

12/18 : 3-B-II

ABT-MSE Operating model fitting report

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January 18, 2017

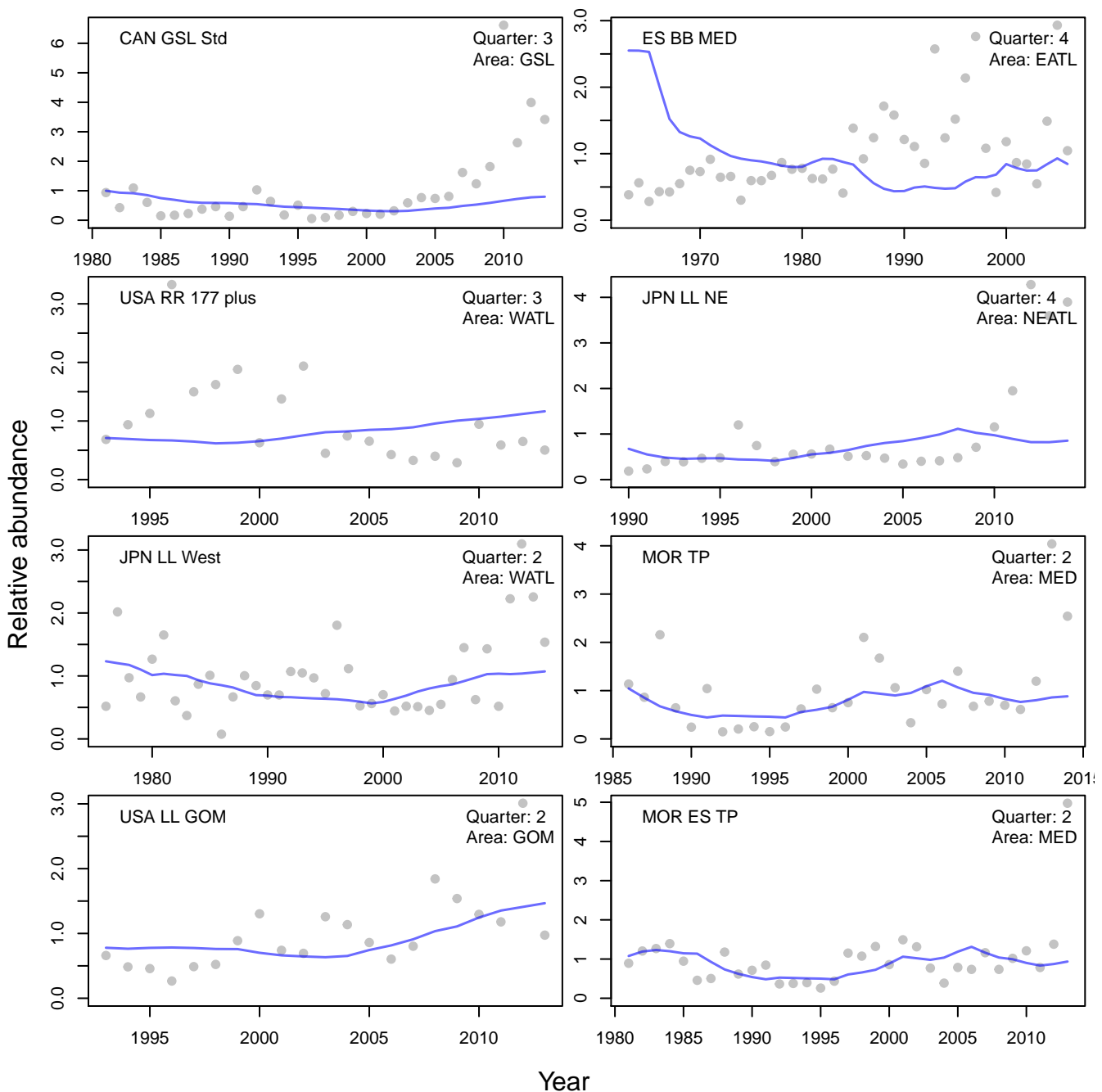
Operating model scenario is:

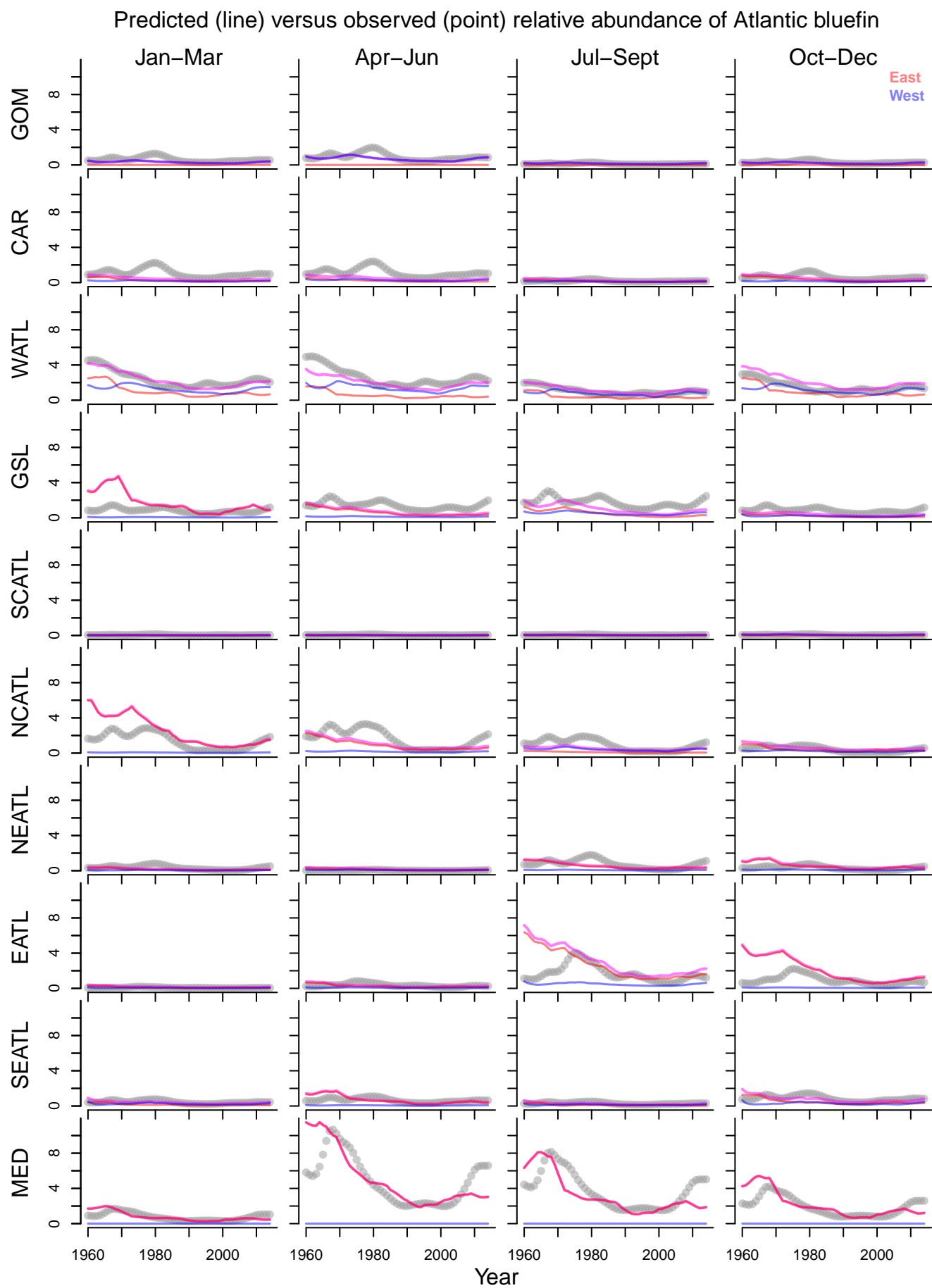
L3: West - Hockey stock changes to B-H after 10 yrs, East - 83+ B-H with $h=0.98$ changes to '50-82 B-H with $h=0.98$ after 10 years

L2: West - 75% best estimate, East - 50% Best estimate

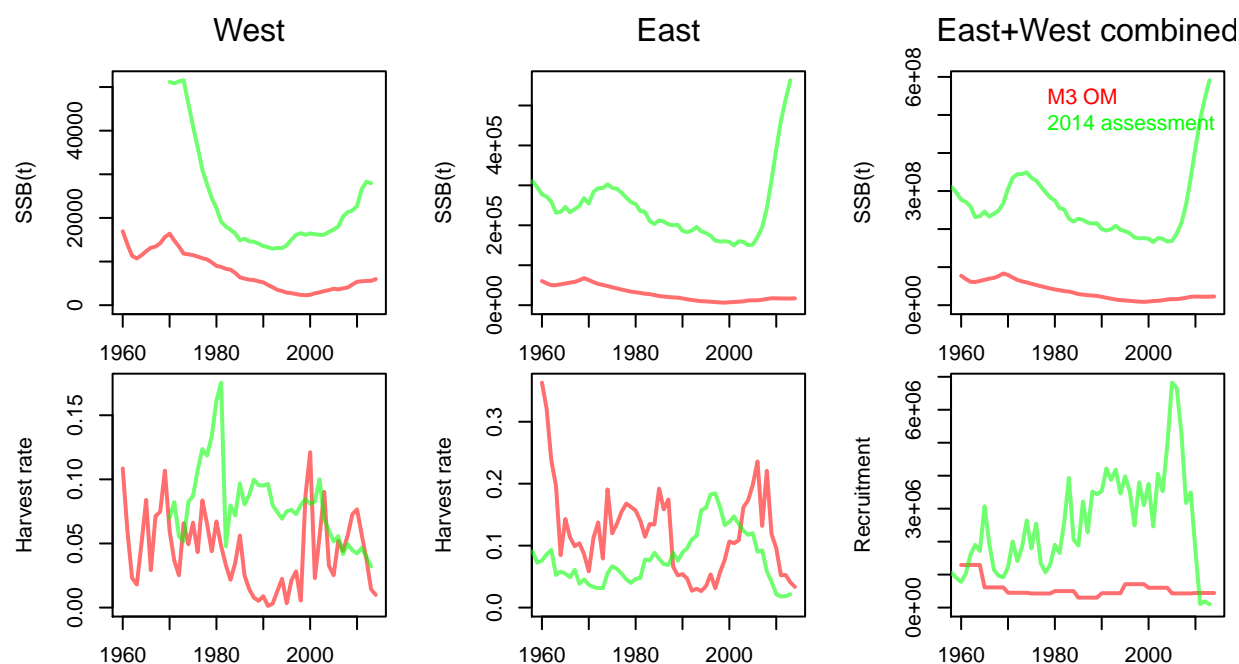
L2: West - M by age, older maturity, East - M constant, older maturity

Fits to CPUE indices of relative abundance

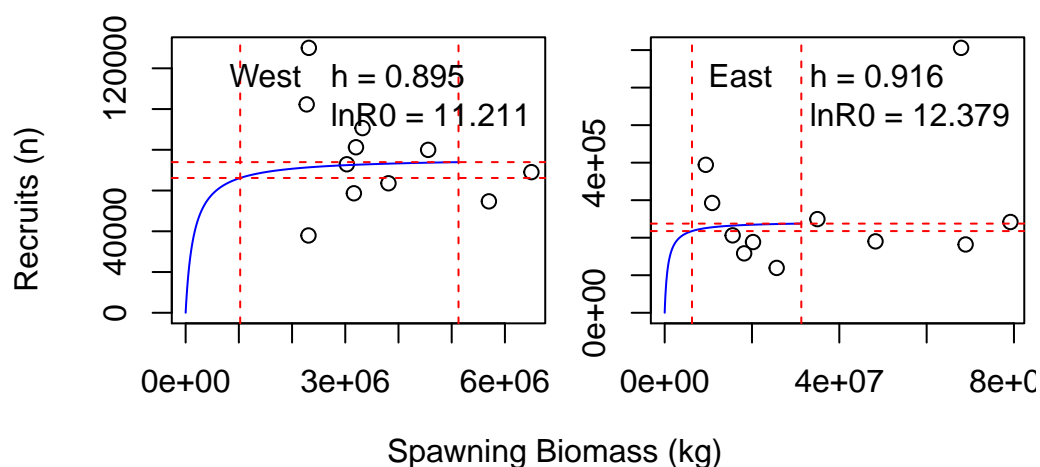




SSB, recruitment and F comparison with 2014 assessment (by East/West area, not East/West stock)



Stock-recruitment relationships (by East/West stock)



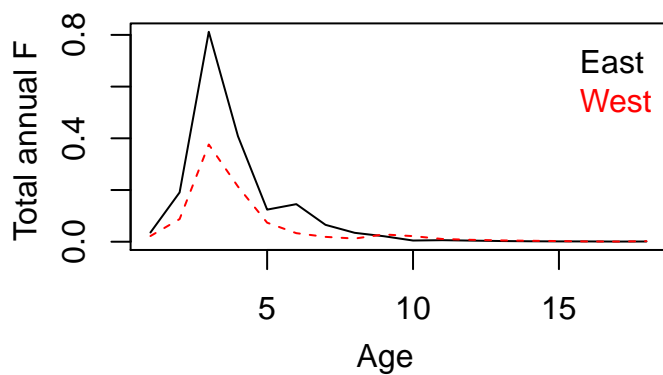
MSY reference points (by East/West stock)

	MSY	FMSY _{ap}	UMSY	BMSY	SSBMSY	BMSY_B0	SSBMSY_SSB0	RMSY_R0	F_FMSY	SSB_SSBMSY
East	4340	0.811	0.238	18210	7002	0.245	0.147	0.882	0.045	2.539
West	1480	0.706	0.203	7301	1429	0.262	0.160	0.866	0.026	3.182

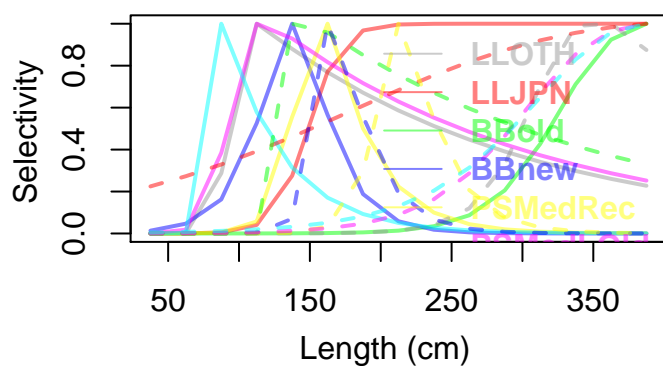
2014 Assessment MSY reference points (by East/West area)

	MSY	FMSY _{ap}	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

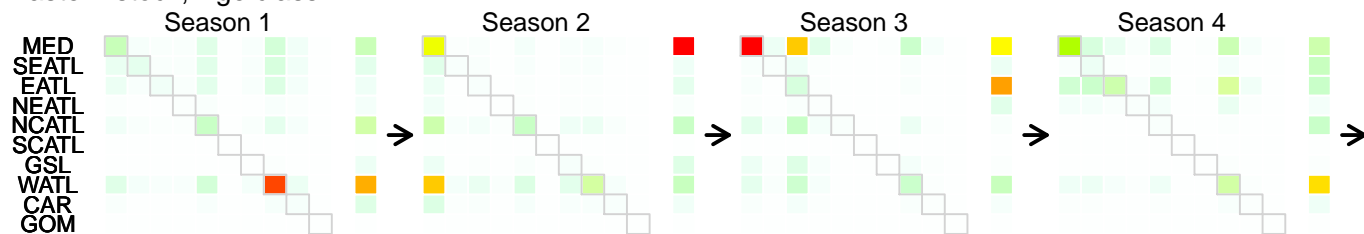


Estimated size selectivity by fleet

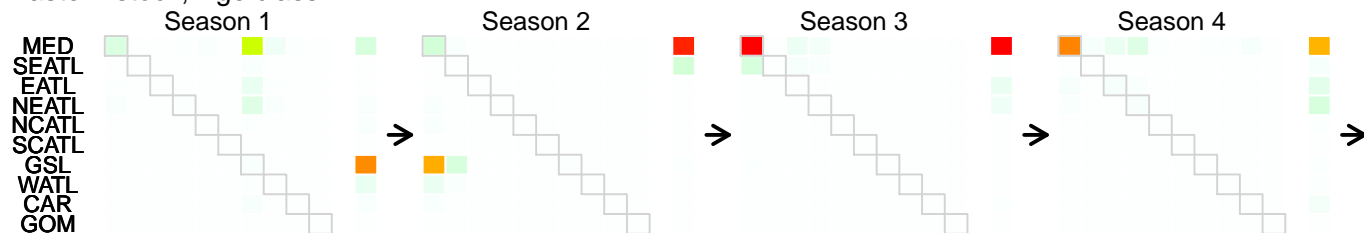


Estimated unfished movement and spatial distribution

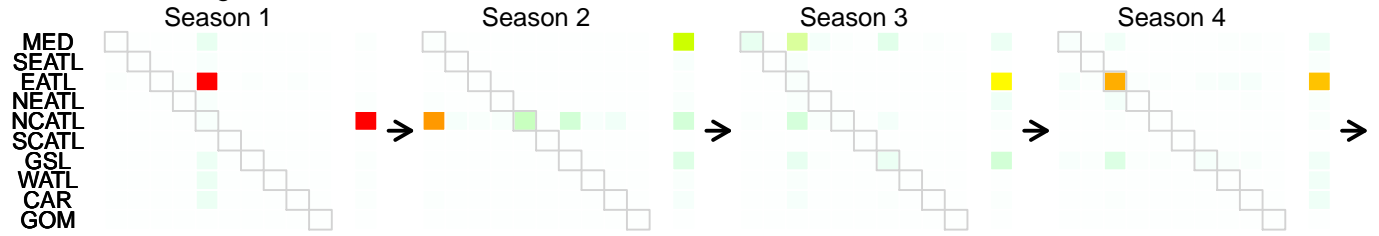
Eastern stock, Age class 1



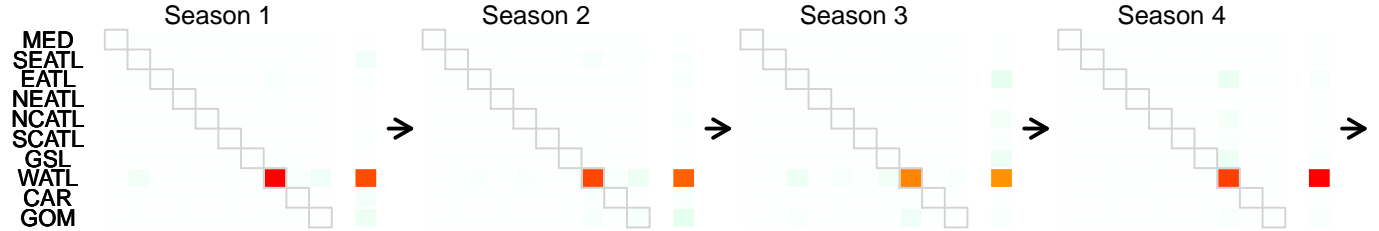
Eastern stock, Age class 2



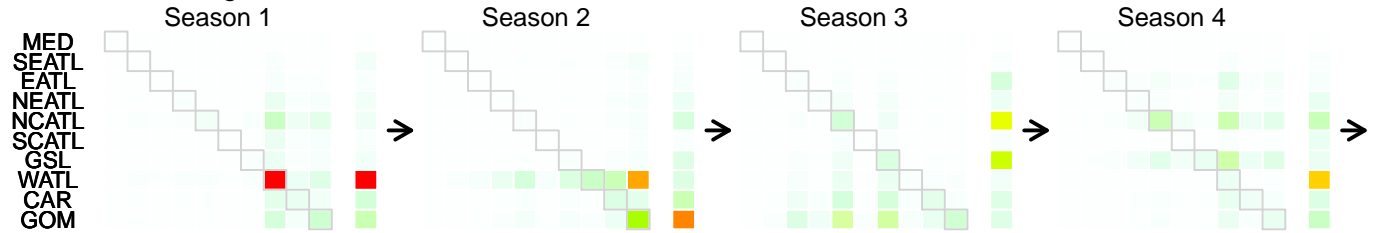
Eastern stock, Age class 3



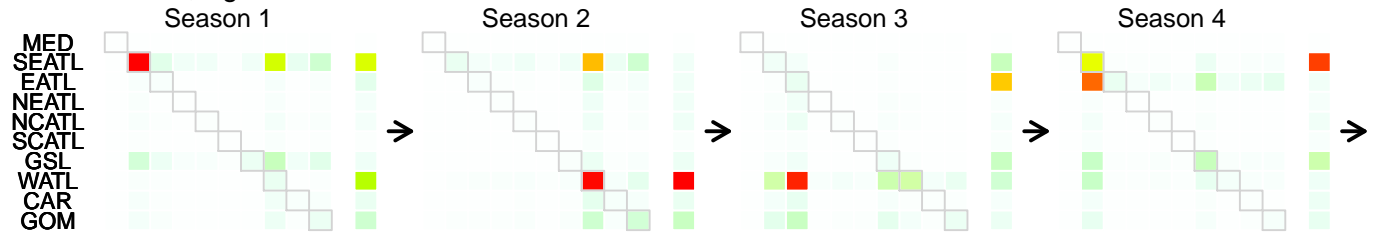
Western stock, Age class 1



Western stock, Age class 2

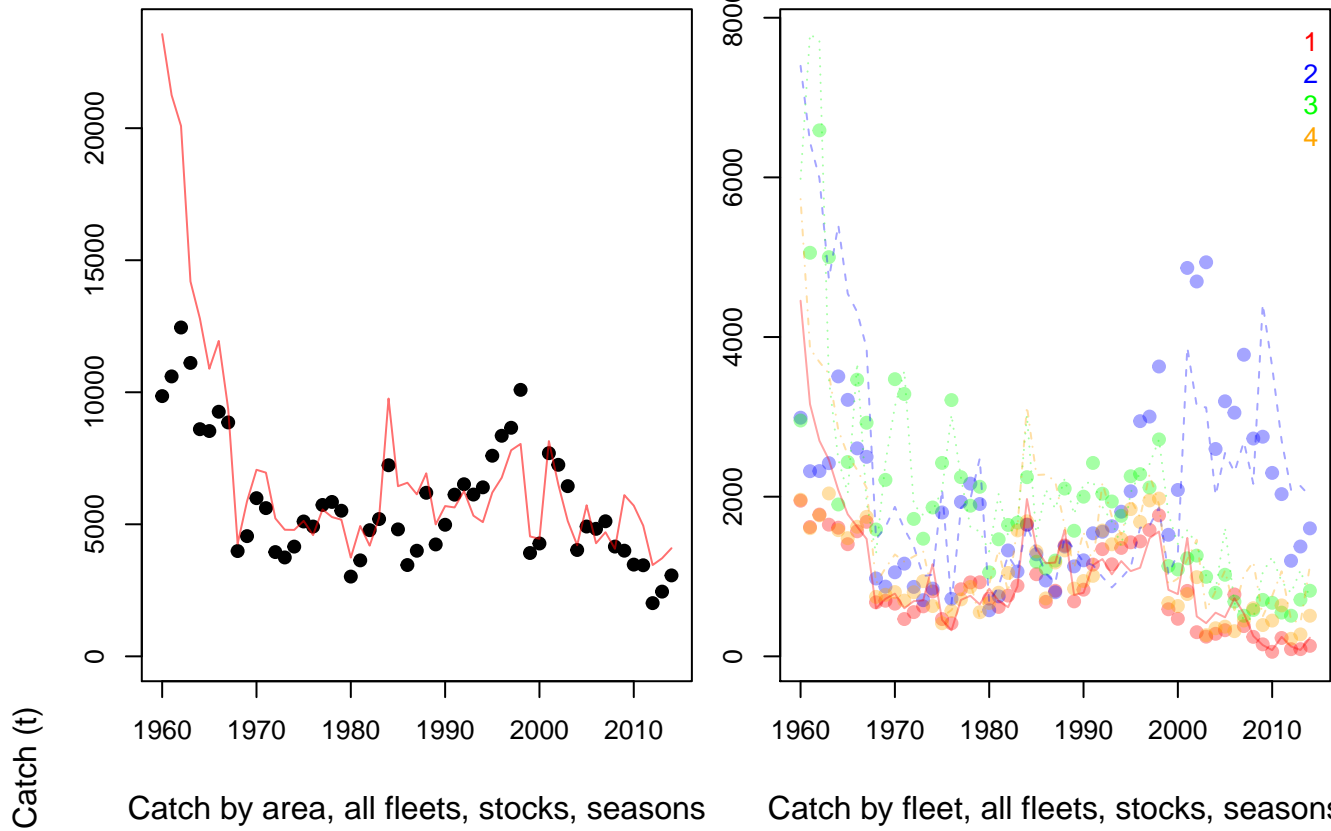


Western stock, Age class 3

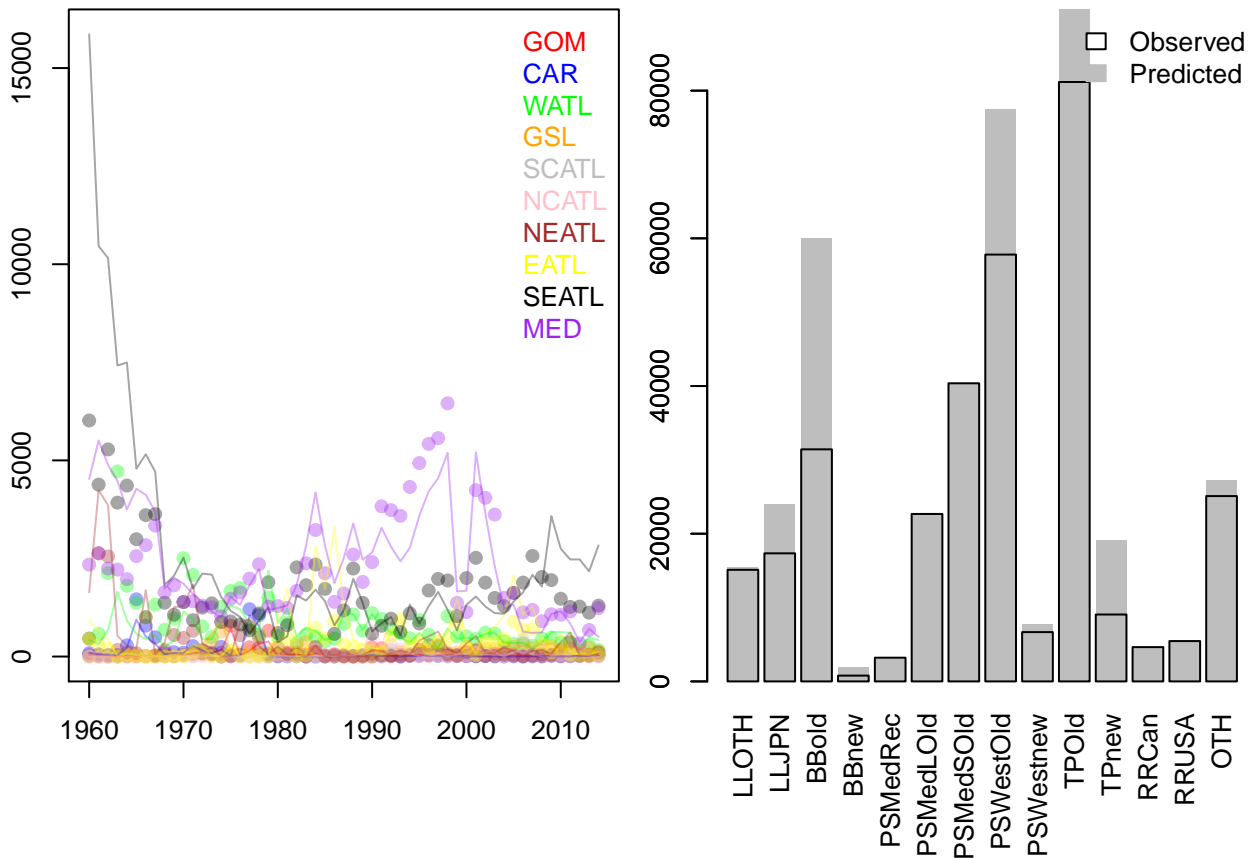


Fit to aggregate catches

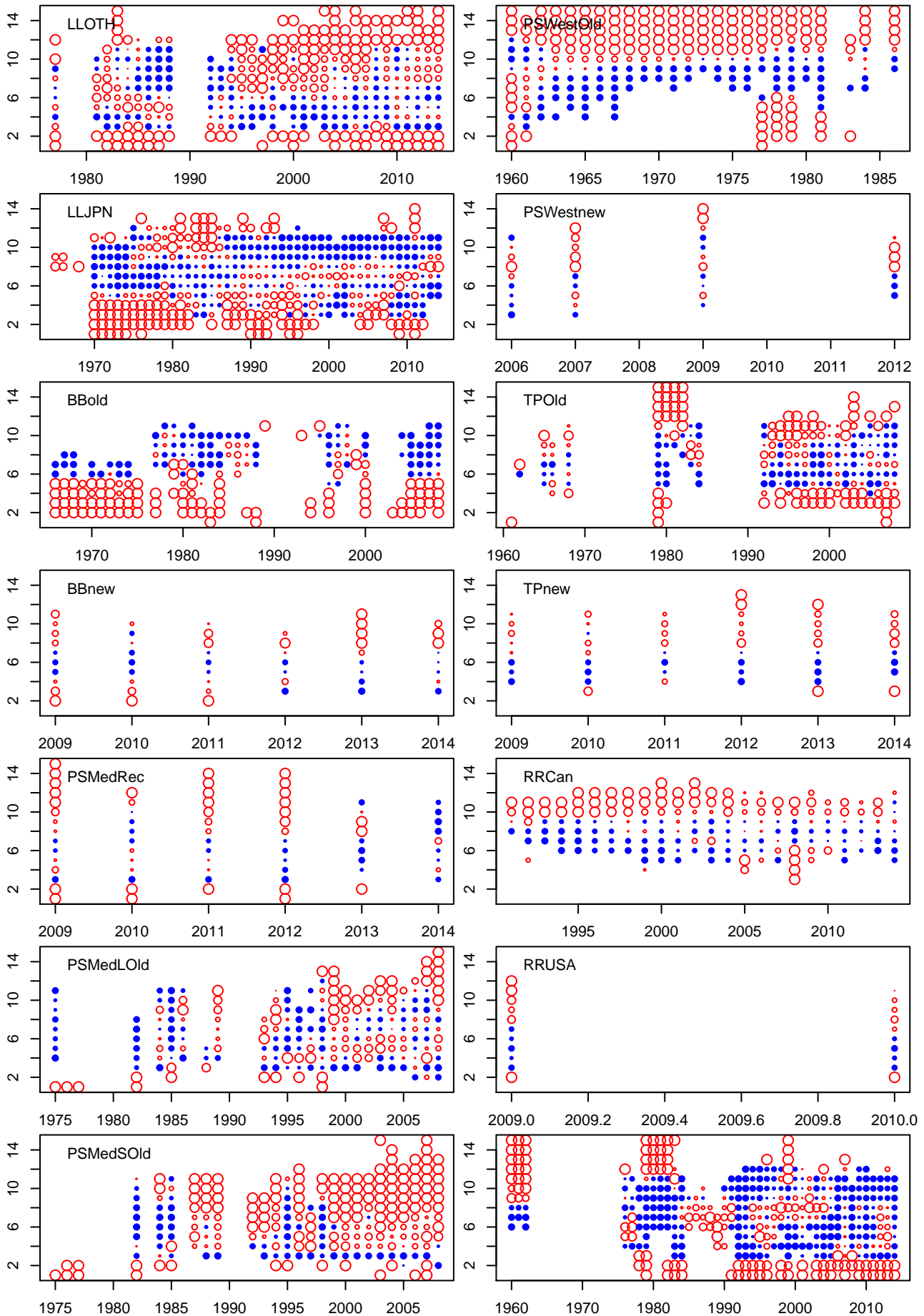
Total catch, all fleets, stocks, areas, seasons Catch by quarter, all fleets, stocks, season



Catch by area, all fleets, stocks, seasons Catch by fleet, all fleets, stocks, seasons



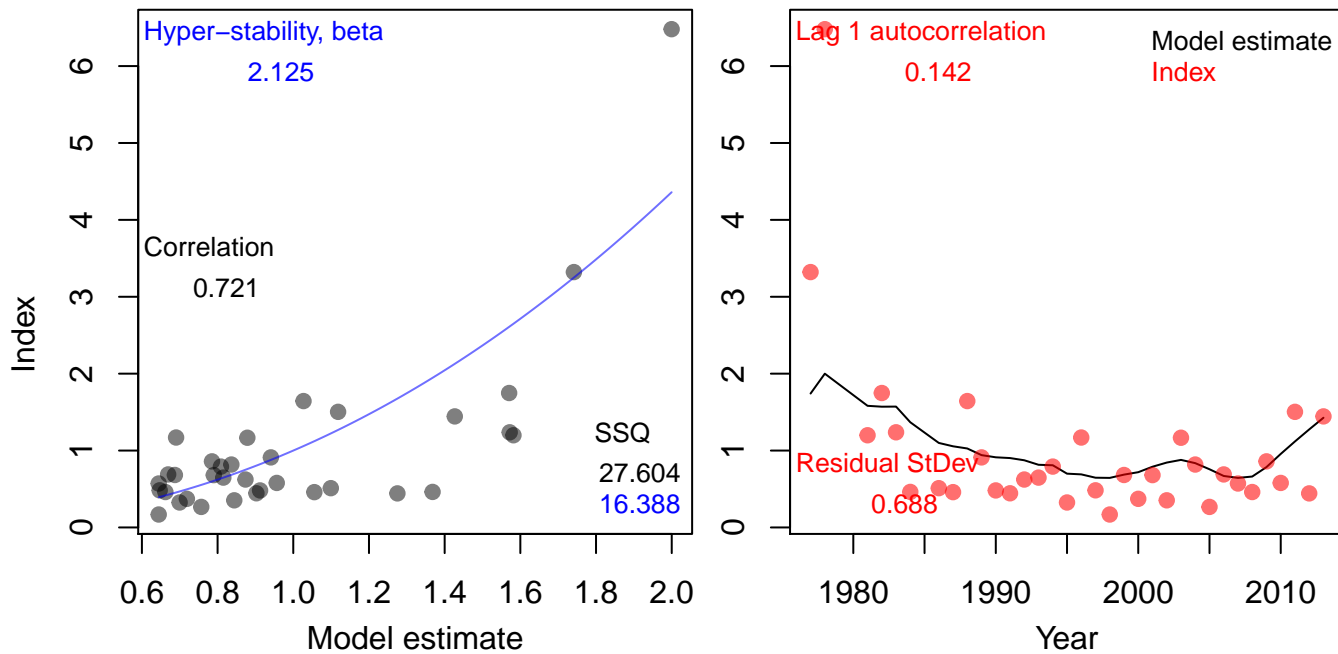
Fit to aggregate length composition



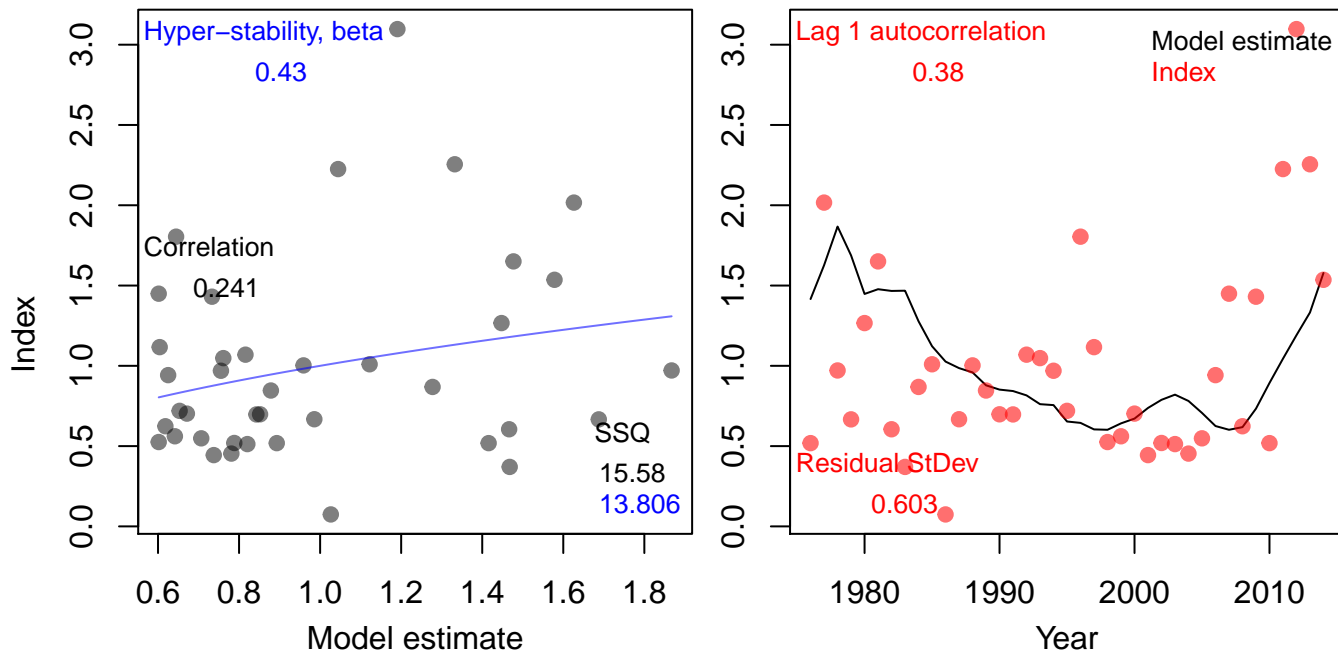
Other model estimates and fits

Statistical properties of indices for use in Management Procedures

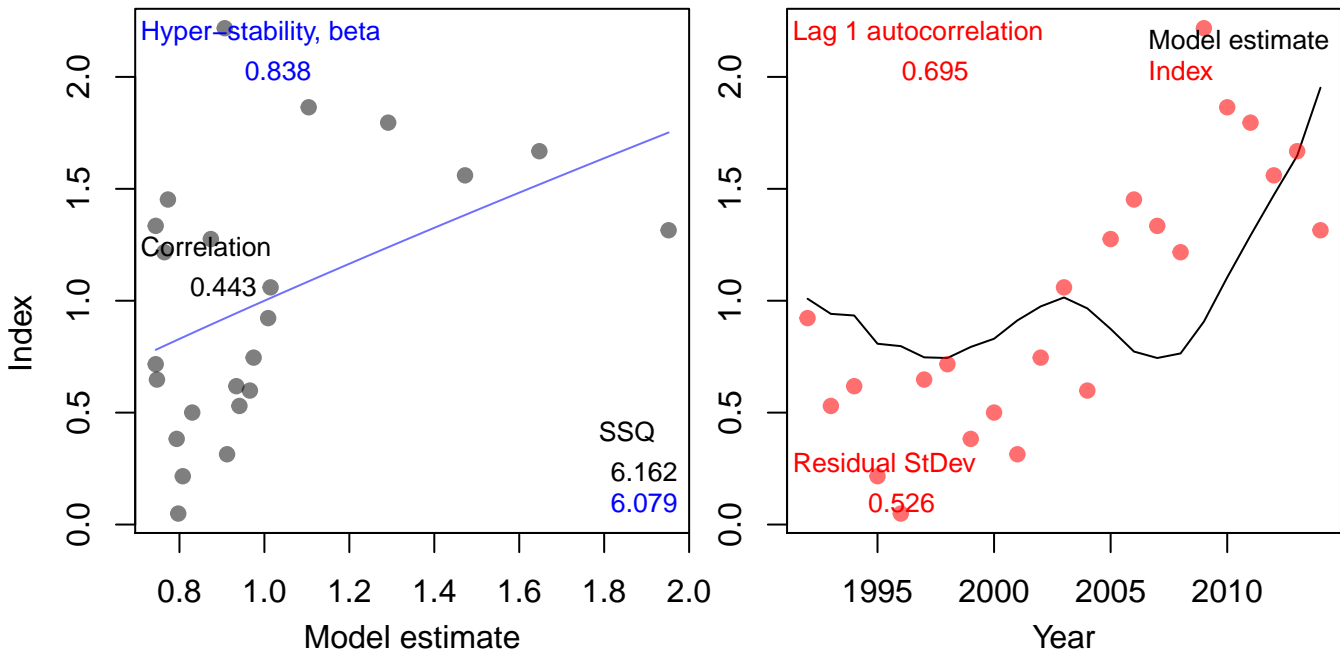
Index fit and statistical properties for GOM_Larval



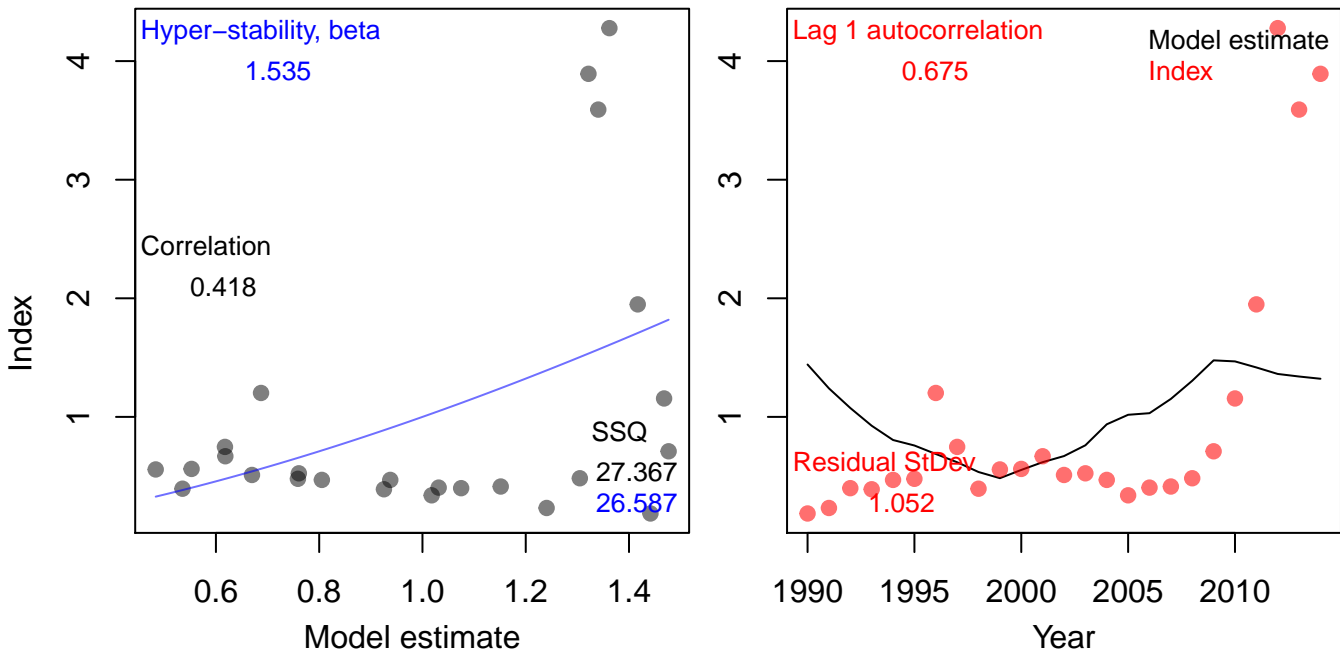
Index fit and statistical properties for JP_LL_W



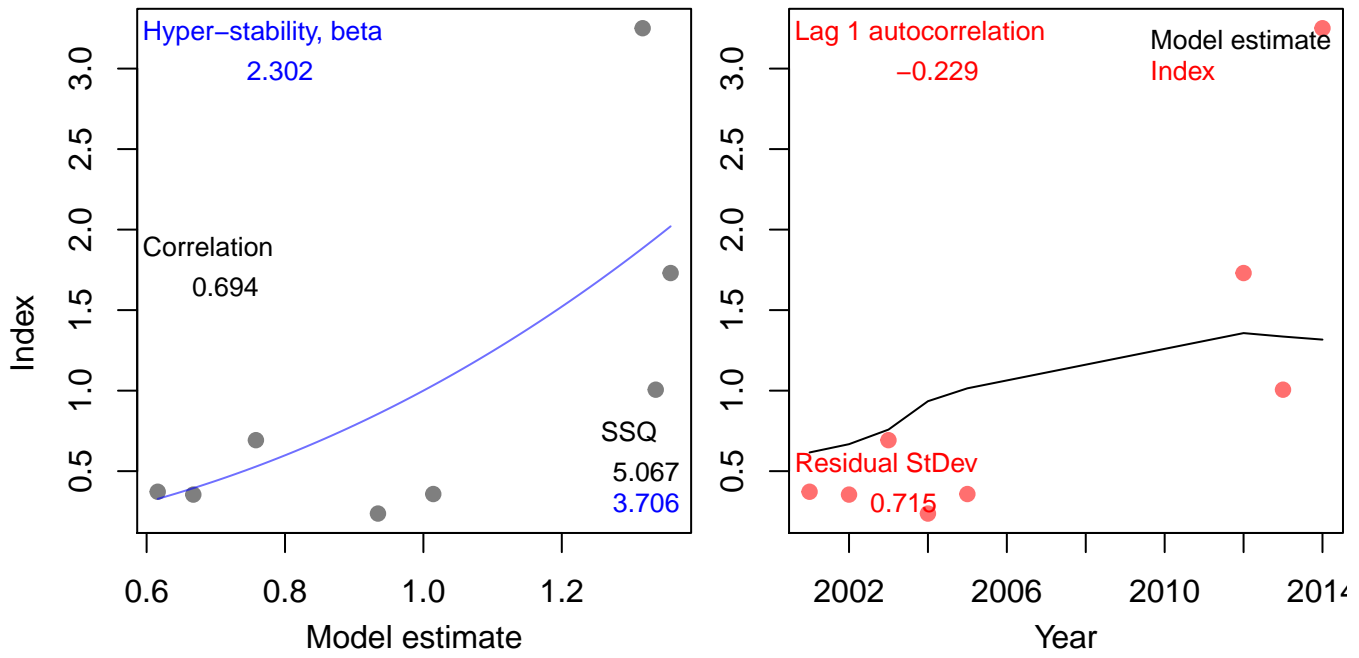
Index fit and statistical properties for US-CAN



Index fit and statistical properties for JP_LL_NE

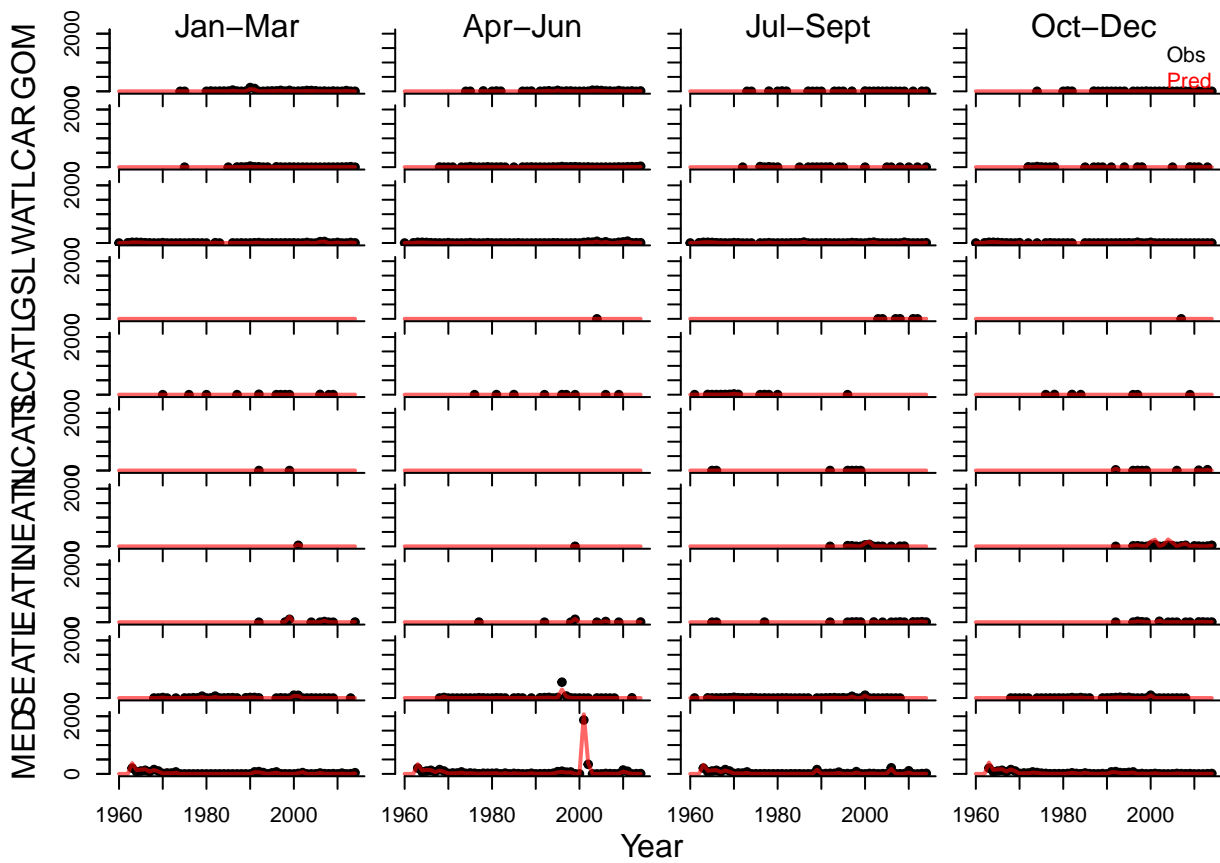


Index fit and statistical properties for MED_Larval

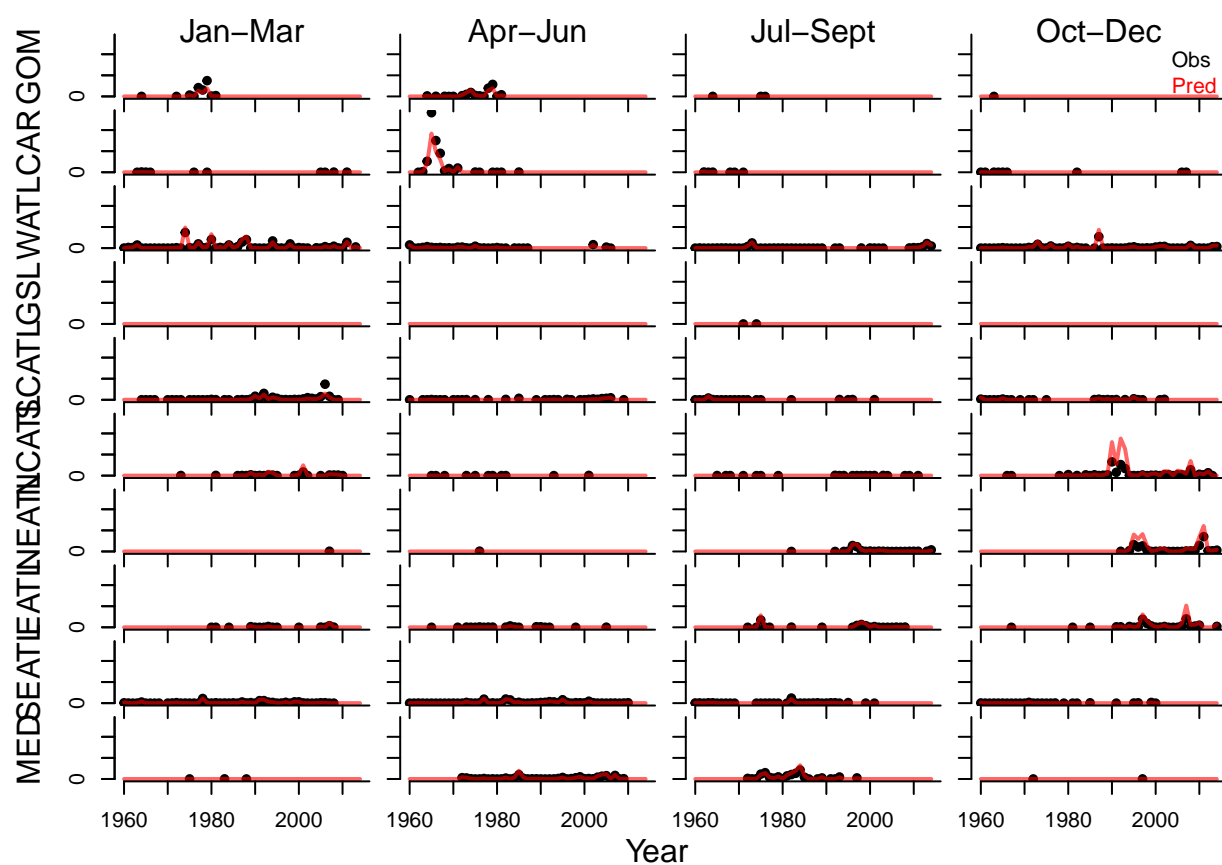


Fit to observed catches

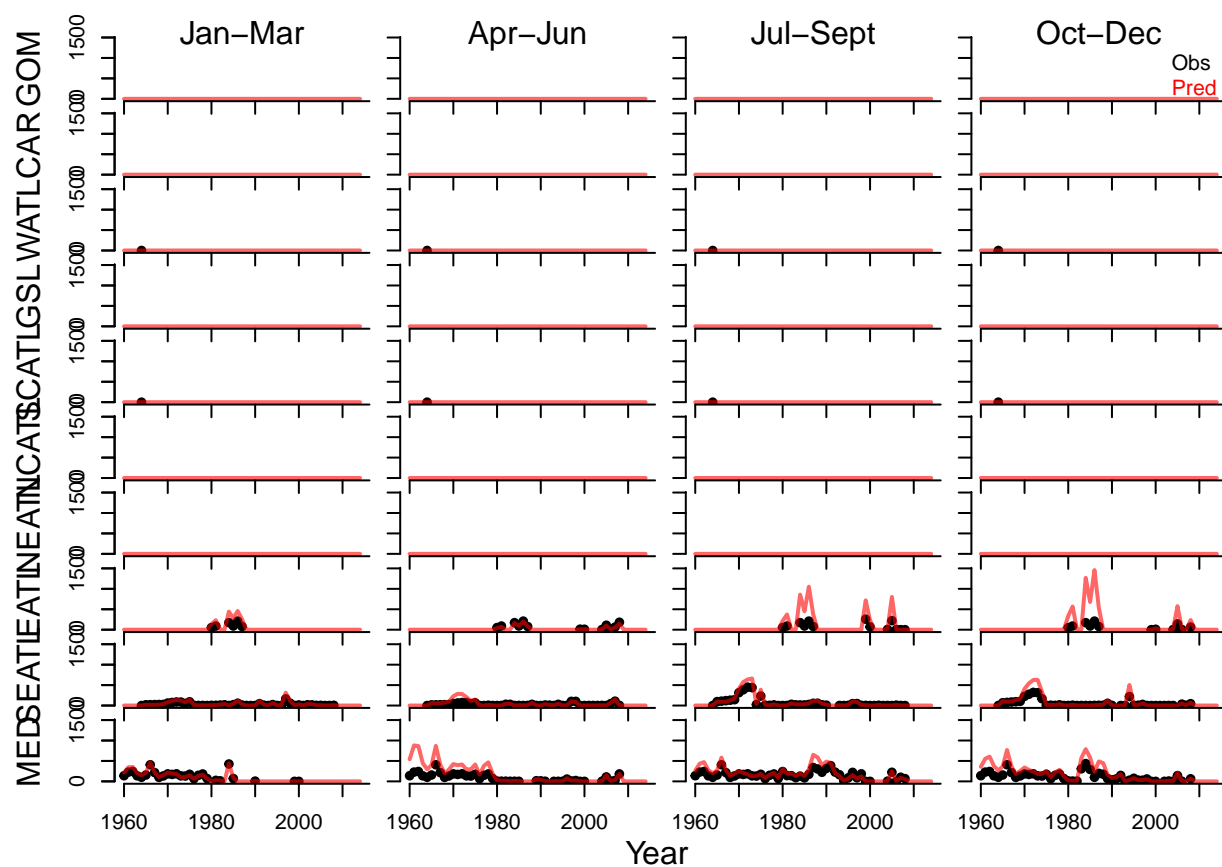
Observed catches (tonnes) for LLOTH



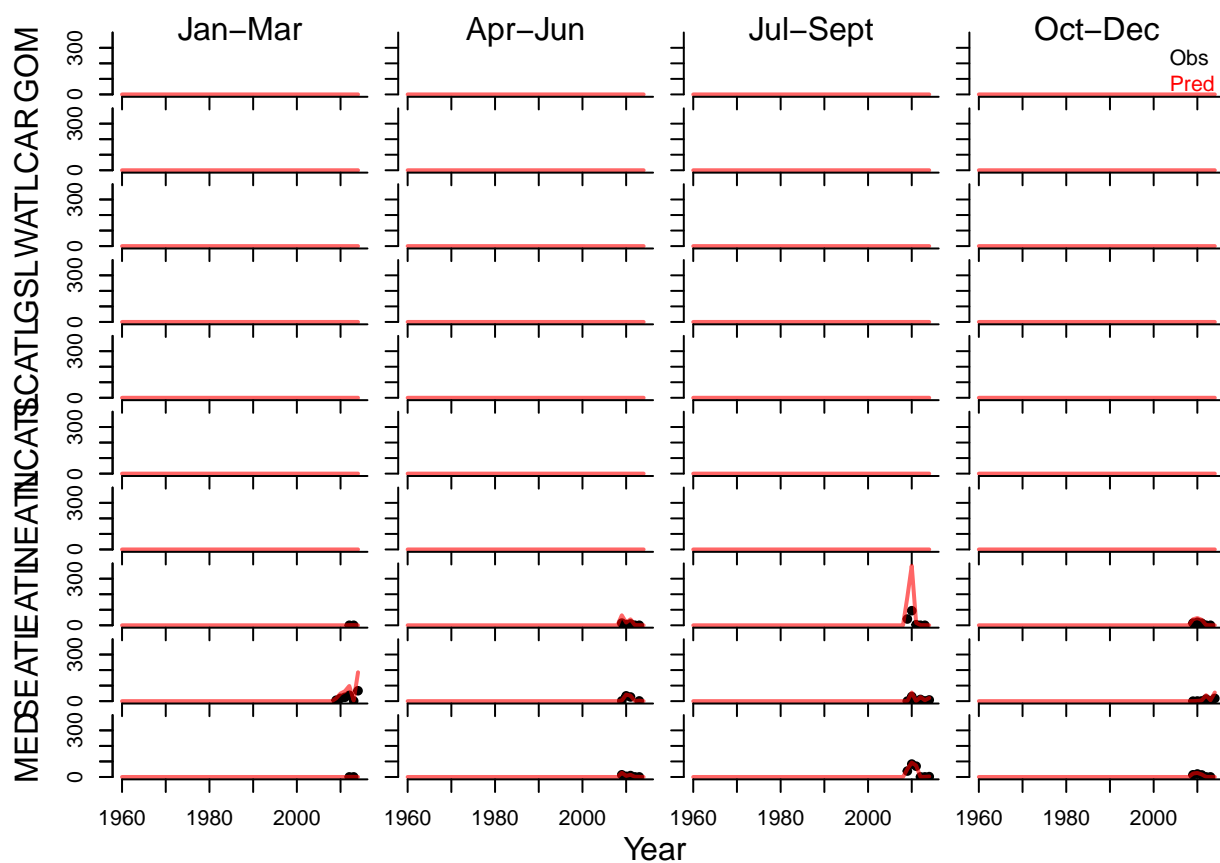
Observed catches (tonnes) for LLJPN



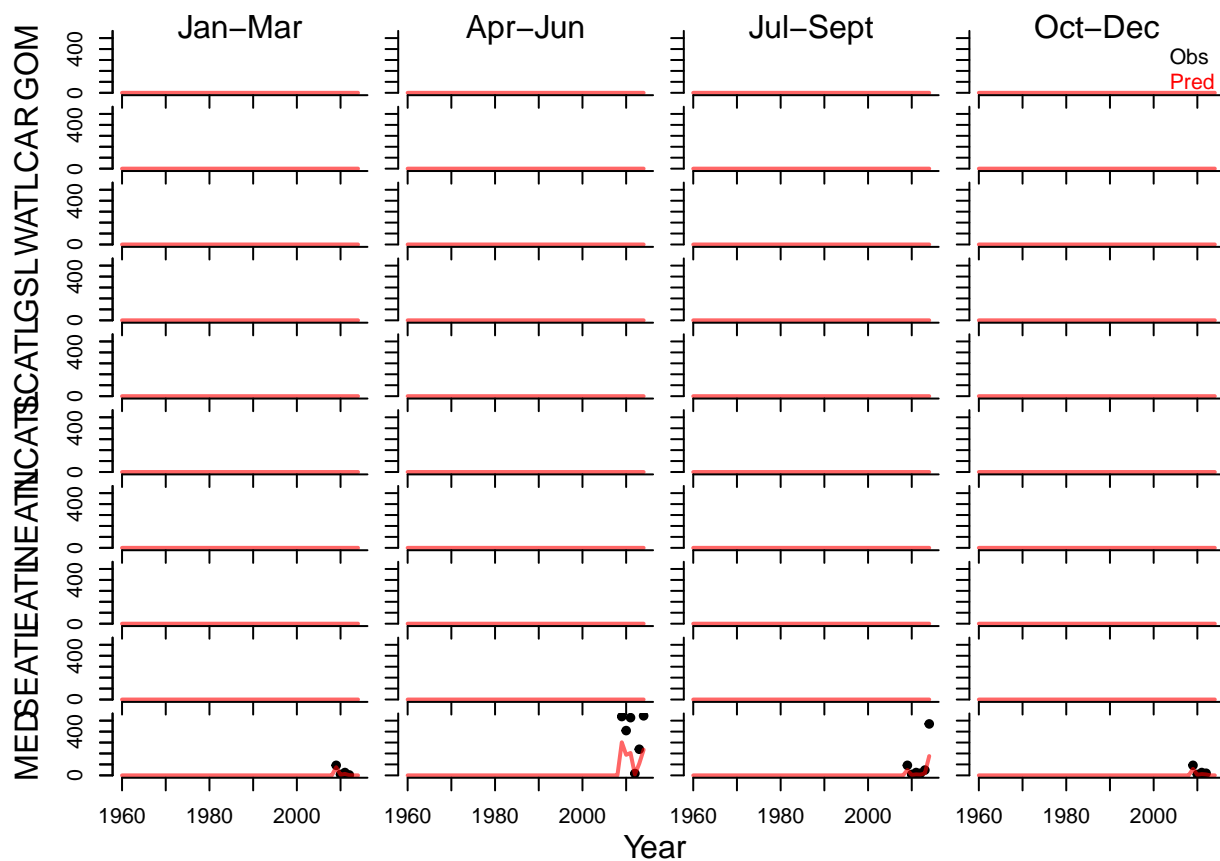
Observed catches (tonnes) for BBold



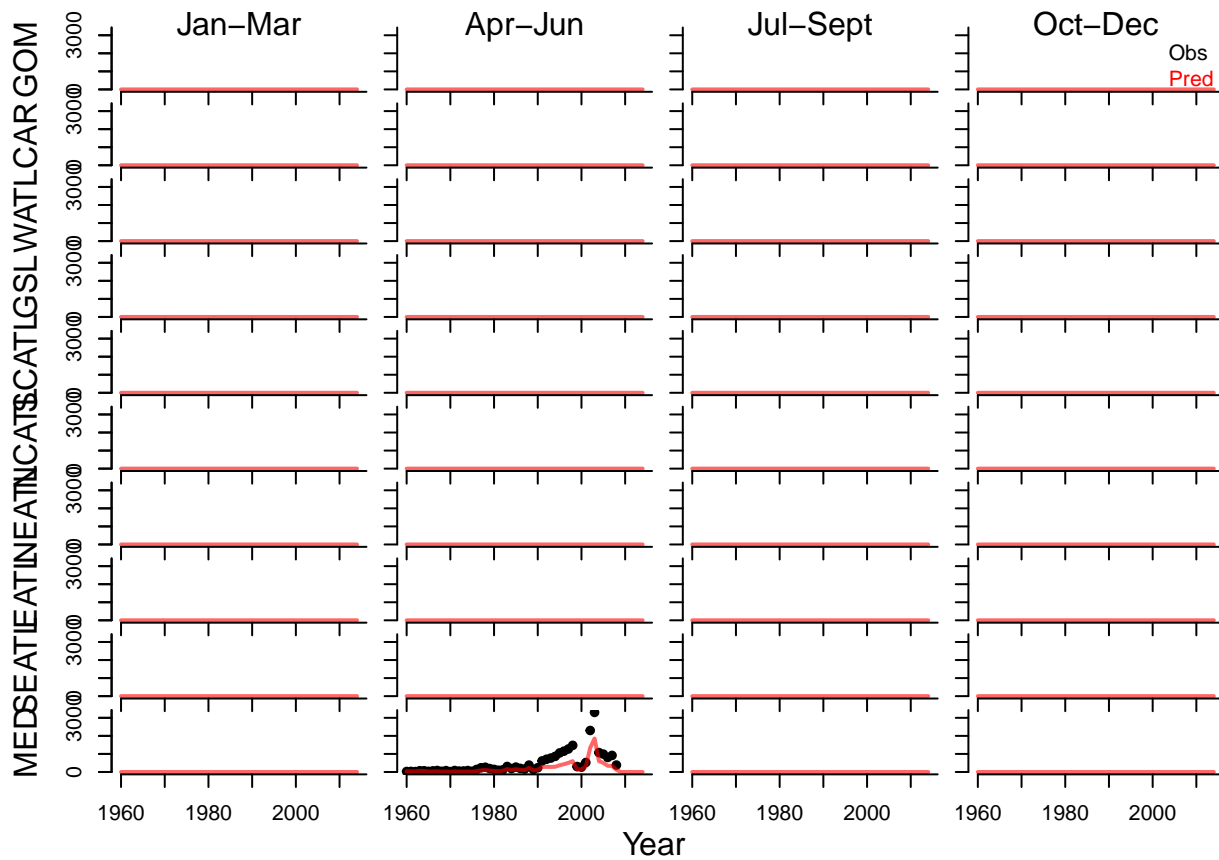
Observed catches (tonnes) for BBnew



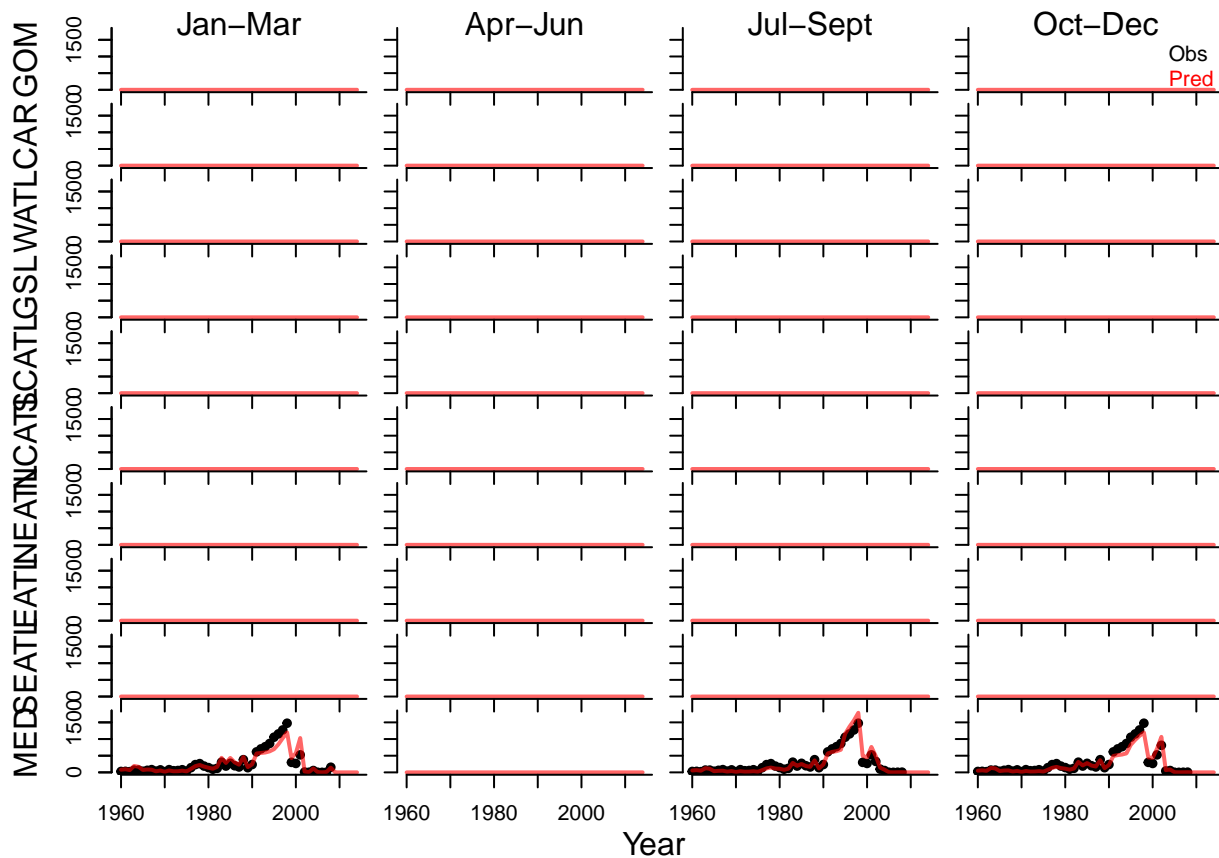
Observed catches (tonnes) for PSMedRec



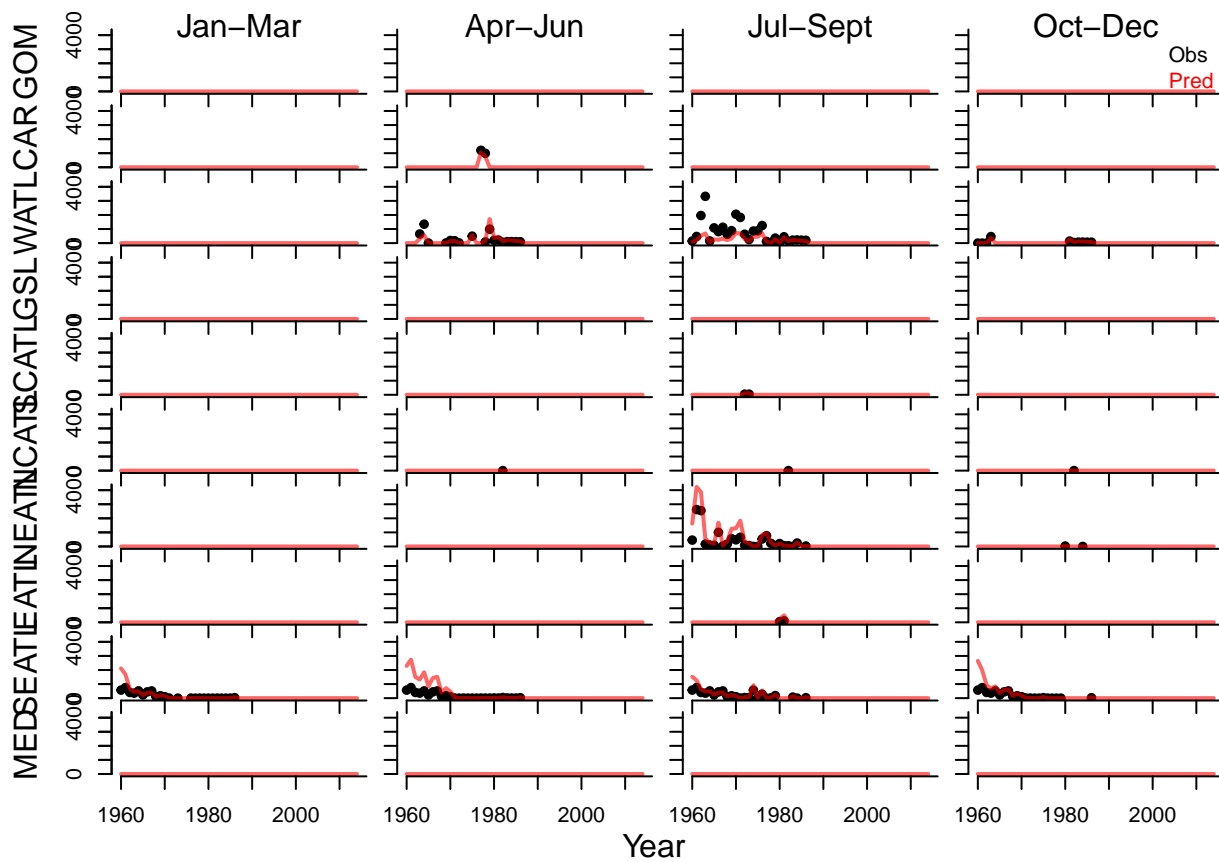
Observed catches (tonnes) for PSMedLOld



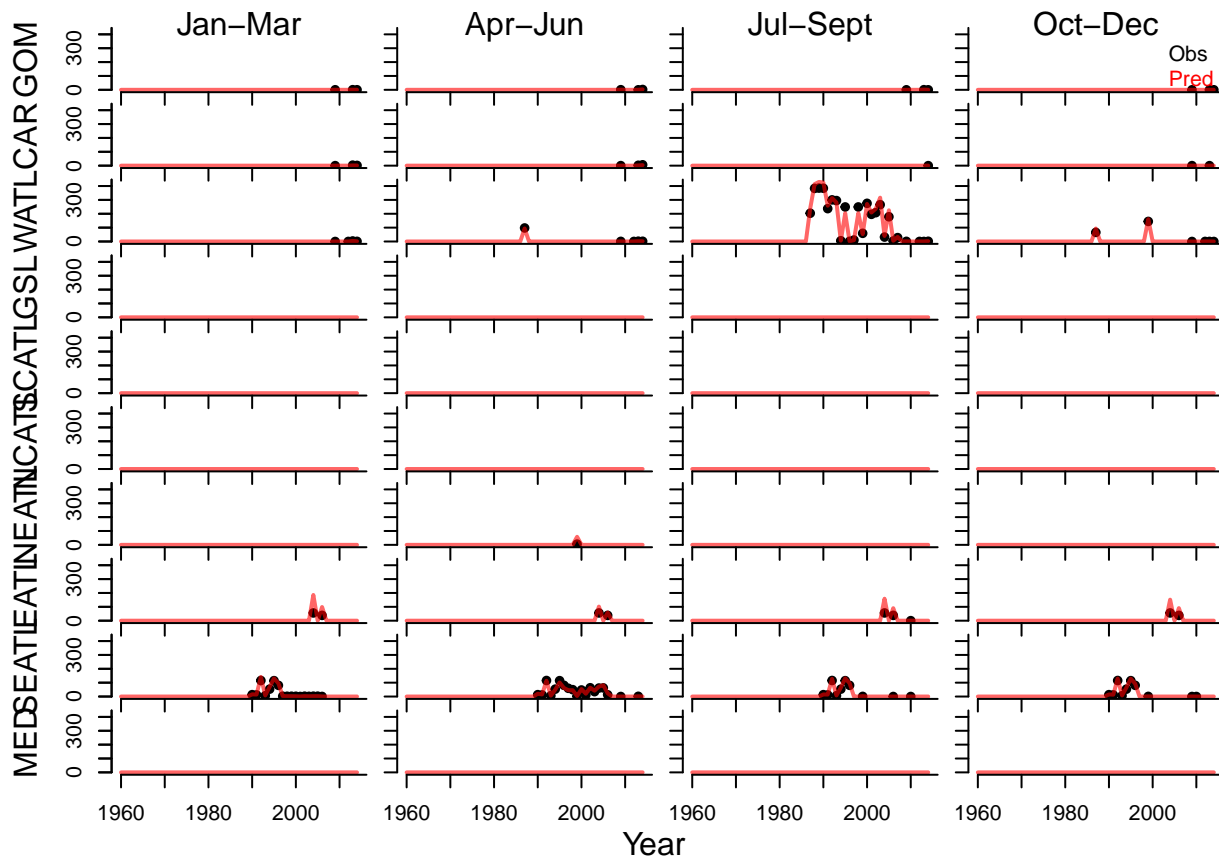
Observed catches (tonnes) for PSMedSOld



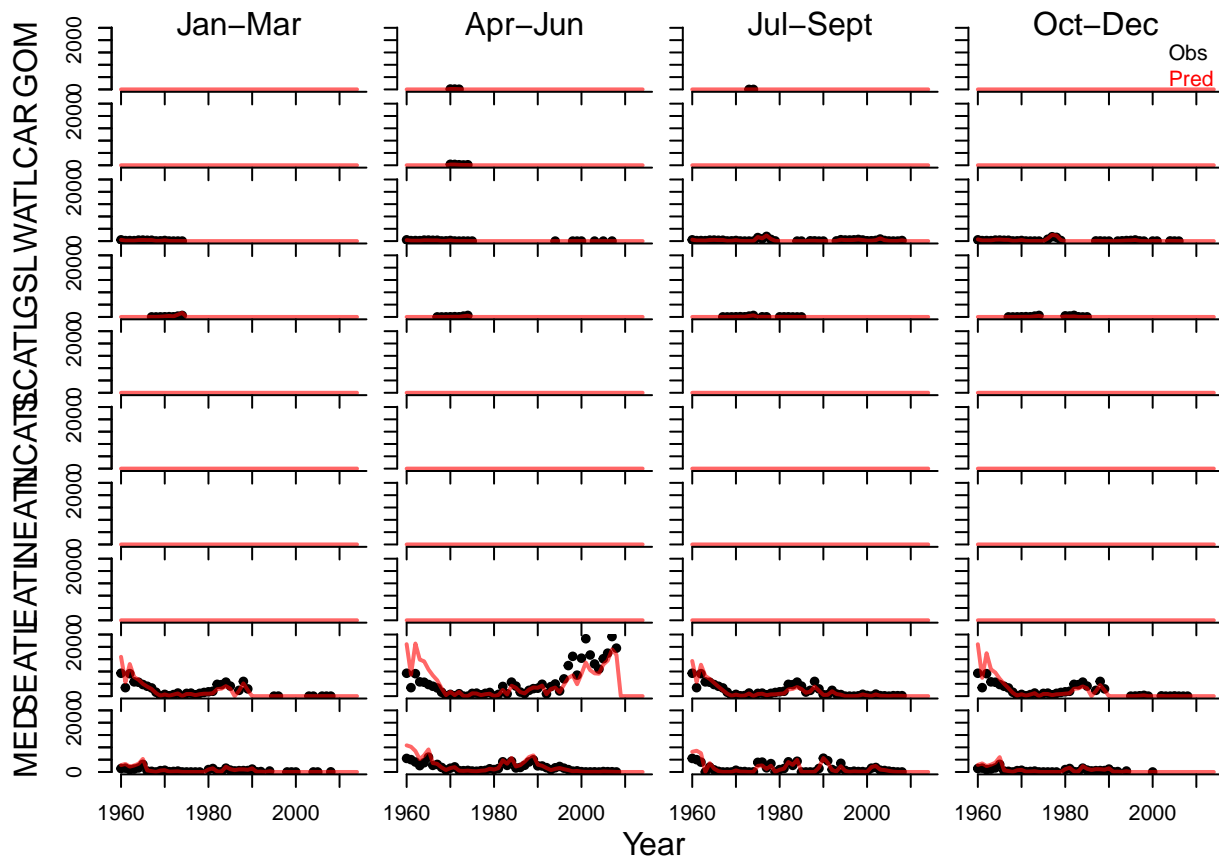
Observed catches (tonnes) for PSWestOld



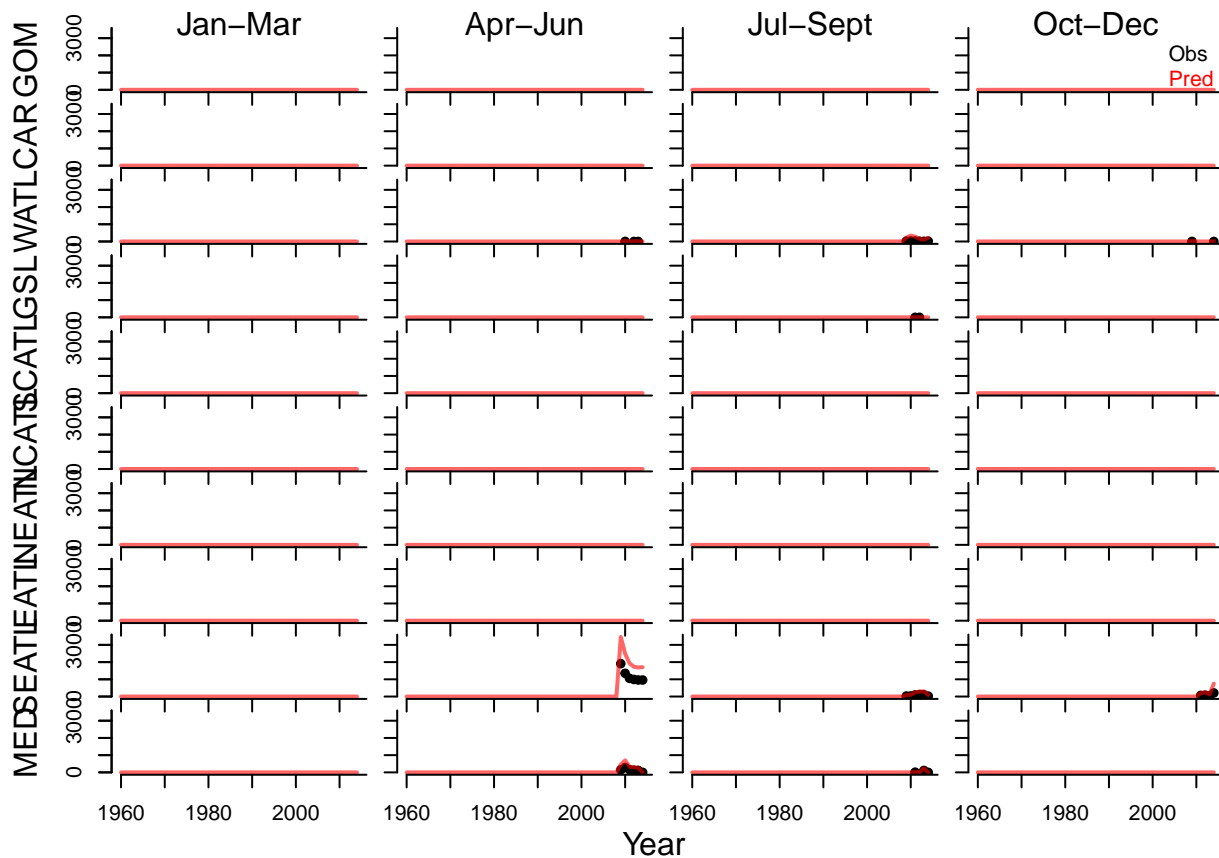
Observed catches (tonnes) for PSWestnew



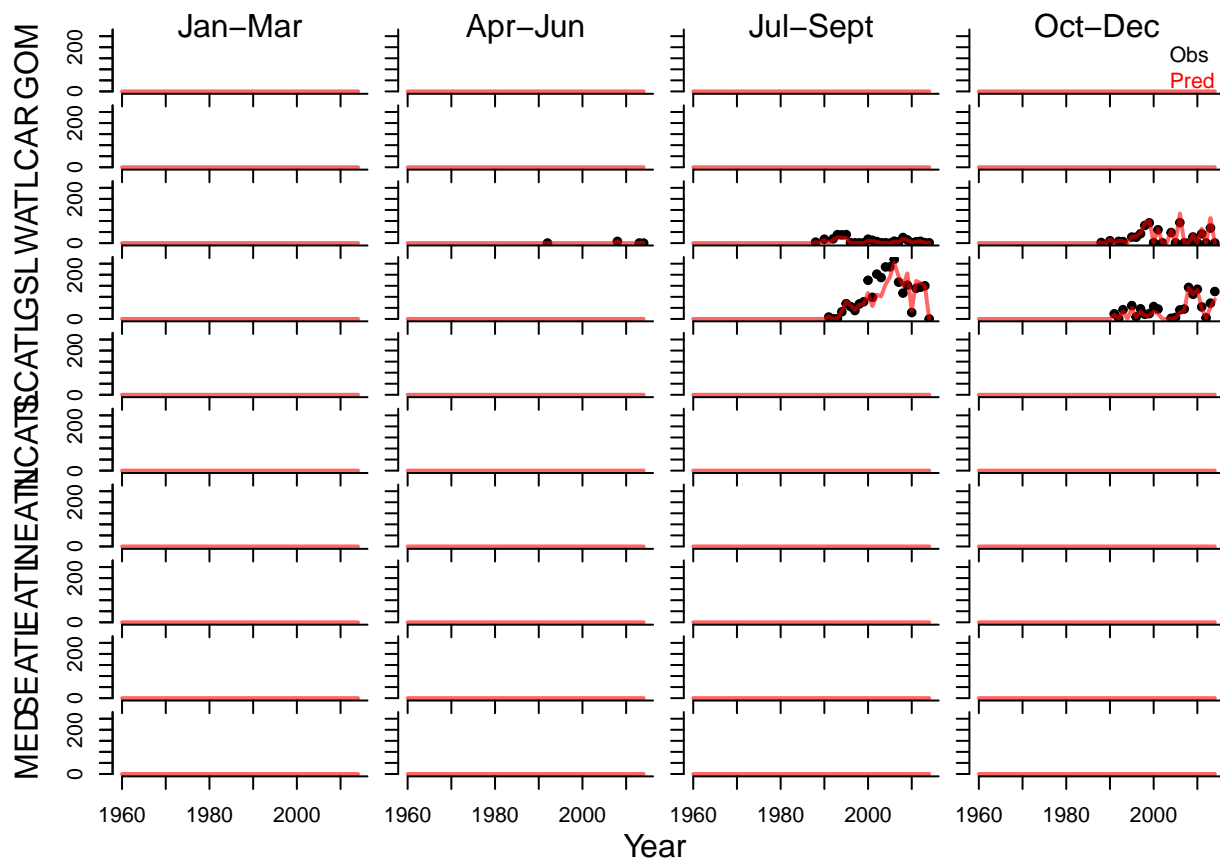
Observed catches (tonnes) for TPold



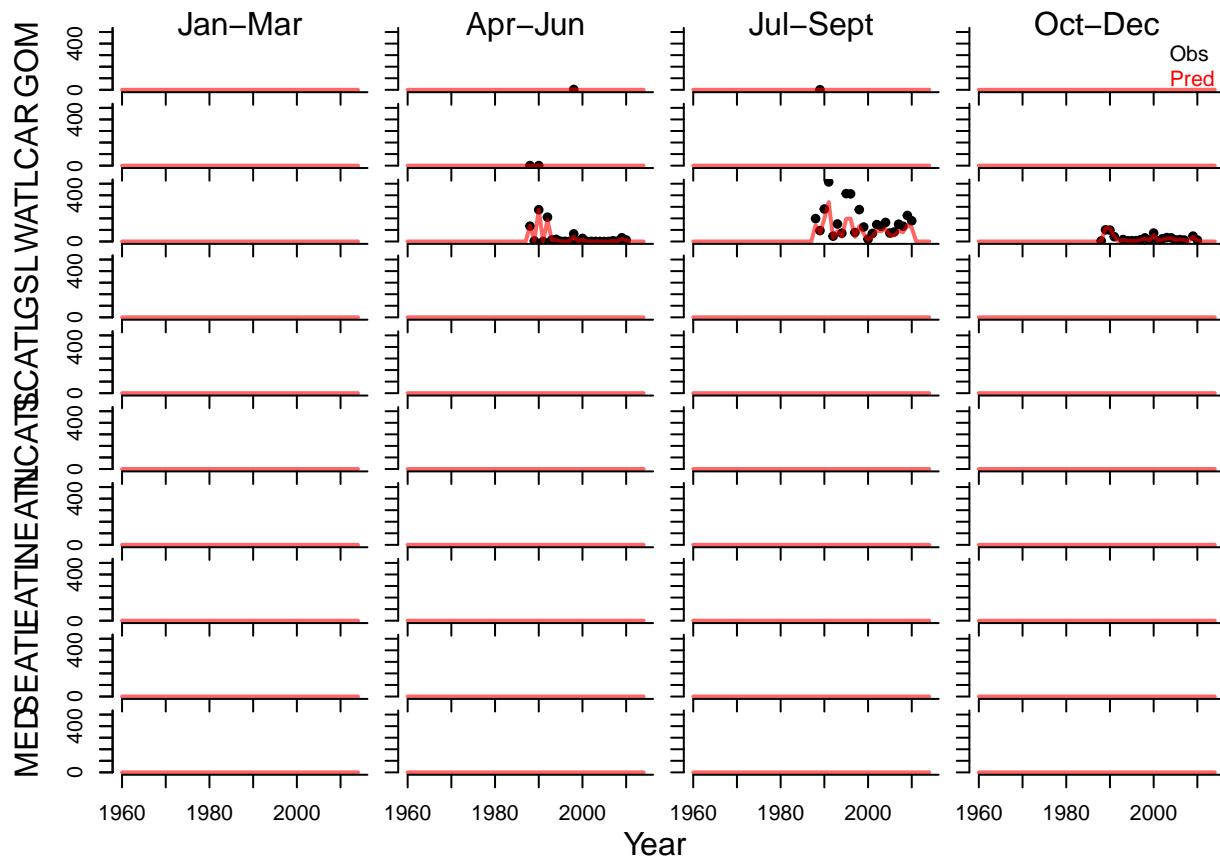
Observed catches (tonnes) for TPnew



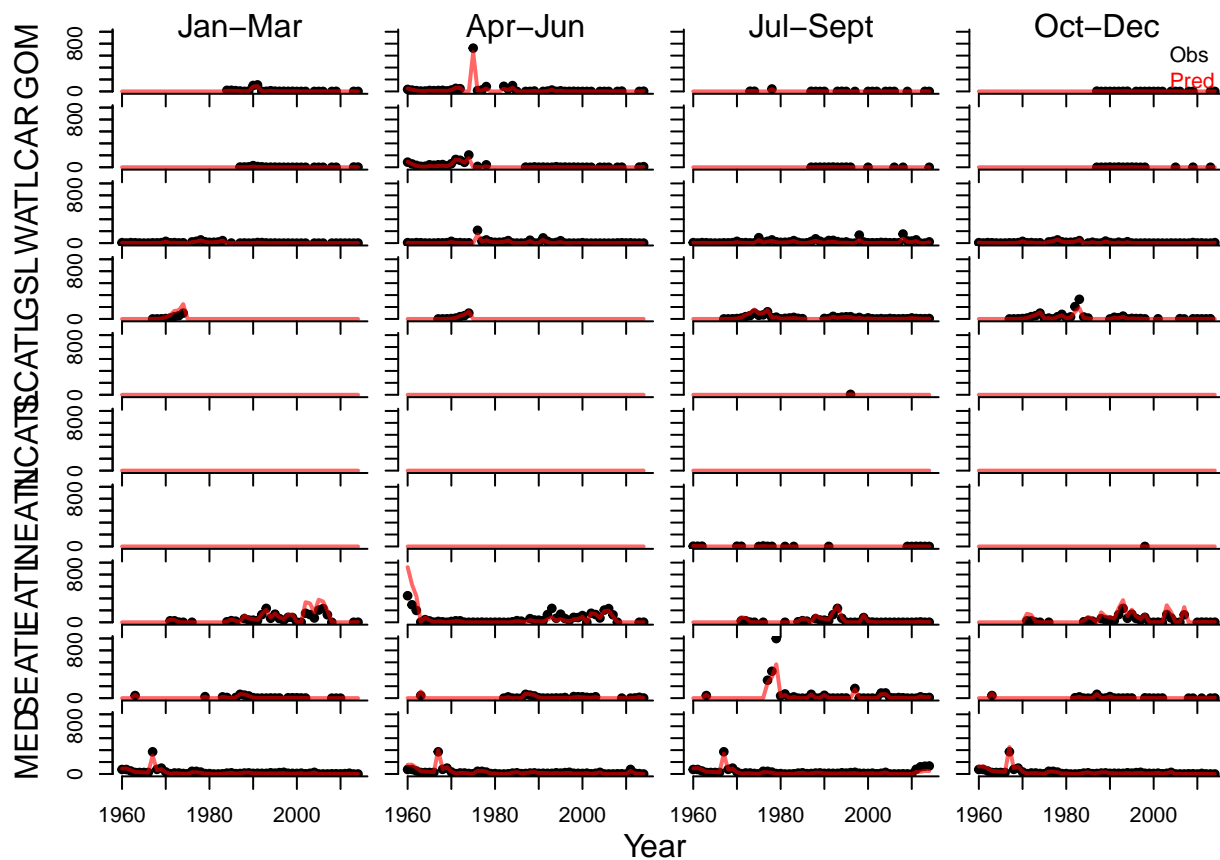
Observed catches (tonnes) for RRCan



Observed catches (tonnes) for RRUSA

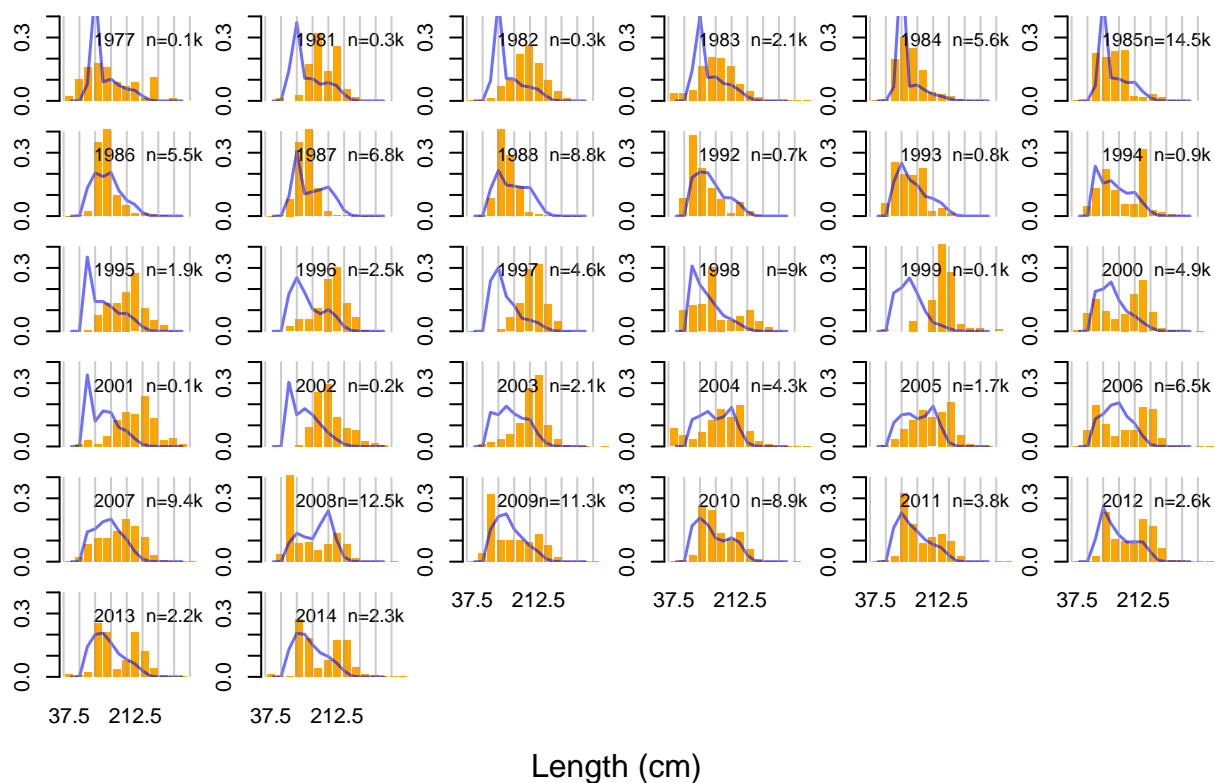


Observed catches (tonnes) for ALL OTH



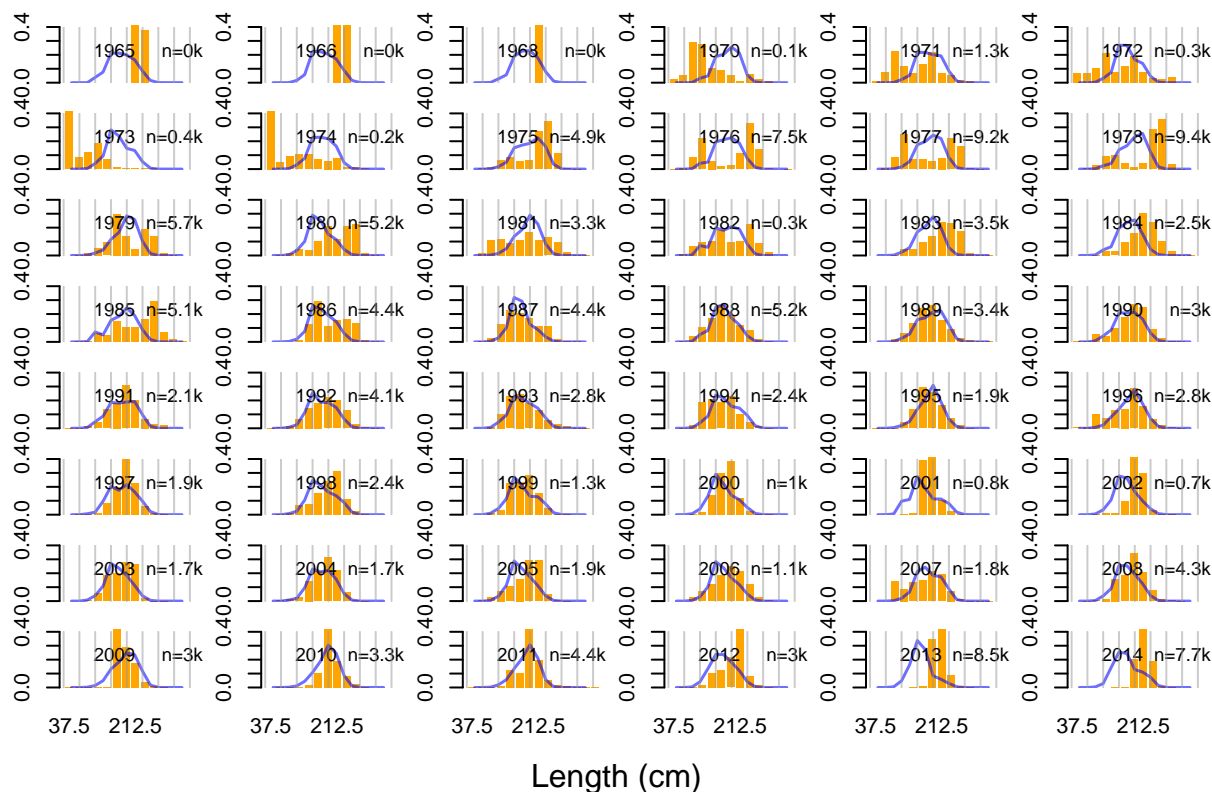
Length composition fit for LLOTH

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



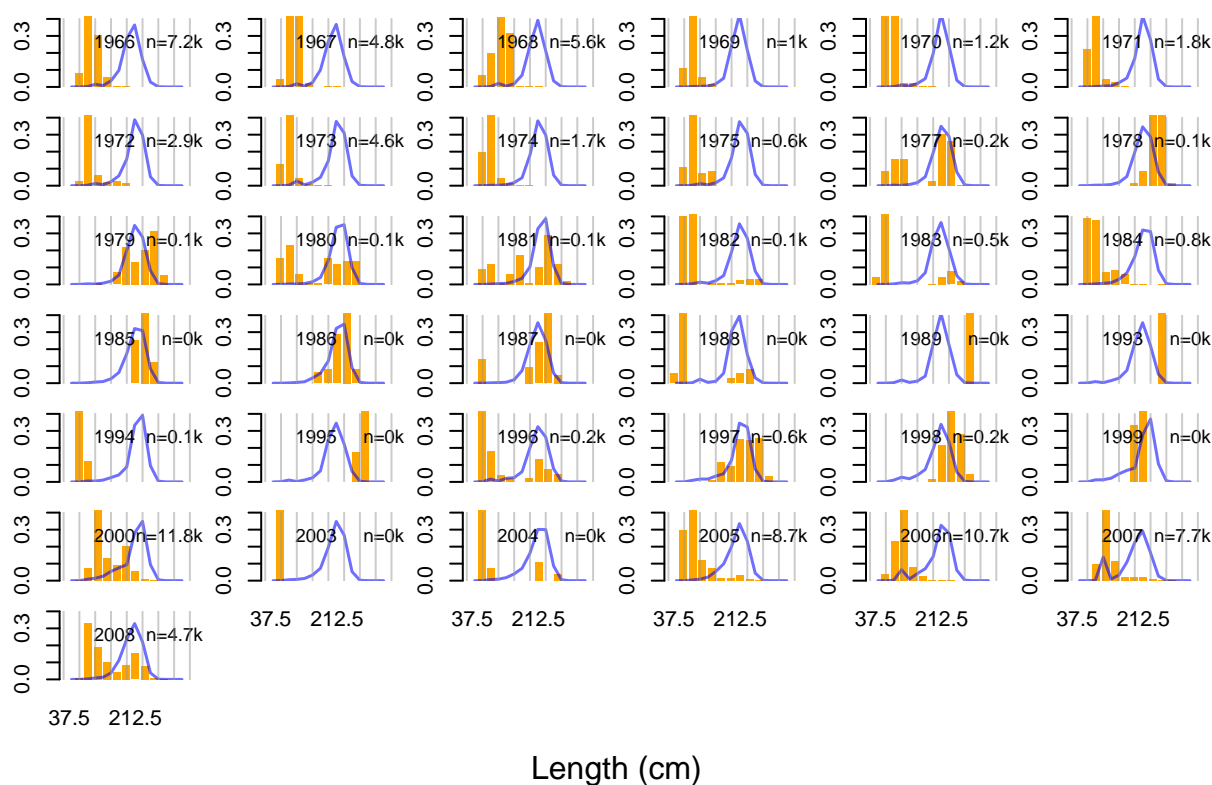
Length composition fit for LLJPN

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



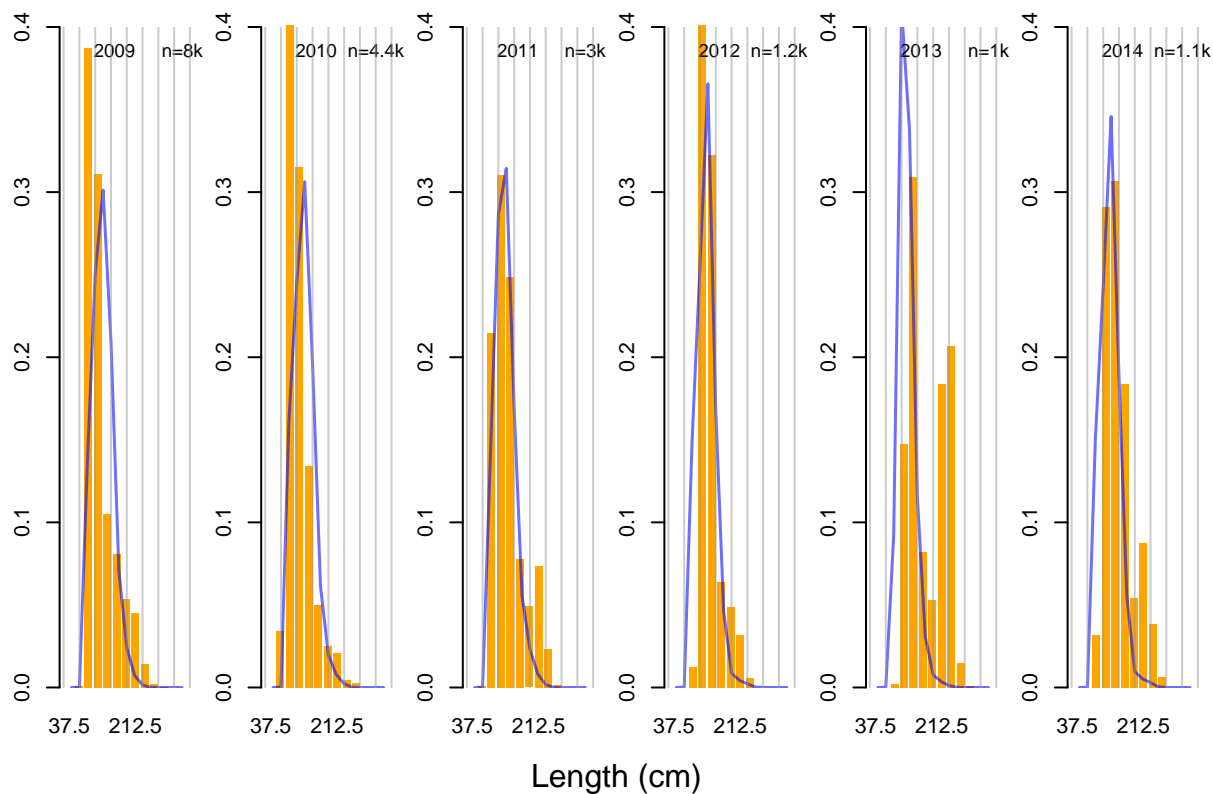
Length composition fit for BBold

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



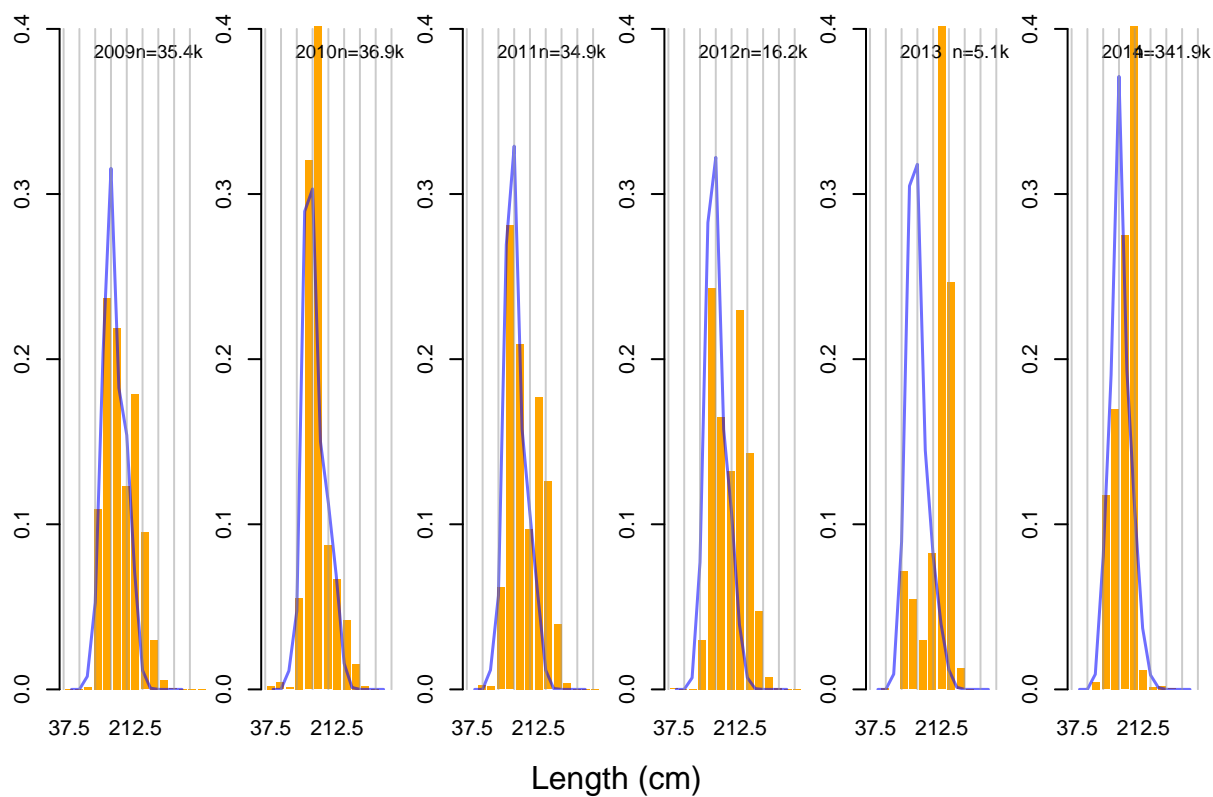
Length composition fit for BBnew

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



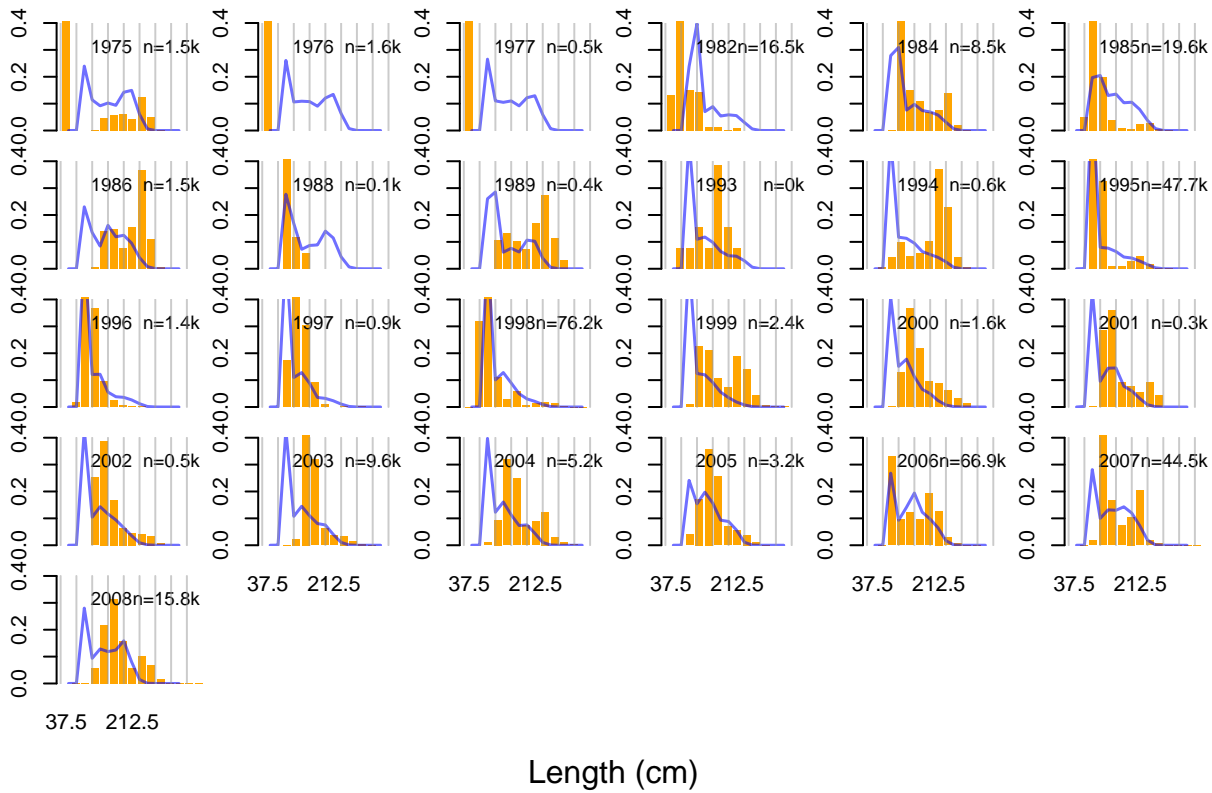
Length composition fit for PSMedRec

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



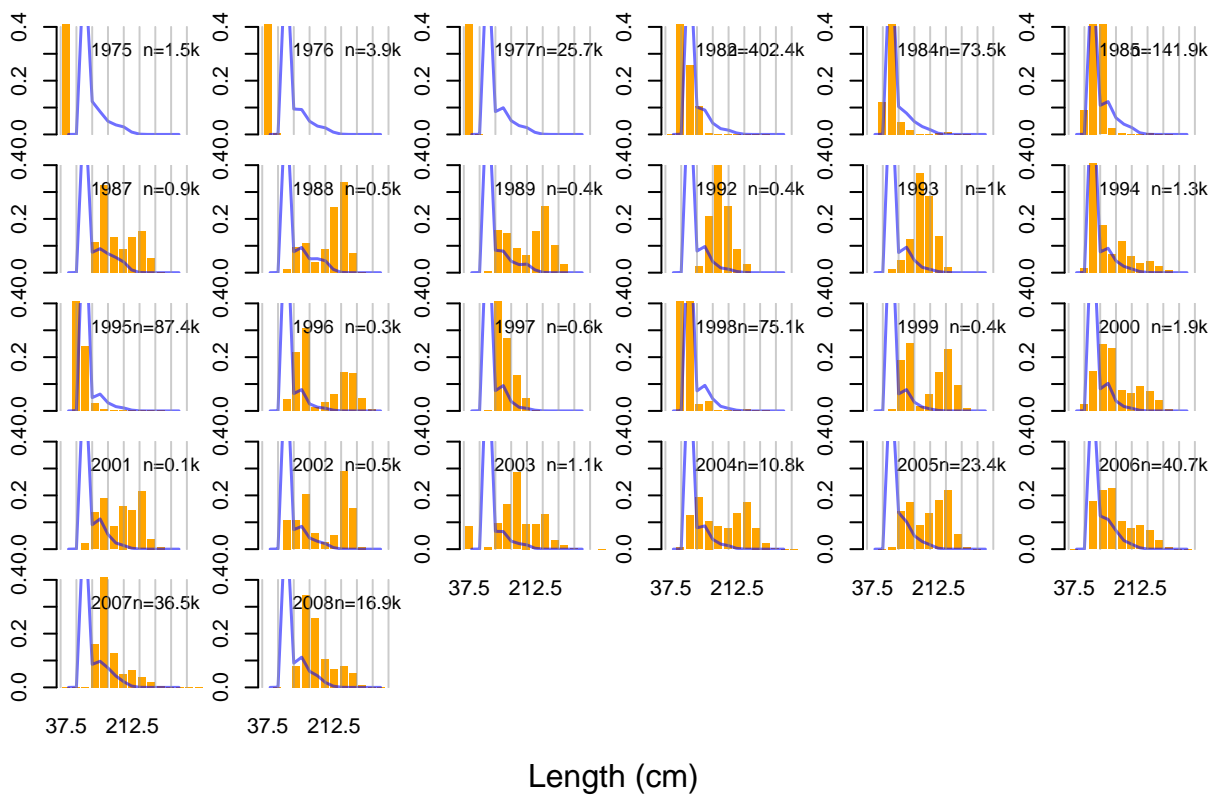
Length composition fit for PSMedLOld

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



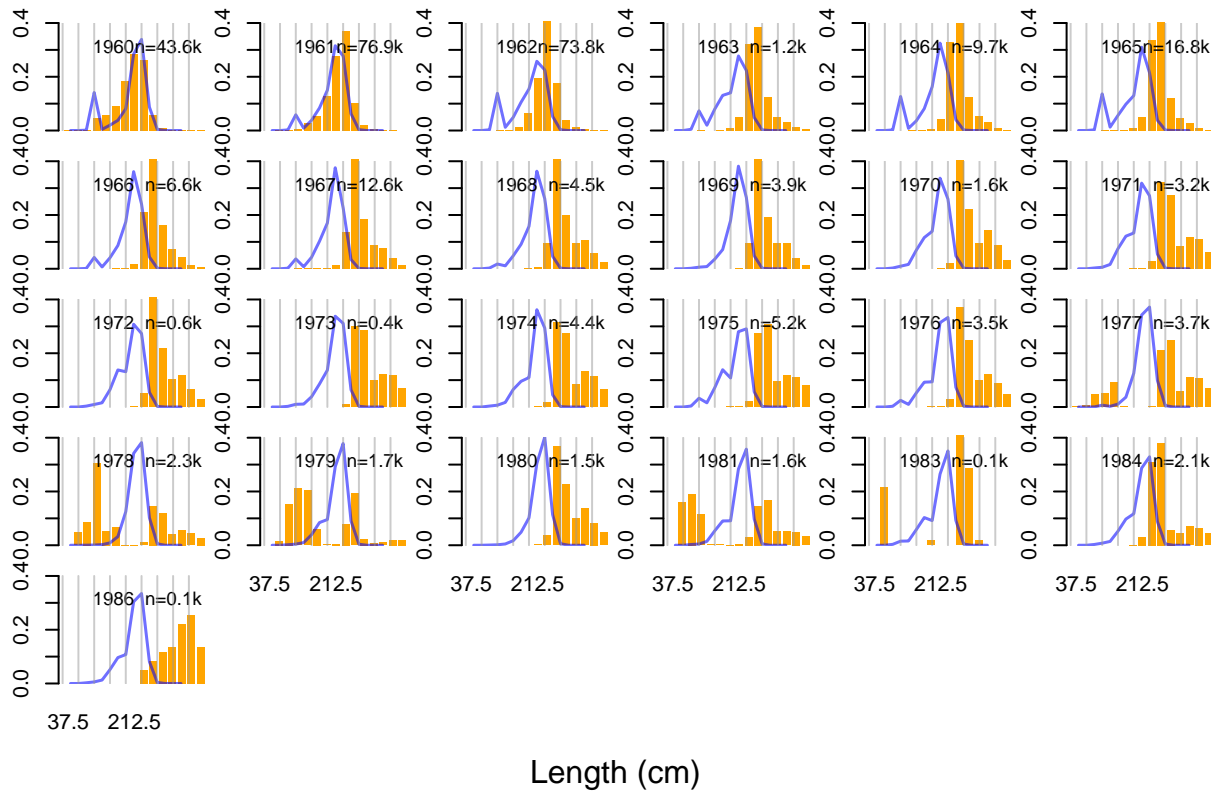
Length composition fit for PSMedSOLD

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



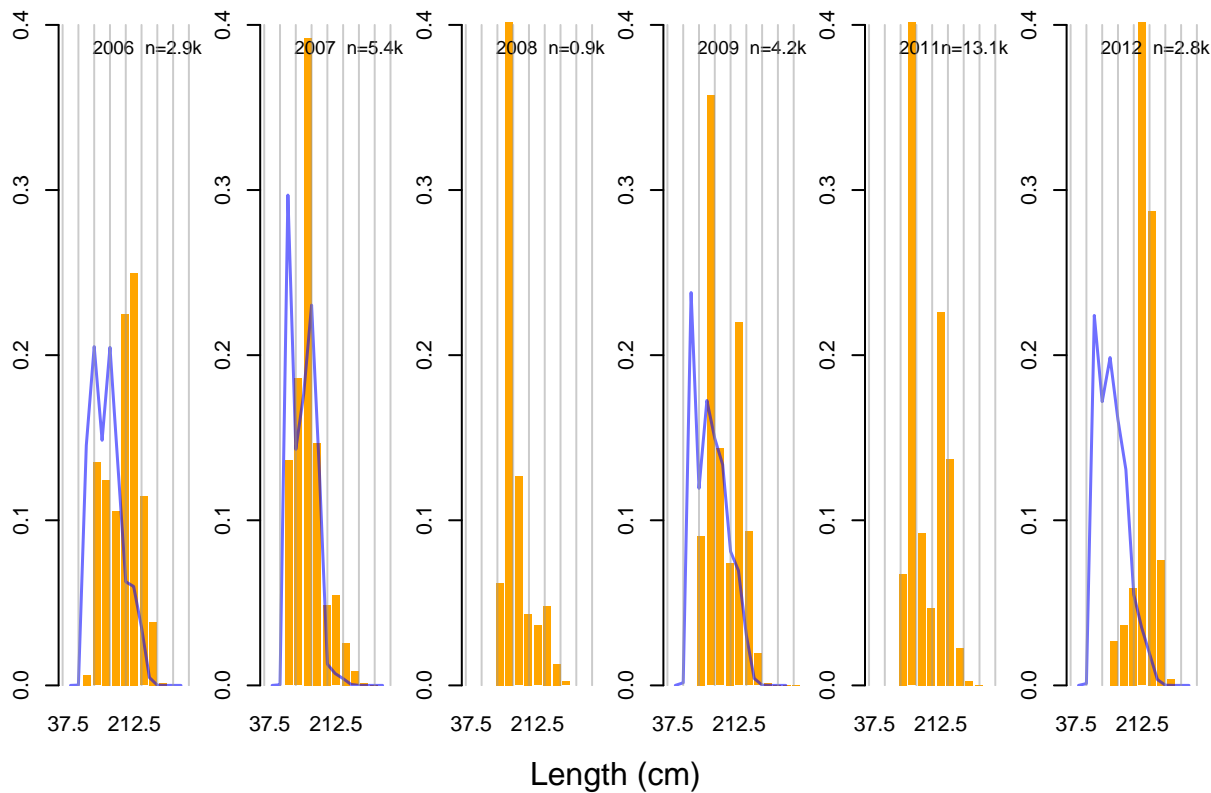
Length composition fit for PSWestOld

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



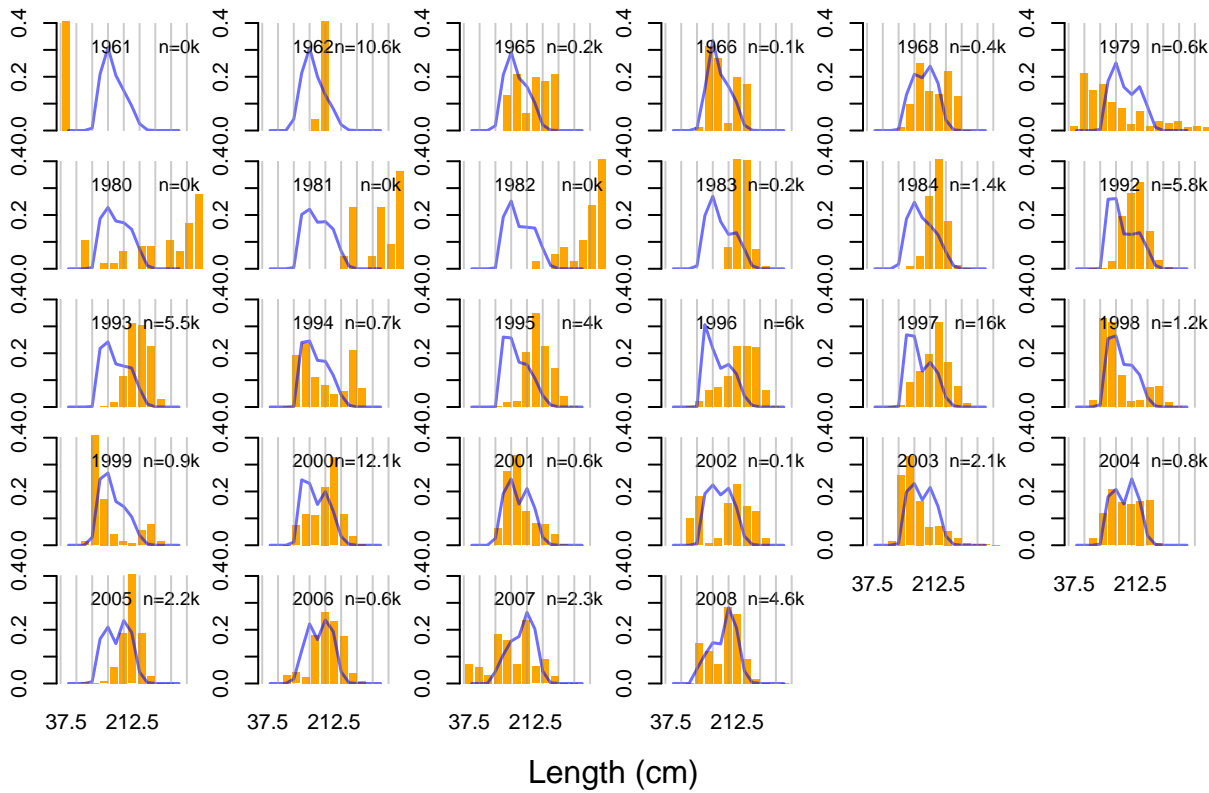
Length composition fit for PSWestnew

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



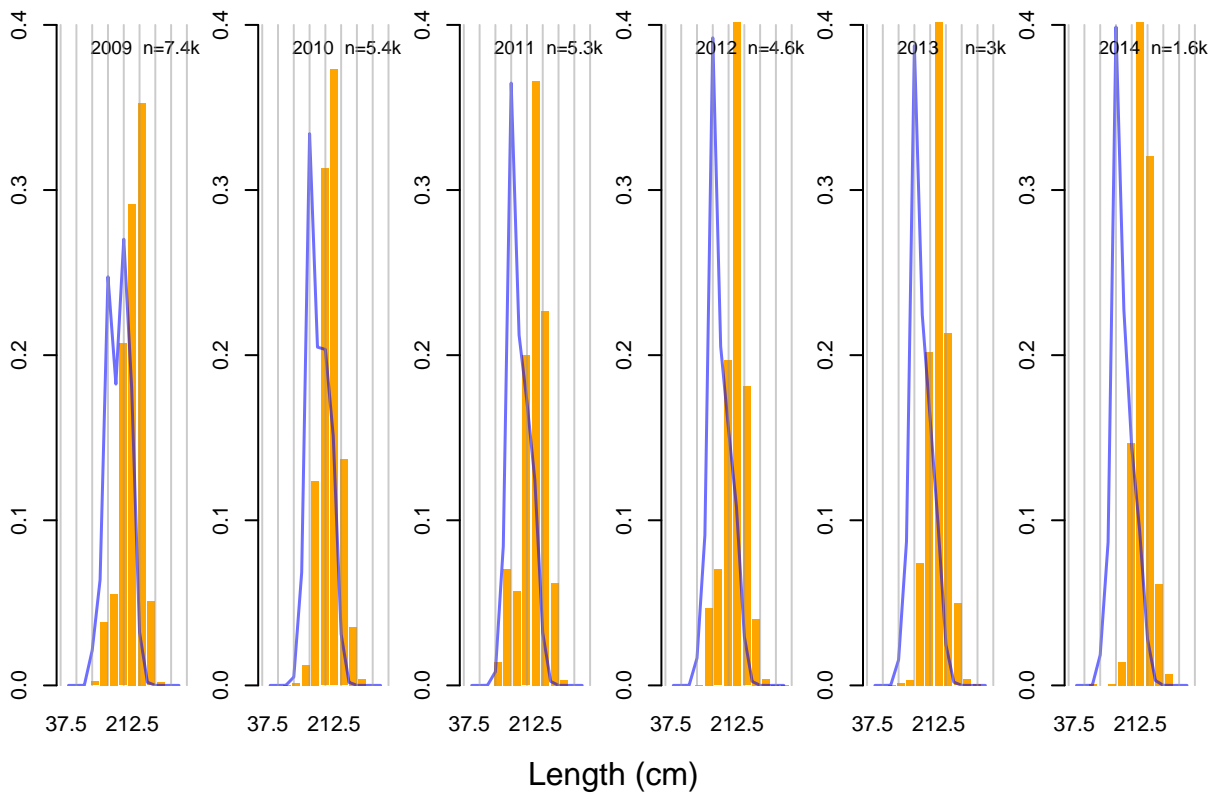
Length composition fit for TPOld

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



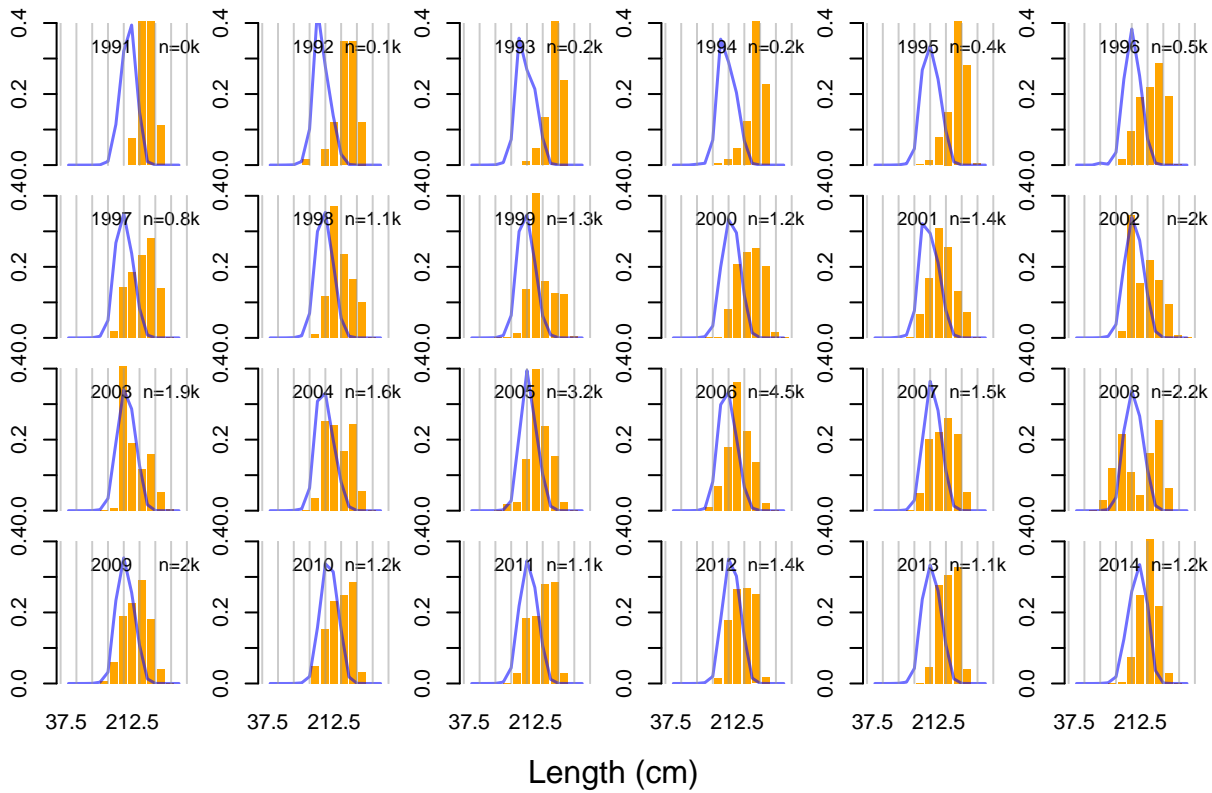
Length composition fit for TPnew

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



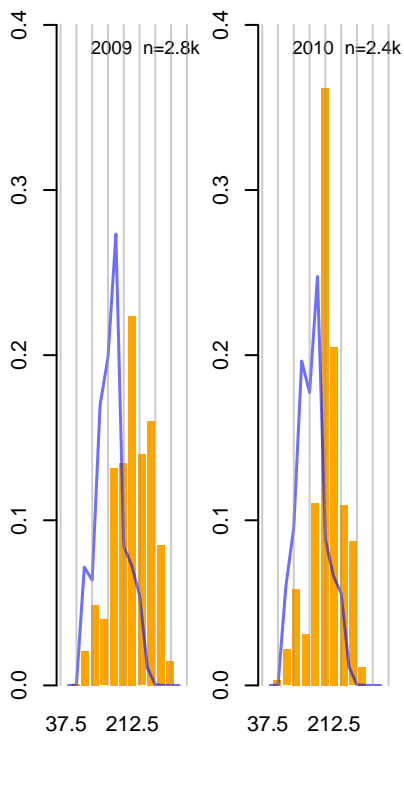
Length composition fit for RRCan

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



Length composition fit for RRUSA

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



Length composition fit for ALL OTH

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

