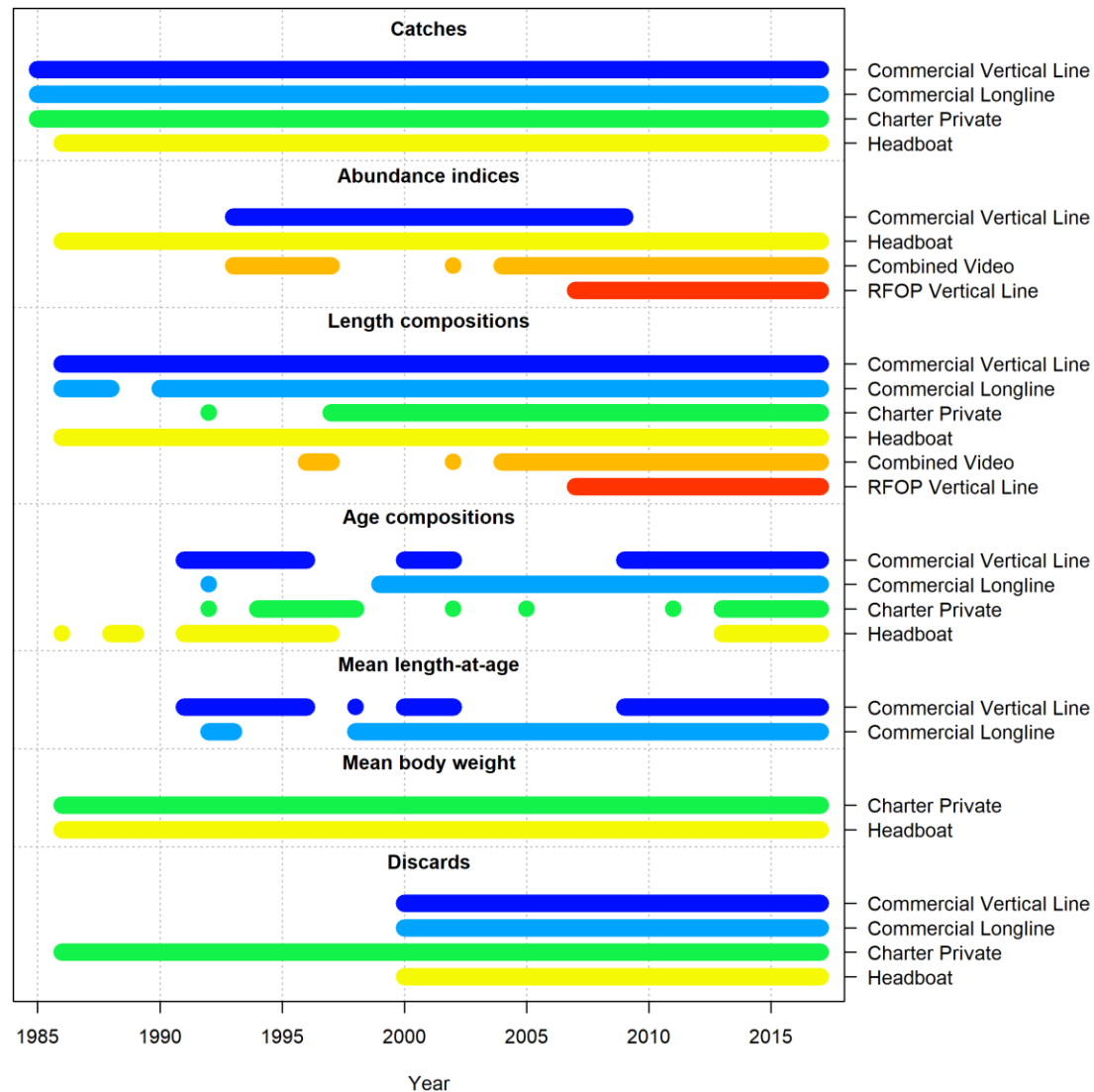
# Research Track Process

Scamp Grouper: *Mycteroperca phenax*



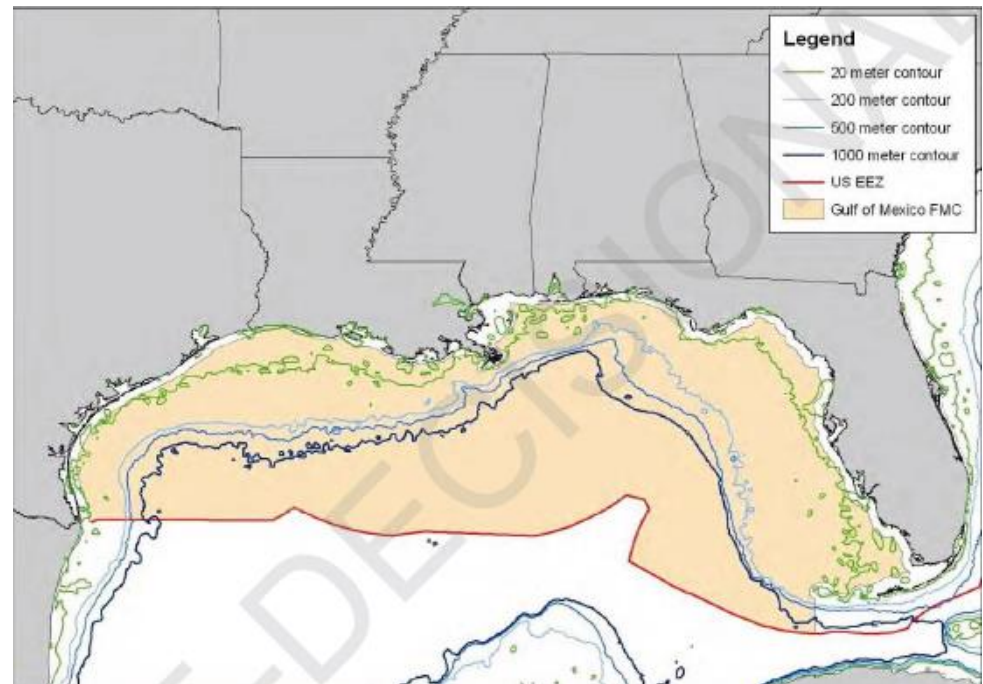
Year	2019	2020	2021	2022
January	Appointments	Data Process & Virtual Data Workshop (DW)	Assessment Process (AP)	Operational Assessment
February				
March				
April				
May				
June	Stock ID Process		Review Workshop (RW)	
July				
August				
September				
October				
November	Data Process		SSC	
December		Assessment Process (AP)		

# Data Review



# Stock ID Workshop

- Gulf of Mexico stock is separated from the South Atlantic at Council boundary (U.S. Highway 1 in Florida Keys)
  - No evidence of biological substructure
  - Current management boundary is stock boundary
- Include yellowmouth grouper
  - Limited data (SEDAR49)



# Gulf Scamp regulations

## Com quota closures:

- 11/25-12/31/2004
- 10/10-12/31/2005

## Rec seasonal closures:

- 11/1-12/31/2005
- 2/1-3/31/2010 (-2013)
- 2/1-3/31/2014+  
(seaward of 20 fathoms)

Florida 20" TL

Florida 16" TL

Federal 16" TL

5

4

3

Florida 20" TL

Florida 16" TL

Federal 16" TL

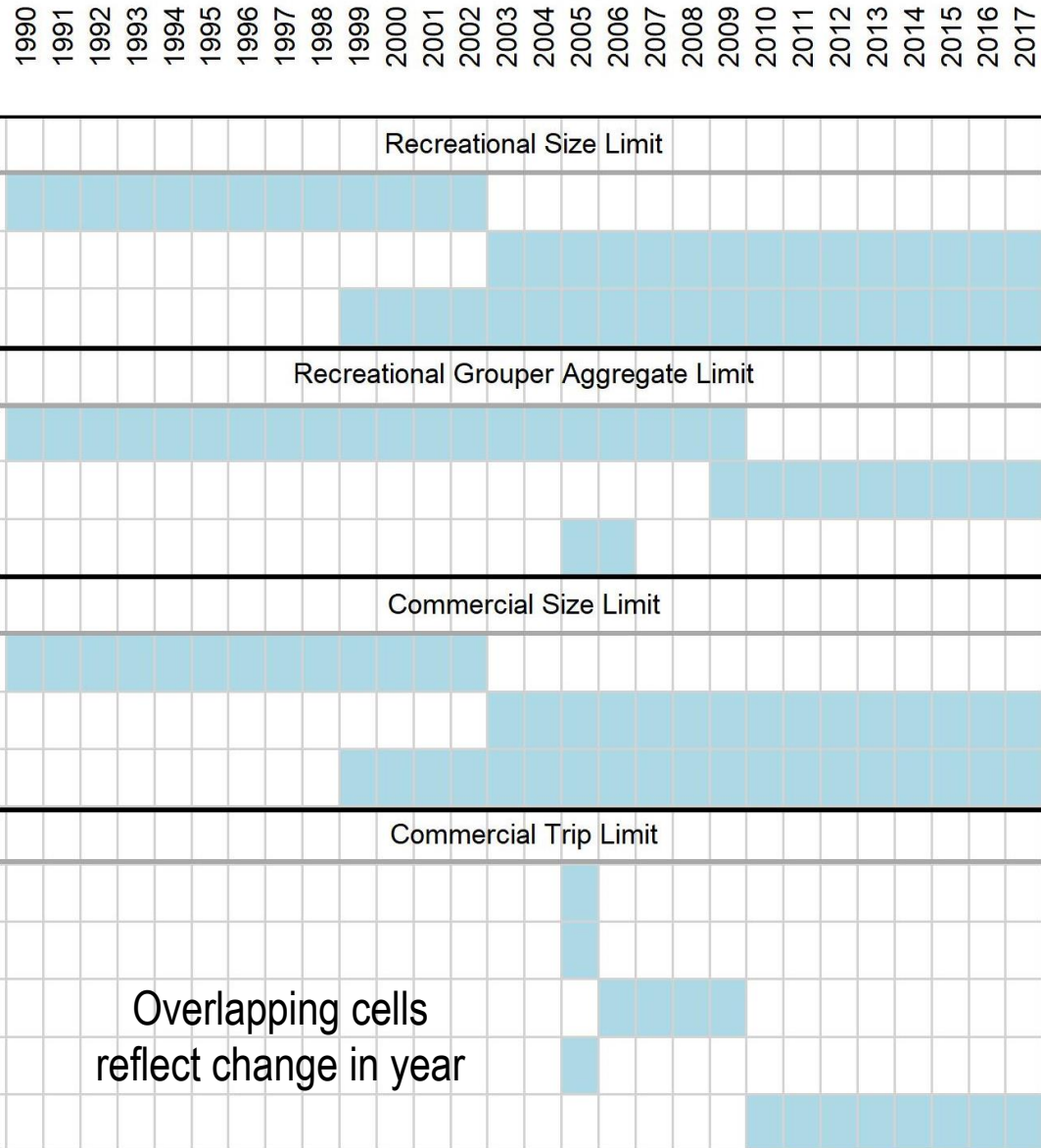
10,000 lbs gw (D&SWG)

7,500 lbs gw (D&SWG)

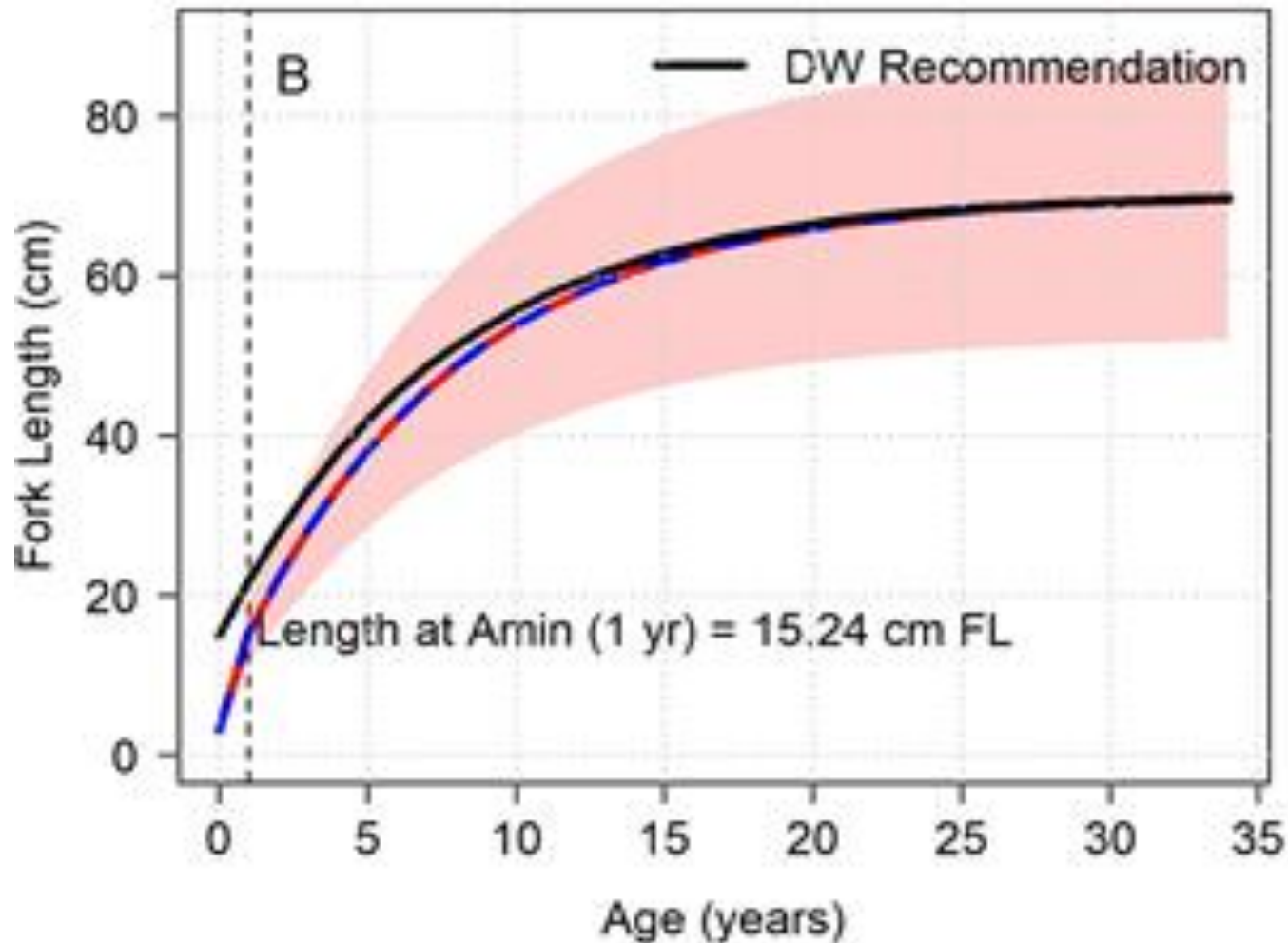
6,000 lbs gw (D&SWG)

5,500 lbs gw (SWG)

Individual Fishing Quota

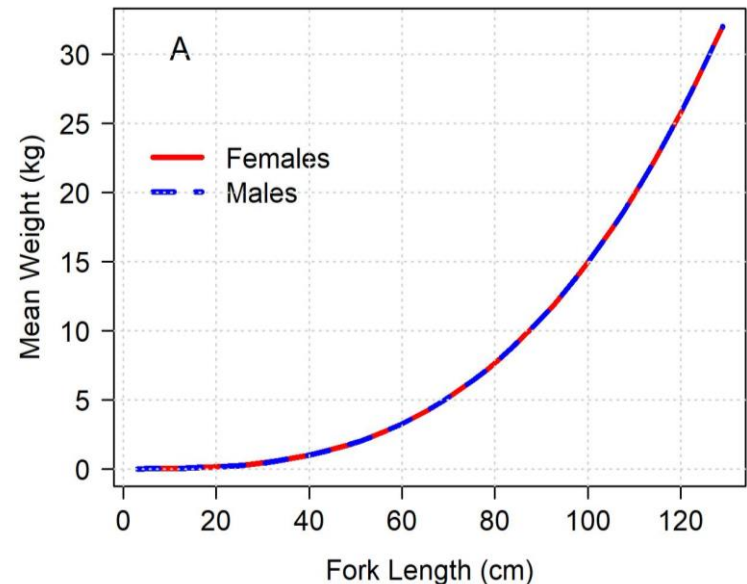
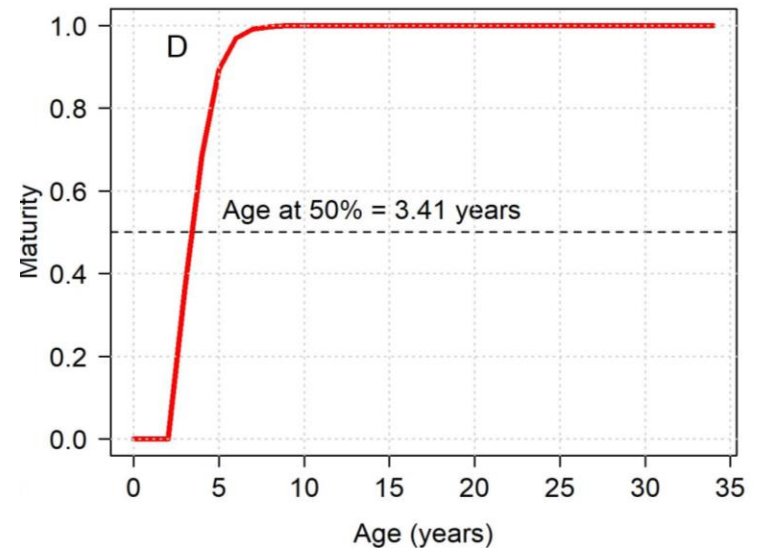


# Age and growth



# Maturity and meristics

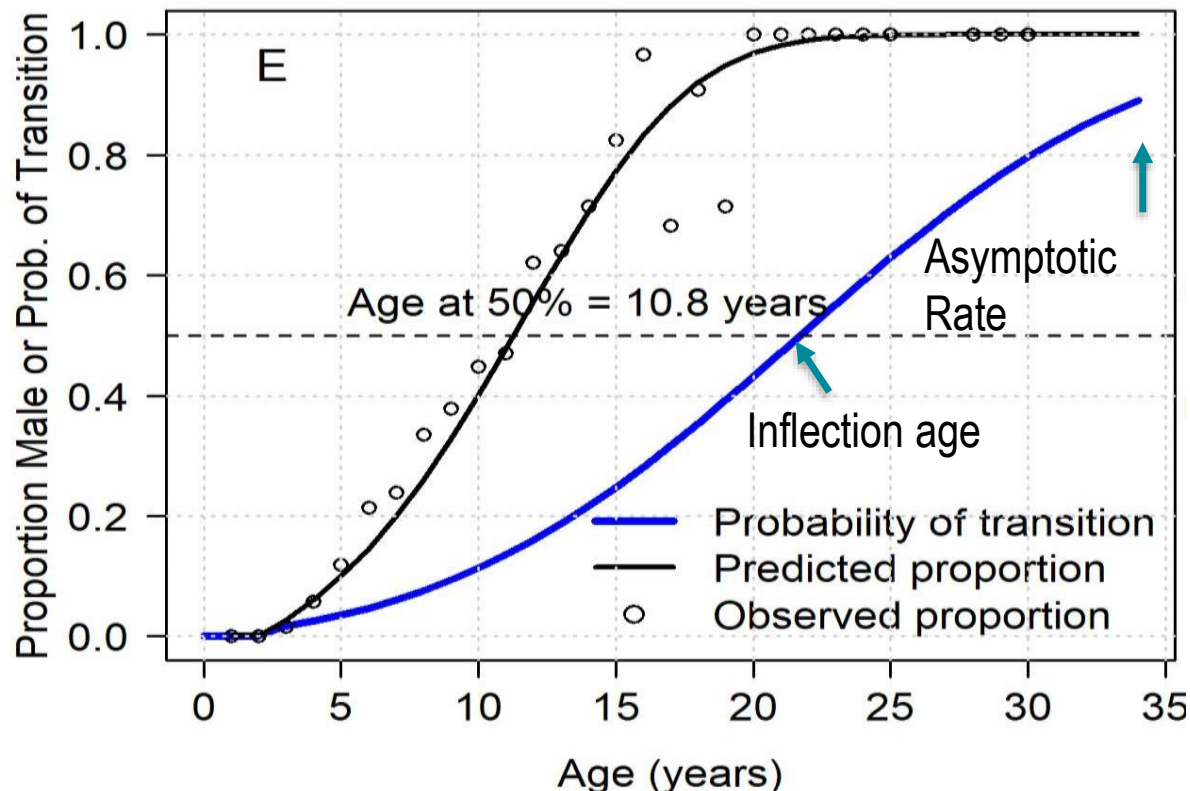
- Females first mature at 3 years
- Length-weight relationship units:
  - Centimeters (cm) fork length
  - Kilograms (kg) gutted weight
- Both relationships fixed in assessment model





# Hermaphroditism for Scamp

- Two gender model, transition starts at age 3



Total  $N = 1,934$

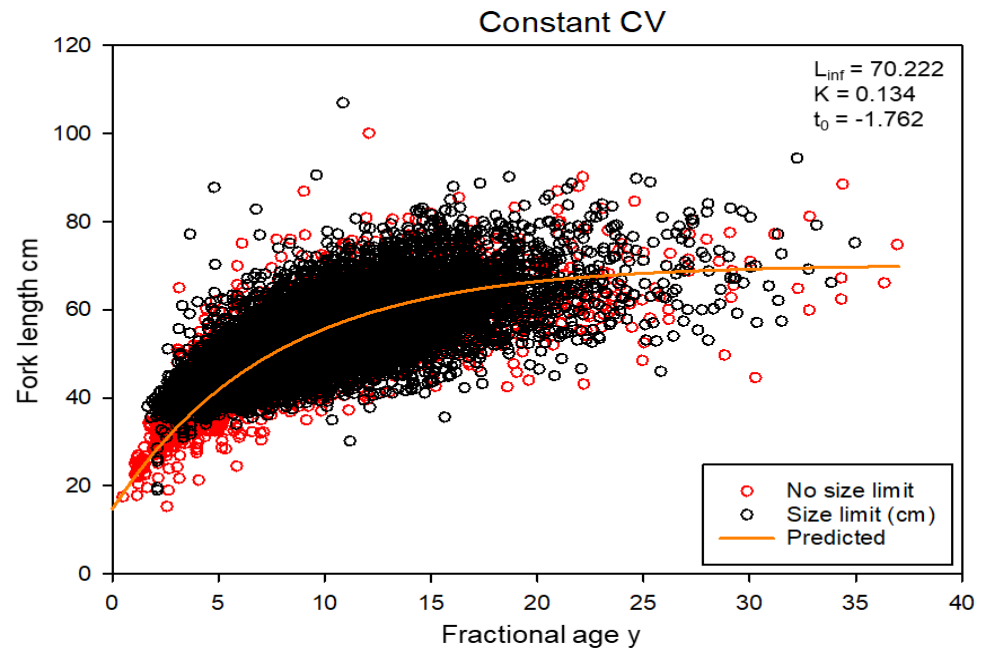
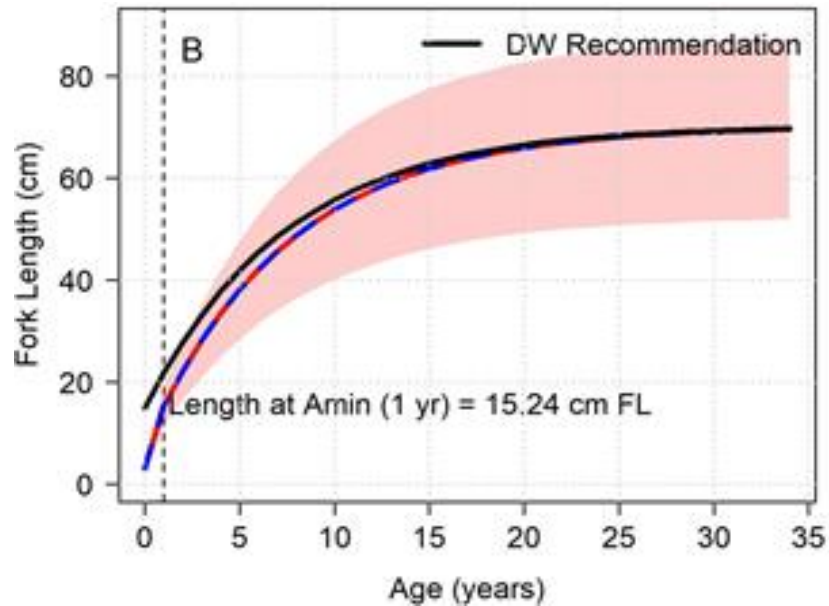
Female  $N = 1,237$  (64%)    Male  $N = 697$  (36%)



# Measure of reproductive potential

- DW recommended male and female combined SSB
  1. Scamp do not exhibit a 1:1 sex ratio
    - 18% (Coleman et al. 1996) – 37% (SEDAR68-DW25)
  2. Significant differences in size and age between sexes

# Age/growth and natural mortality



# Discard mortality estimates

- Commercial: Reef Fish Observer Program data:

Region	Gear	Mean Depth (m)	Immediate – Not Vented	Immediate – Vented	Delayed Mortality	Total Discard Mortality
GoM	BLL	72.1	53% (48-59%)	47% (42-53%)	32% (19-47%)	68% (57-75%)
GoM	VL	54.1	29% (24-34%)	23% (18-27%)	26% (16-37%)	47% (40-51%)

- Recreational data:
  - Headboat: 26% (16-40%)
  - Charter-Private assumed similar by Discard Mortality WG because of similar depths fished

\*Start year of 1986 because of high uncertainty pre-1986

## Commercial landings (gutted weight)

Data Source	Years	Notes
Annual Landings System (ALS; SEFSC)	1986-2017	Texas - Alabama
Florida Trip Ticket Program (ACCSP)	1986-2017	West Florida
Individual Fishing Quota (IFQ) Program	2010-2017	All states

### Uncertainty (log-scale SE):

- **1986\*-2009:** 0.05 following guidelines from South Atlantic for Florida
- **2010-2017:** 0.01 due to implementation of IFQ

\*Start year of 1986 because of high uncertainty pre-1986

## Recreational landings (numbers or weight)

Data Source	Years	Notes
Marine Recreational Information Program (MRIP)	1986-2017	Continuous time series; uses Fishing Effort Survey and includes the Access Point Angler Intercept Survey adjustment; excludes shore mode and Monroe County
Louisiana Creel Survey	2014-2017	Survey began in 2014; private/shore reported together; provided in native units (i.e., not calibrated to MRIP)
Texas Parks and Wildlife Department (TPWD)	1986-2017	Survey began in 1983
Southeast Region Headboat Survey (SRHS)	1986-2017	

### Uncertainty (log-scale SE):

- **1986\*-2017:** 0.3 for both fleets but actual CVs used in AP sensitivity run

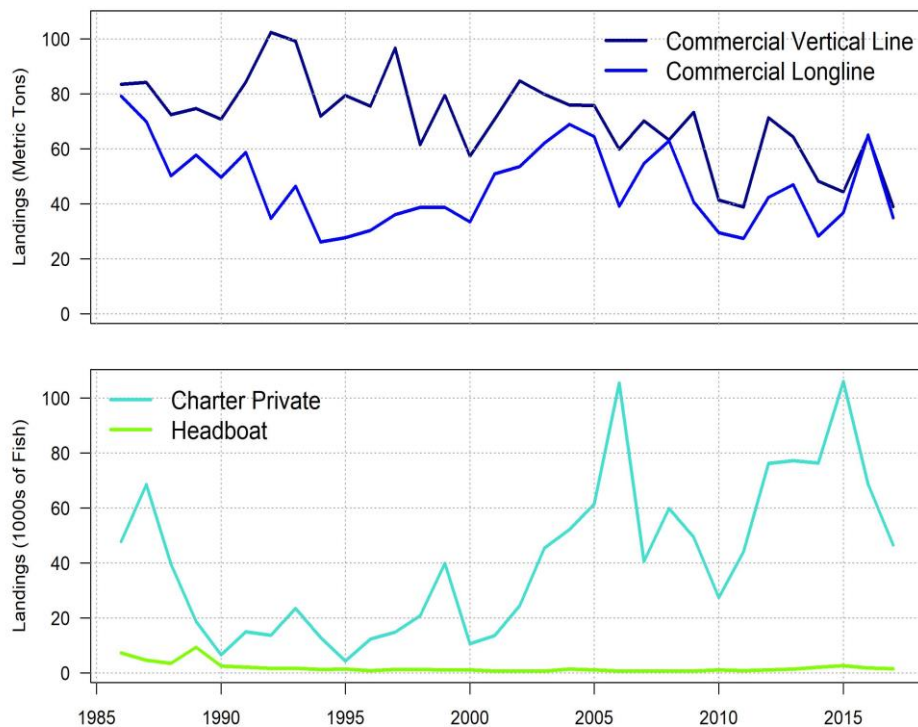
# Inclusion of recreational landings\*

- Usually input as numbers of fish in Gulf assessments
  - Recreational surveys sample numbers; weight information incomplete
  - Weight estimation approach developed following implementation of ACLs for use by management
    - Multiplies numbers by average weights by strata

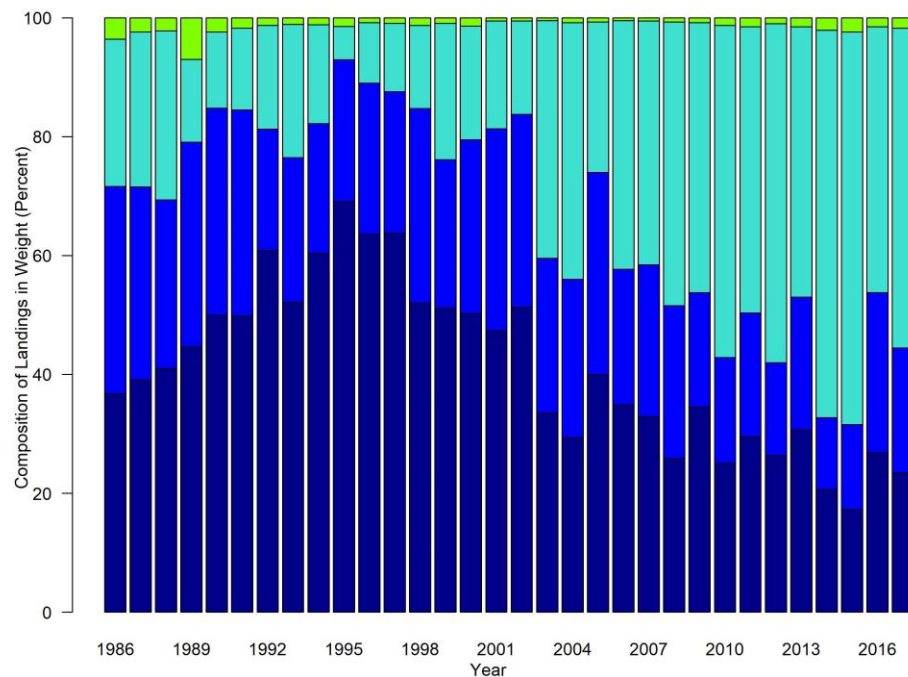
# Landings comparison

- Generally dominated by commercial fleets, but recreational Charter-private landings have increased in recent years

## Input landings

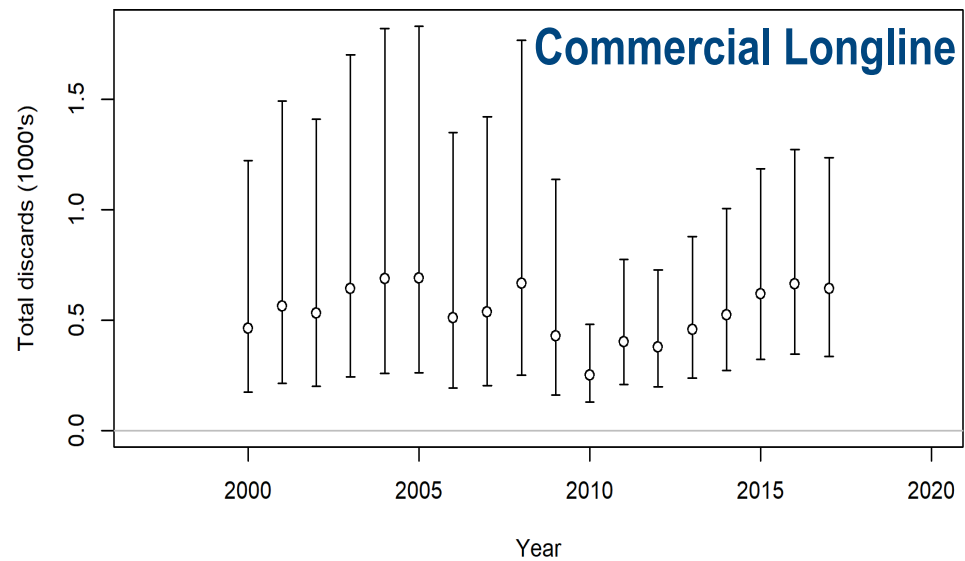
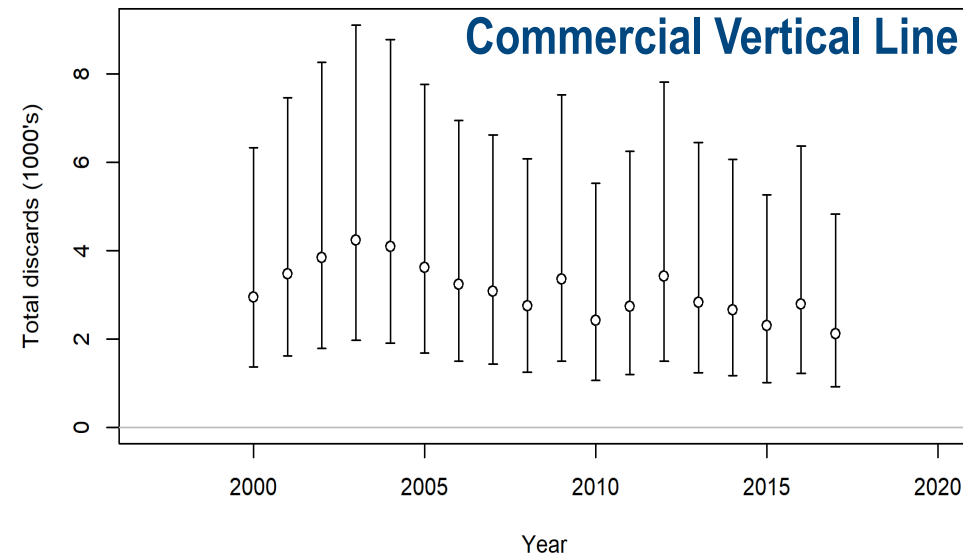


## Assessment predicted landings





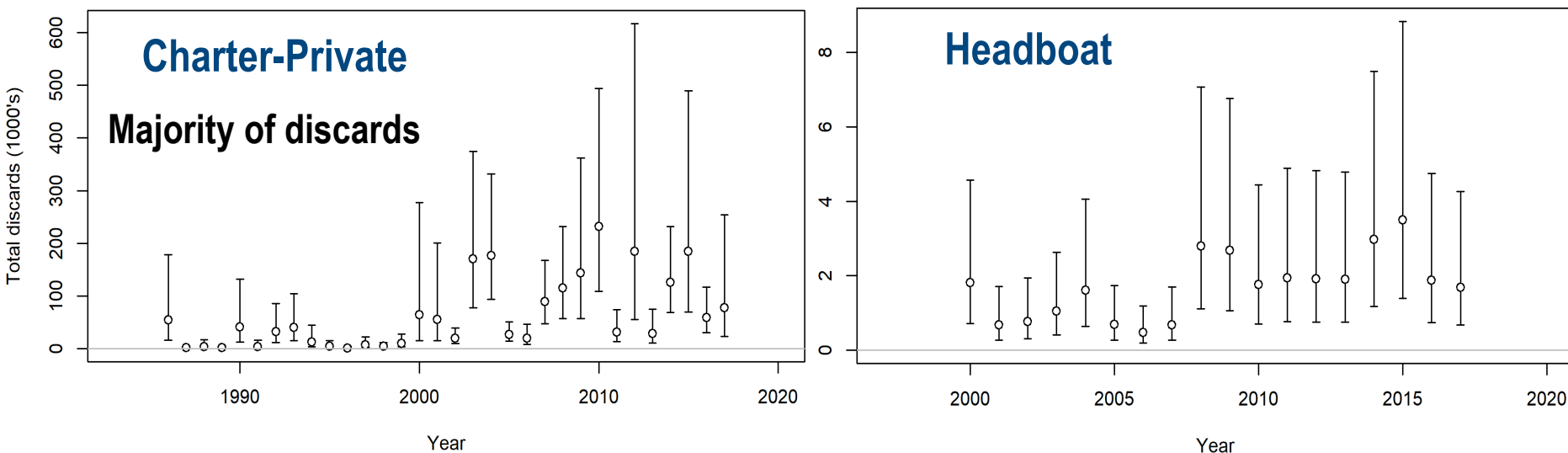
# Commercial total discards



# Recreational total discards\*

\*before applying  
discard mortality

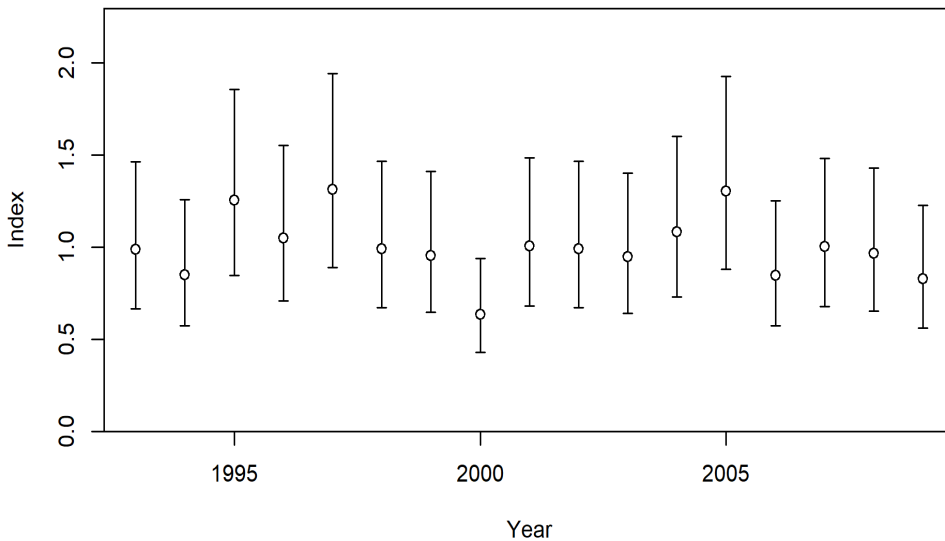
Data Source	Notes
MRIP	Self-reported discards, High CVs (mean 0.57, range: 0.32-1; SEDAR68-DW-09)
LA Creel	Not reported; MRIP discards in LA prior to 2014 sparse, assumed negligible
TPWD	Not reported; rarely landed in TX, assumed negligible
SRHS	Self-reported 2004-2018; 2000-2003 estimated using proxy of mean SRHS discard ratio (2004-2018); no error estimates provided (assumed CV = 0.5)



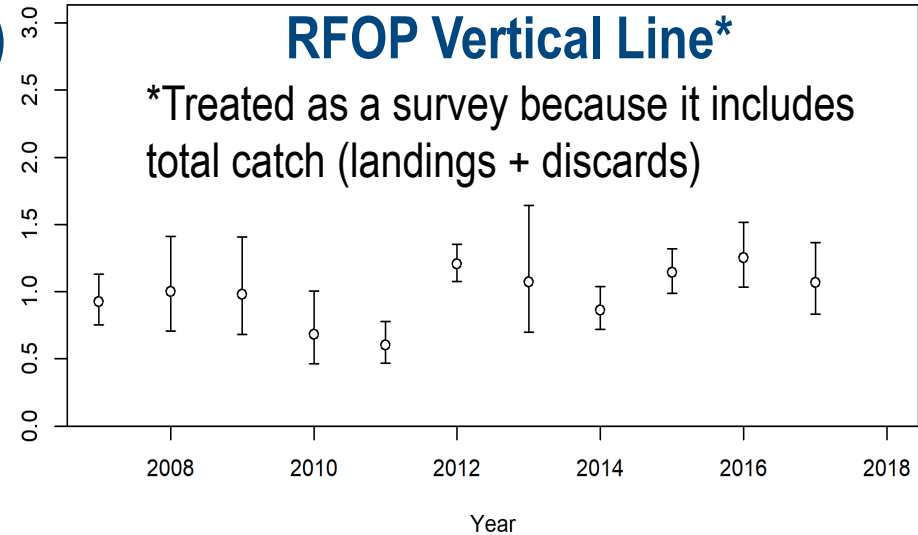
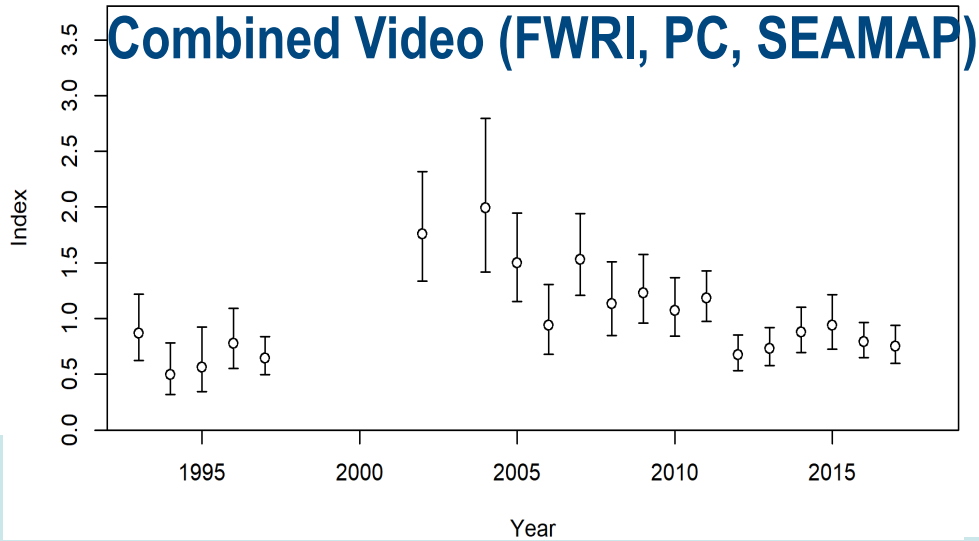
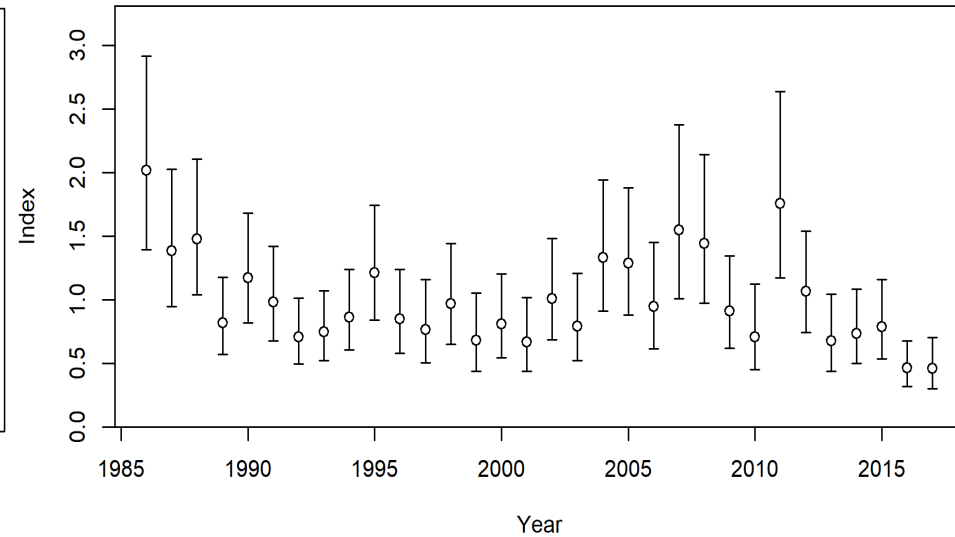
Assuming log-normal distribution and using uncertainty estimates as provided

# Indices of relative abundance

## Pre-IFQ Commercial Vertical Line

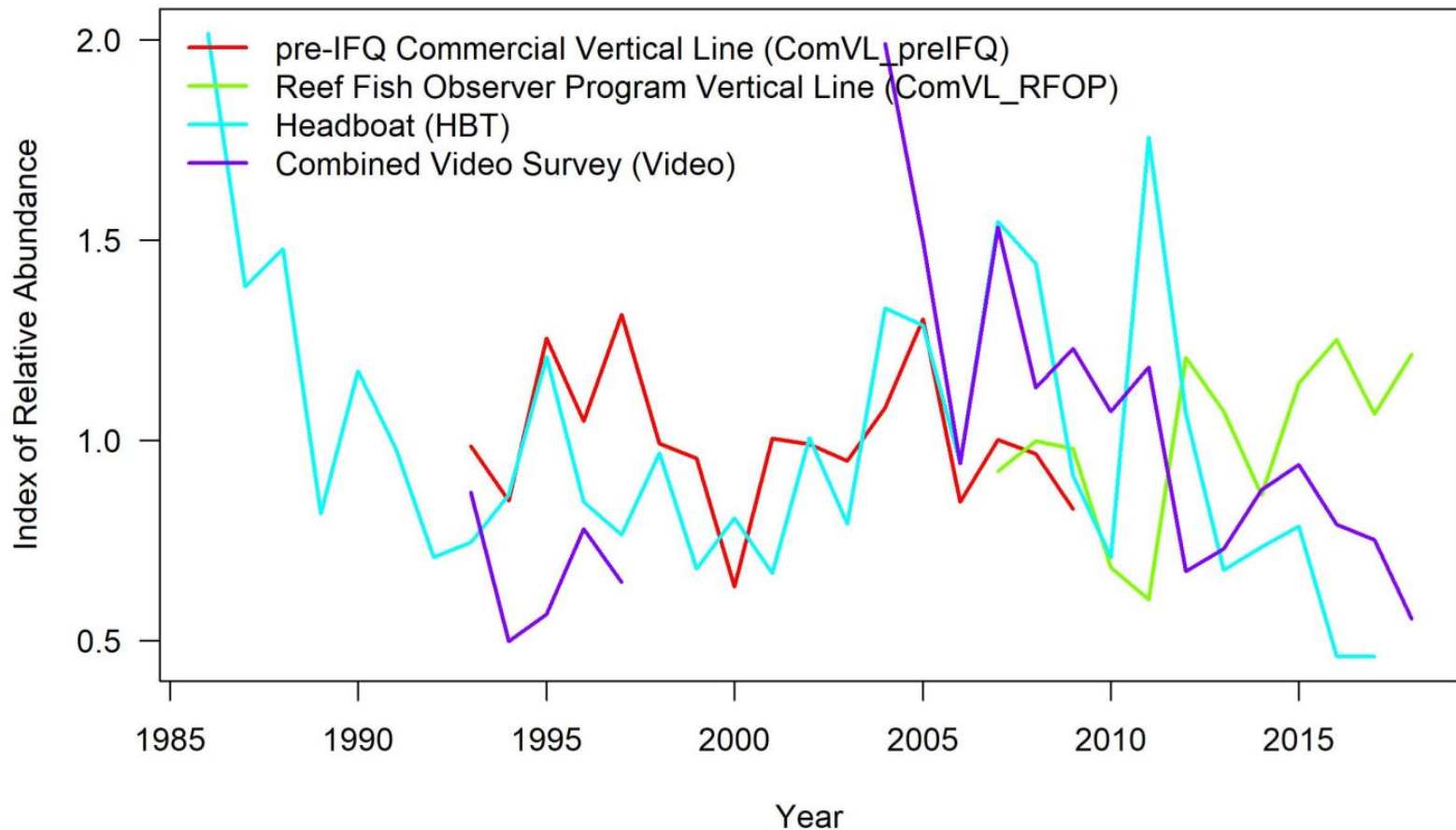


## Headboat



# Indices of relative abundance

- Recent declines evident, except for **RFOP Vertical Line index**



# Red tide/Hypoxia

- Red tide rarely mentioned in SEDAR 68 documentation
- Limited overlap between scamp distribution and CTD data (red tide sampling)

# SS model configuration

- 1 area, 1 season model with males and females
- Combined male and female SSB
- Stock not unexploited at model start in 1986
- Constant selectivity and catchability
- Ages 1-34 modeled, with 20+ as a plus group
  - < 4% of data over age 20
- Retention varies with changes in fishing regulations
  - Assumed all fish caught before size limits were kept

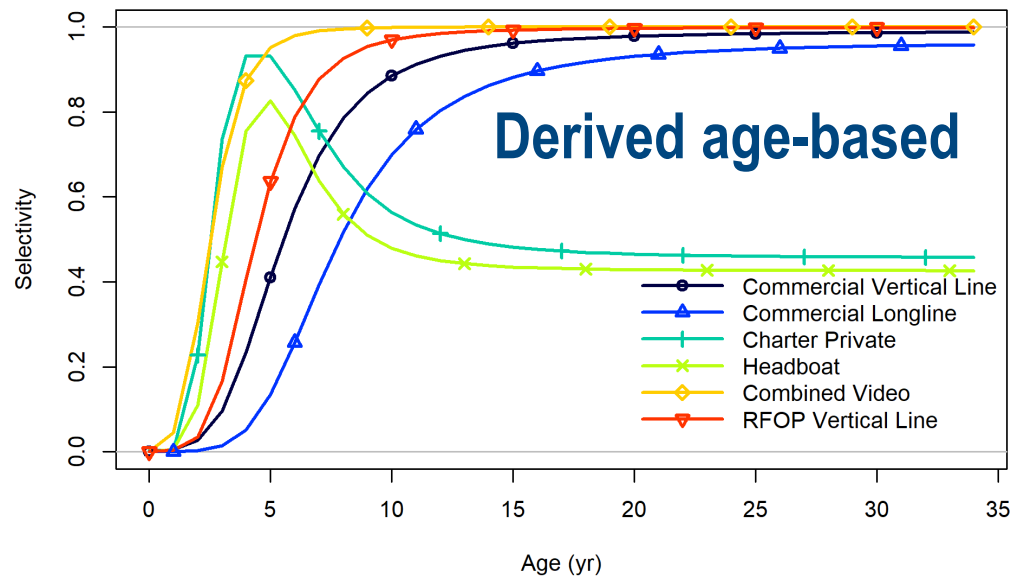
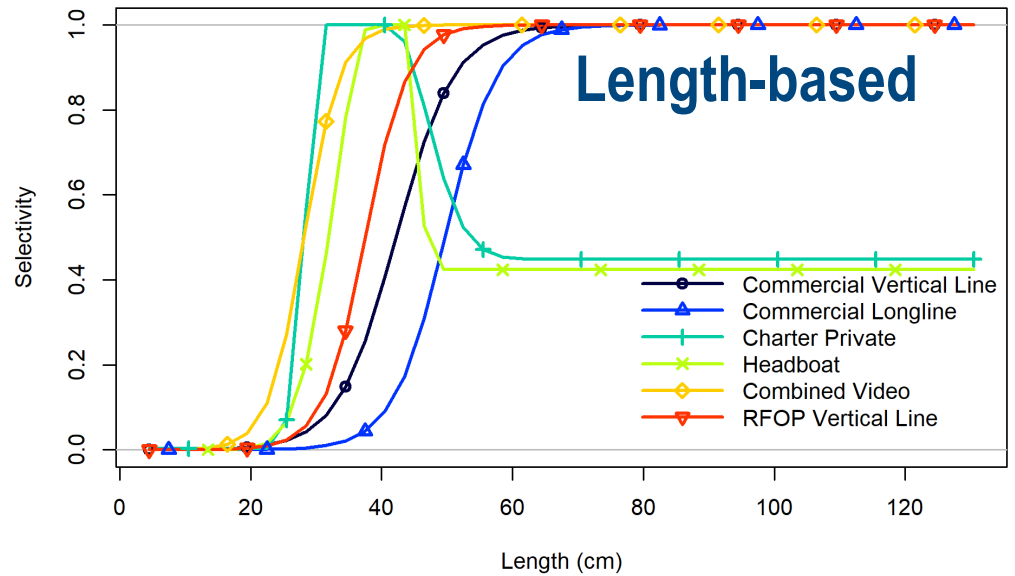
# Review Workshop - some key issues

Issue	AP Base	RW Base	Justification
Plus group length bin for observed data	129 cm Fork Length (FL; commercial)	84 cm FL	Max length much larger than von Bertalanffy asymptotic length ( $L_{\infty}$ )
Age-0 M	0.49 per year	0.53 per year	Considered too low
Recreational landings input*	Weight	Numbers; fit to mean body weight of scamp landed by each recreational fleet	Recreational surveys consistently sample numbers; include mean weight to guide model predictions



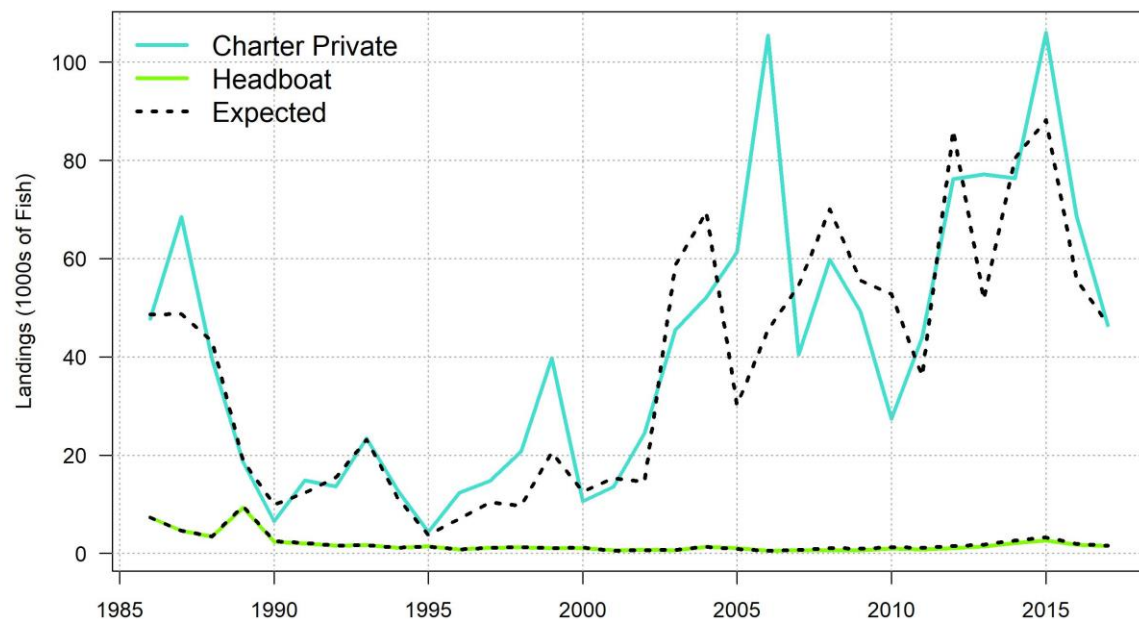
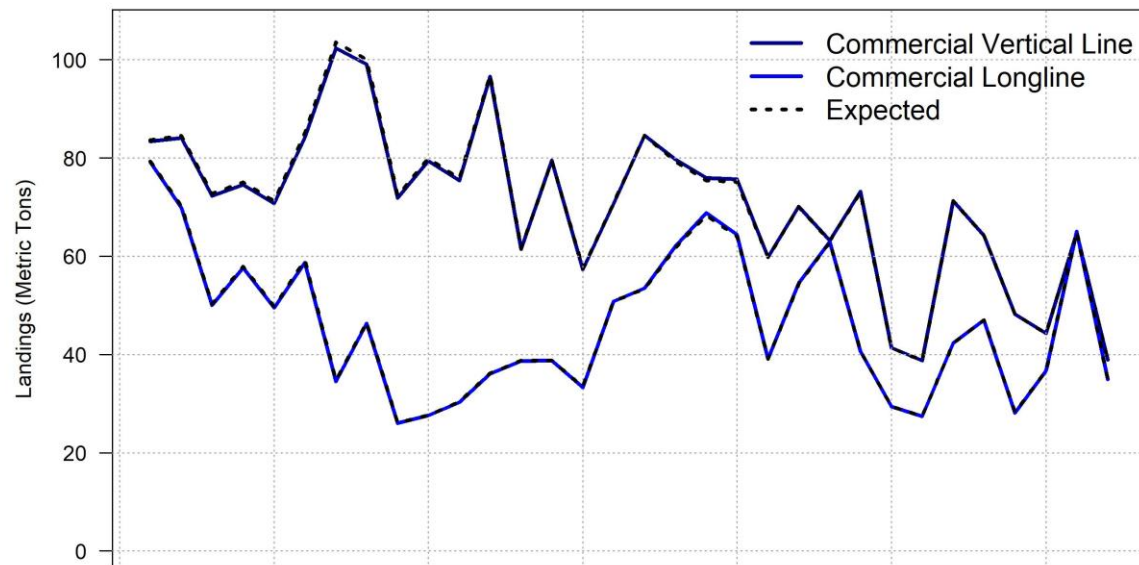
# Selectivity

CV>1 in RW Base:



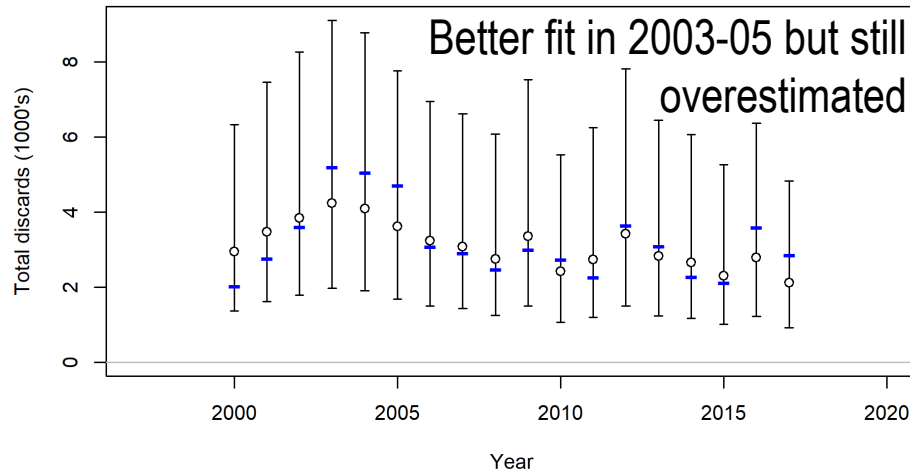
# Landings

- Commercial SE = 0.05  
(IFQ years SE = 0.01)
- Recreational SE fixed  
at 0.3

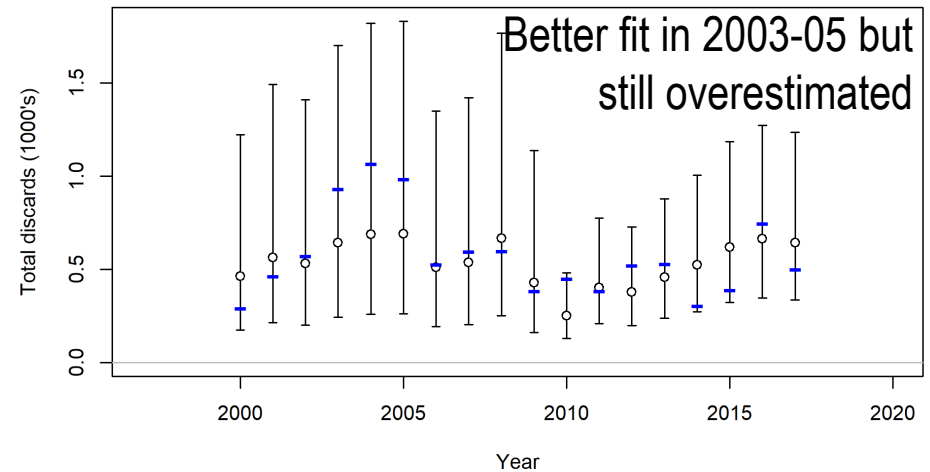


# Total discards (before applying discard mortality)

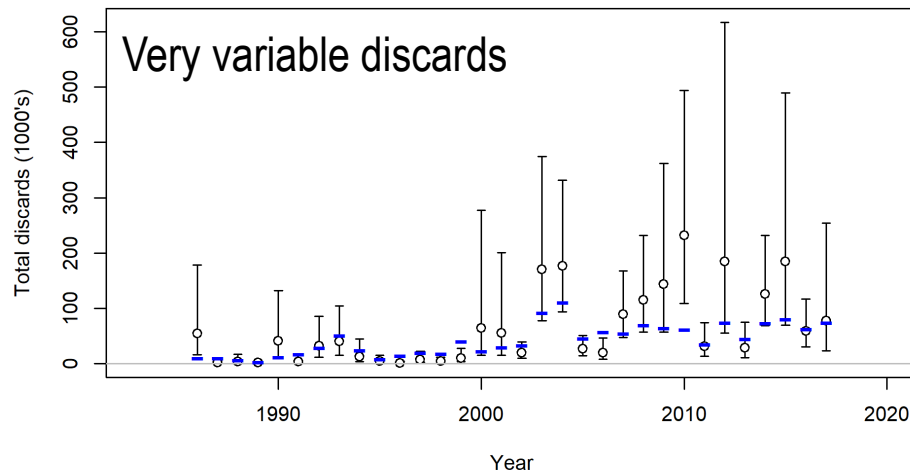
## Commercial Vertical Line



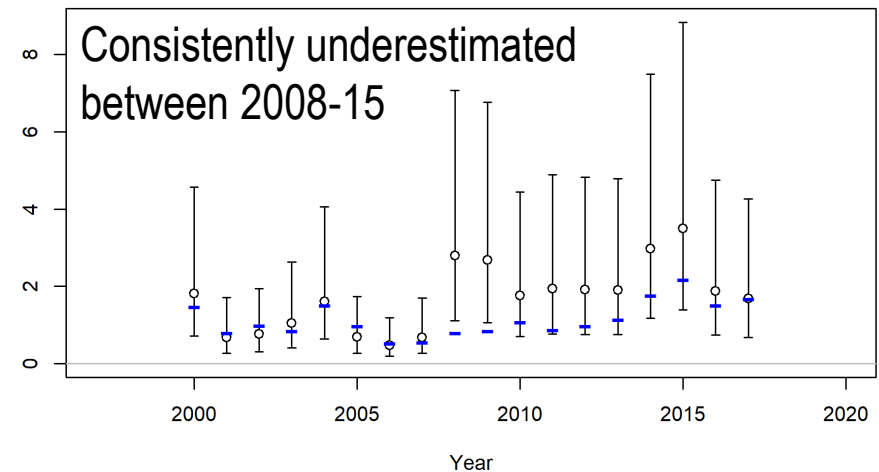
## Commercial Longline



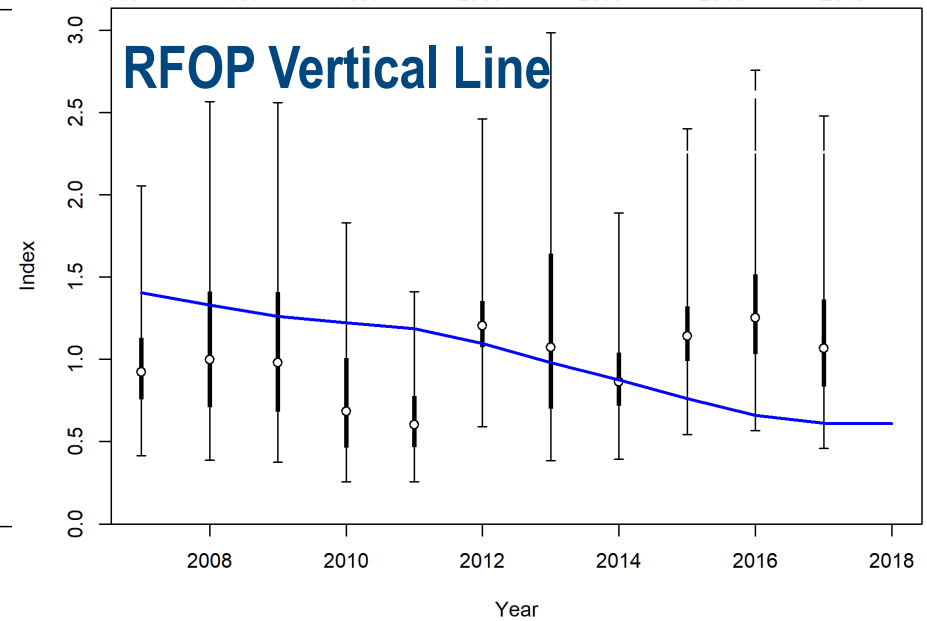
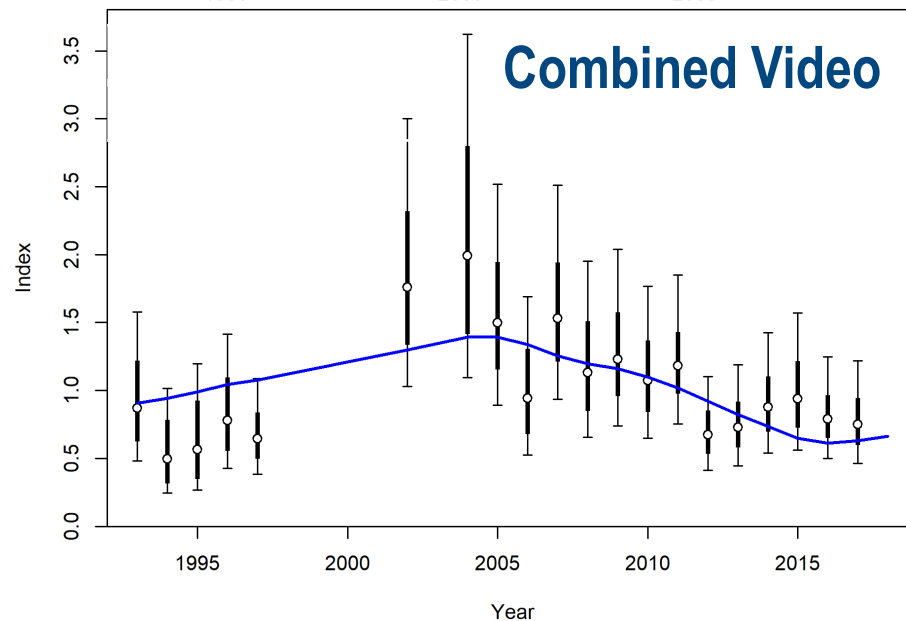
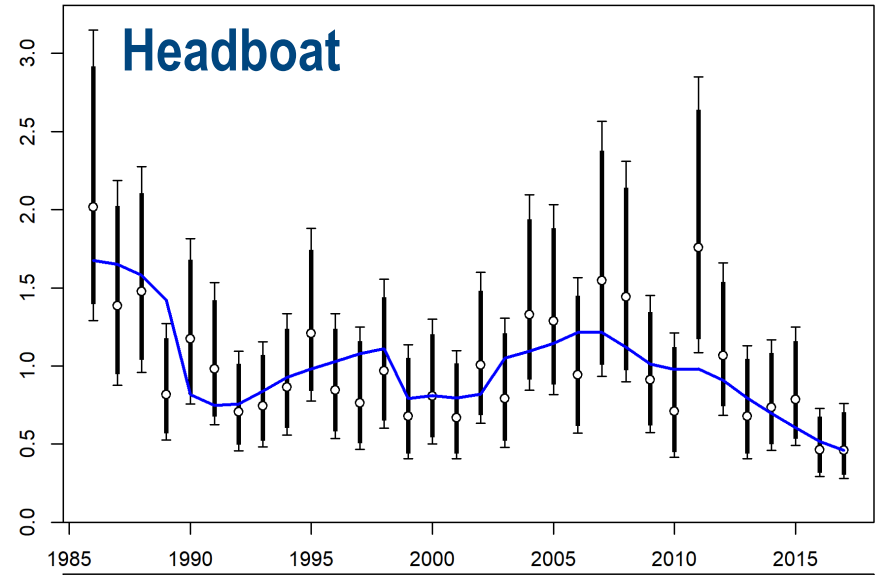
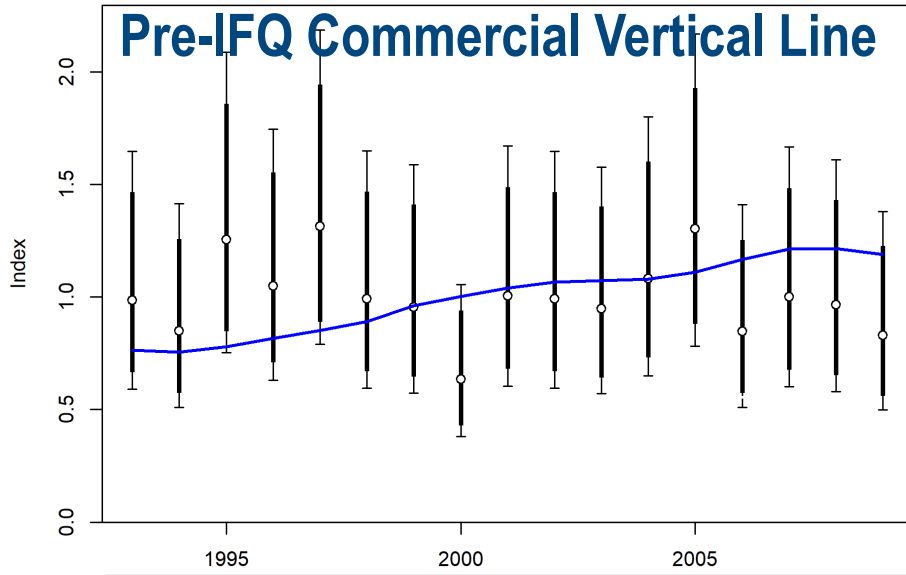
## Charter Private



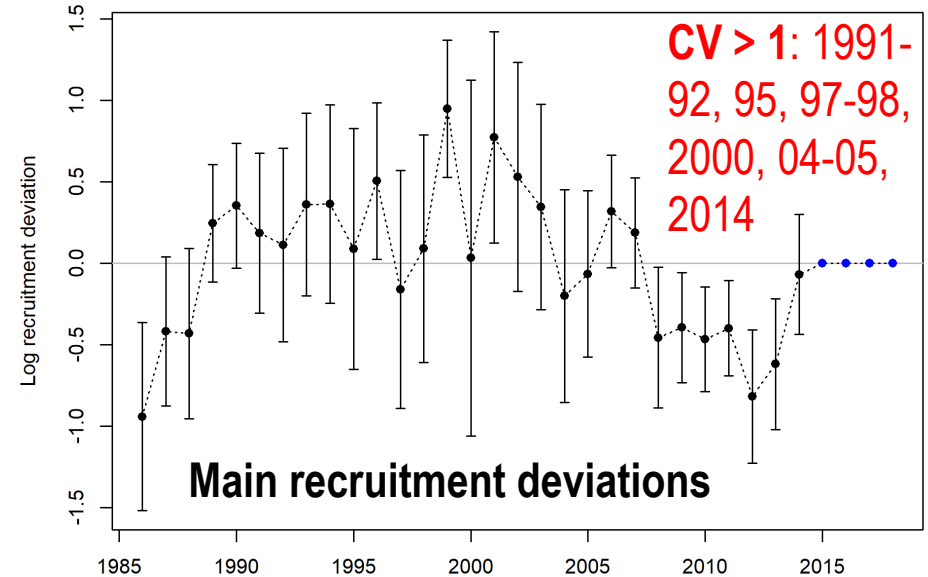
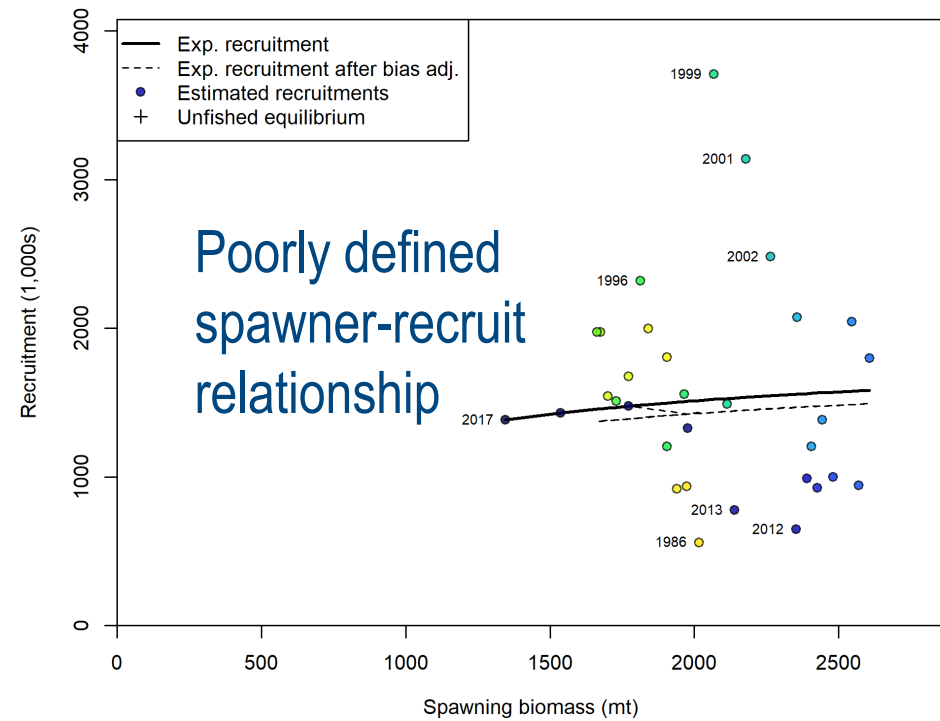
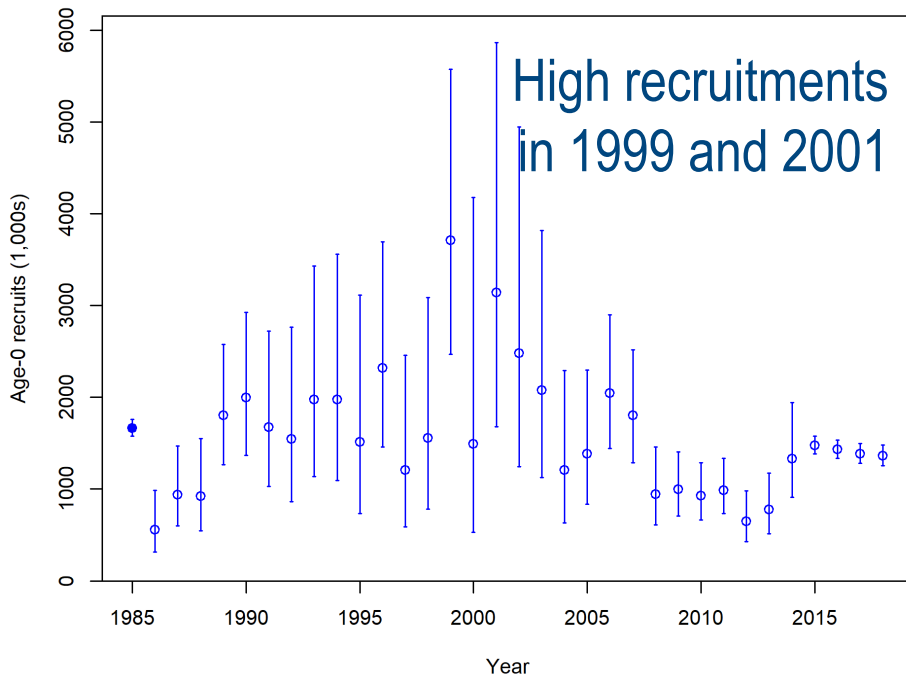
## Headboat



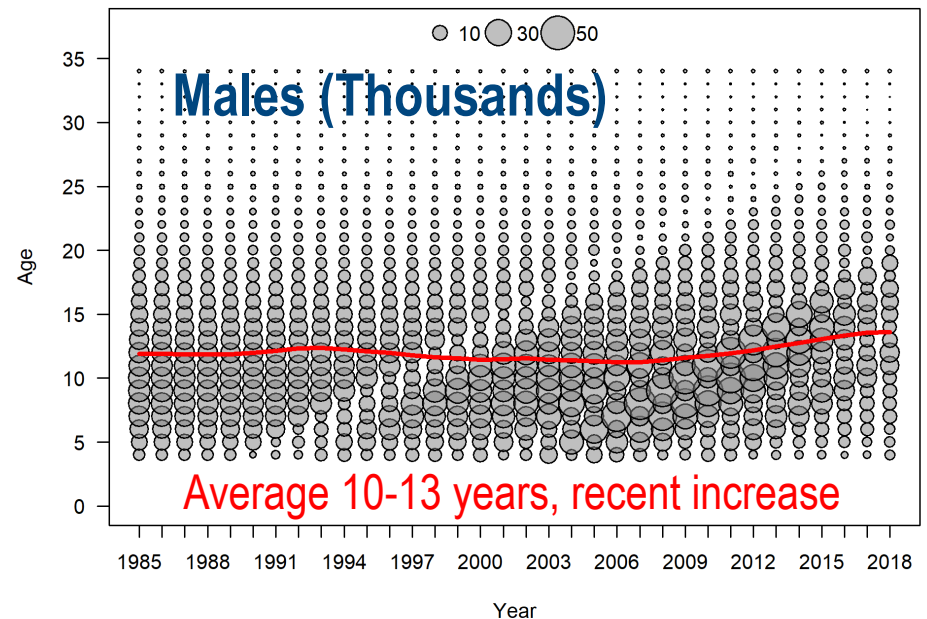
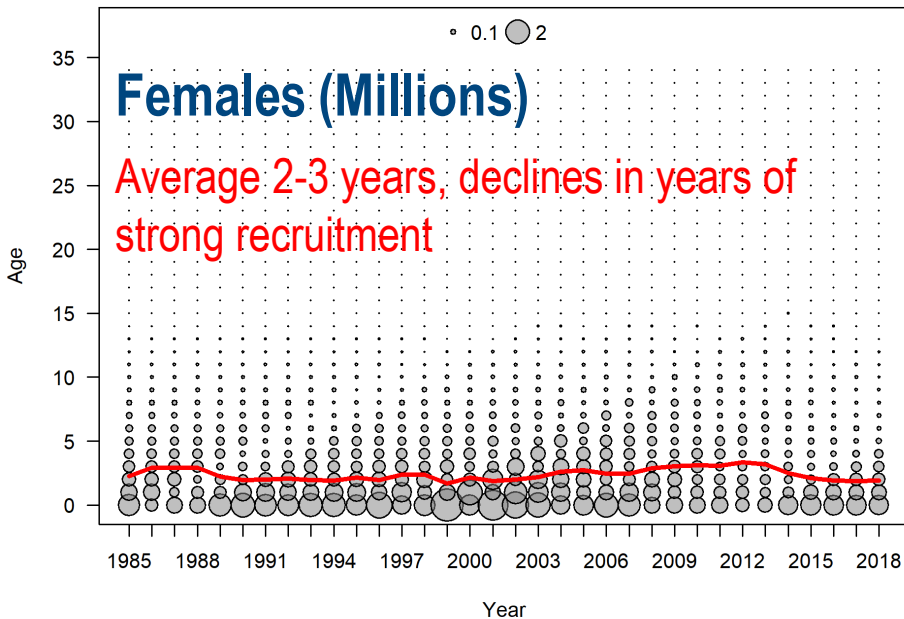
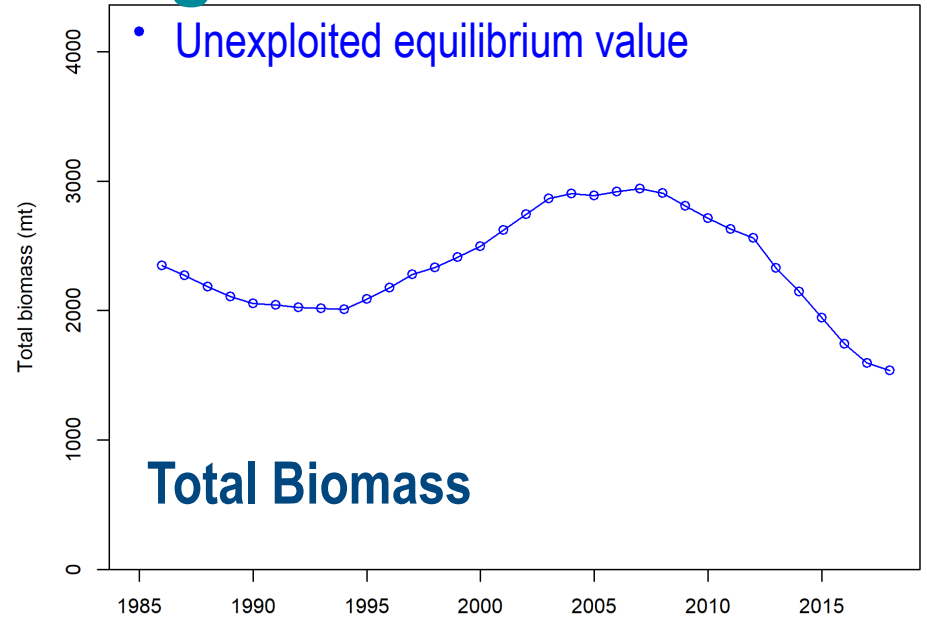
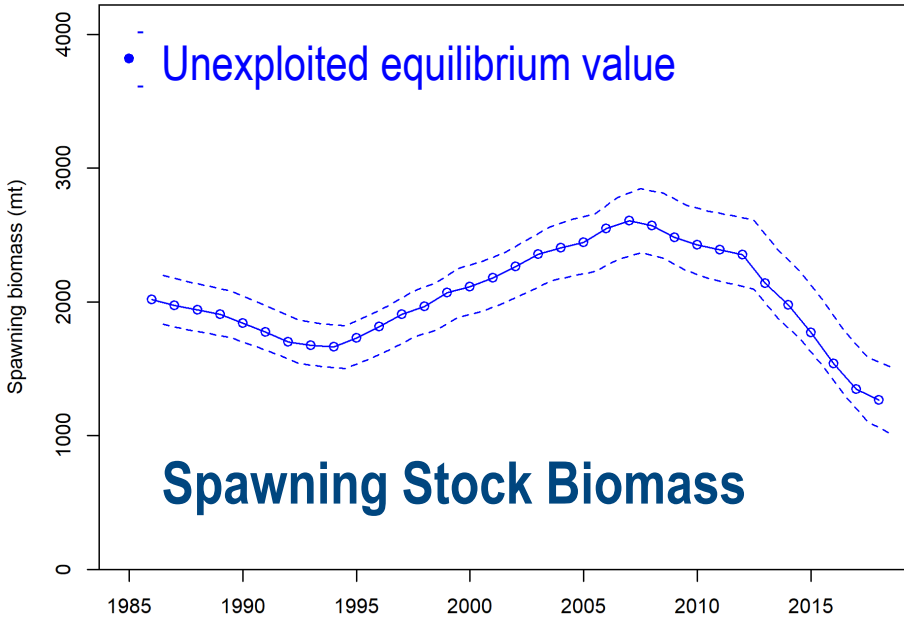
# Indices of relative abundance



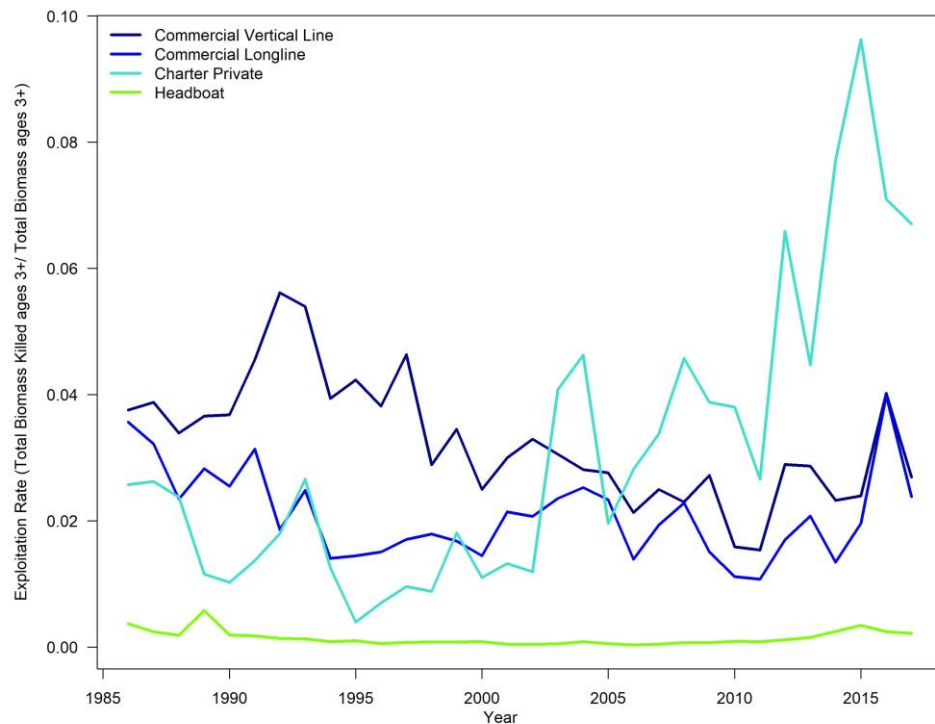
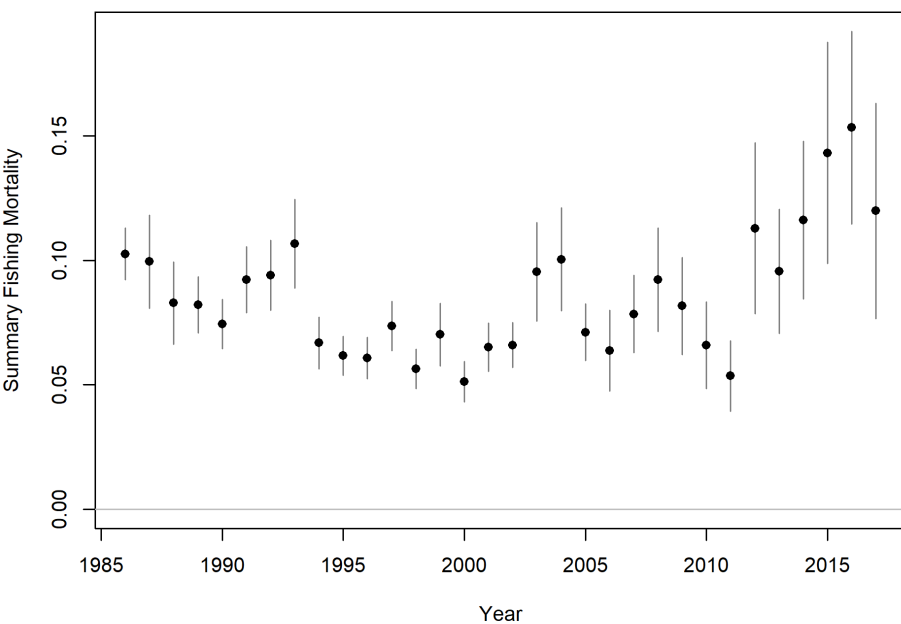
# Recruitment



# Biomass and Numbers-at-Age



# Fishing Mortality

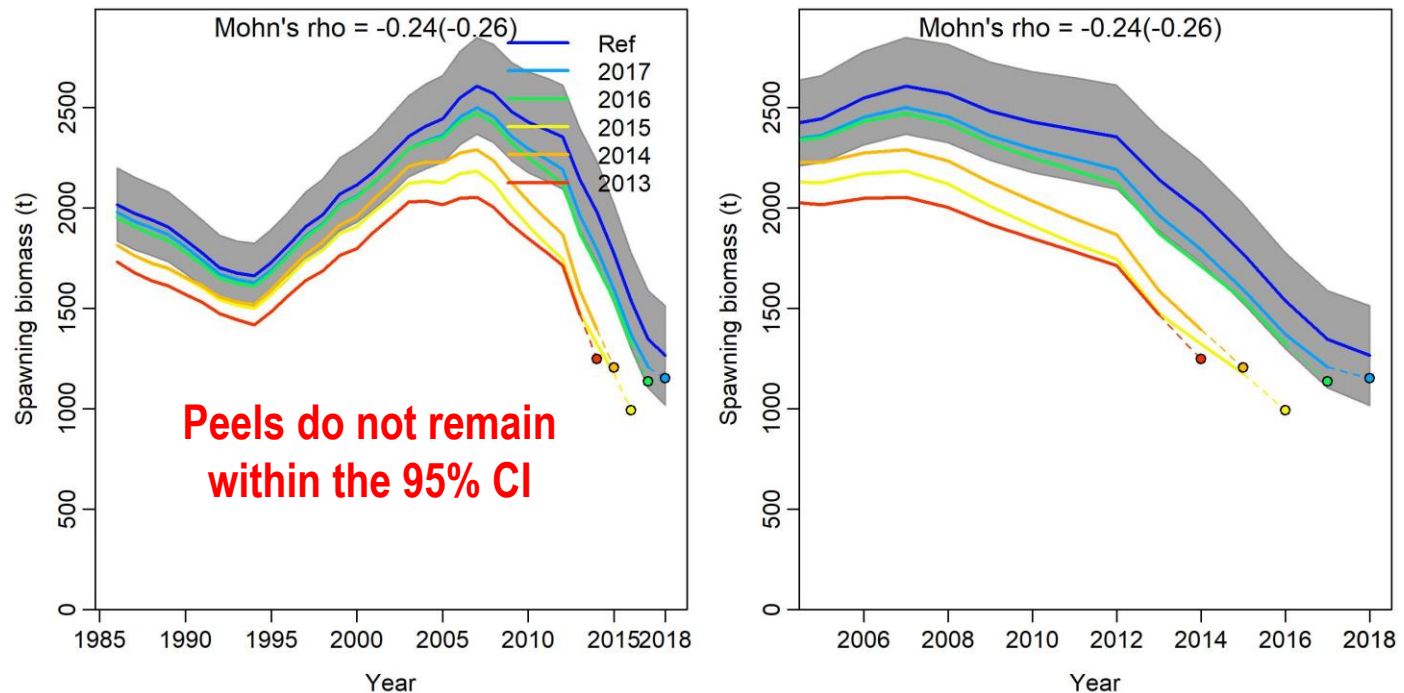


- Higher exploitation in recent years due to increased Charter-Private



# Retrospective bias

- Large retro bias falls outside the acceptable thresholds for long-lived species (-0.15 to 0.2; Hurtado et al. 2015)



# Outstanding modeling issues for OA

- Age and growth
  - Re-evaluate maximum size and asymptotic size in light of modeling issues noted during RW
  - 2003-2012 age data and re-estimation of growth curve
  - Re-evaluate representativeness of length and age data
  - Update ageing error matrix for Gulf samples only
- Selectivity and retention
  - Consider using priors or fixing some selectivity and retention parameters to stabilize model
- Investigate retrospective bias