2/18 : 2-A-I

ABT-MSE Operating model fitting report

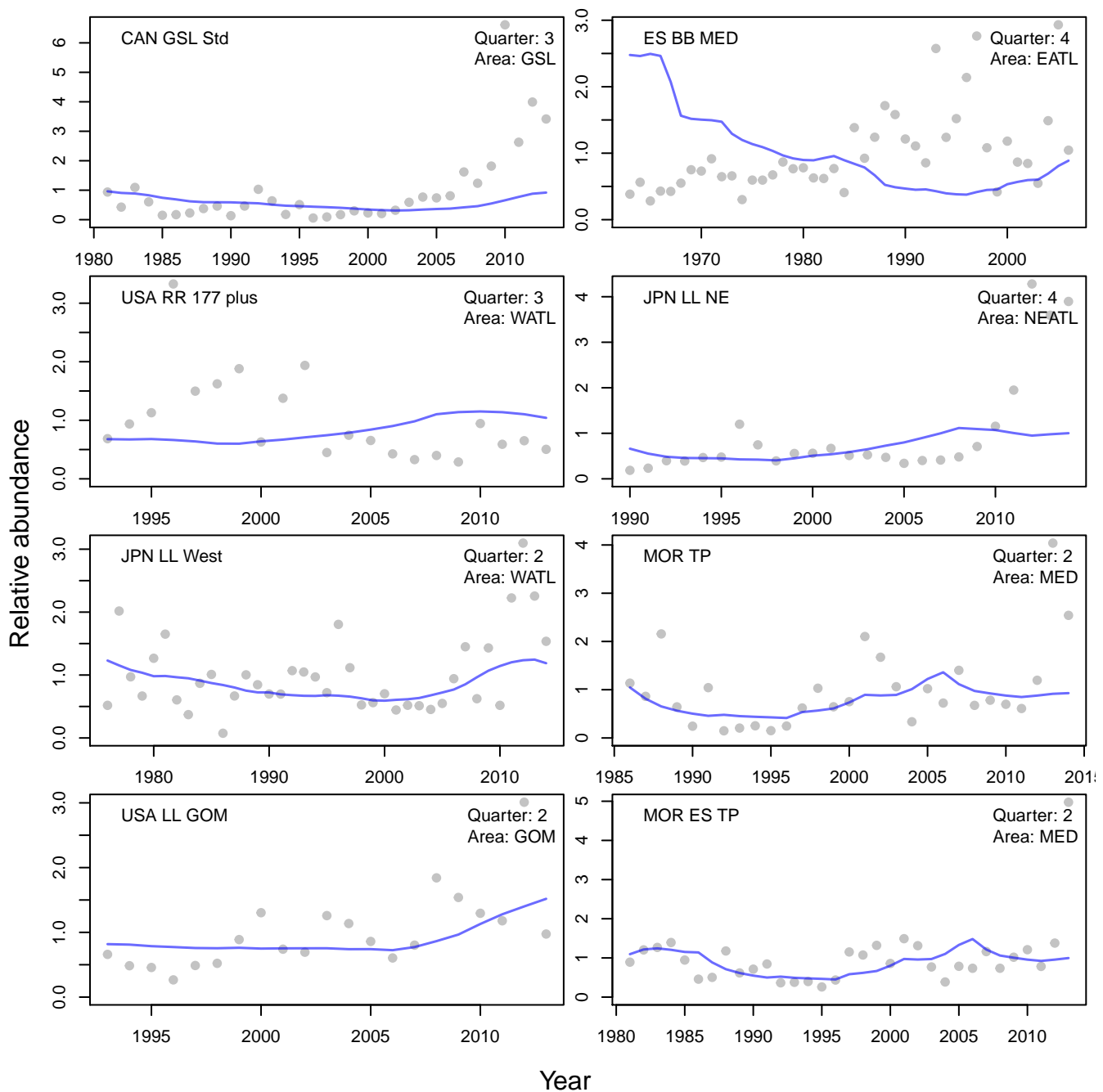*Tom Carruthers*

January 18, 2017
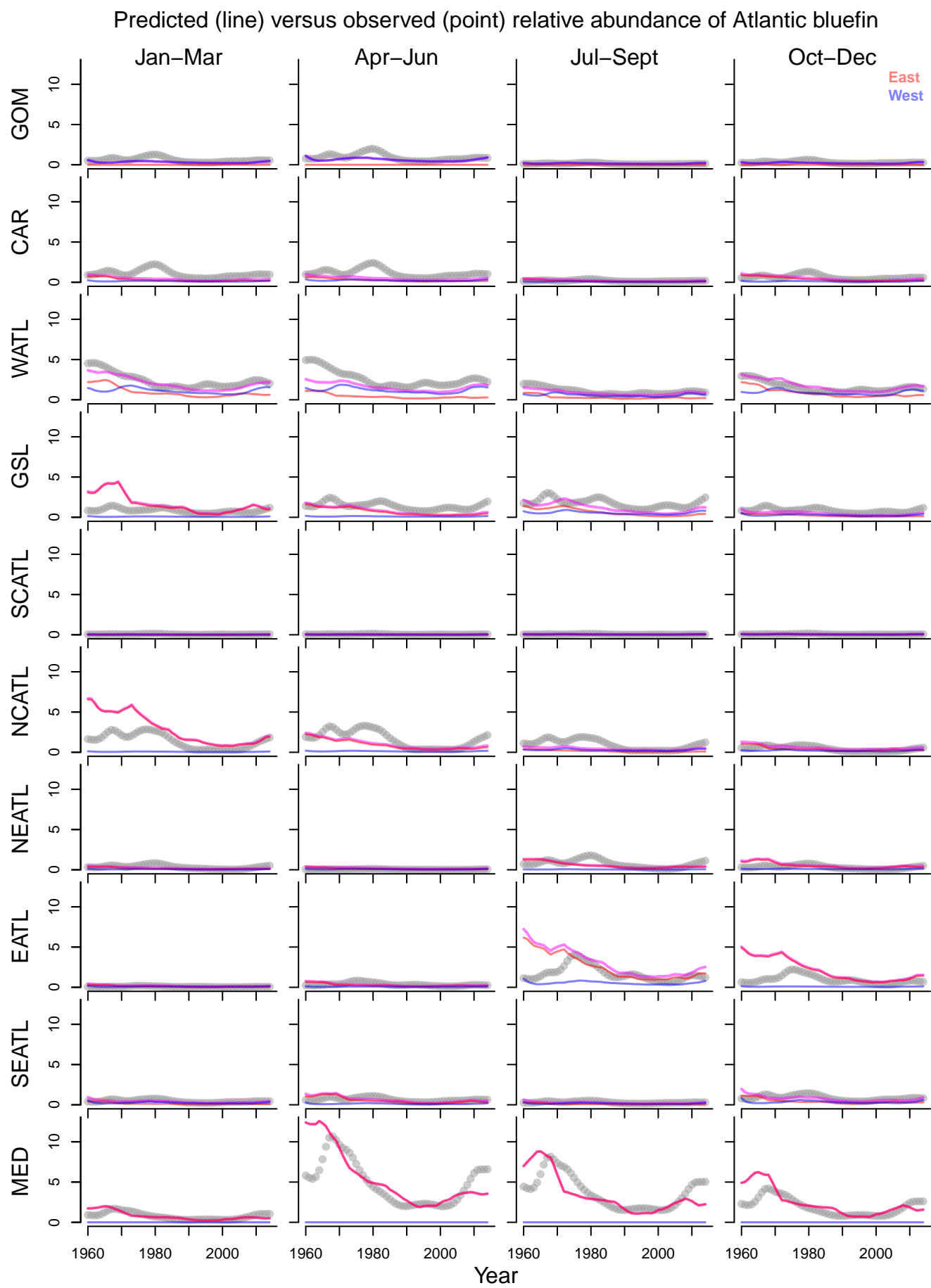
Operating model scenario is:

L2: West - B-H h estimated, East - '83+ B-H h=0.7
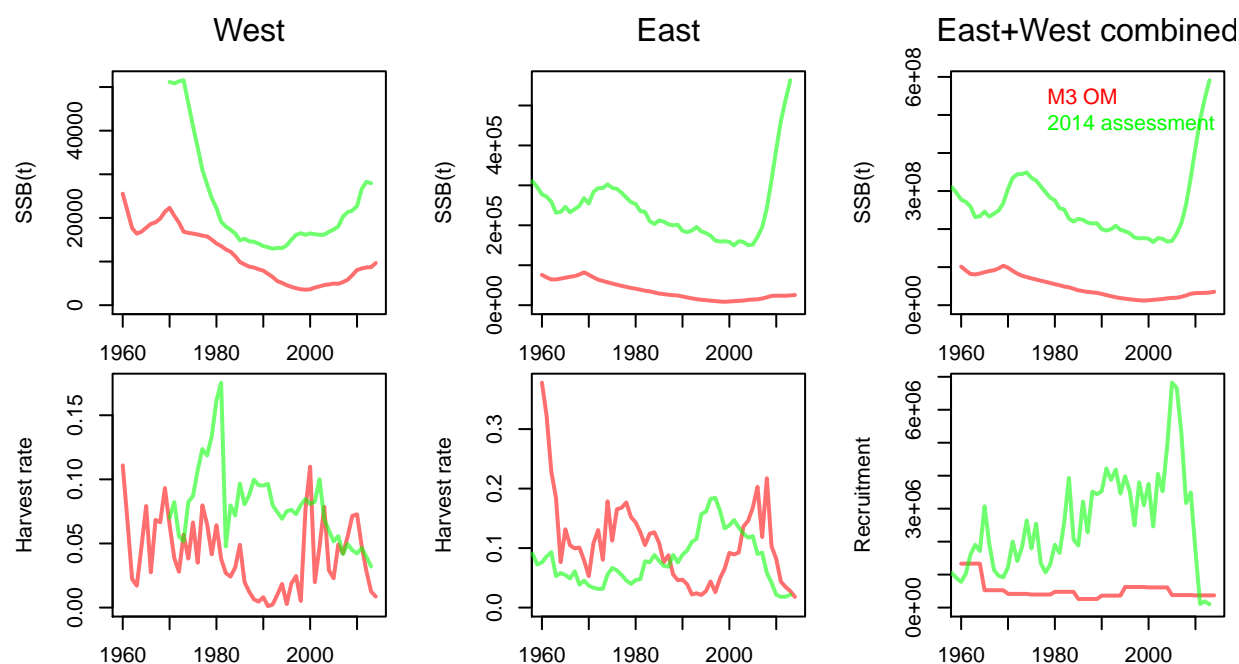L1: West - Best estimate, East - Best estimate
L1: West - M by age, older maturity, East - M by age, younger maturity

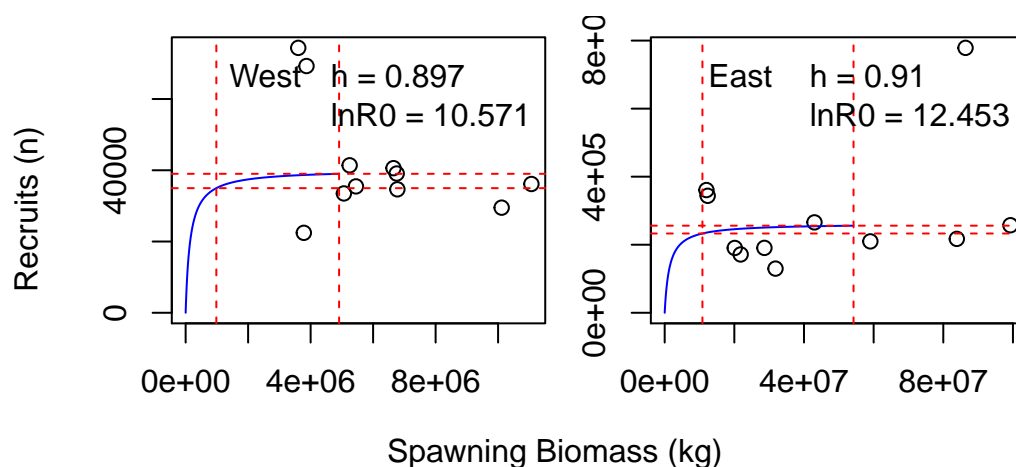**Fits to CPUE indices of relative abundance**

Predicted (line) versus observed (point) relative abundance of Atlantic bluefin

SSB, recruitment and F comparison with 2014 assessment (by East/West area, not East/West stock)

**Stock-recruitment relationships (by East/West stock)**

MSY reference points (by East/West stock)

	MSY	FMSYap	UMSY	BMSY	SSBMSY	BMSY_B0	SSBMSY_SSB0	RMSY_R0	F_FMSY	SSB_SSBMSY
East	4550	0.753	0.228	19978	7889	0.25	0.154	0.881	0.023	3.340
West	1253	0.448	0.145	8666	2406	0.28	0.176	0.881	0.026	2.814

2014 Assessment MSY reference points (by East/West area)

	MSY	FMSYap	UMSY	BMSY	SSBMSY	BMSY_B0	SSBMSY_SSB0	RMSY_R0	F_FMSY	SSB_SSBMSY
East	-	-	-	-	-	-	-	-	0.75	0.45
West	3056	0.23	-	-	13268	-	-	-	0.47-0.85	0.35-2.1

Current annual mean F-at-age profile, all fleets, seasons, areas
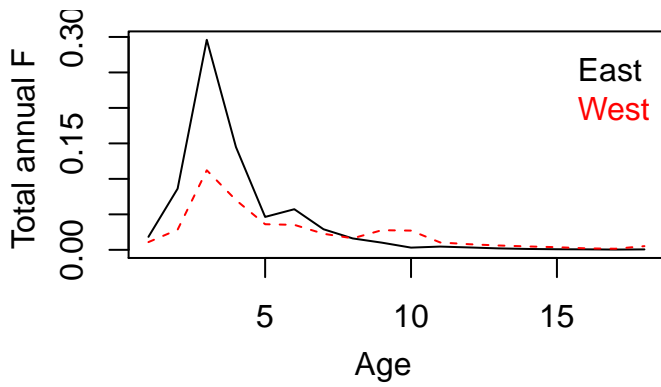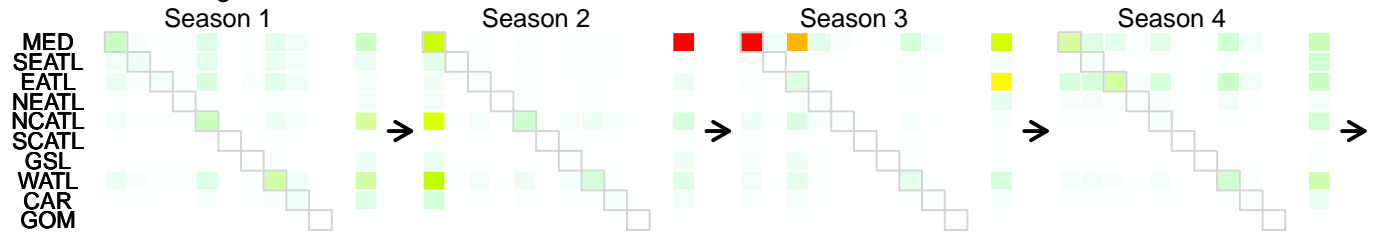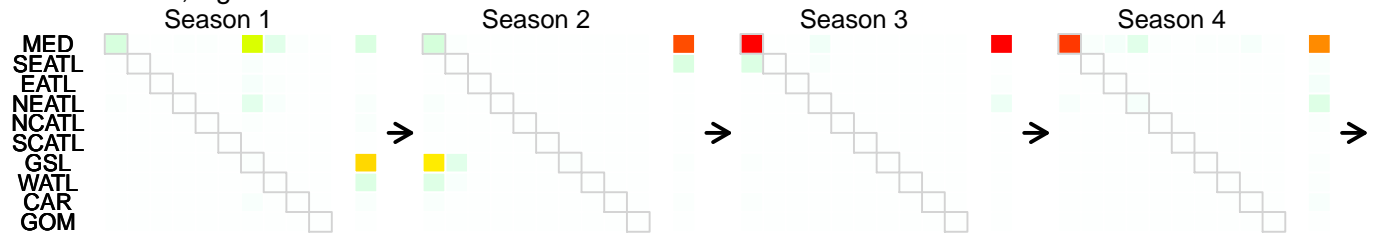

Estimated size selectivity by fleet
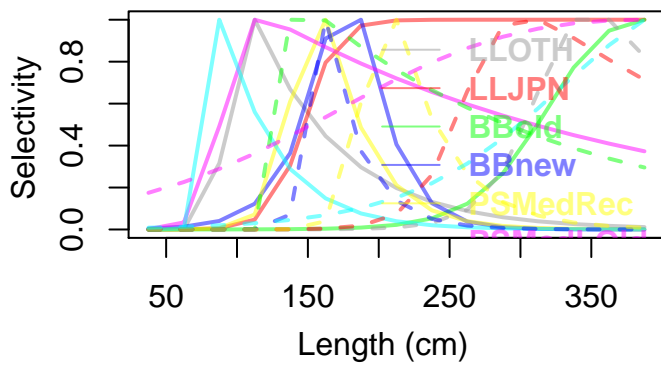
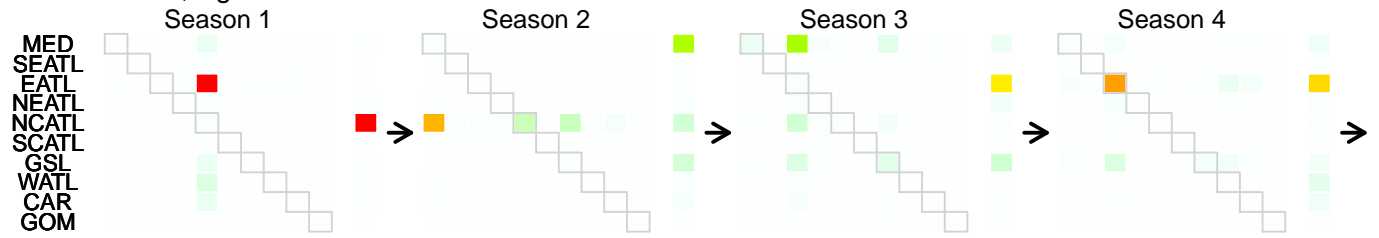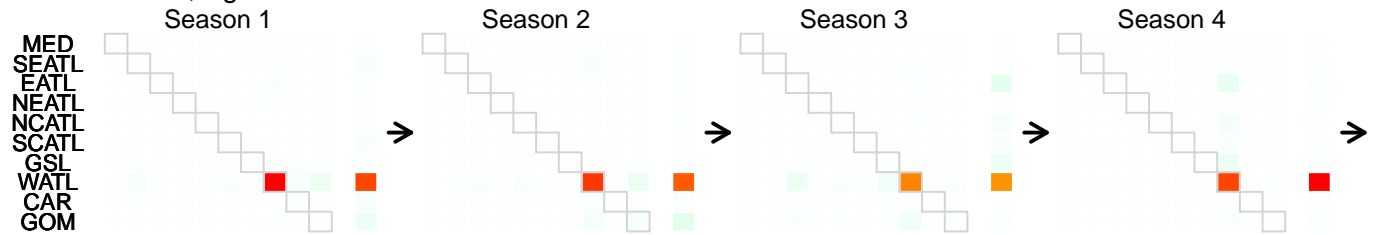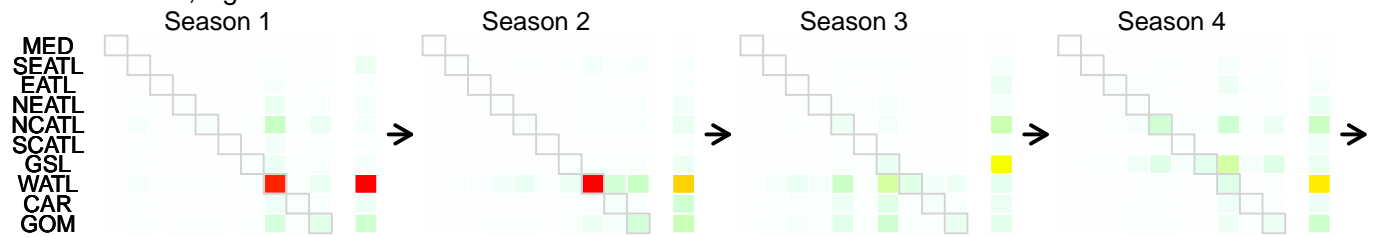## Estimated unfished movement and spatial distribution
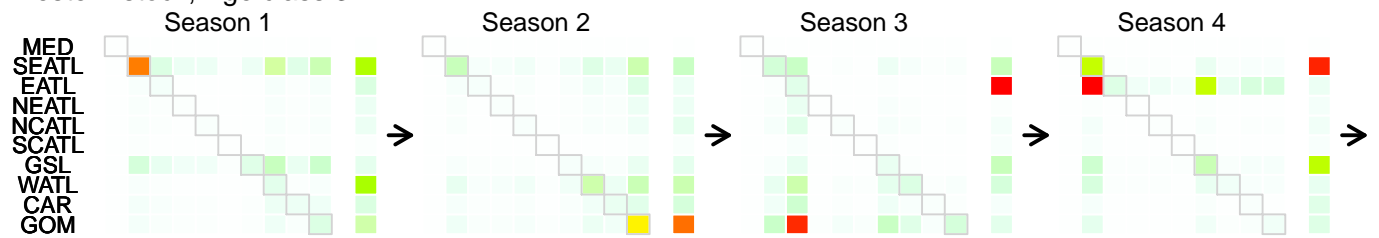
Eastern stock, Age class 3

Western stock, Age class 1
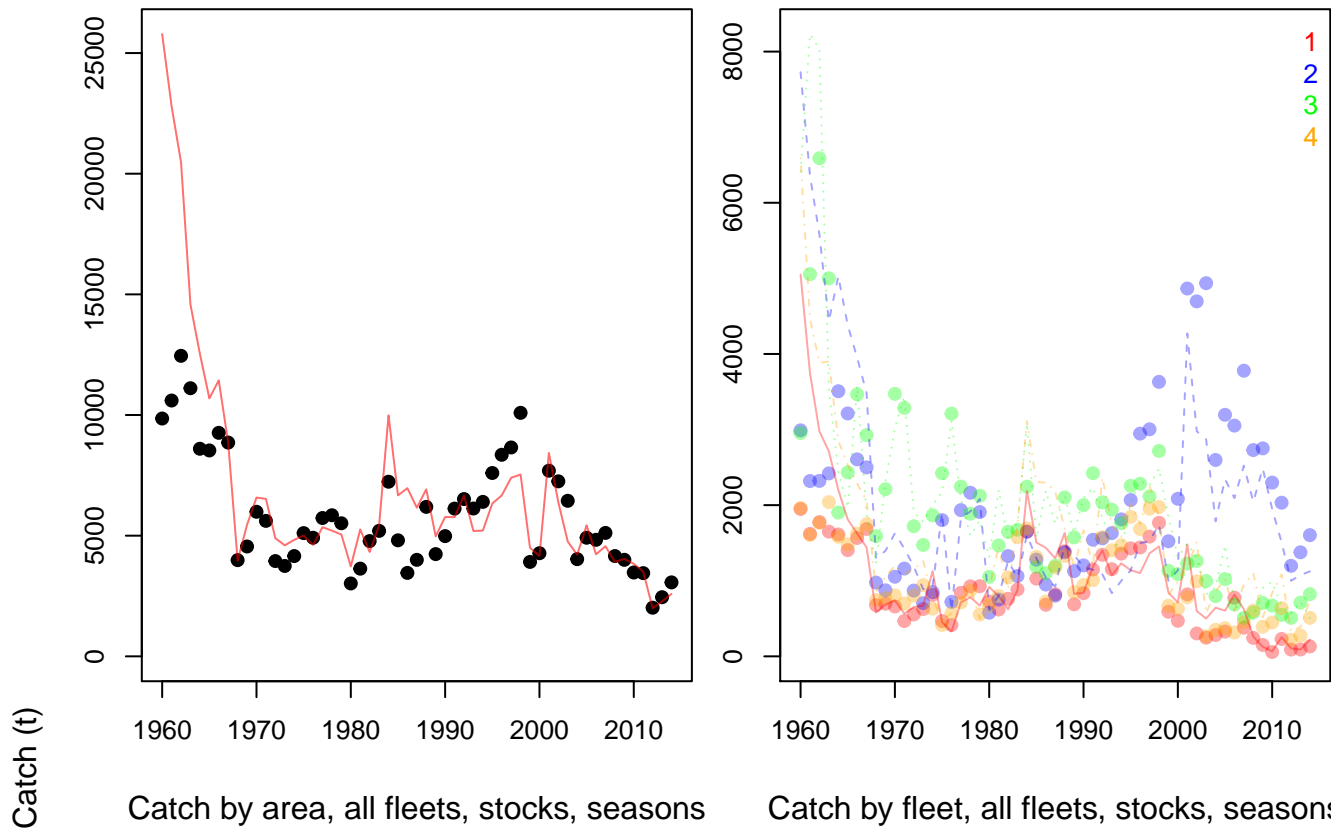

Western stock, Age class 2

Western stock, Age class 3

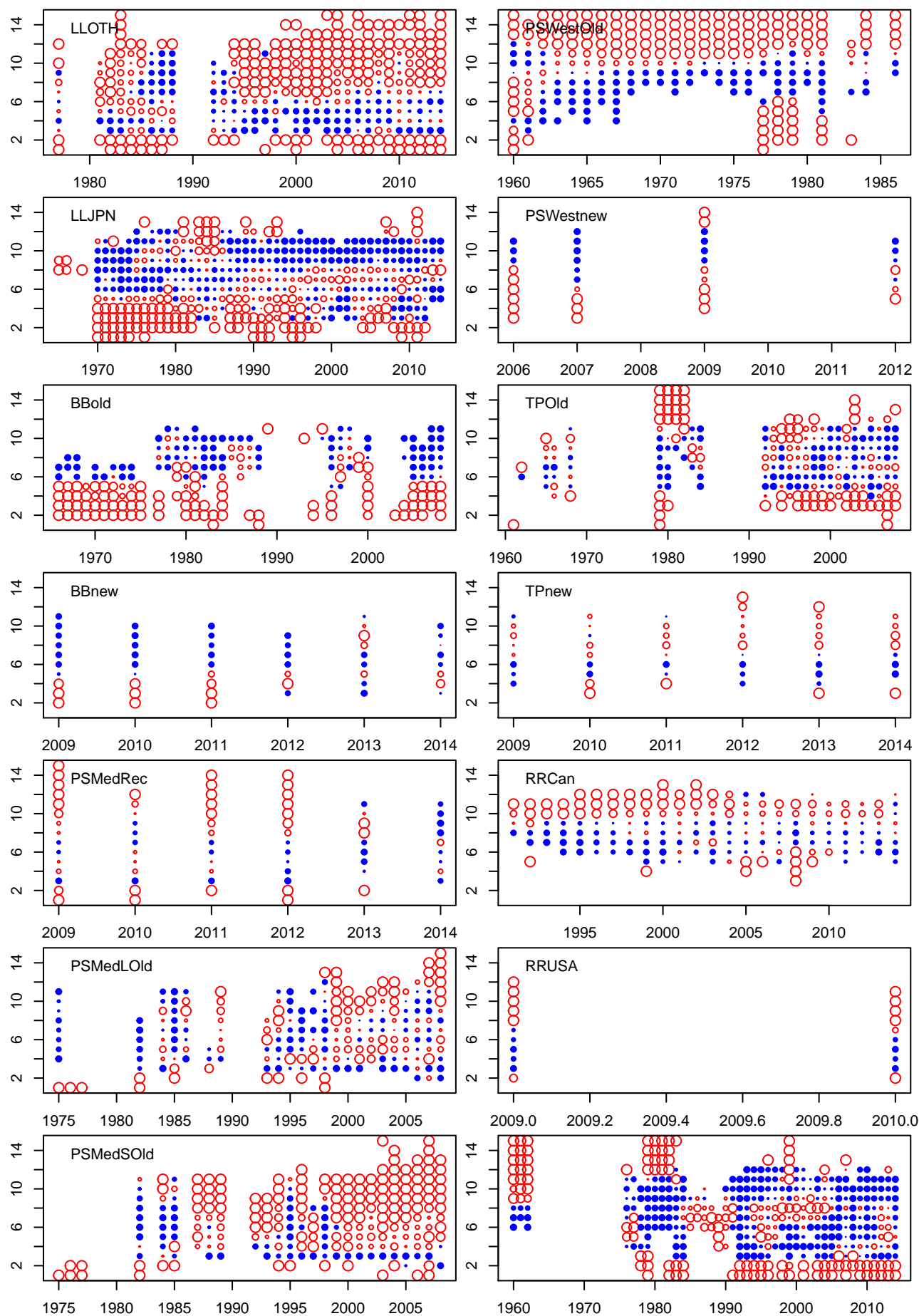**Fit to aggregate catches**

Total catch, all fleets, stocks, areas, seasons

Catch by quarter, all fleets, stocks, seasons

Catch (t)

1 (red)
2 (blue)
3 (green)
4 (orange)

Catch by area, all fleets, stocks, seasons

GOM
CAR
WATL
GSL
SCATL
NCATL
NEATL
EATL
SEATL
MED

Catch by fleet, all fleets, stocks, seasons

Observed
Predicted

LLOTH LLJPN BBold BBnew PSMedRec PSMedLOld PSMedSOld PSWestOld PSWestnew TPOld TPnew RRCan RRUSA OTH

Fit to aggregate length composition

Other model estimates and fits

Statistical properties of indices for use in Management Procedures

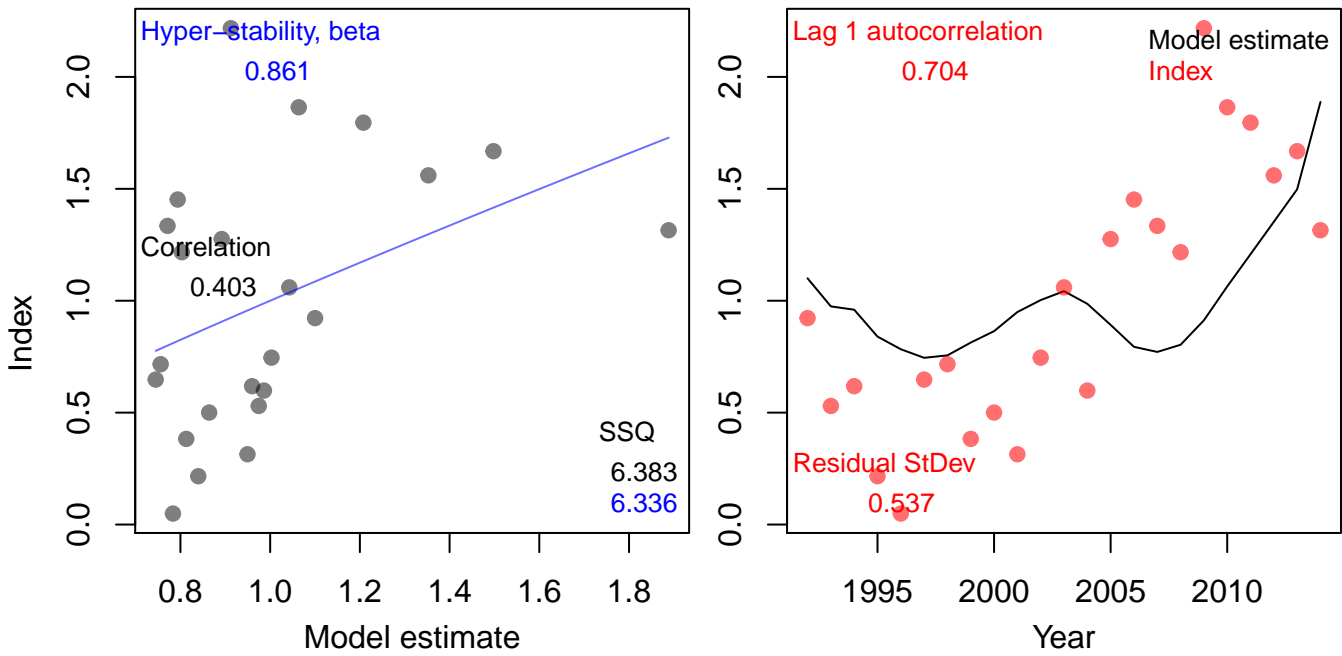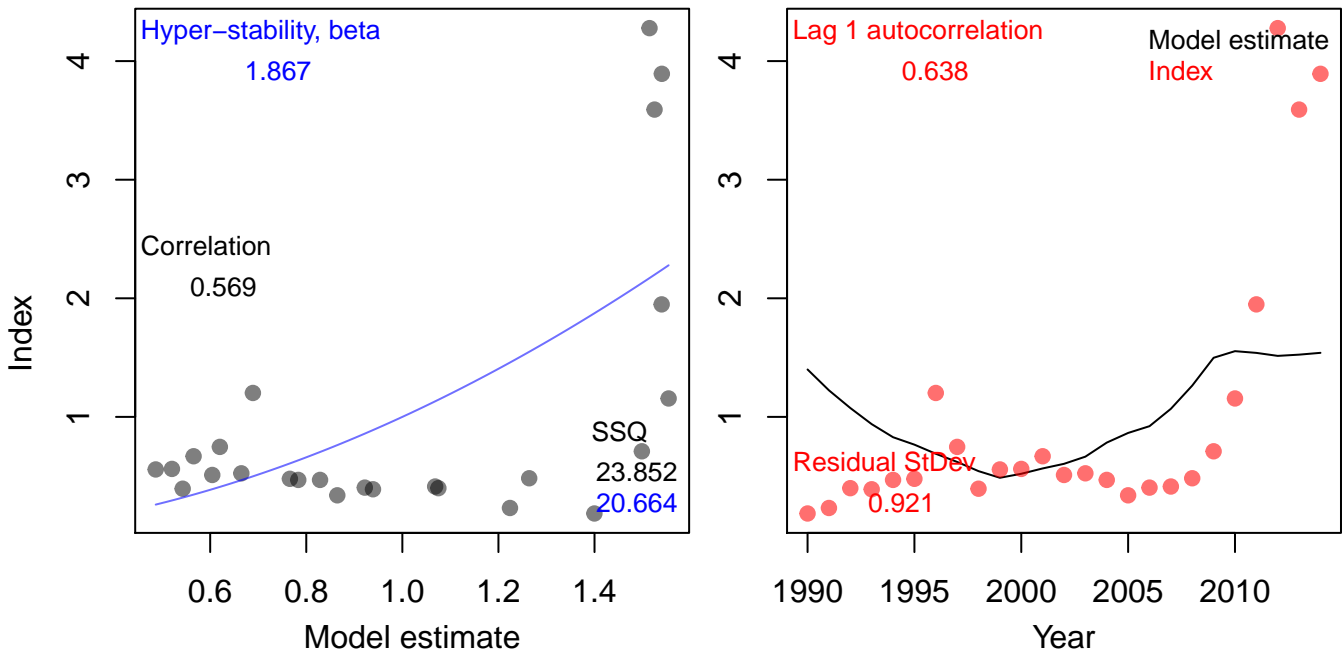**Index fit and statistical properties for GOM__Larval**
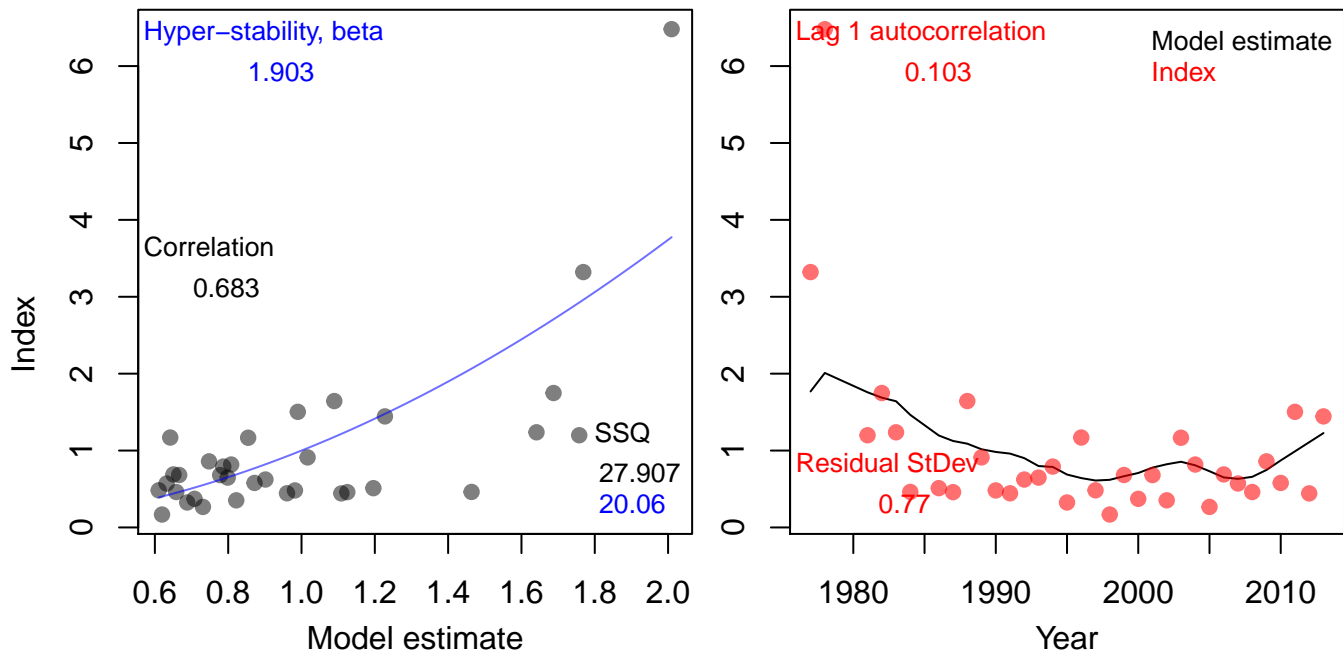
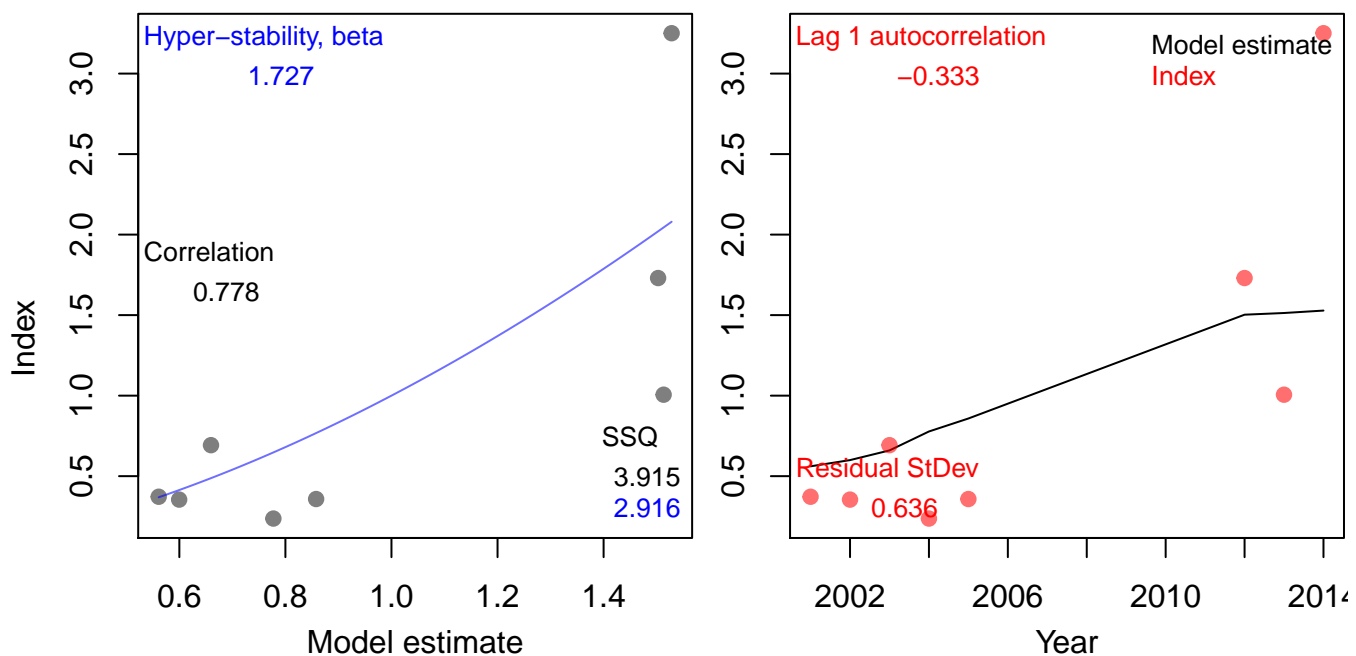**Index fit and statistical properties for JP__LL__W**
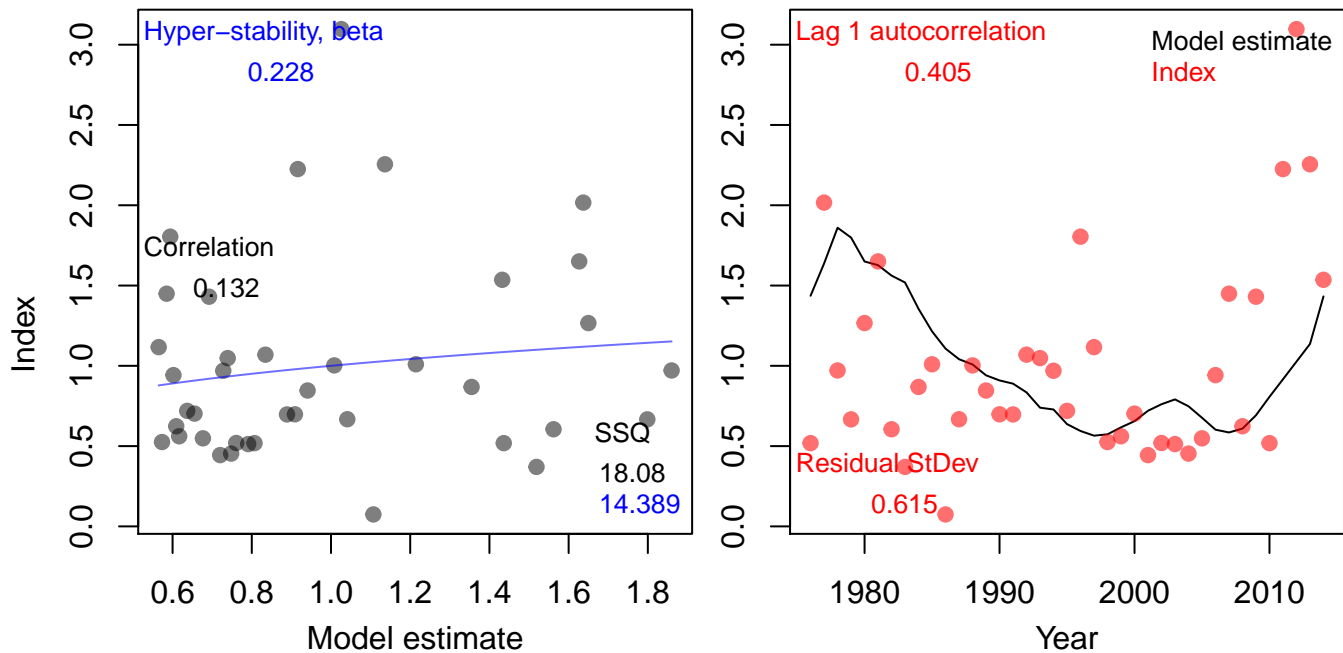
Index fit and statistical properties for US-CAN

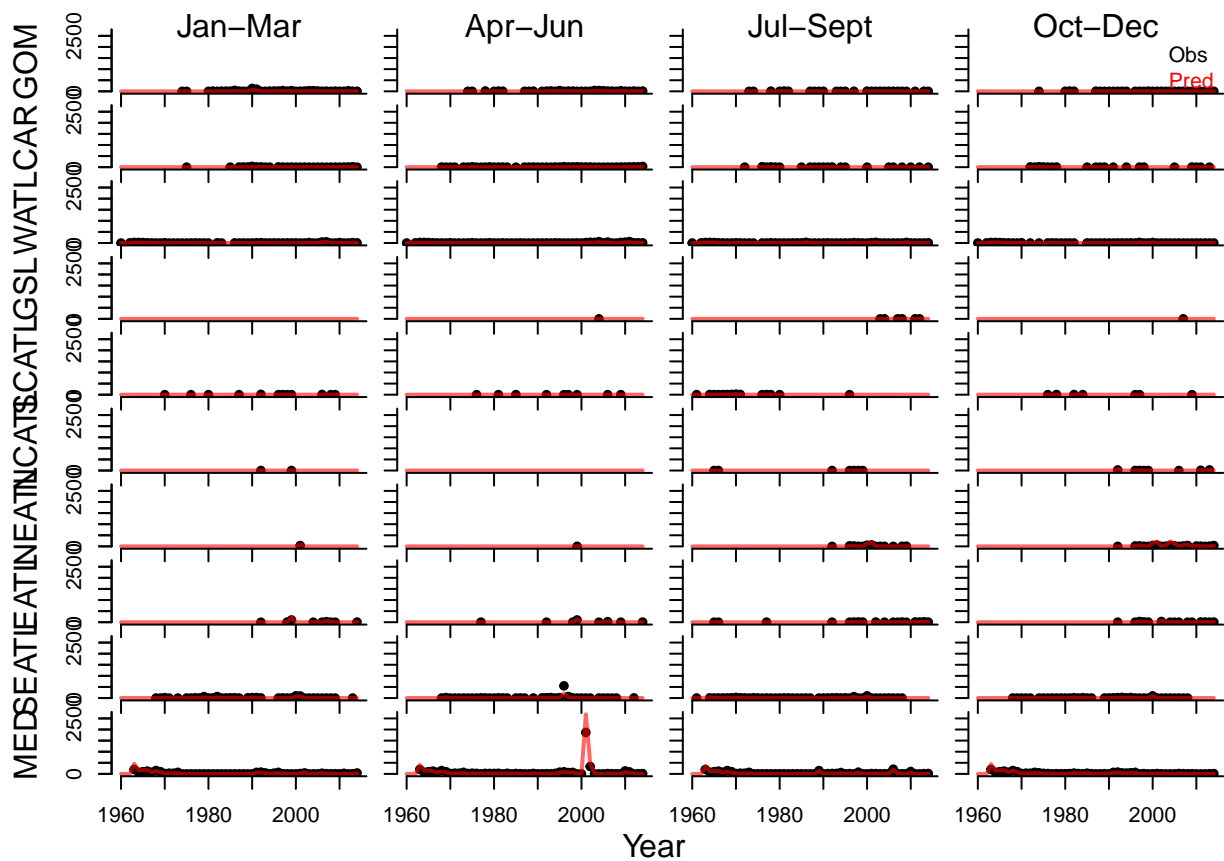**Index fit and statistical properties for JP__LL__NE**
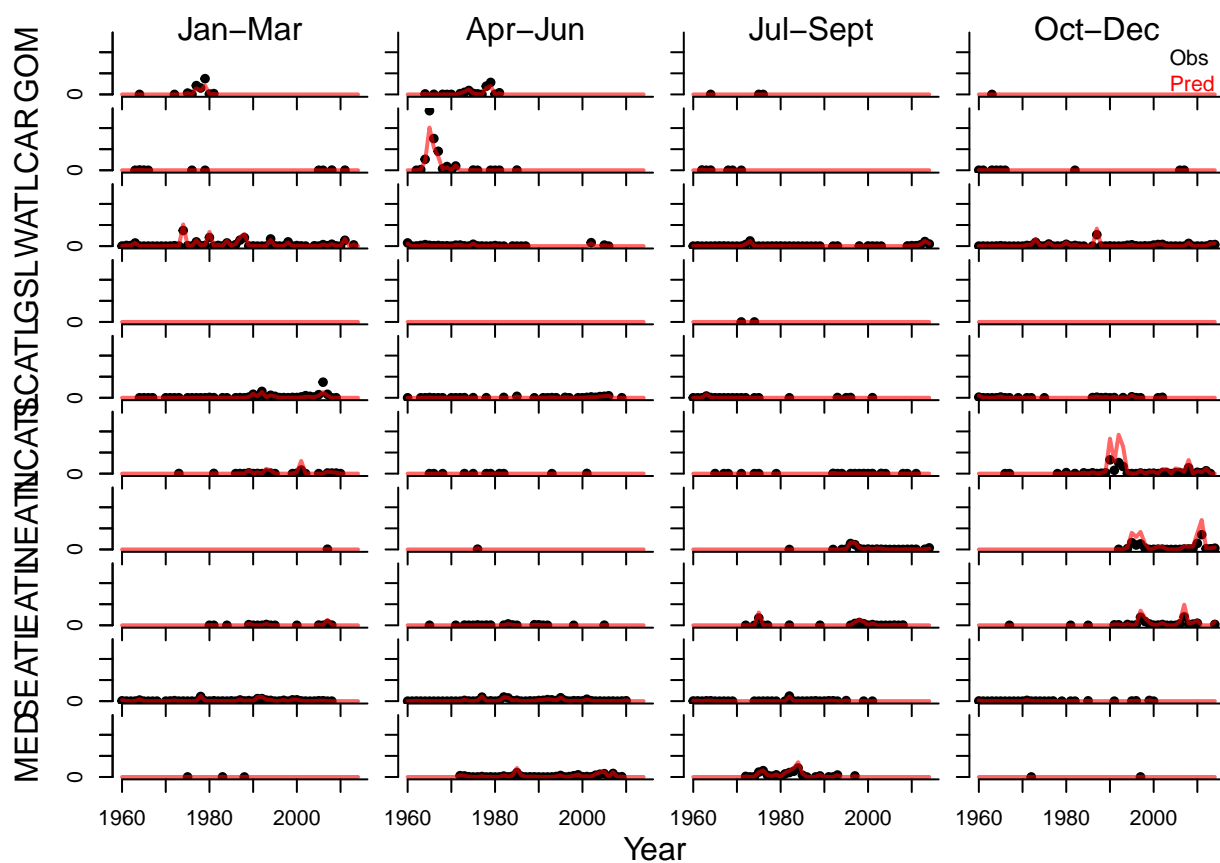
Index fit and statistical properties for MED_Larval
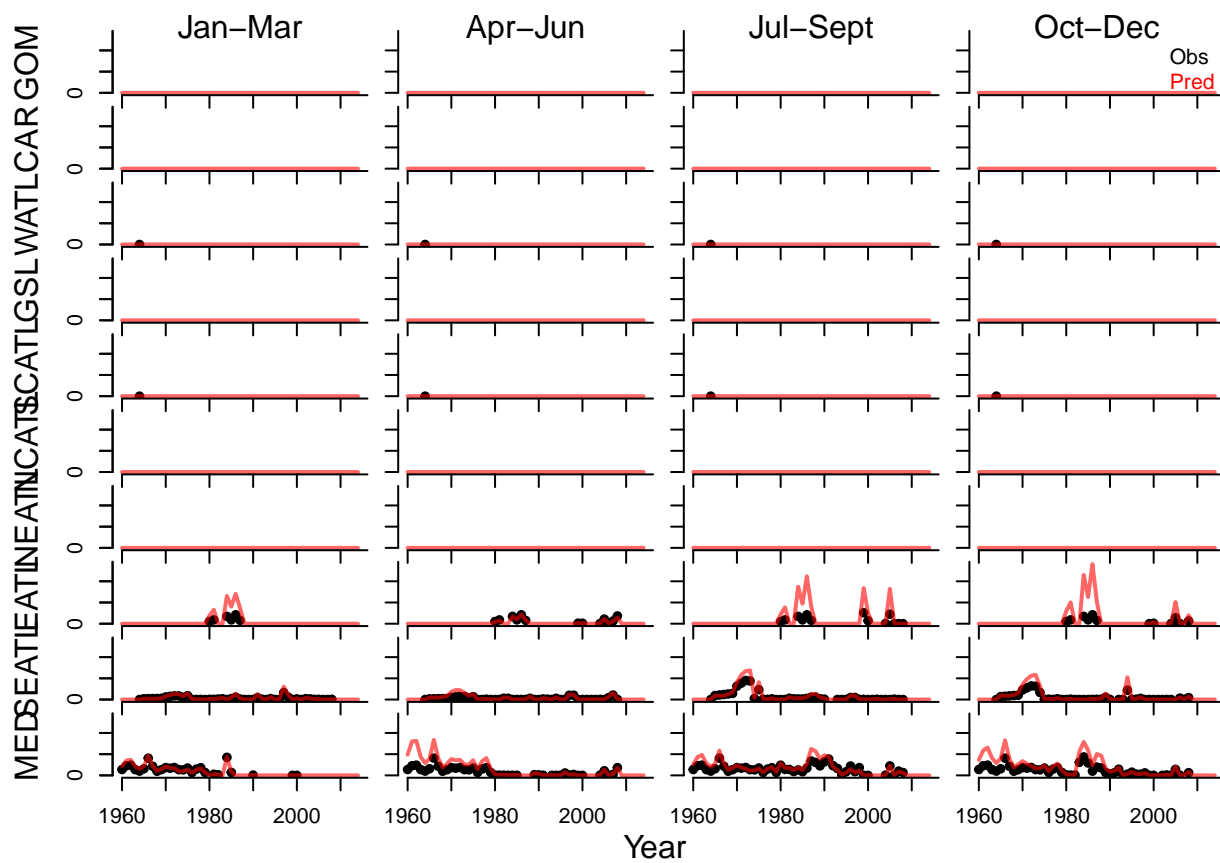

Fit to observed catches

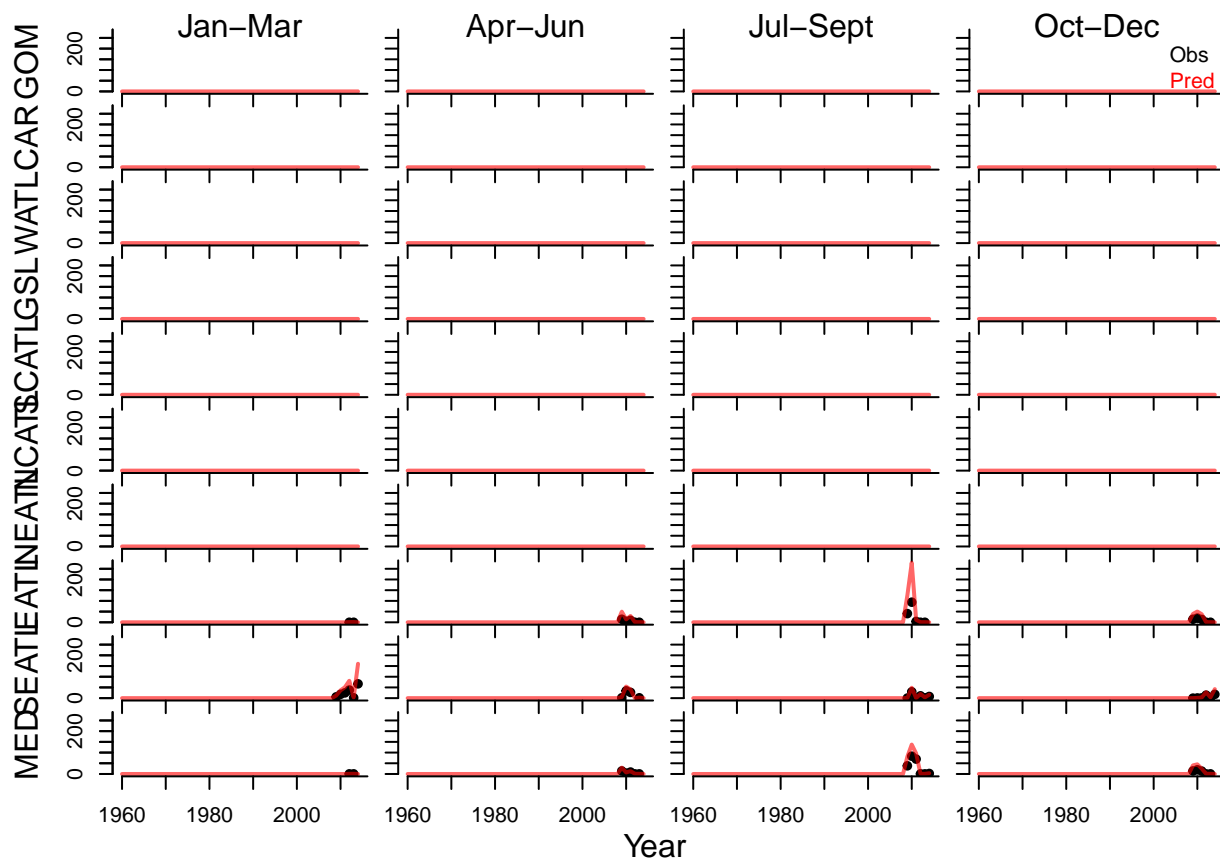**Observed catches (tonnes) for LLOTH**
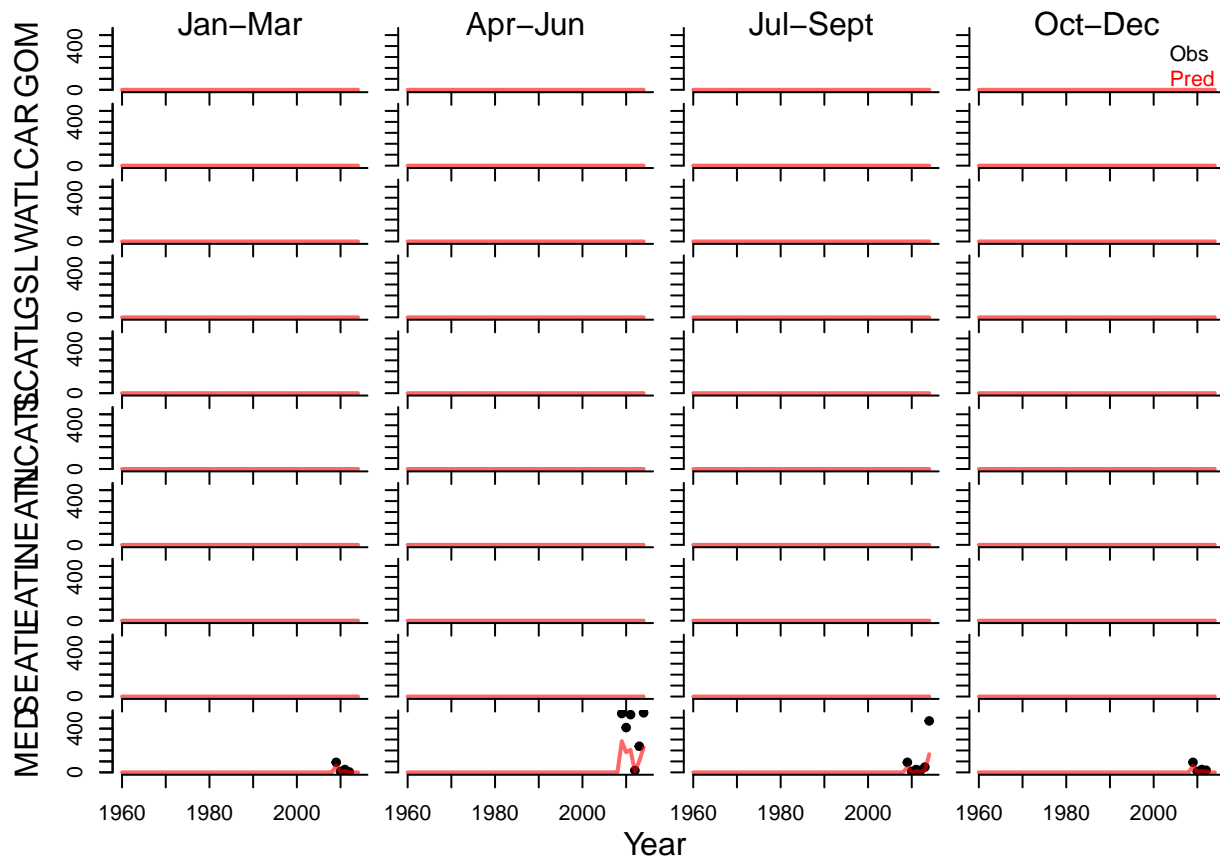
Observed catches (tonnes) for LLJPN

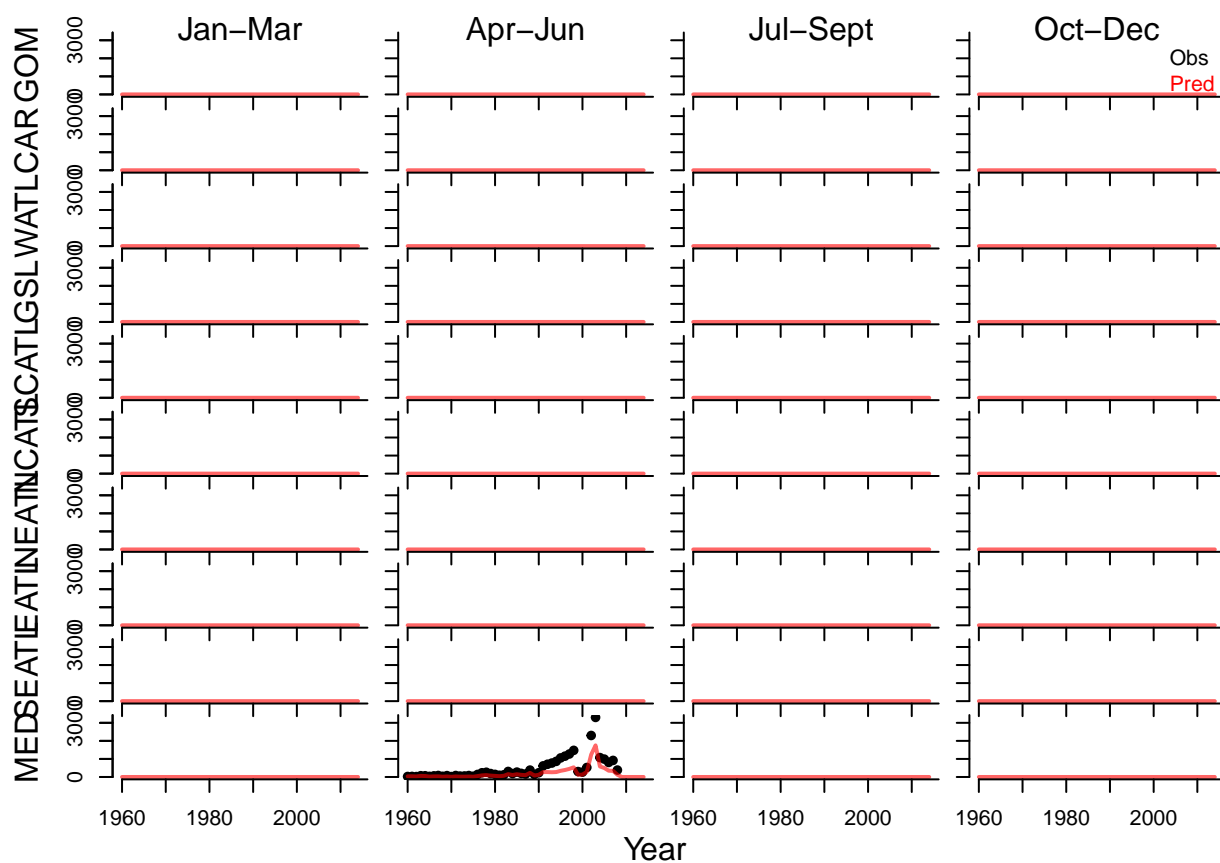## Observed catches (tonnes) for BBold
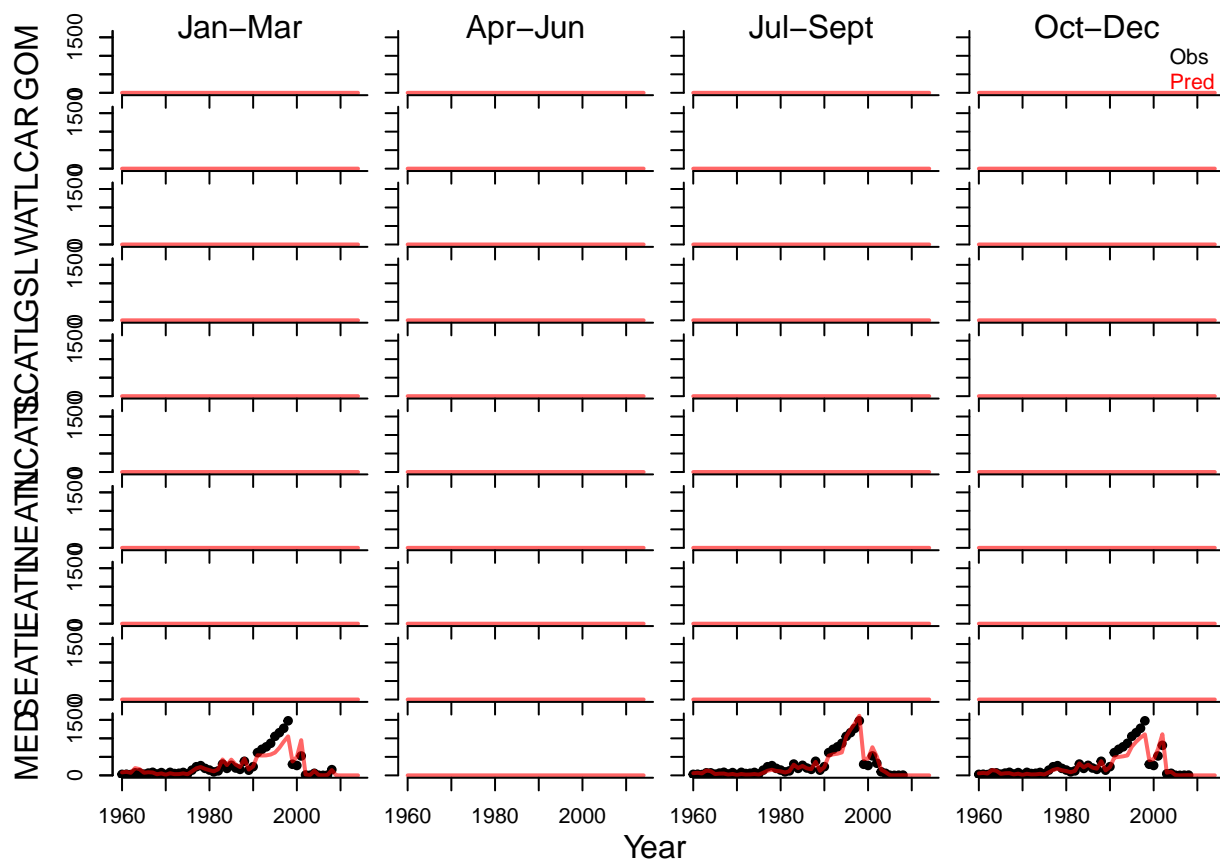
Observed catches (tonnes) for BBnew

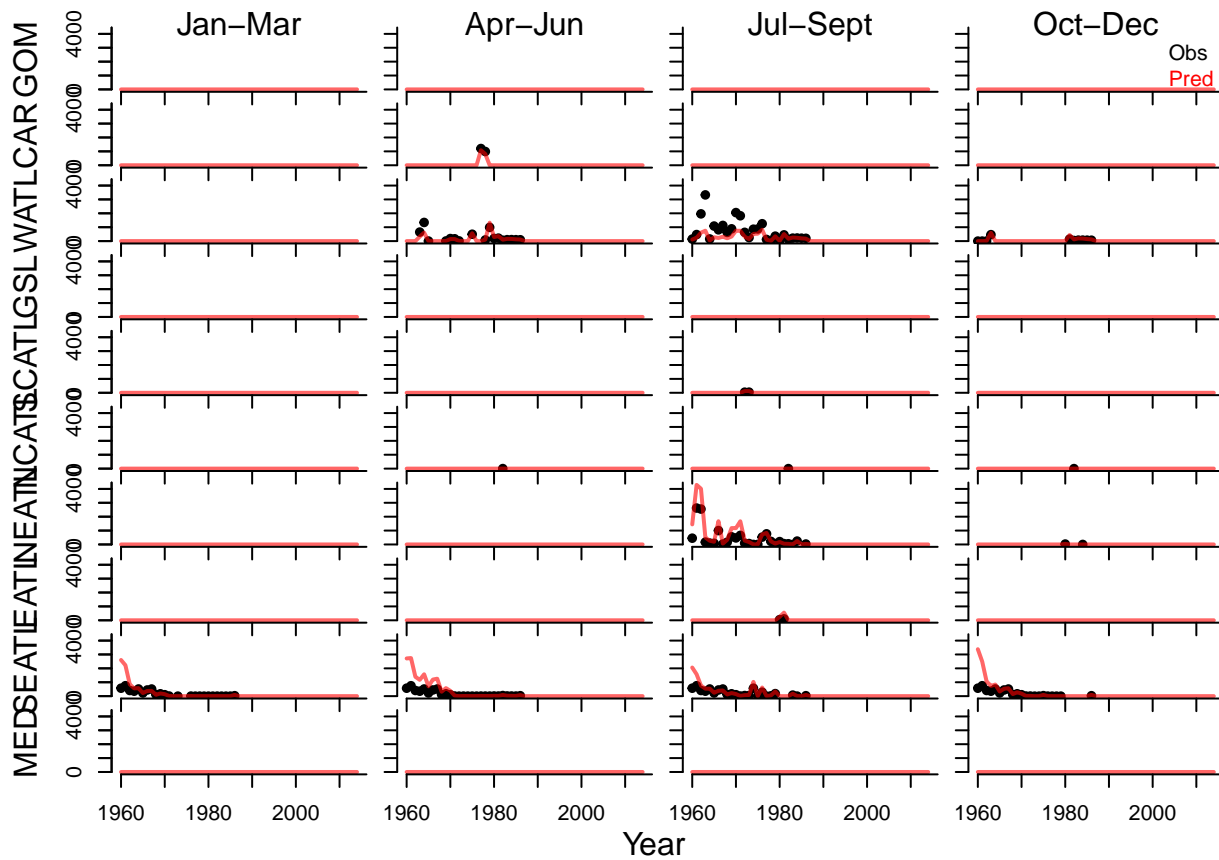**Observed catches (tonnes) for PSMedRec**

Observed catches (tonnes) for PSMedLOld
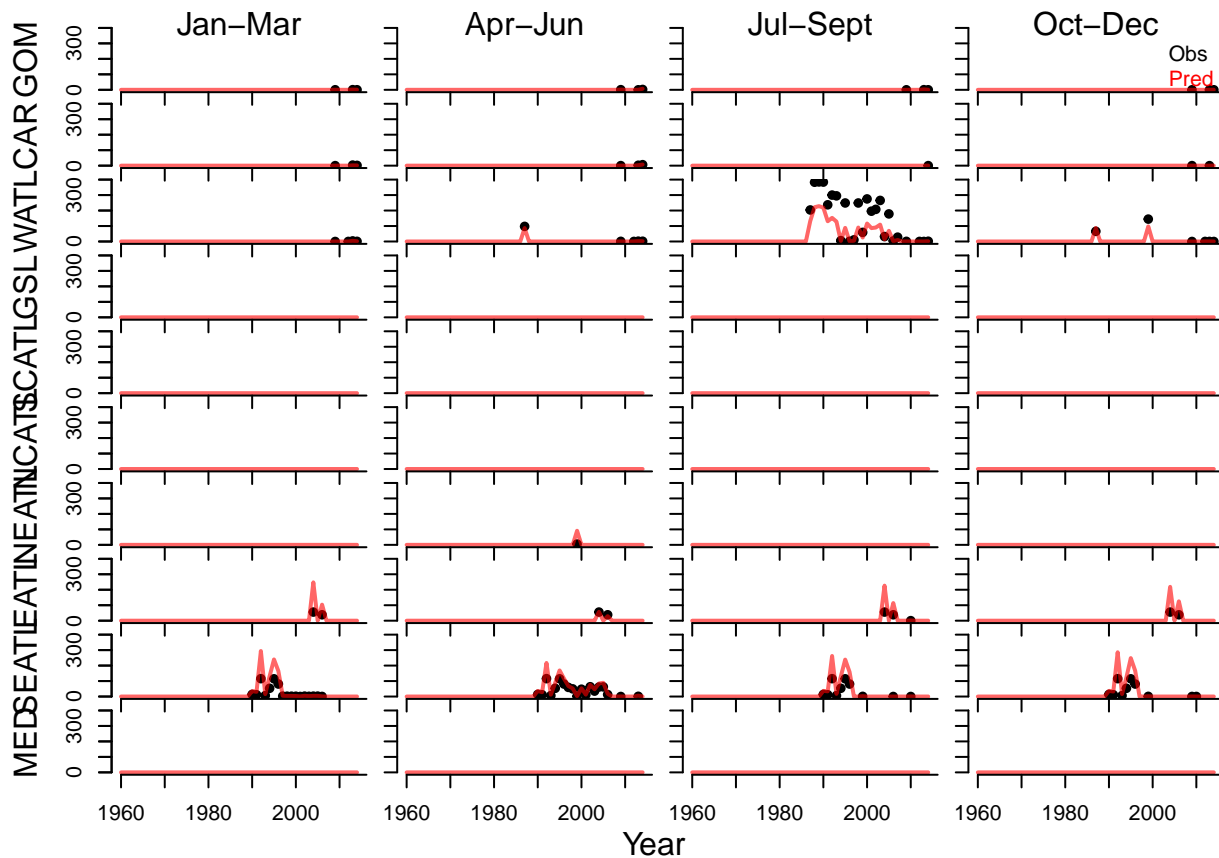

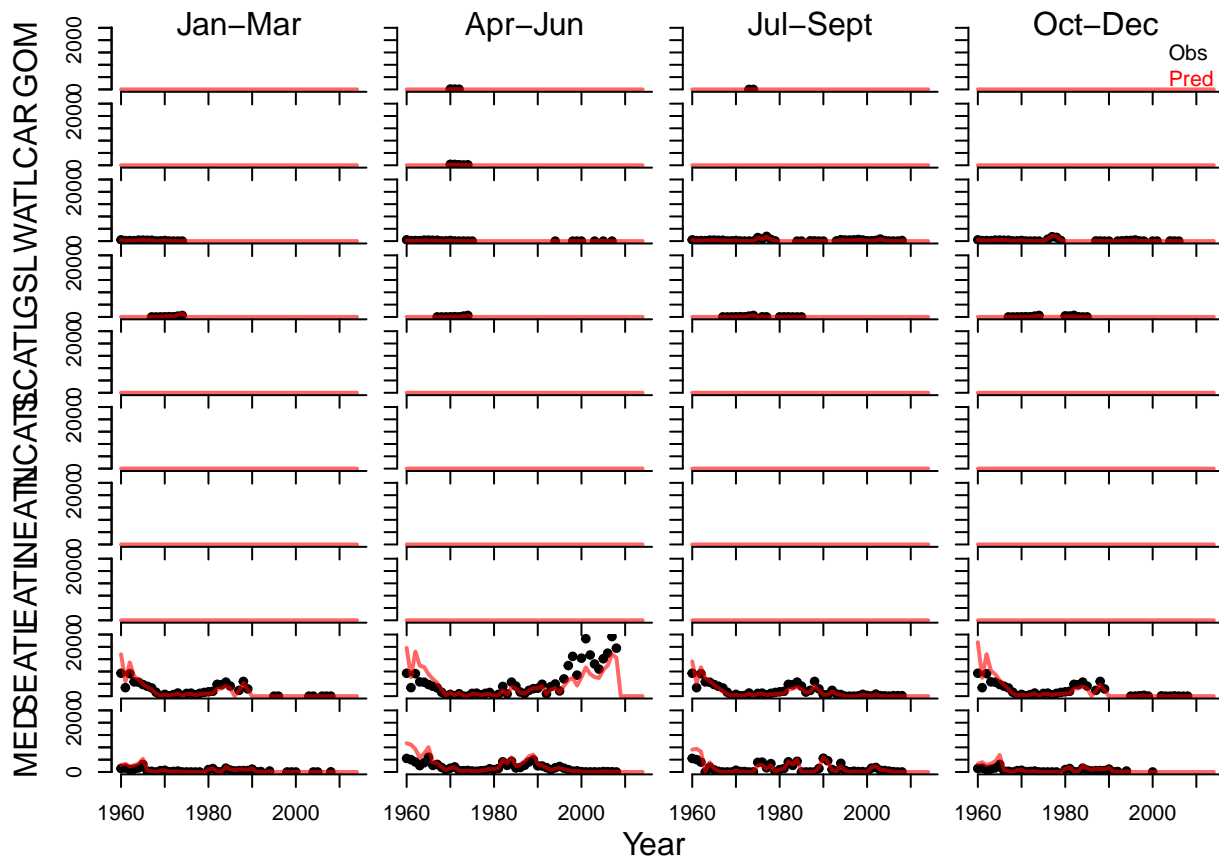# Observed catches (tonnes) for PSMedSOld

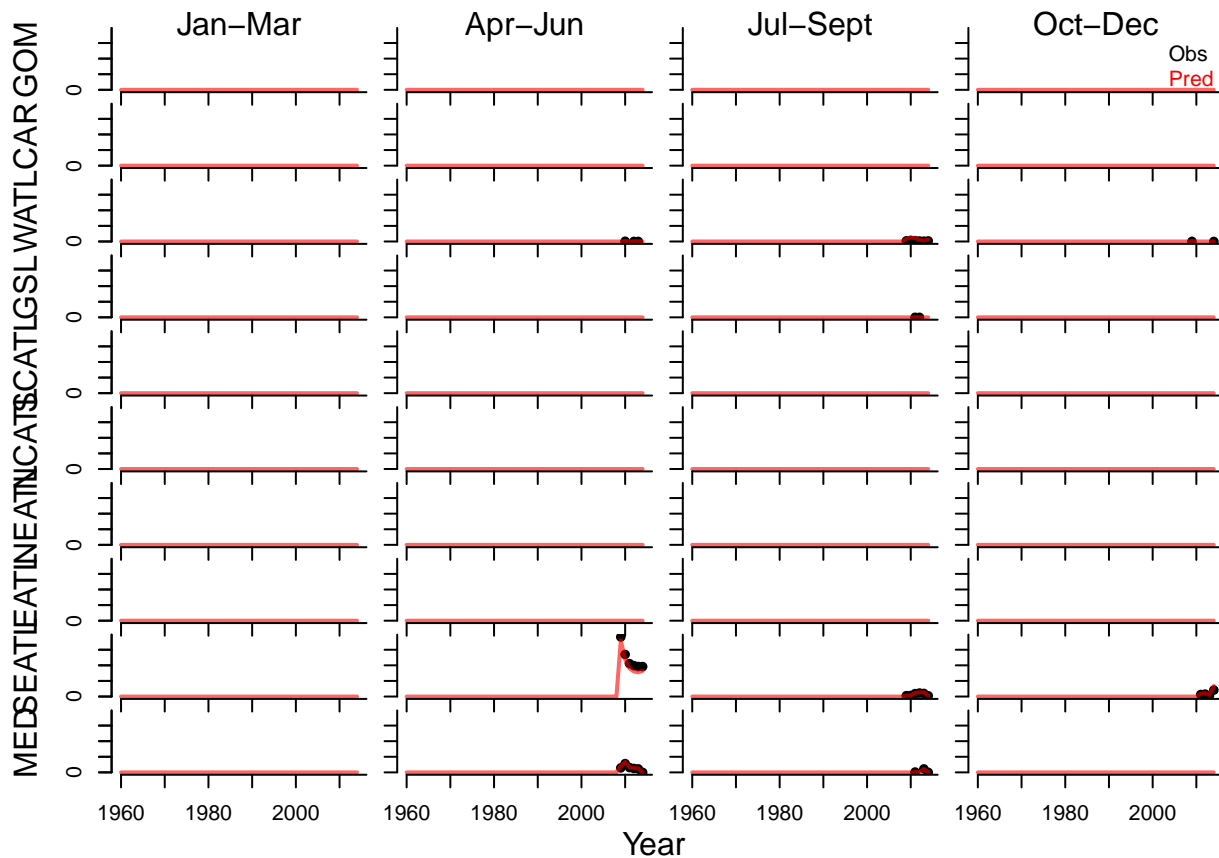# Observed catches (tonnes) for PSWestOld

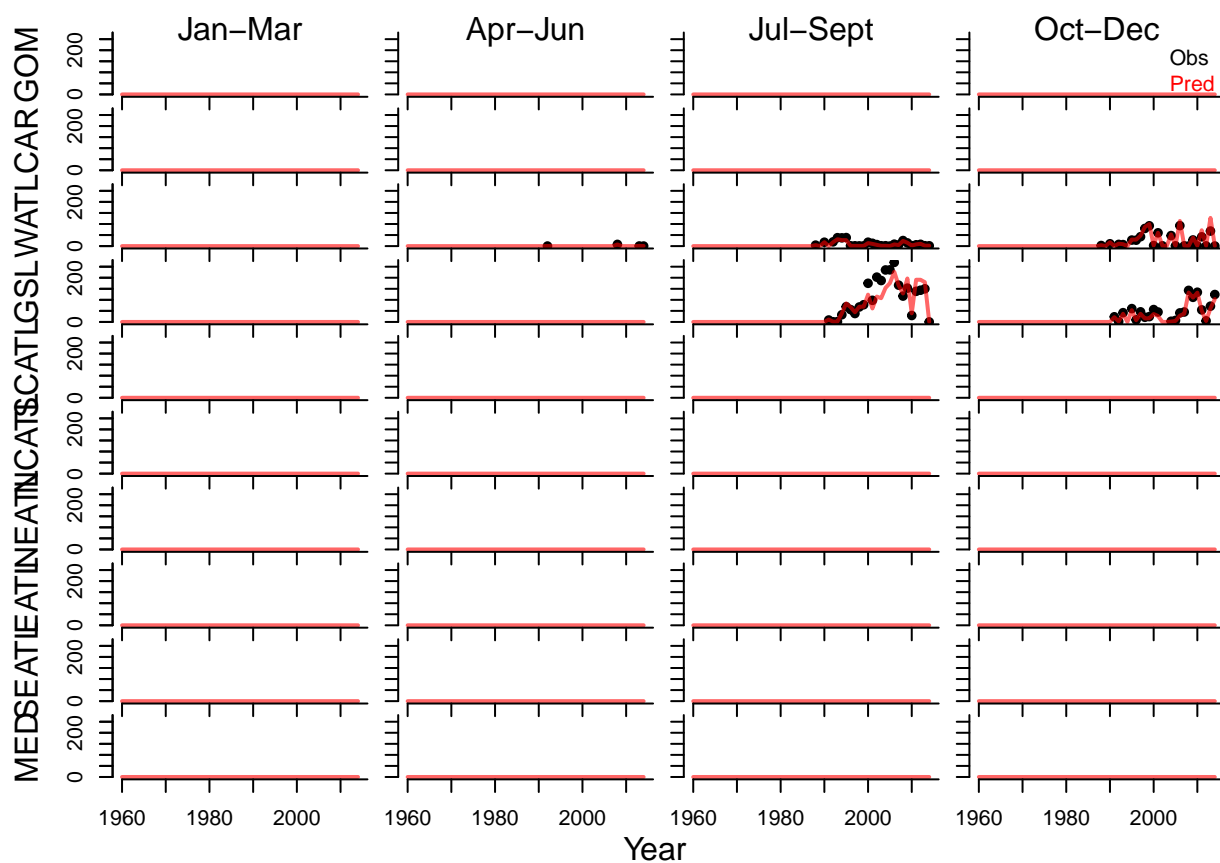

Observed catches (tonnes) for PSWestnew

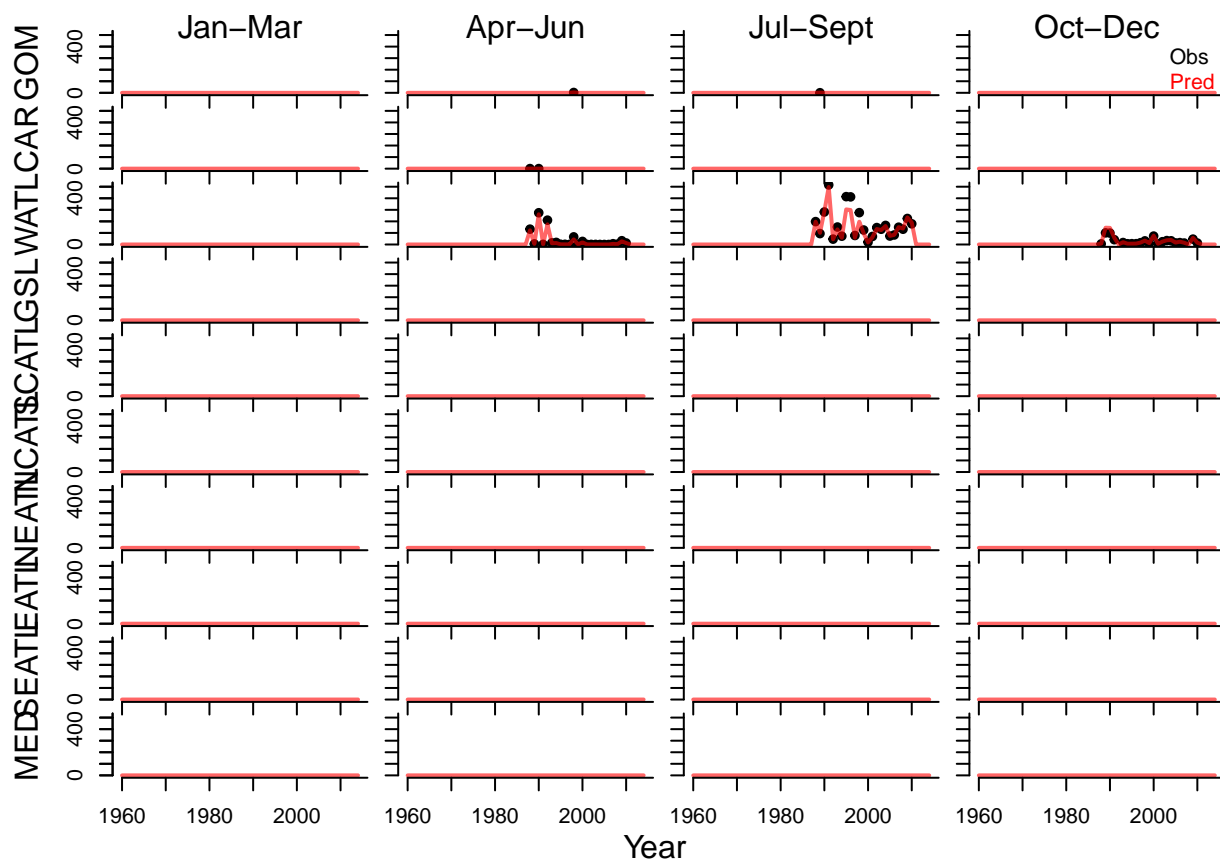**Observed catches (tonnes) for TPOld**
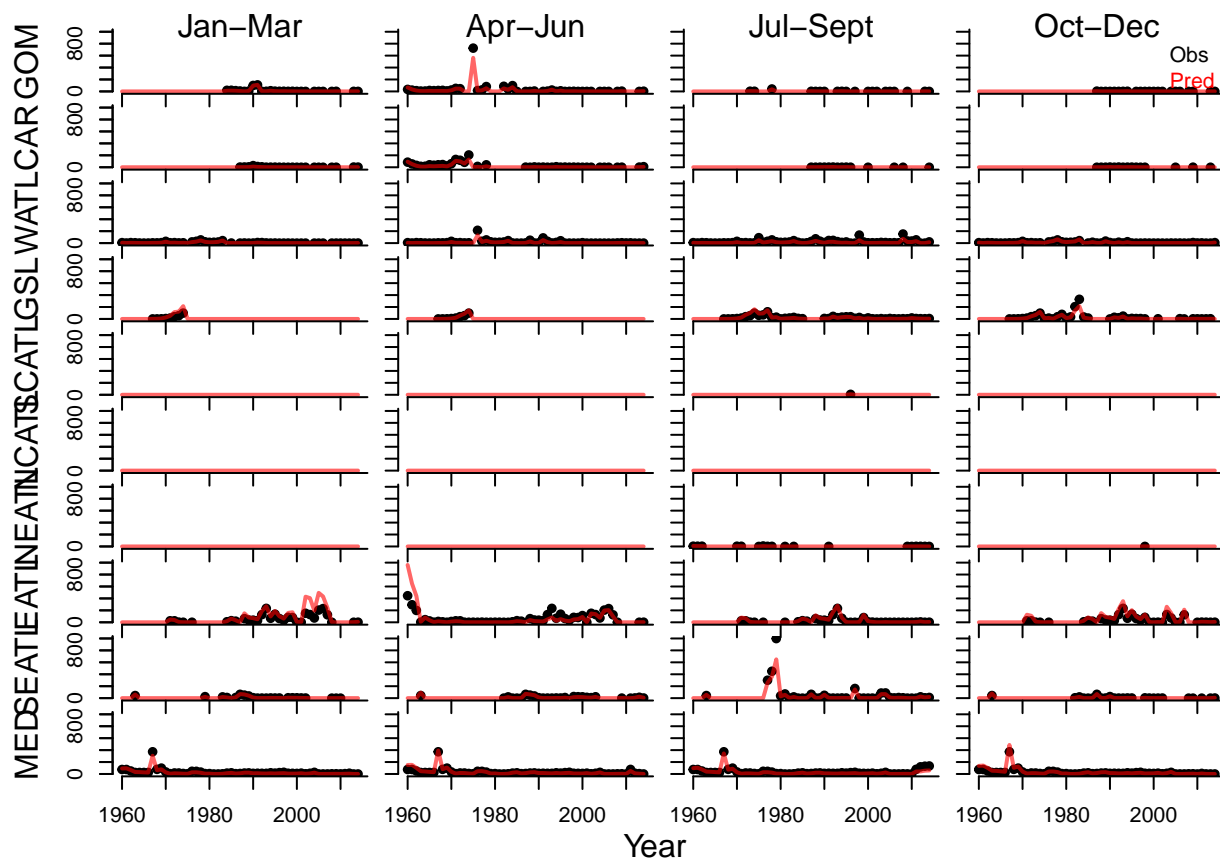

Observed catches (tonnes) for TPnew

Observed catches (tonnes) for RRCan

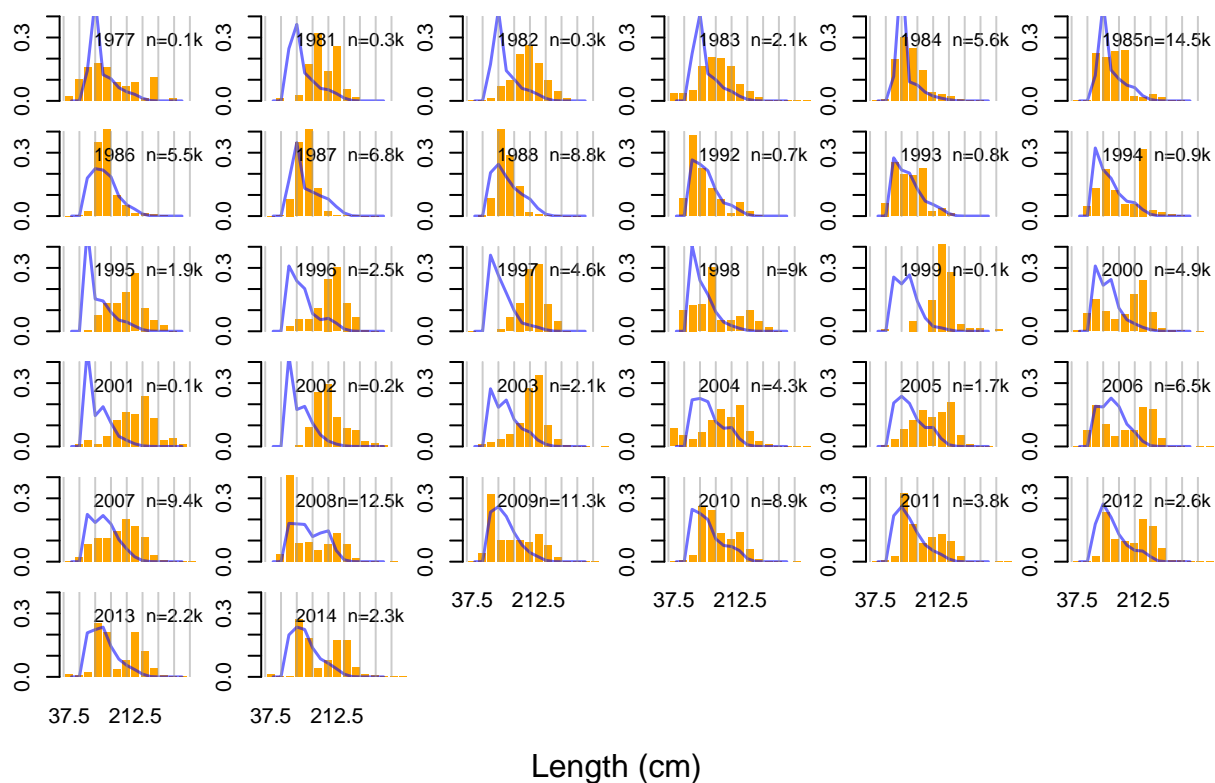Observed catches (tonnes) for RRUSA

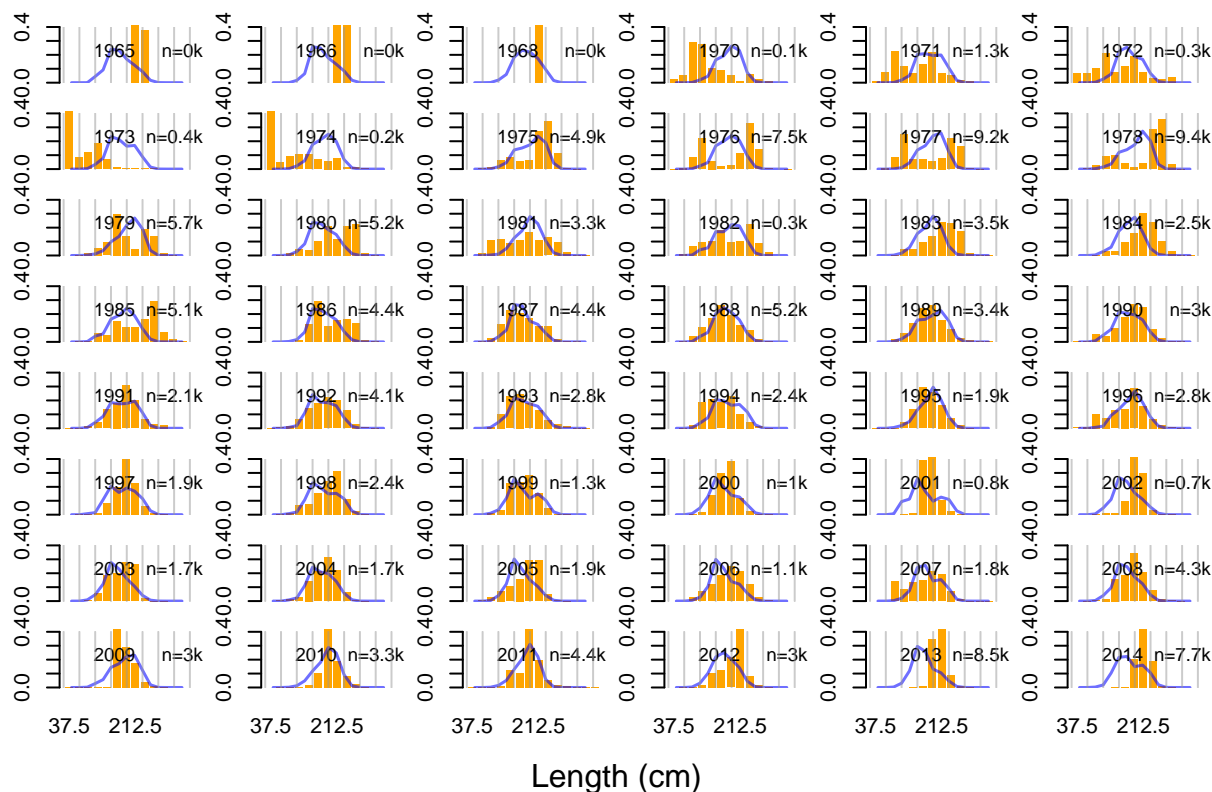16

Observed catches (tonnes) for ALL OTH

Length composition fit for LLOTH

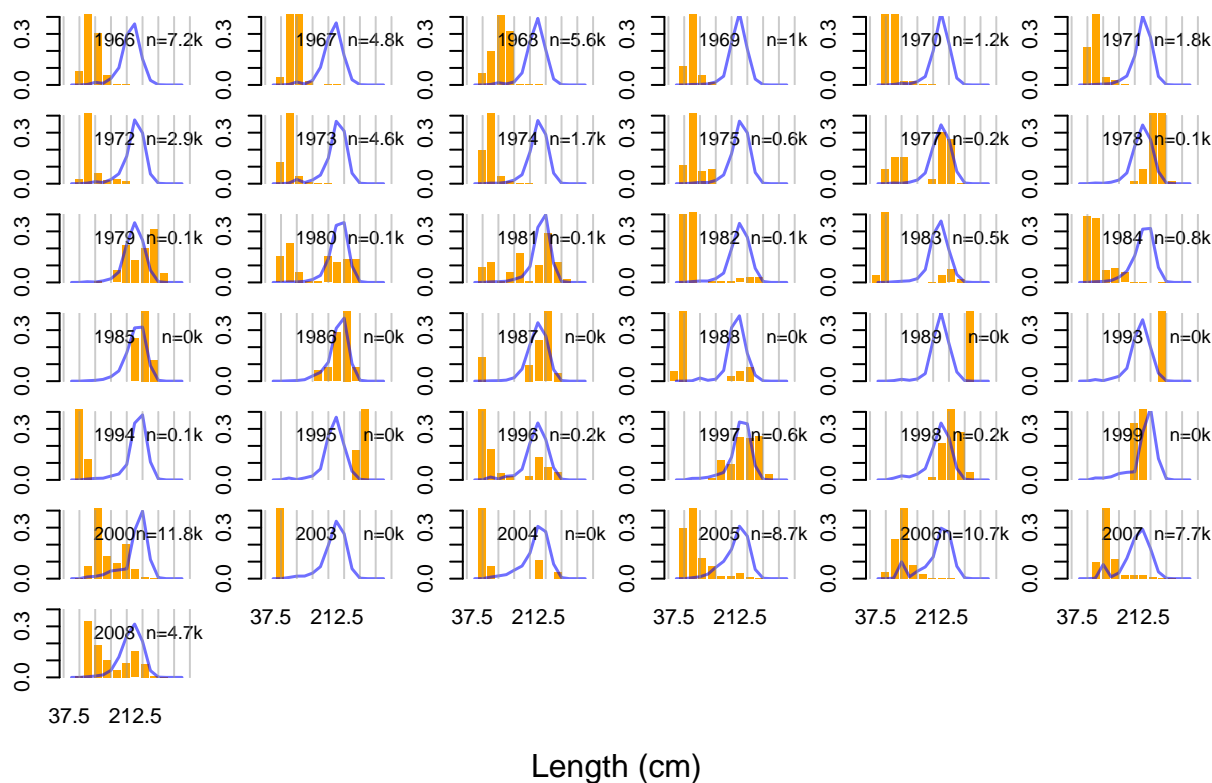Predicted (line) versus observed (point) catch at length for the LLOTH fleet (n=137k)

Length (cm)

Length composition fit for LLJPN

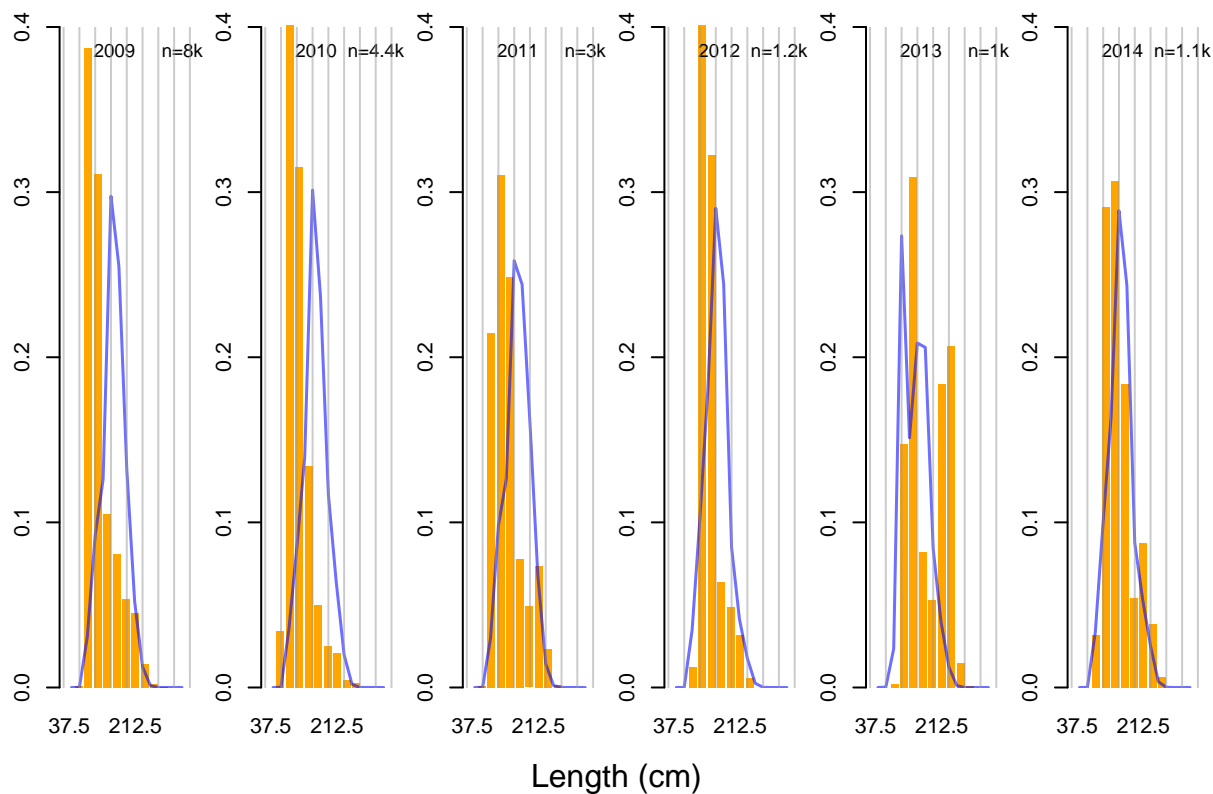Predicted (line) versus observed (point) catch at length for the LLJPN fleet (n=146k)

Length (cm)

Length composition fit for BBold

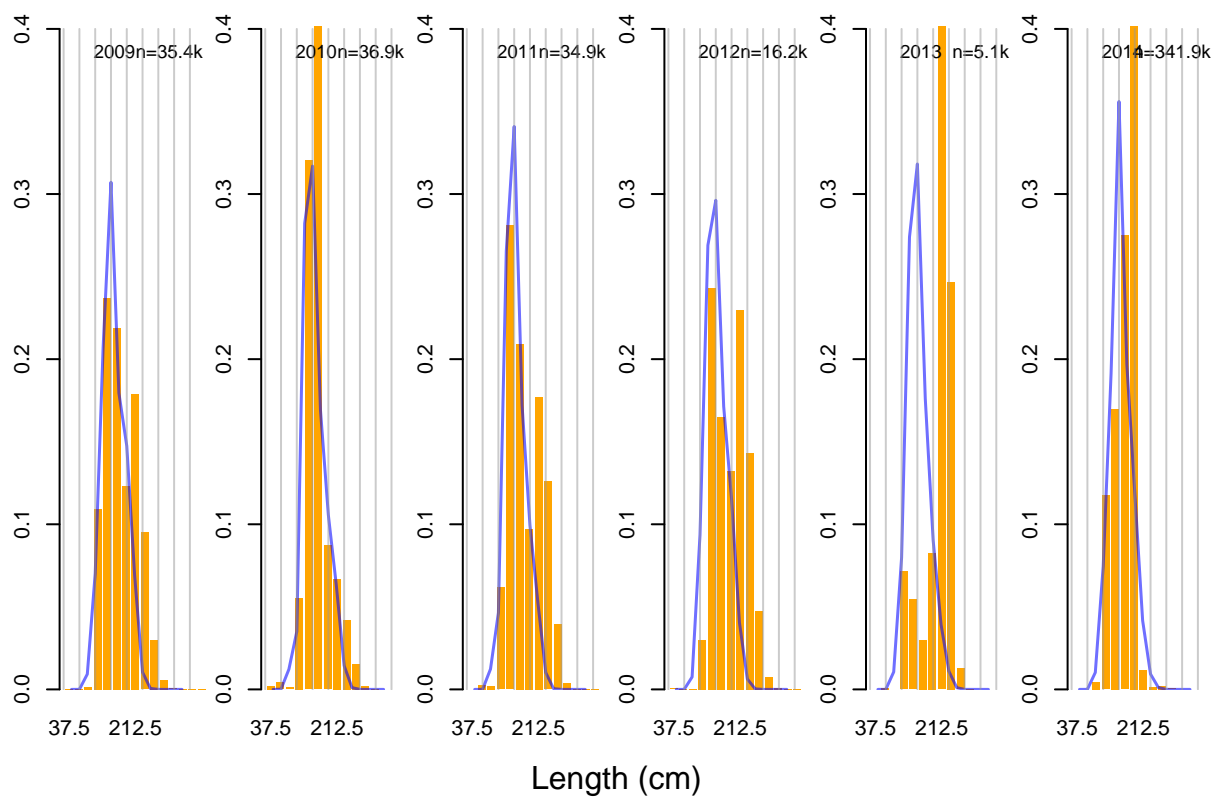Predicted (line) versus observed (point) catch at length for the BBold fleet (n=78k)

Length (cm)

Length composition fit for BBnew

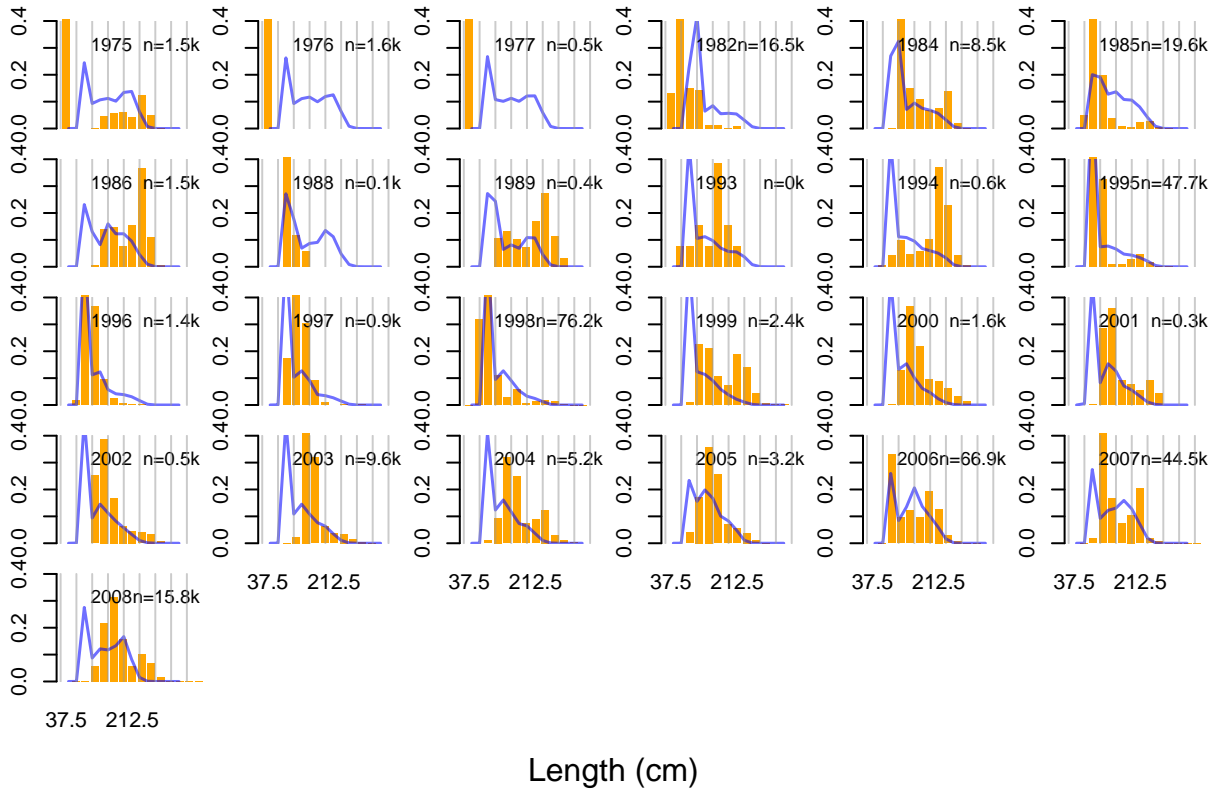Predicted (line) versus observed (point) catch at length for the BBnew fleet (n=18k)

Length (cm)

Length composition fit for PSMedRec

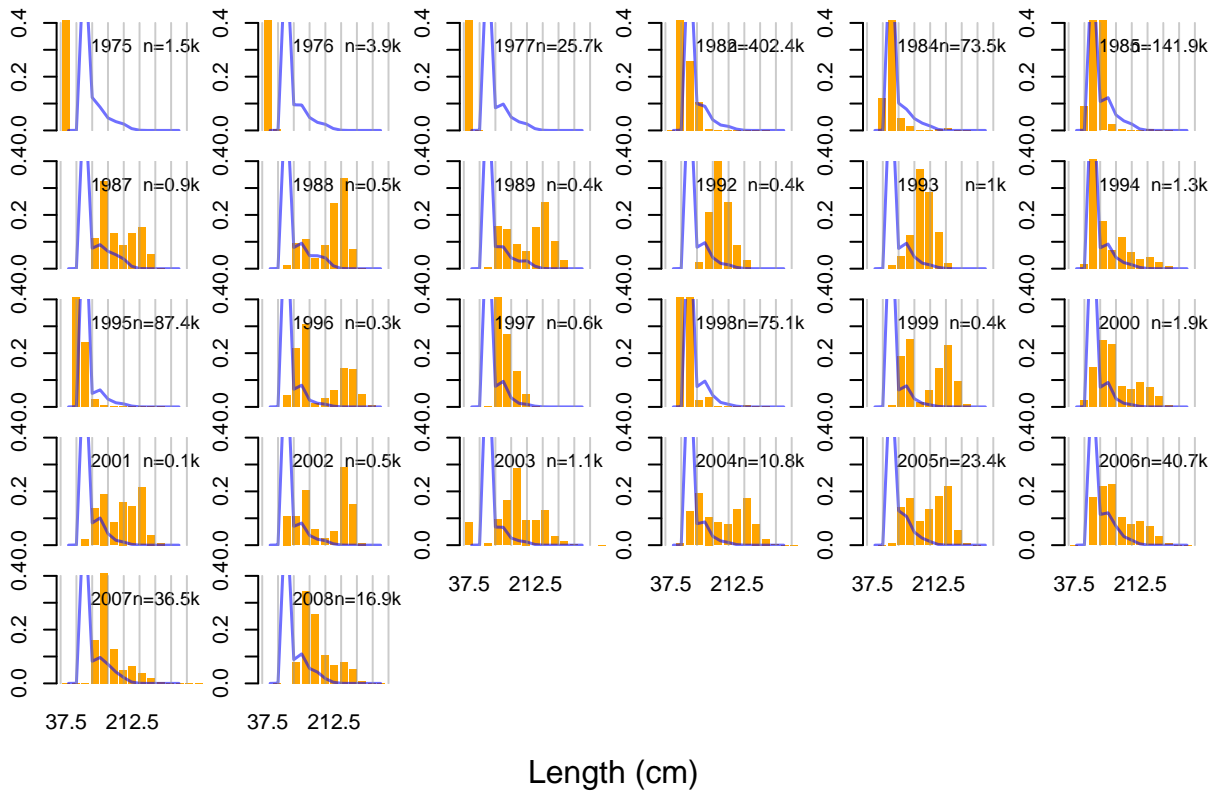Predicted (line) versus observed (point) catch at length for the PSMedRec fleet (n=470k

Length (cm)

Length composition fit for PSMedLOld

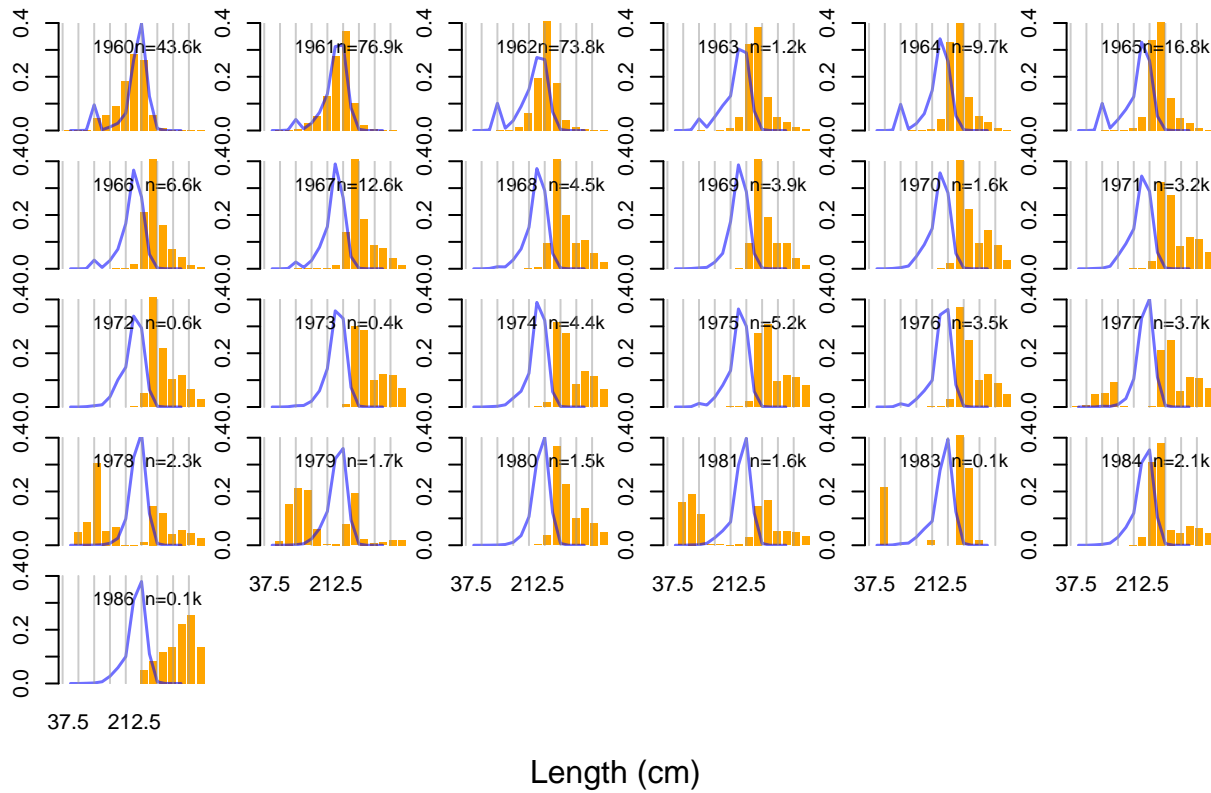Predicted (line) versus observed (point) catch at length for the PSMedLOld fleet (n=327k

Length (cm)

Length composition fit for PSMedSOld

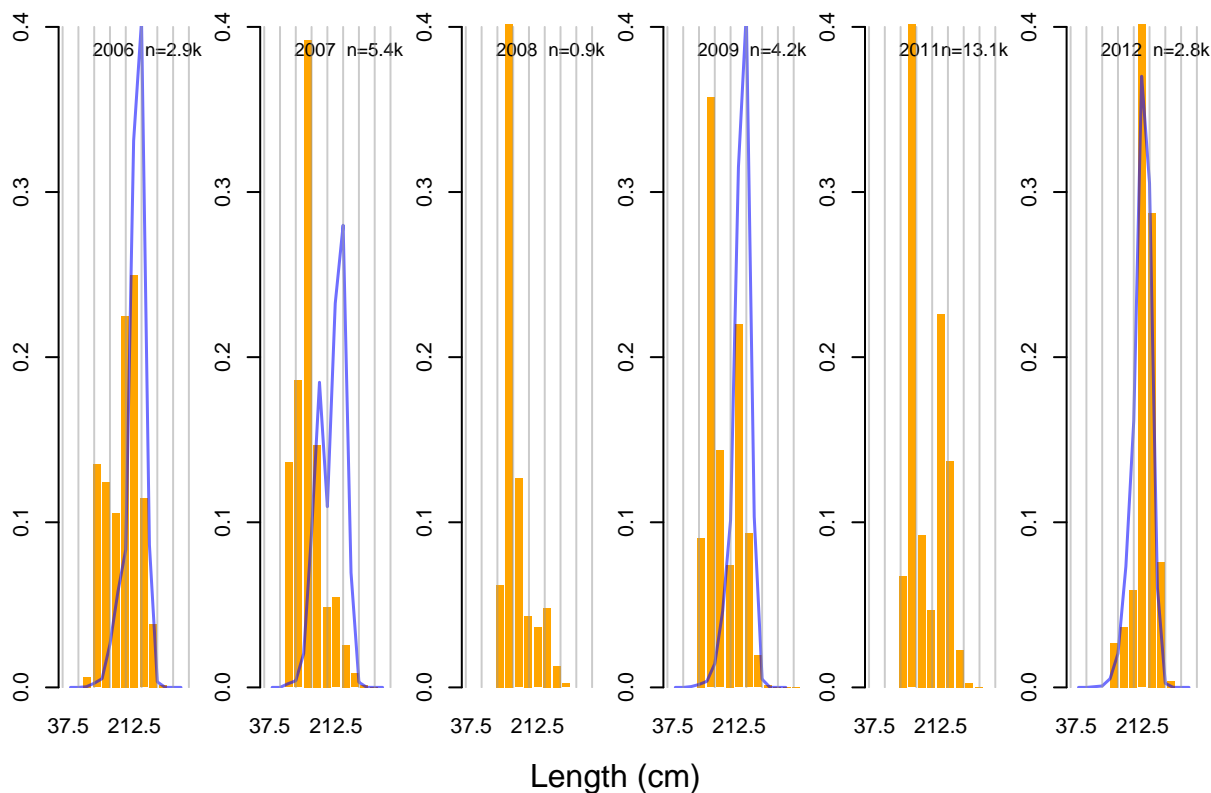Predicted (line) versus observed (point) catch at length for the PSMedSOld fleet (n=949k

Length (cm)

Length composition fit for PSWestOld

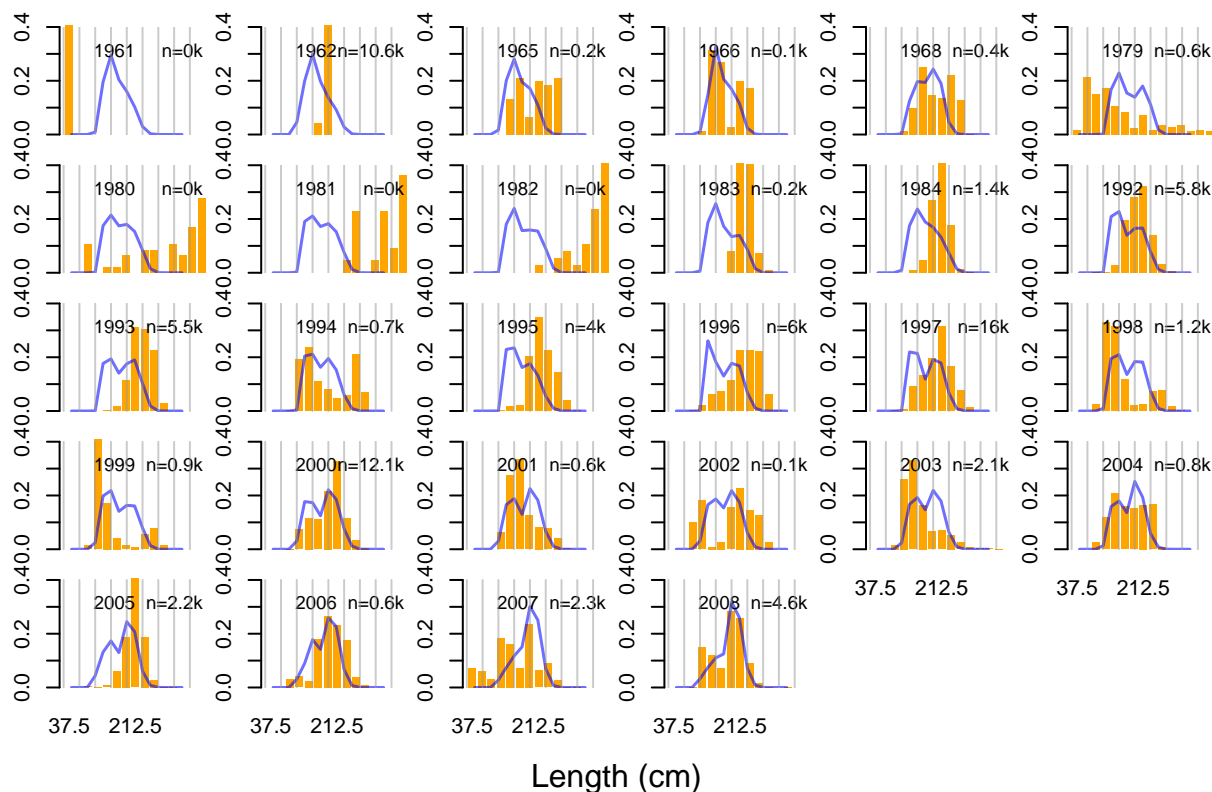Predicted (line) versus observed (point) catch at length for the PSWestOld fleet (n=281k

Length (cm)

Length composition fit for PSWestnew

Predicted (line) versus observed (point) catch at length for the PSWestnew fleet (n=29k)

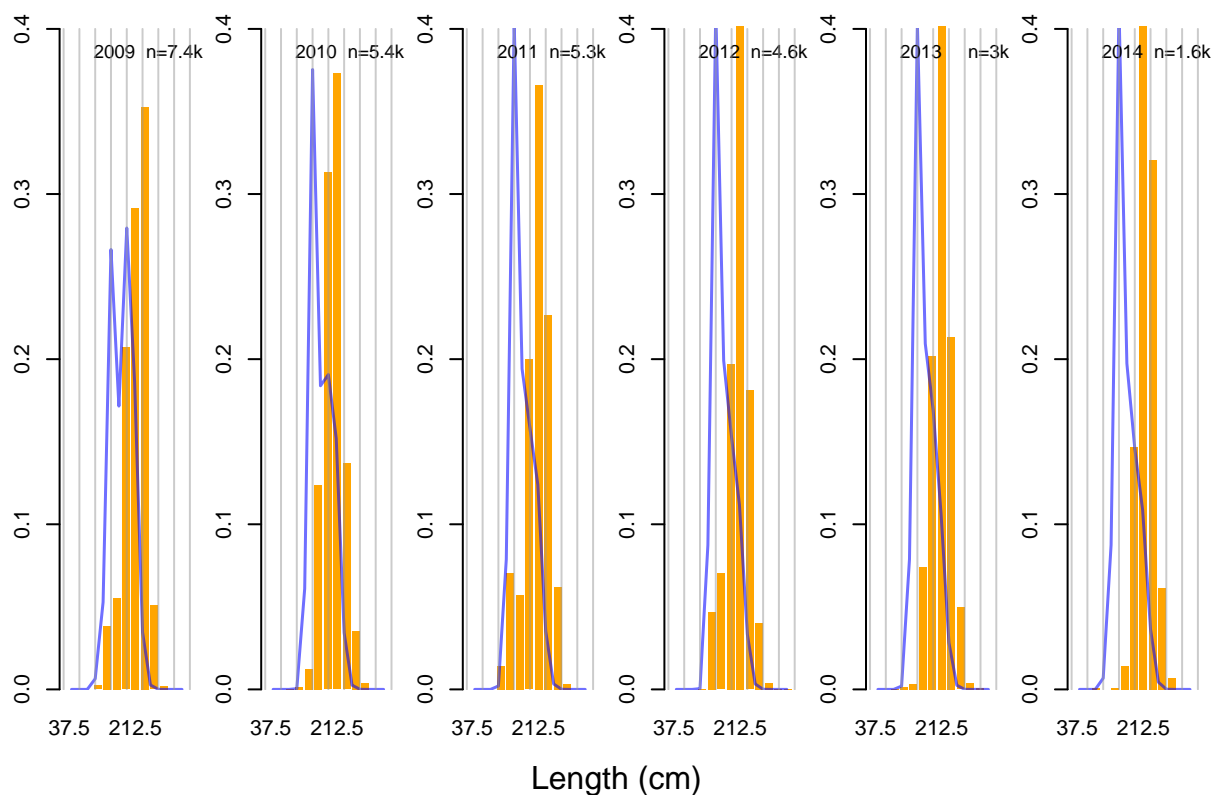
Length (cm)

Length composition fit for TPOld

Predicted (line) versus observed (point) catch at length for the TPOld fleet (n=79k)

Length (cm)

Length composition fit for TPnew

Predicted (line) versus observed (point) catch at length for the TPnew fleet (n=27k)

Length (cm)

Length composition fit for RRCan

Predicted (line) versus observed (point) catch at length for the RRCan fleet (n=32k)

Length (cm)

Length composition fit for RRUSA

Predicted (line) versus observed (point) catch at length for the RRUSA fleet (n=5k)

Length (cm)

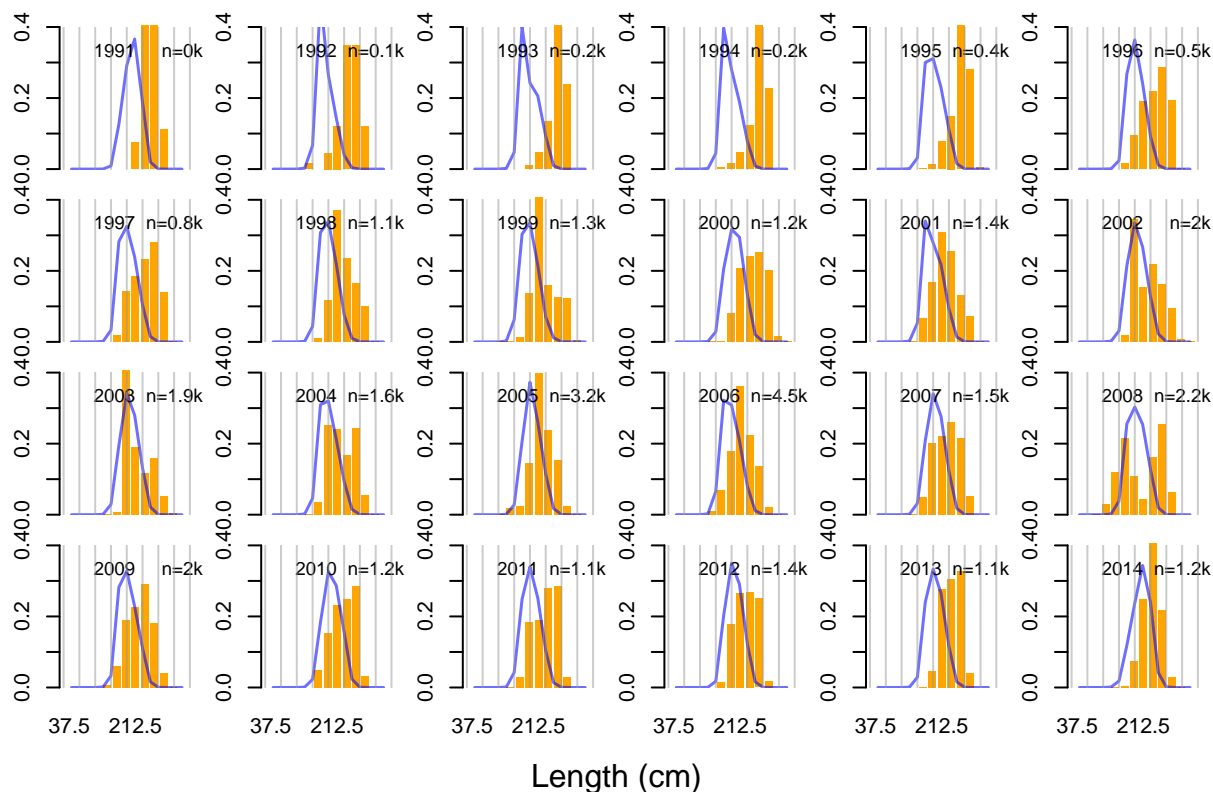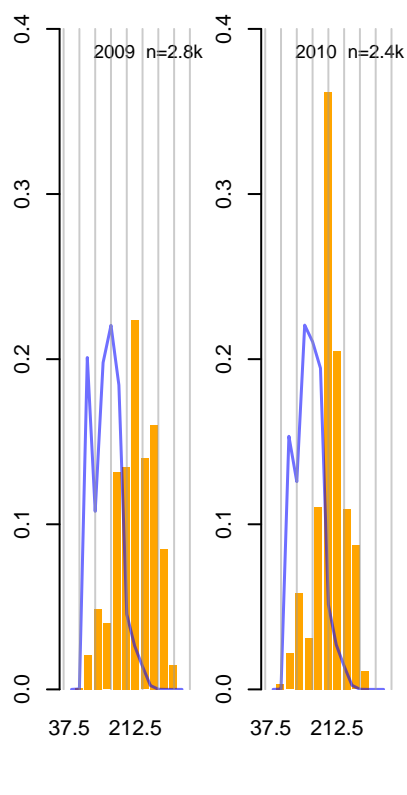# Length composition fit for ALL OTH

Predicted (line) versus observed (point) catch at length for the ALL OTH fleet (n=170k)

Length (cm)