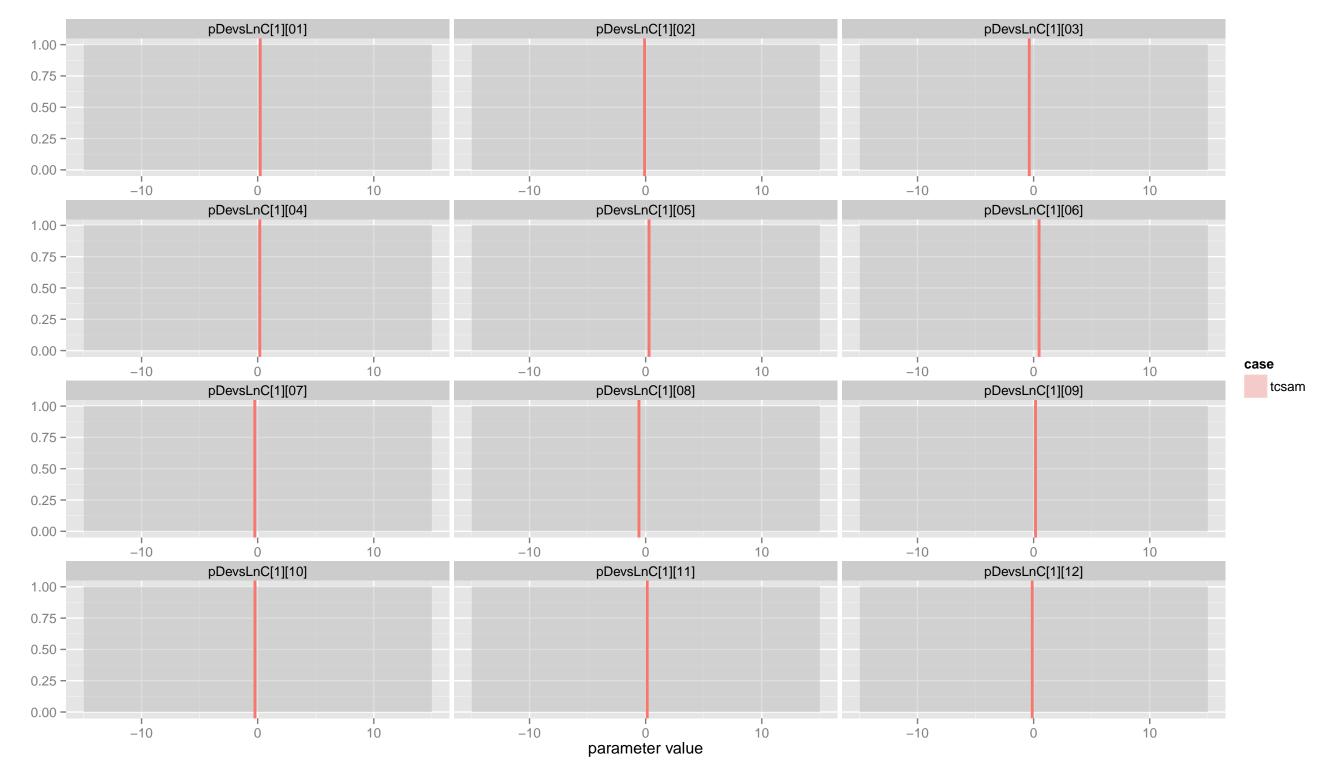
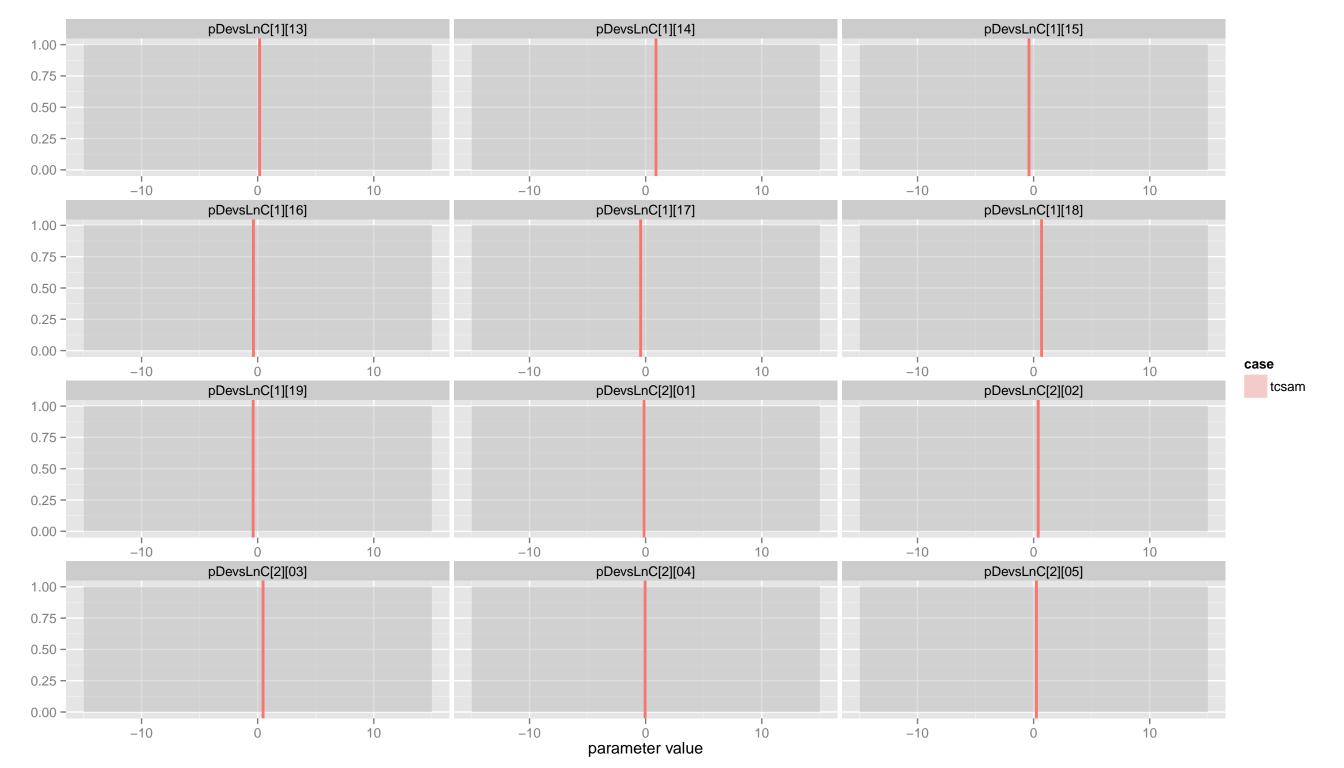
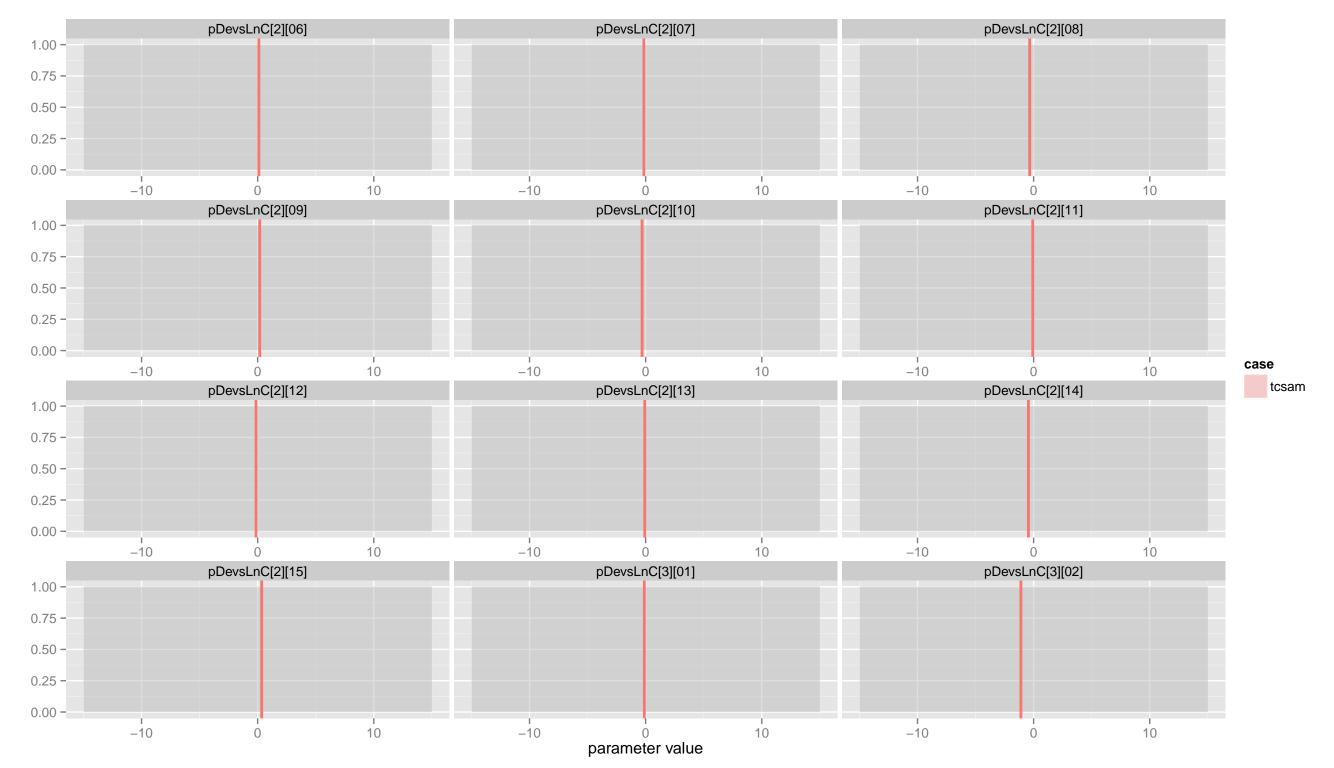
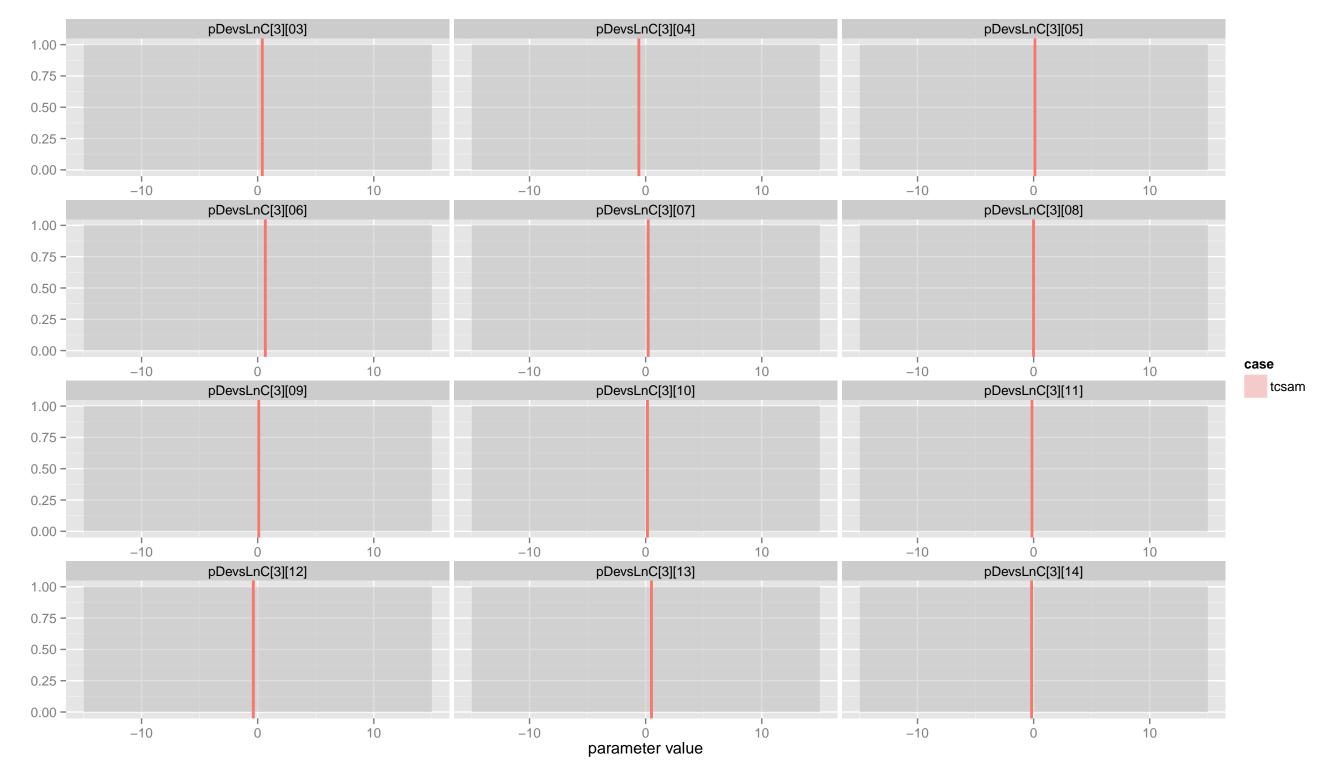


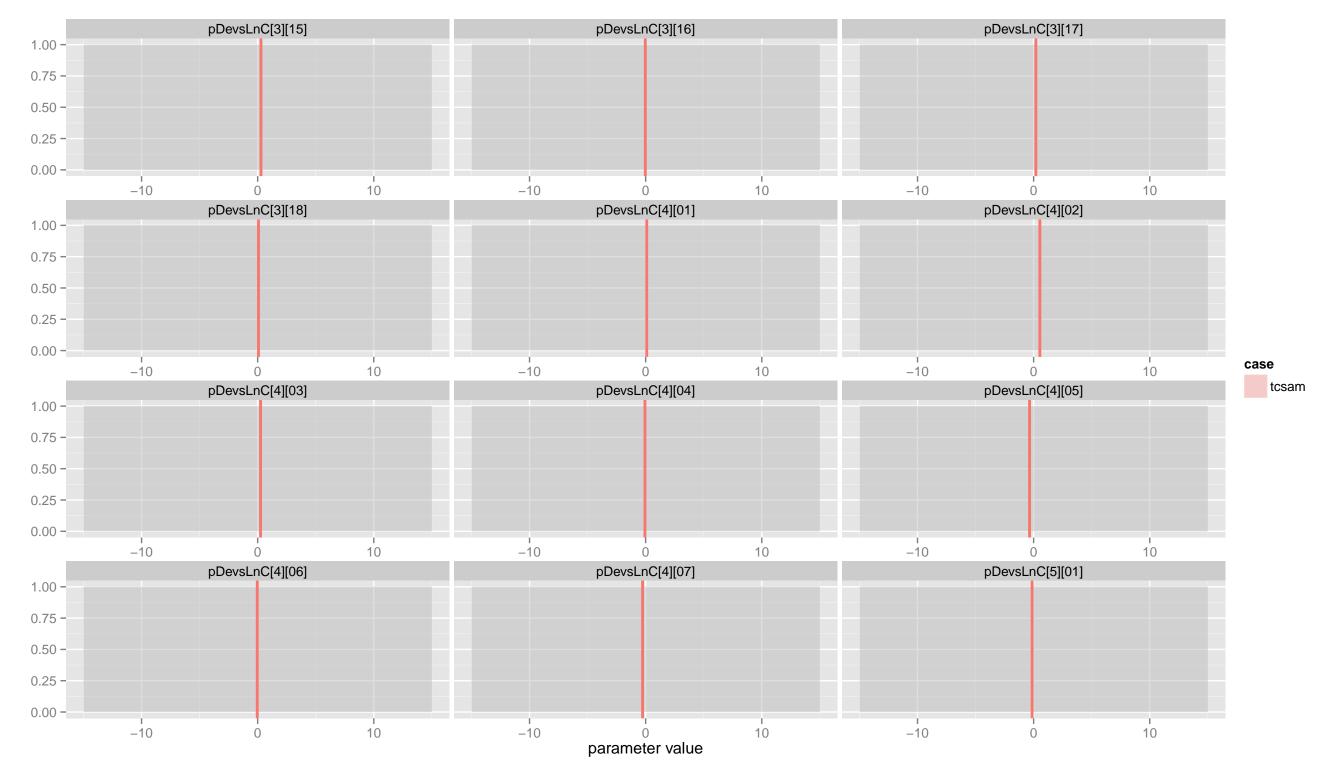
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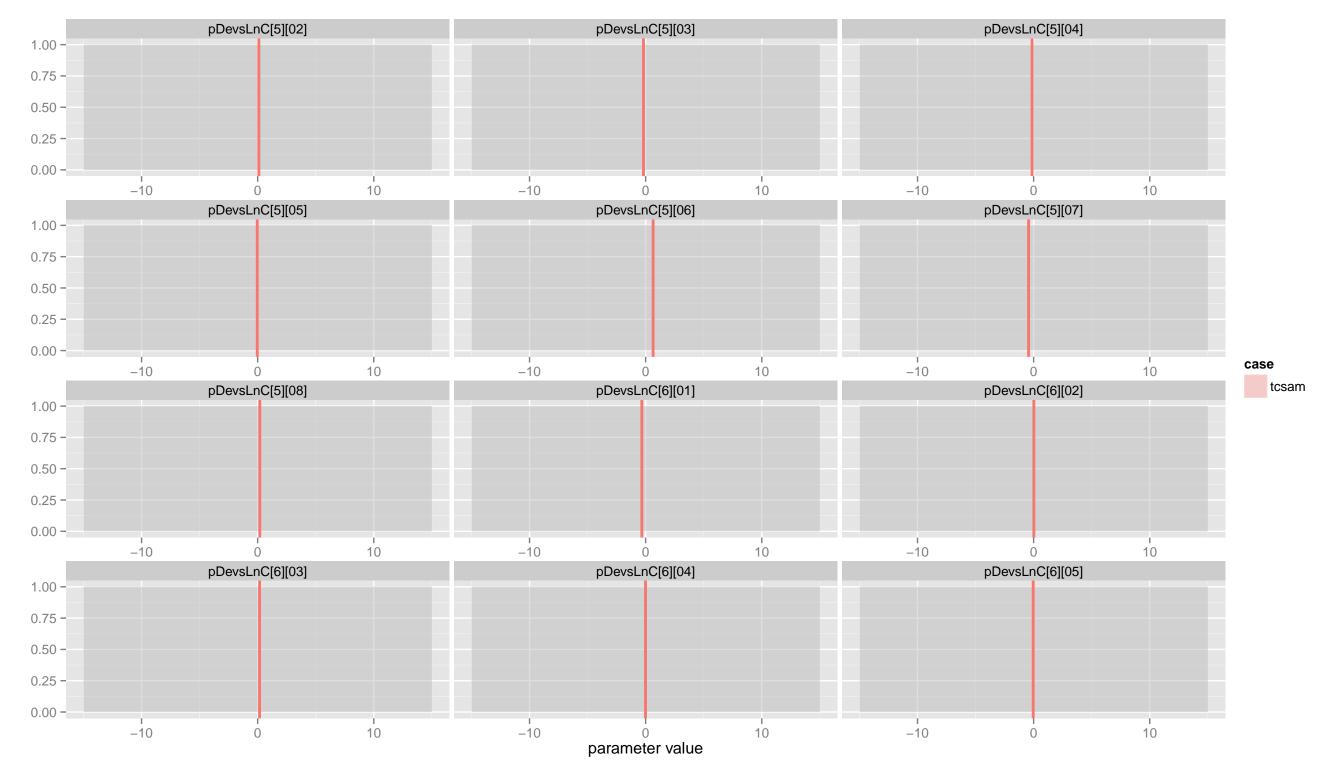


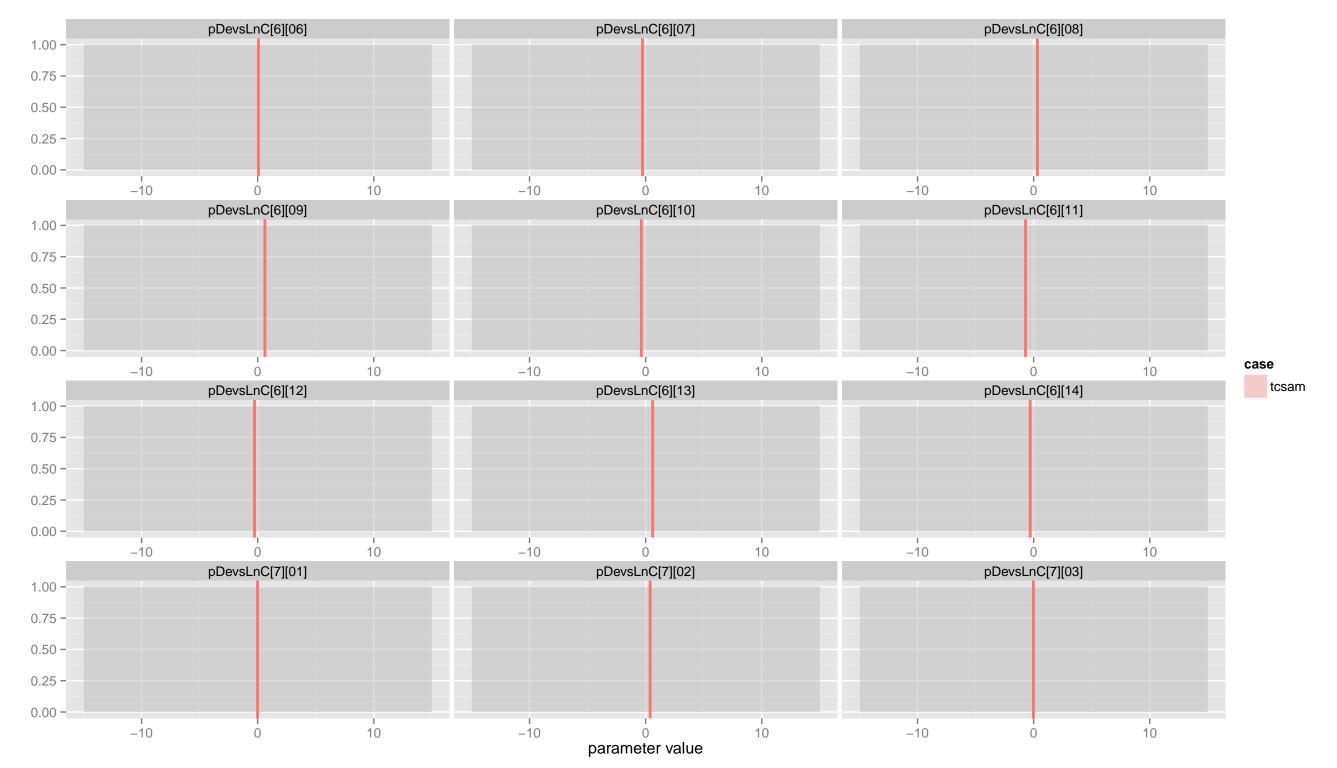


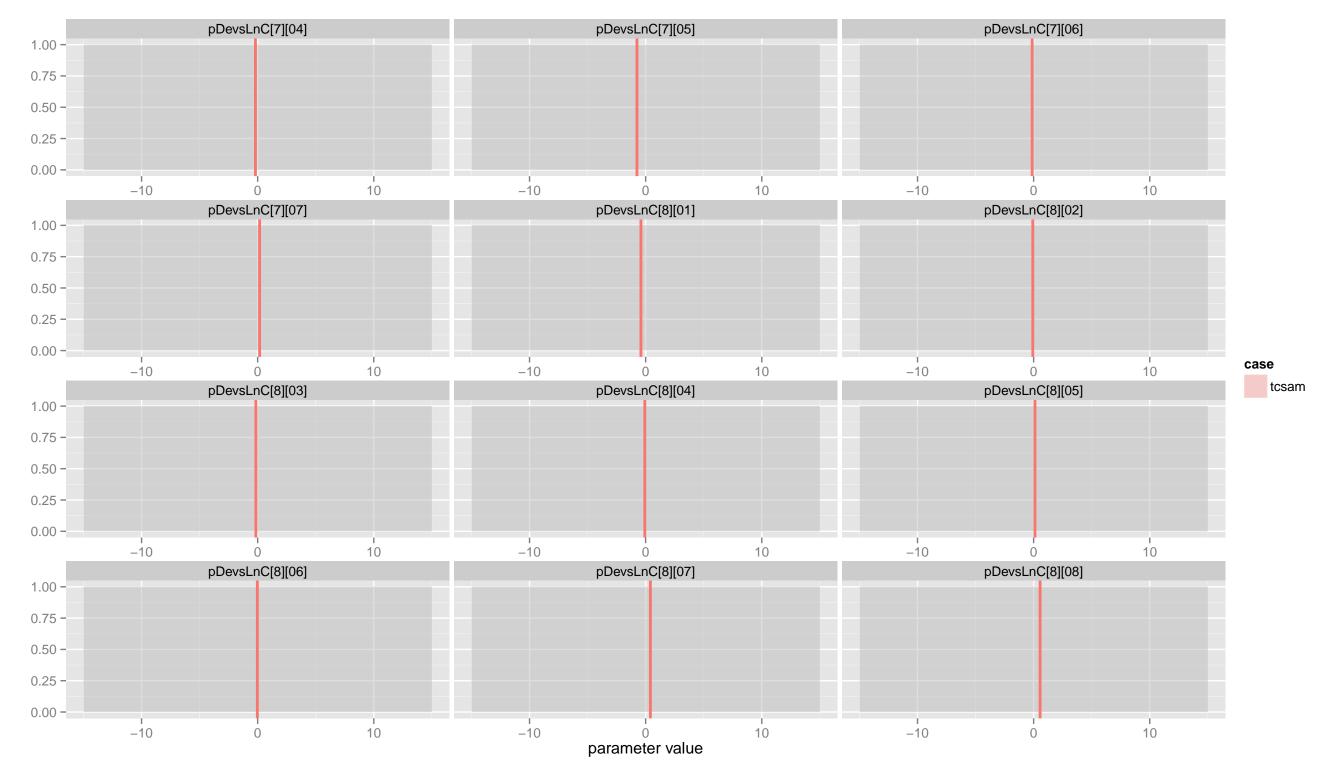


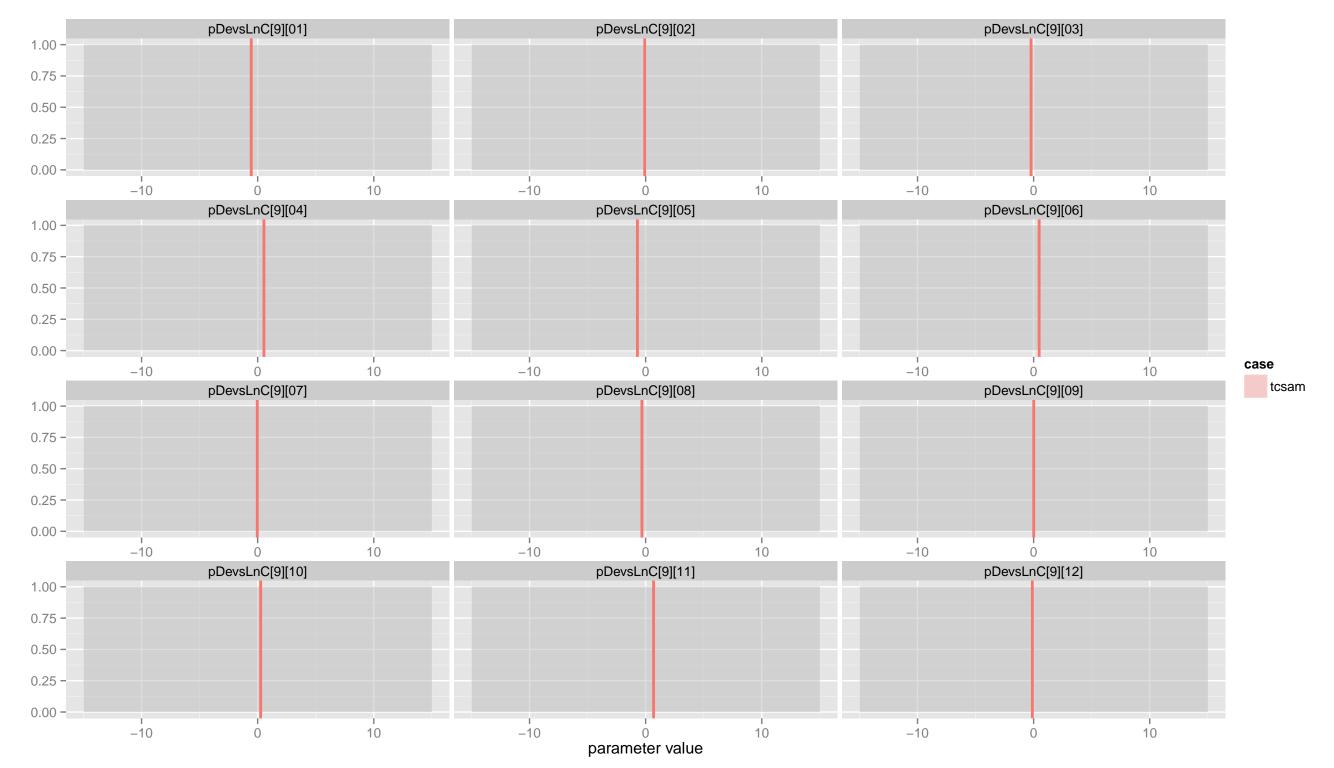


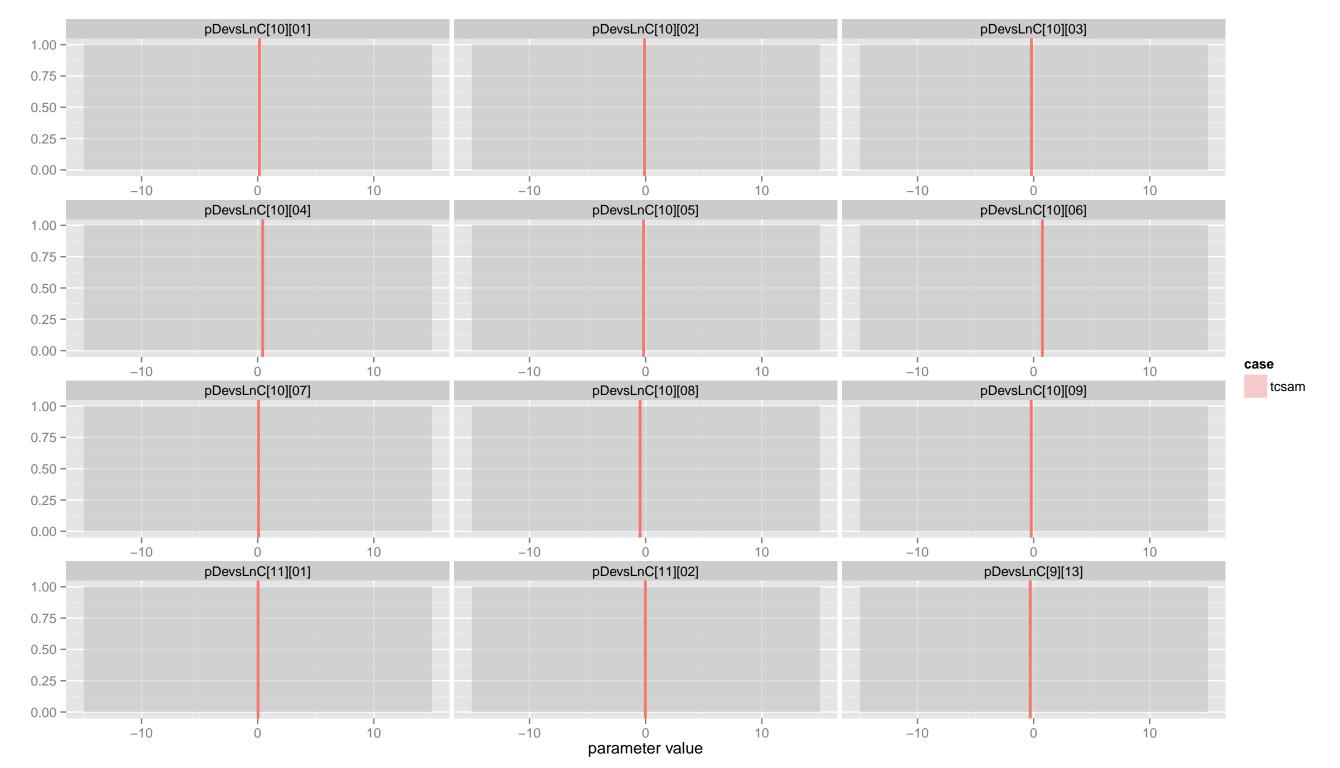


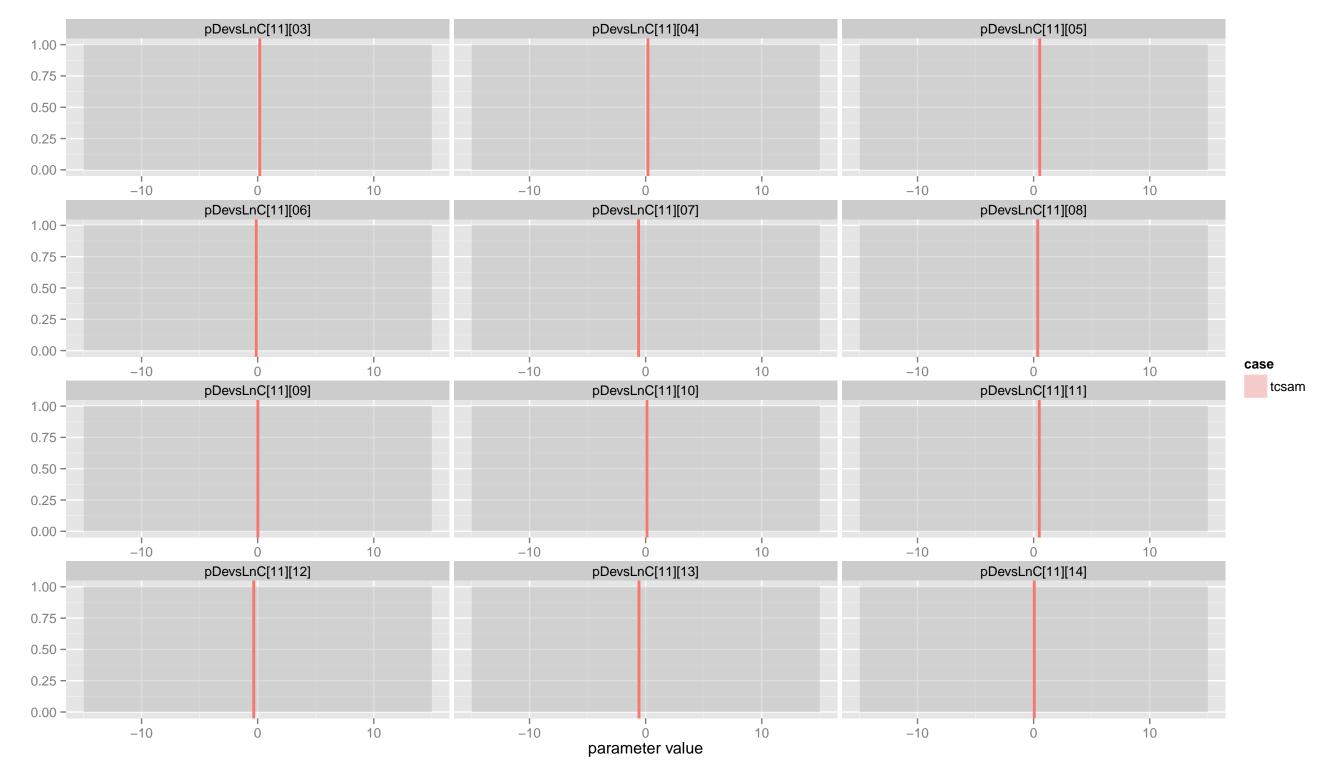


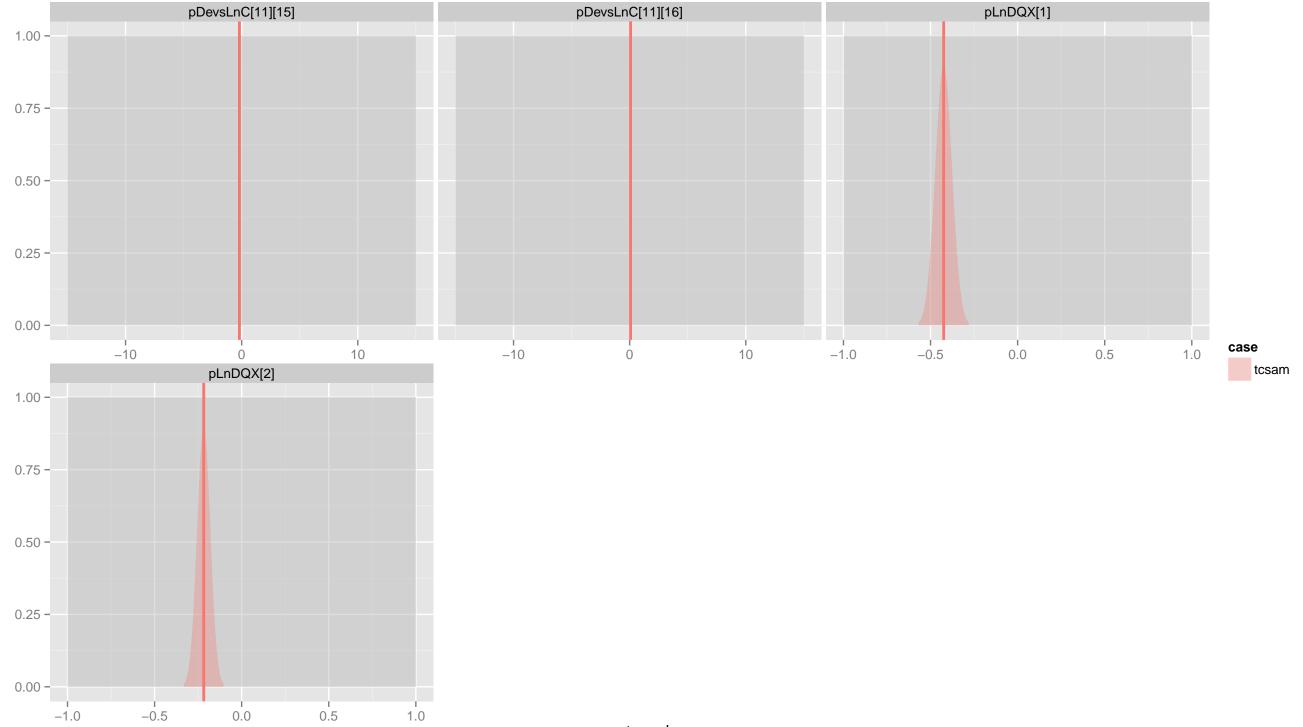




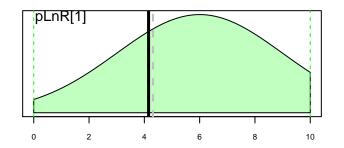


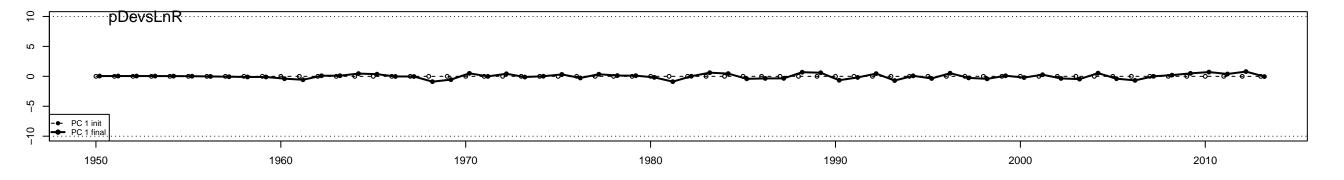


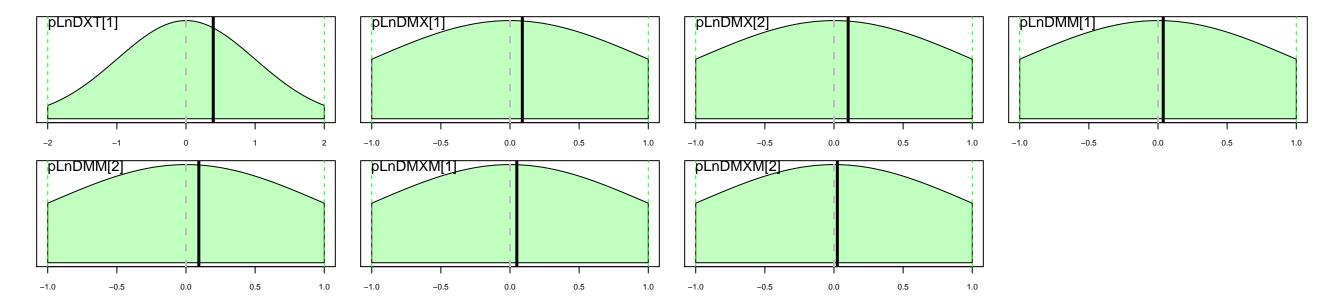


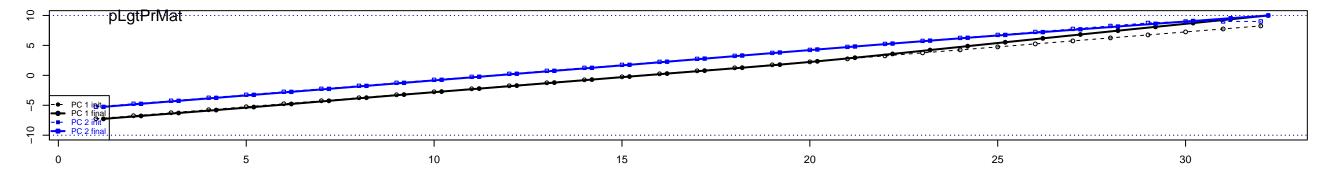


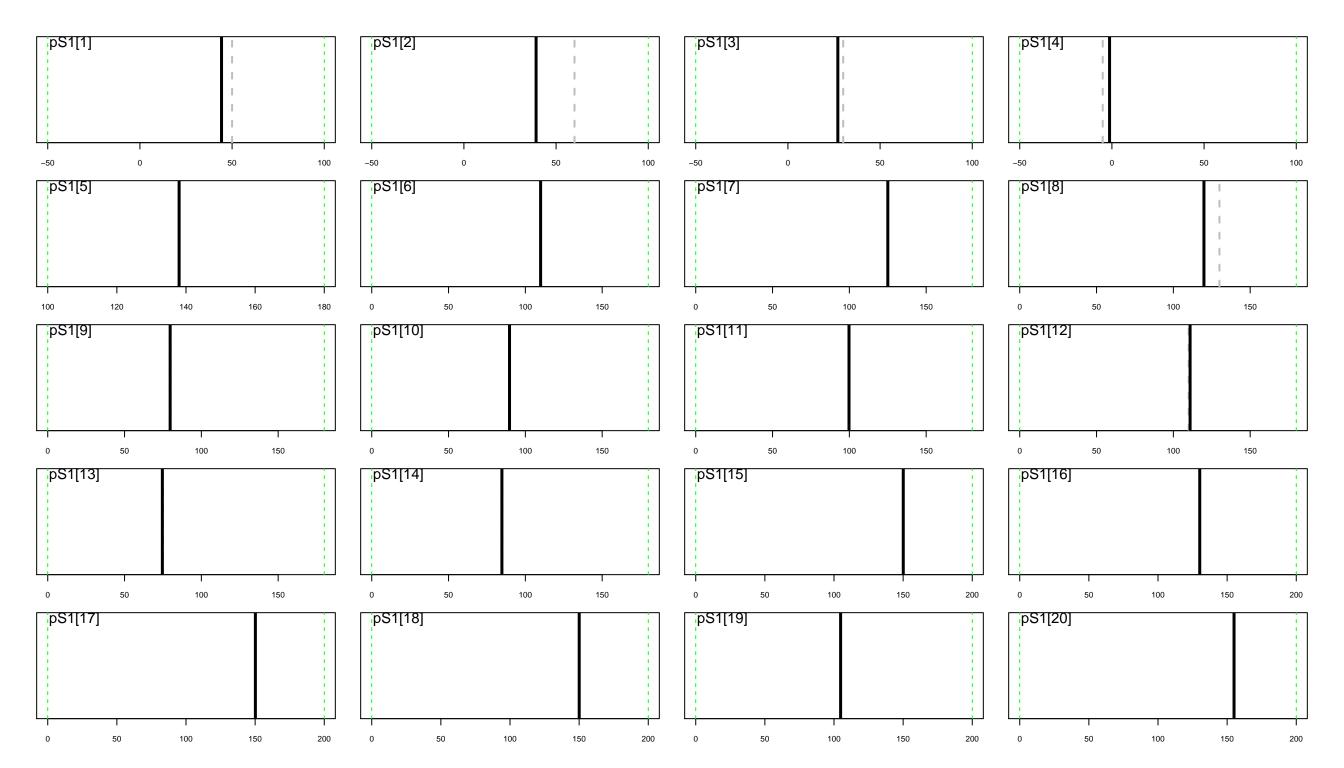
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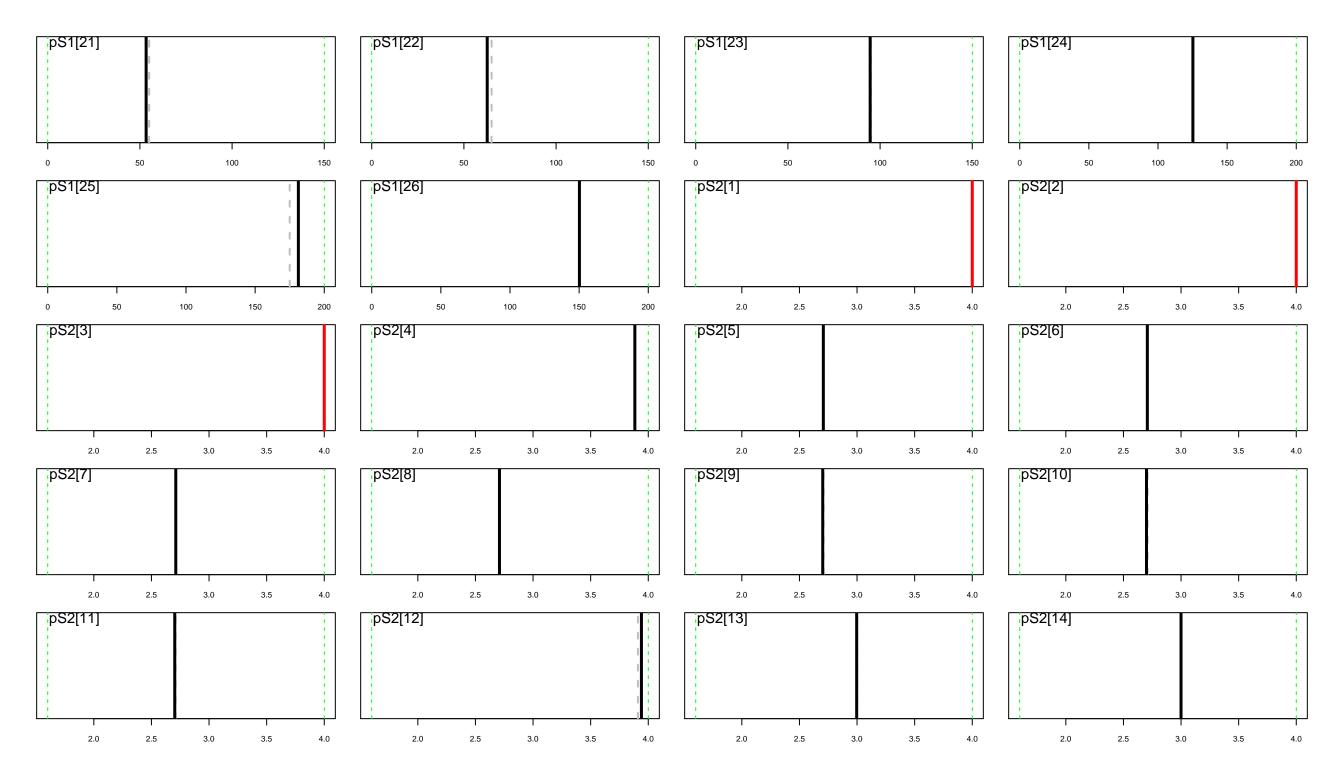


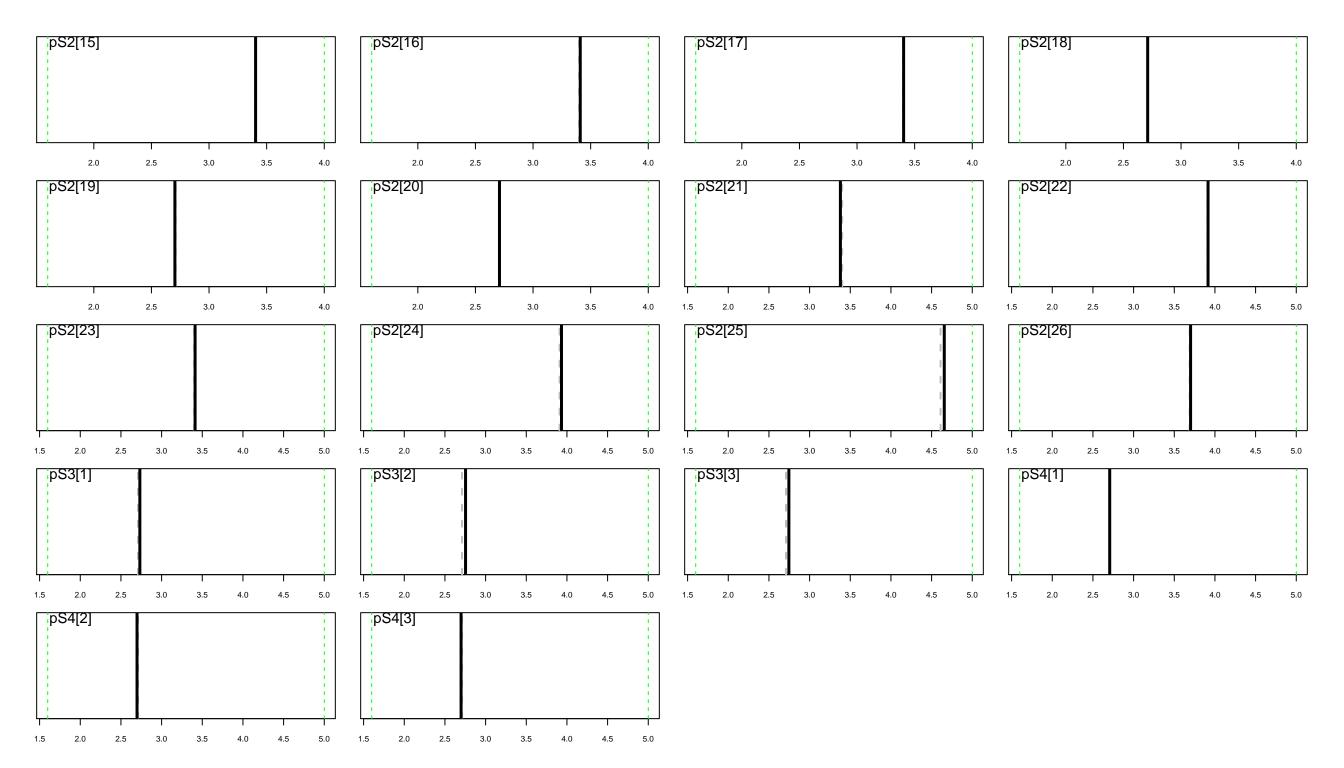


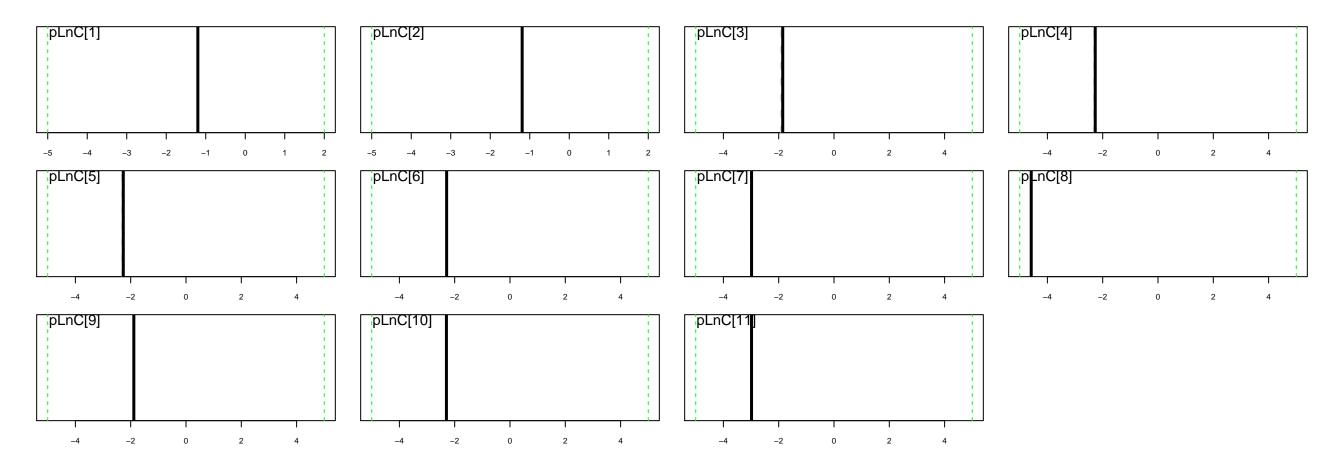


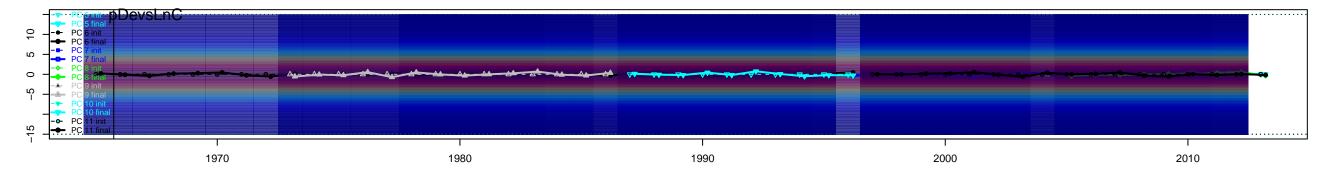


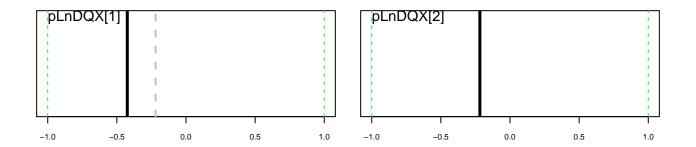


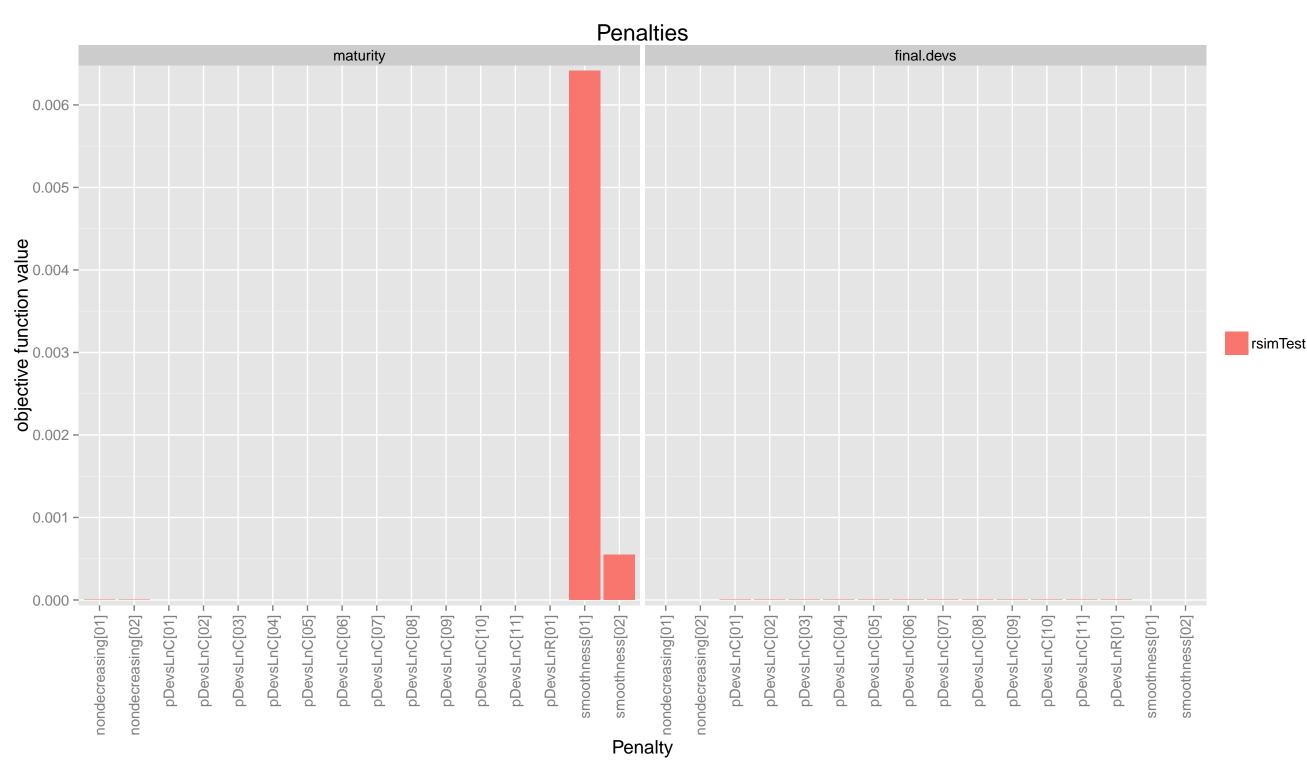




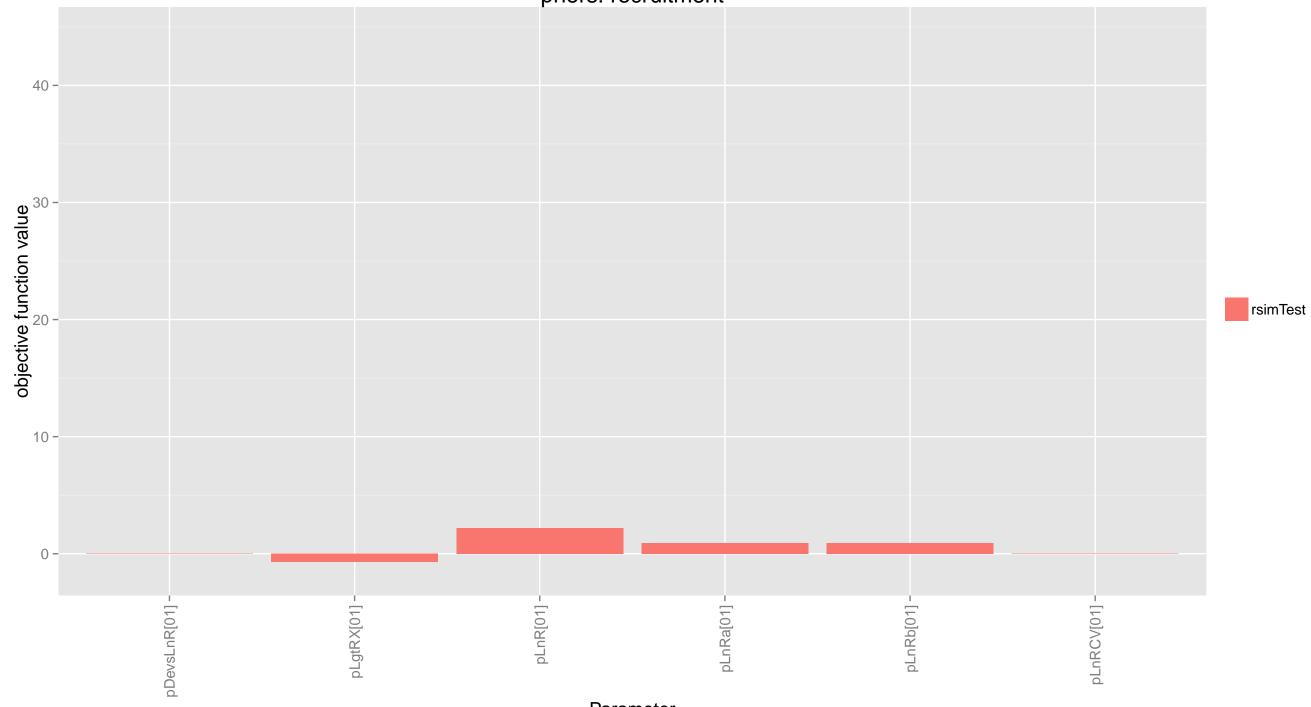




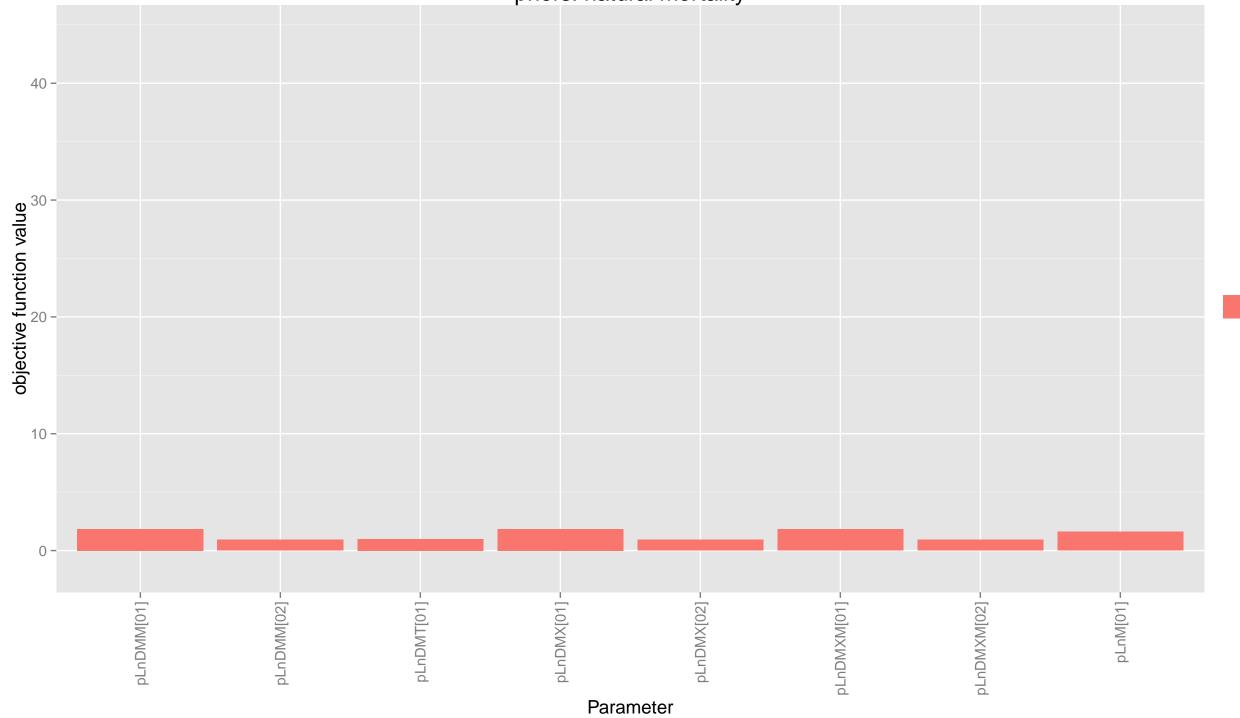




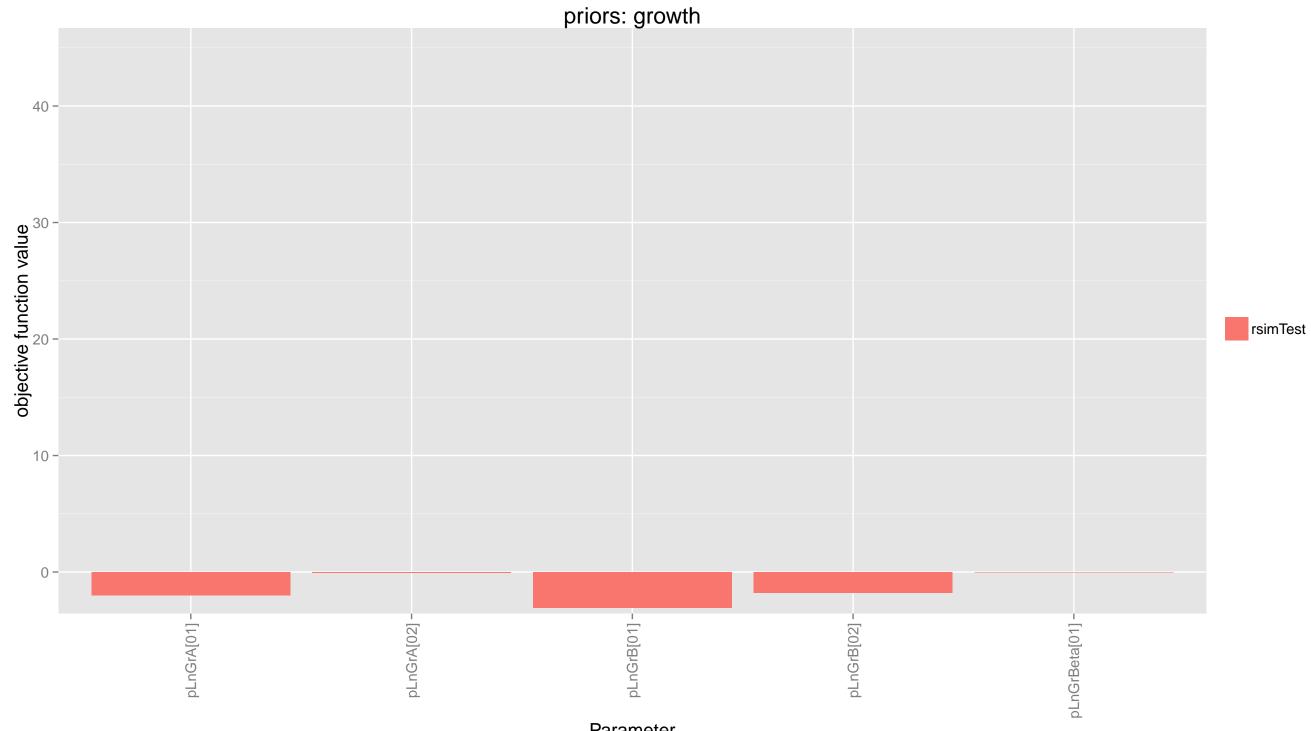
priors: recruitment



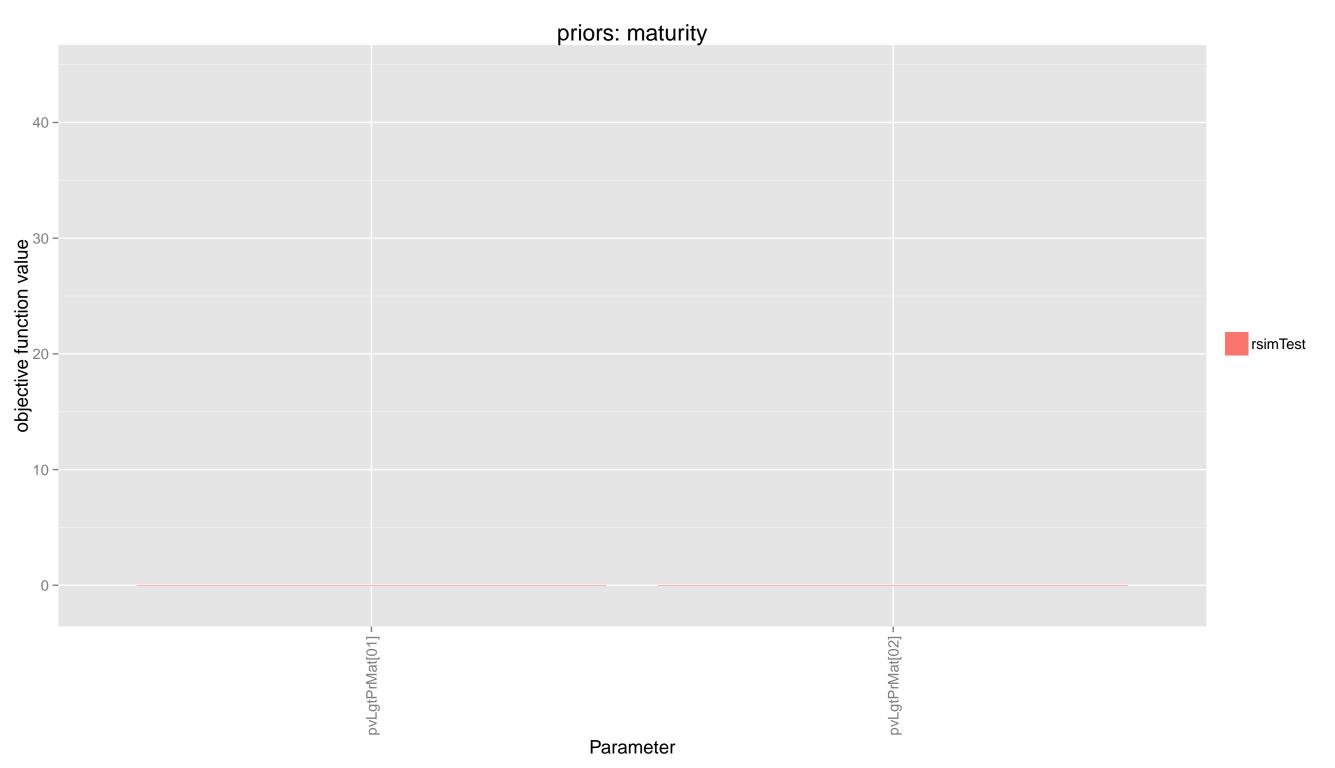
priors: natural mortality



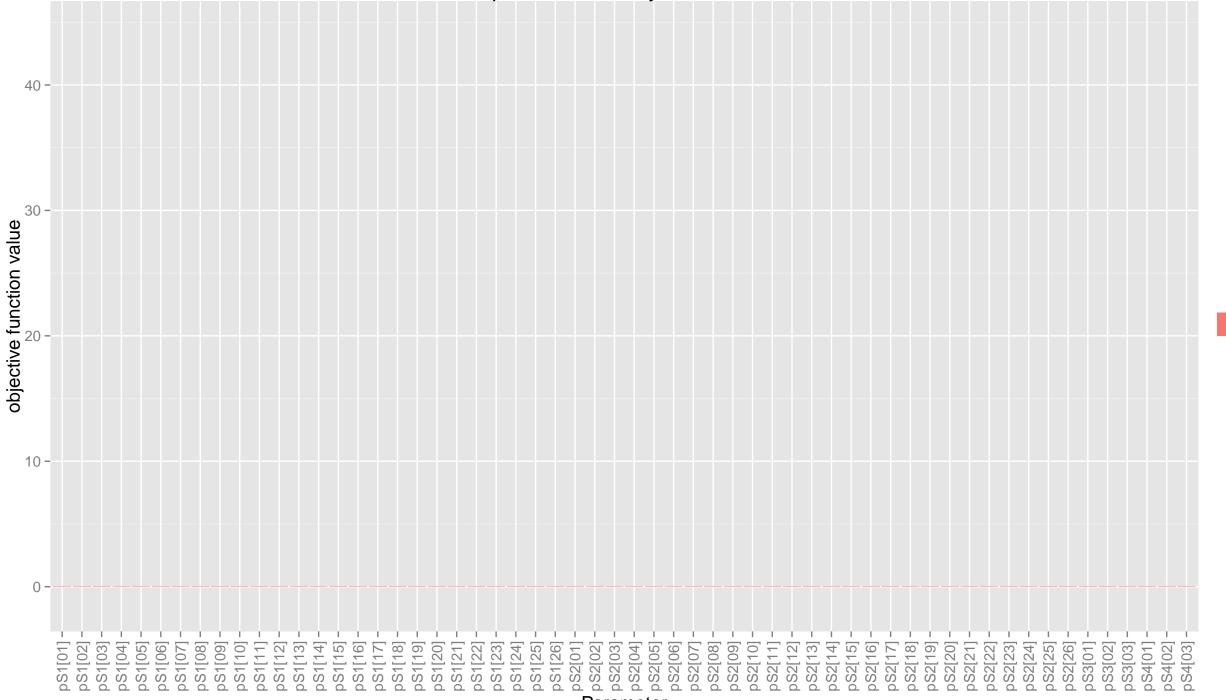
rsimTest



Parameter



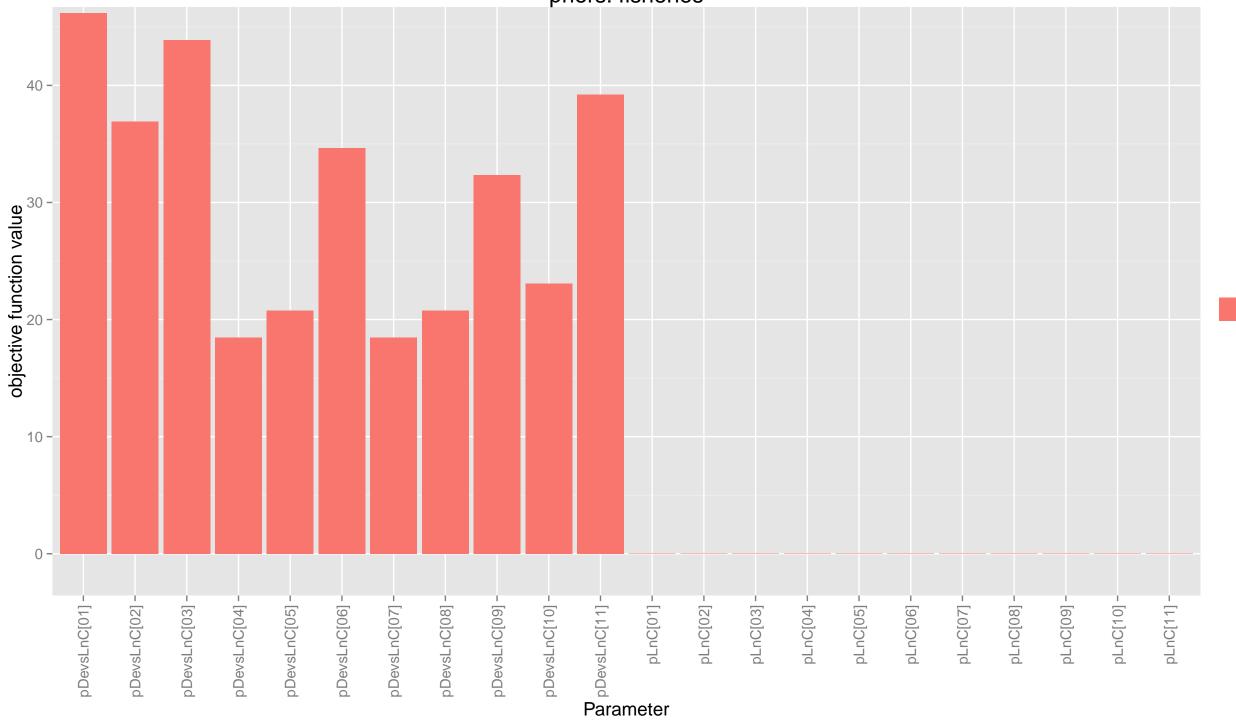
priors: selectivity functions



rsimTest

Parameter

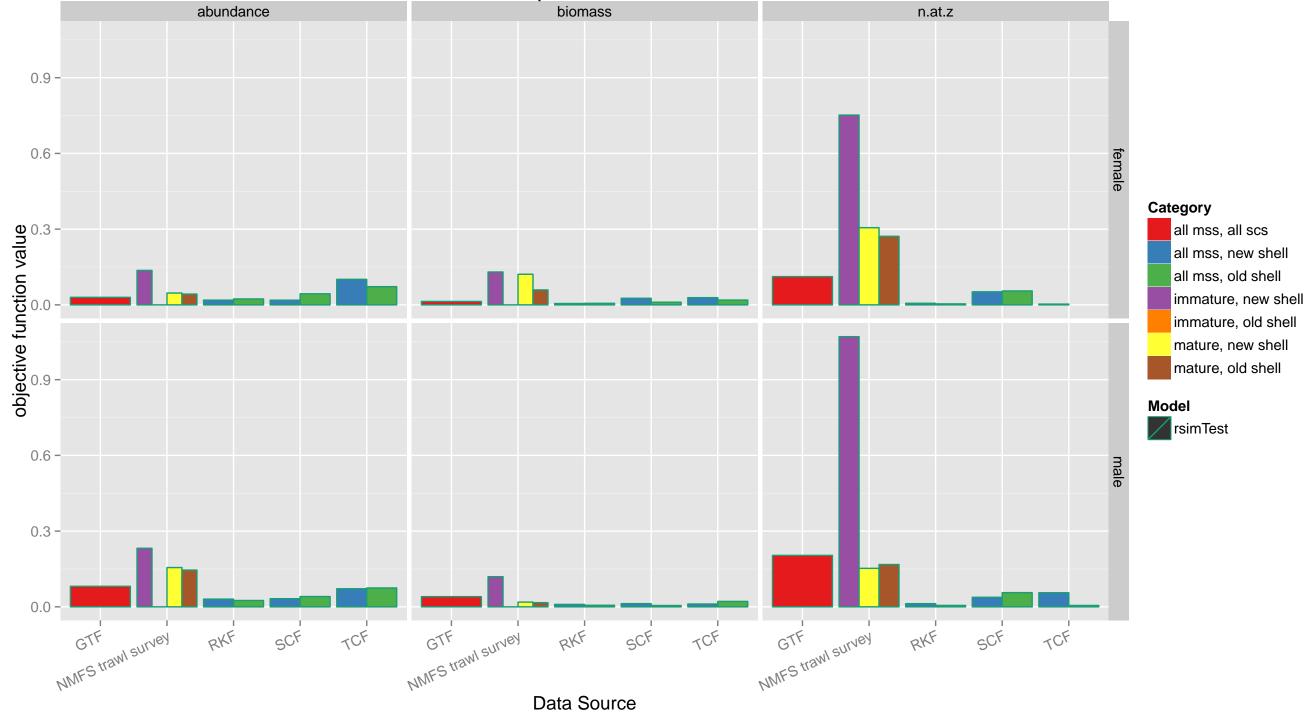
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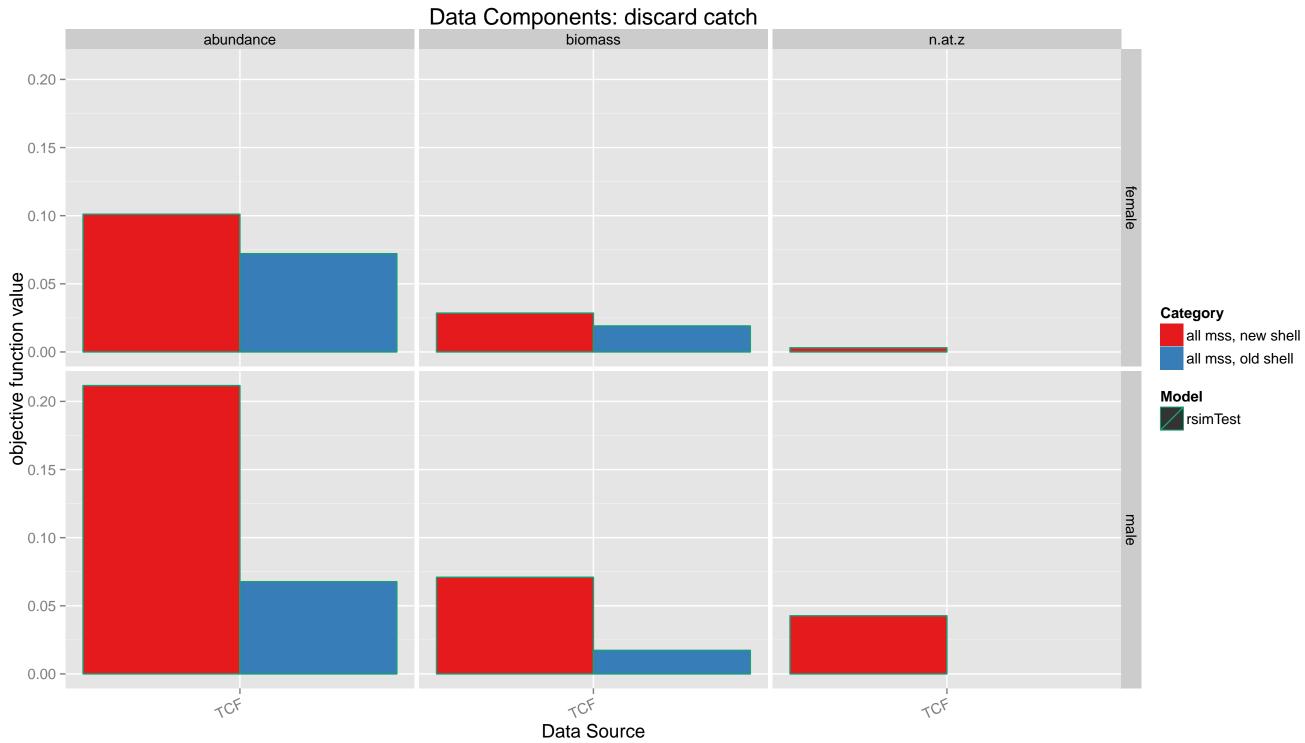


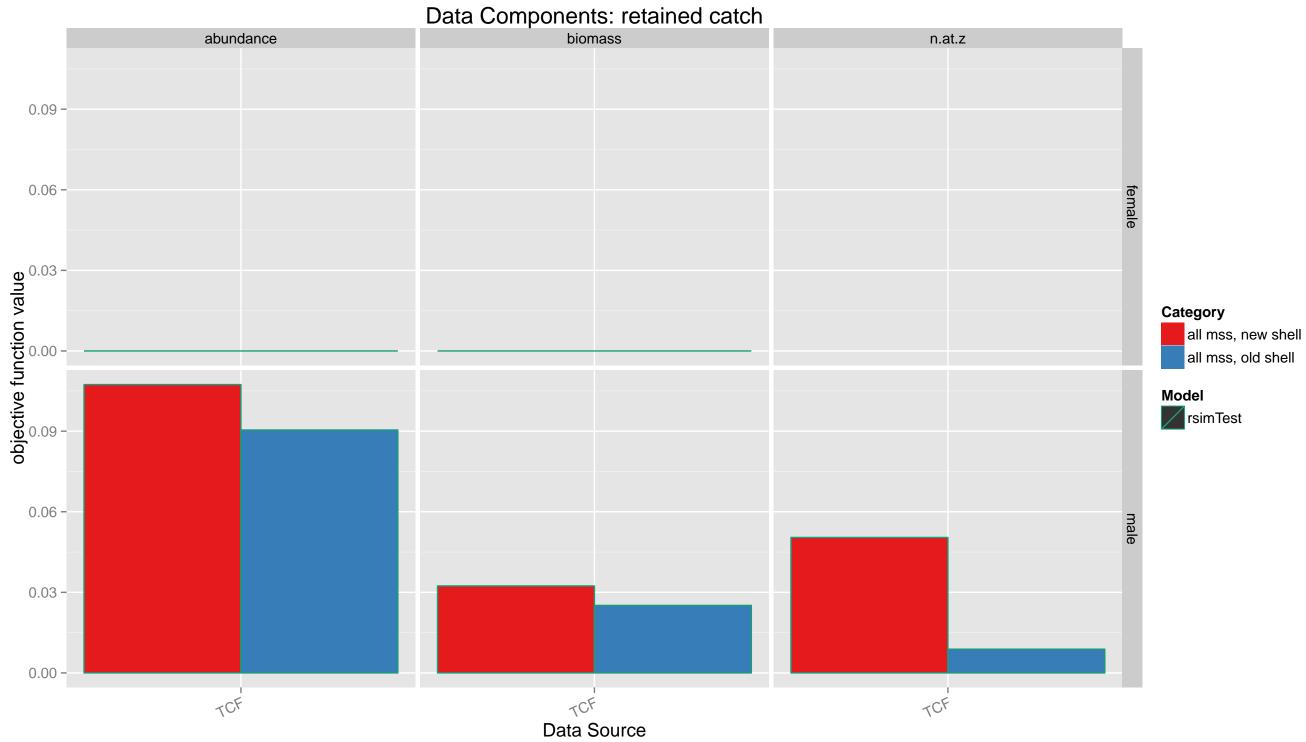
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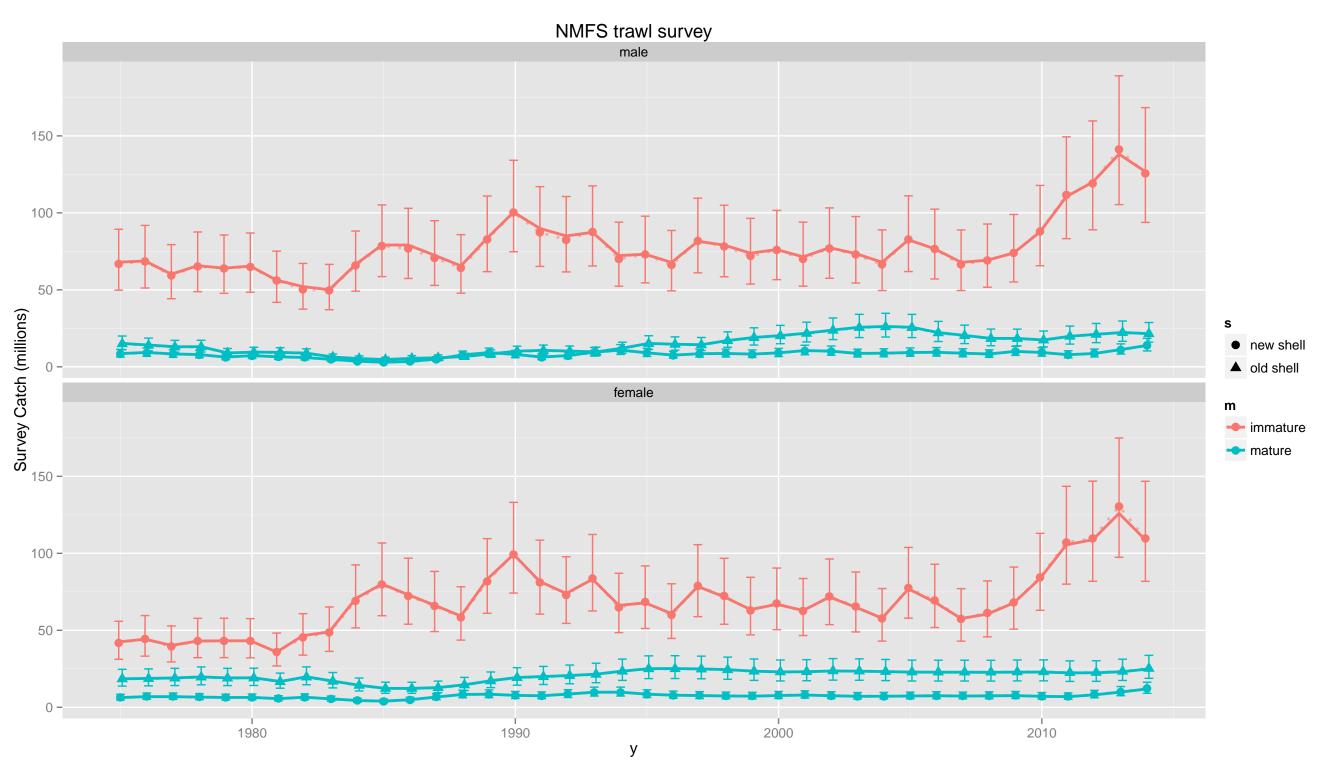
priors: surveys					
40 -					
20 -					
n value					
objective function value					rsimTest
jective					
<b>40</b> 10 -					
10-					
0					
0 -					
		рLnDQX[01] -	arameter	pLnQ[01] -	
	2 - 2	P	arameter	ā	

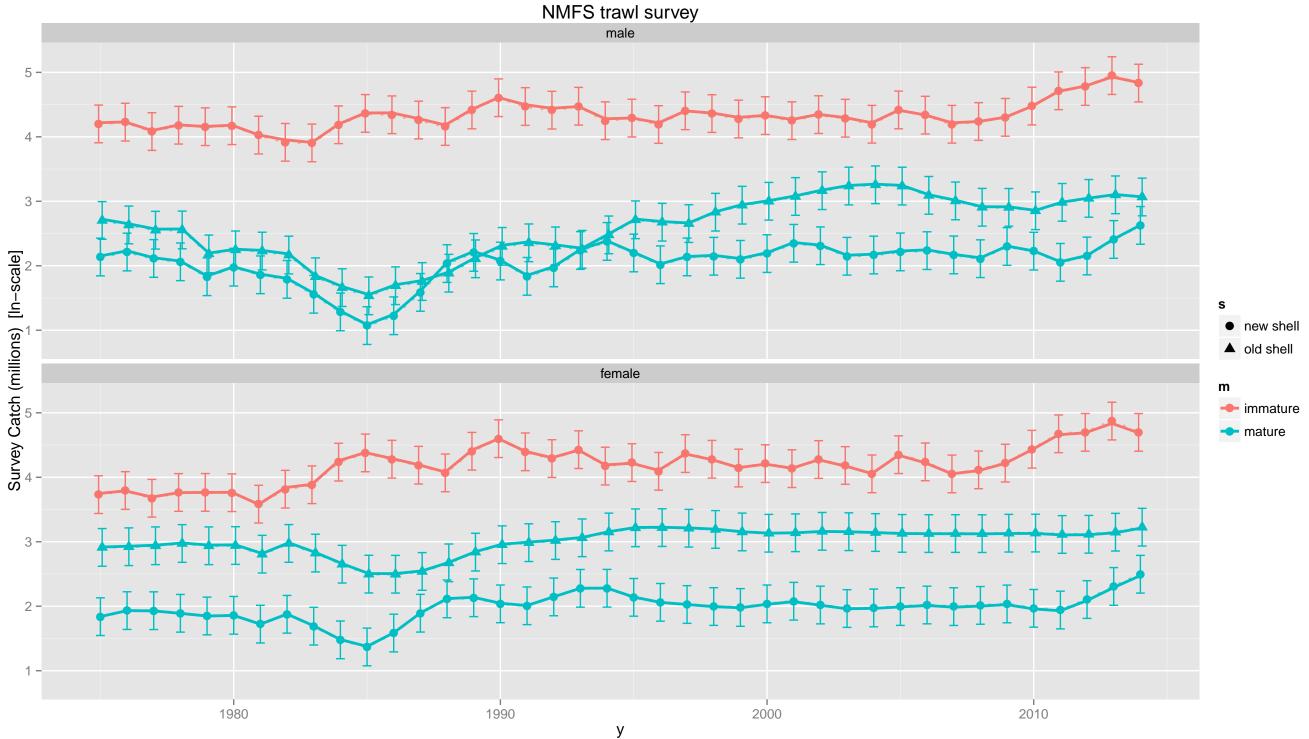
## Data Components: total catch

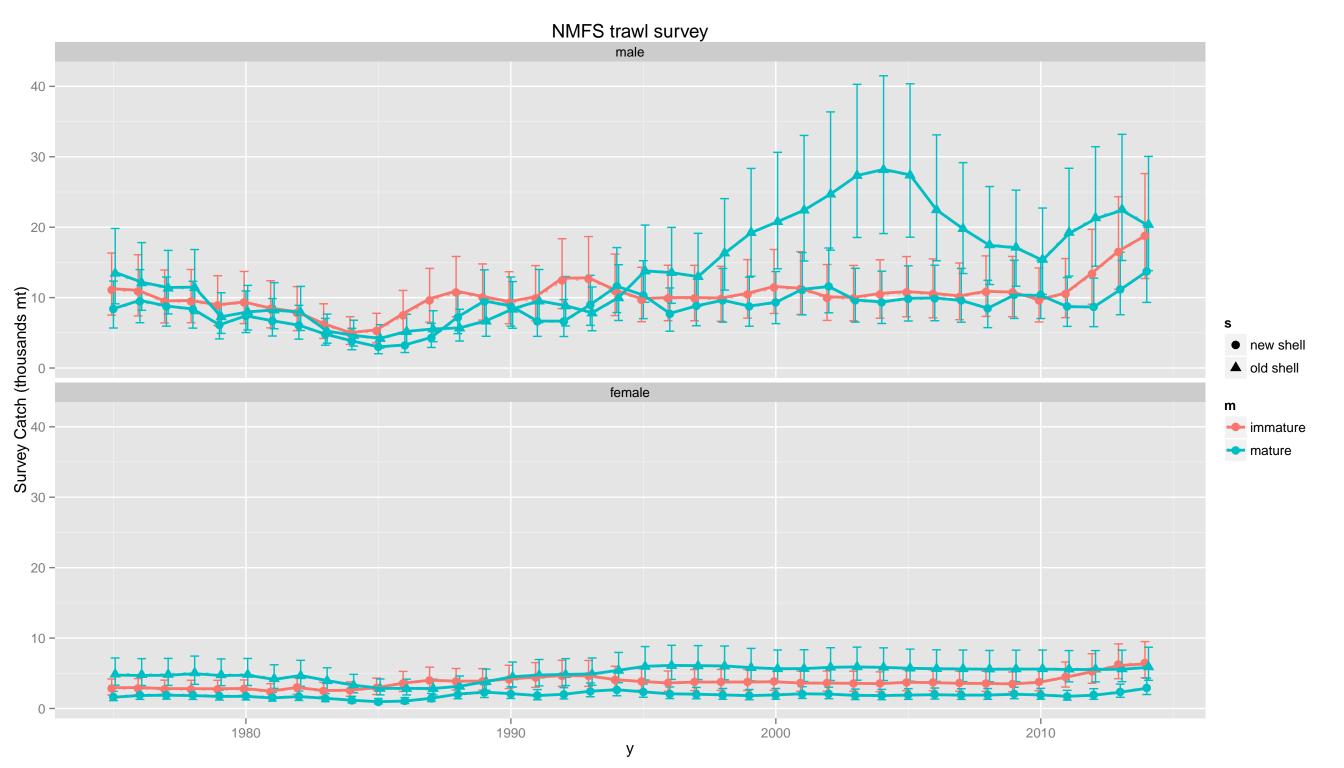


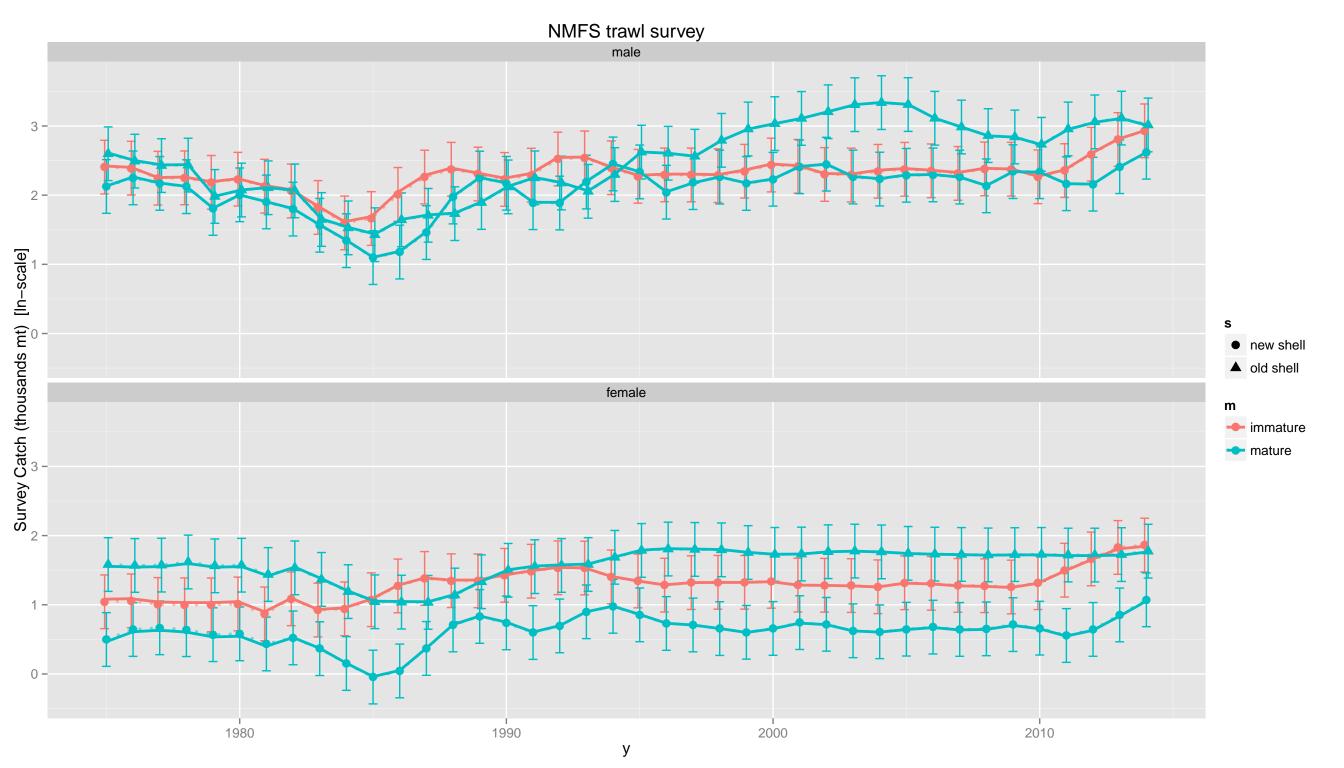




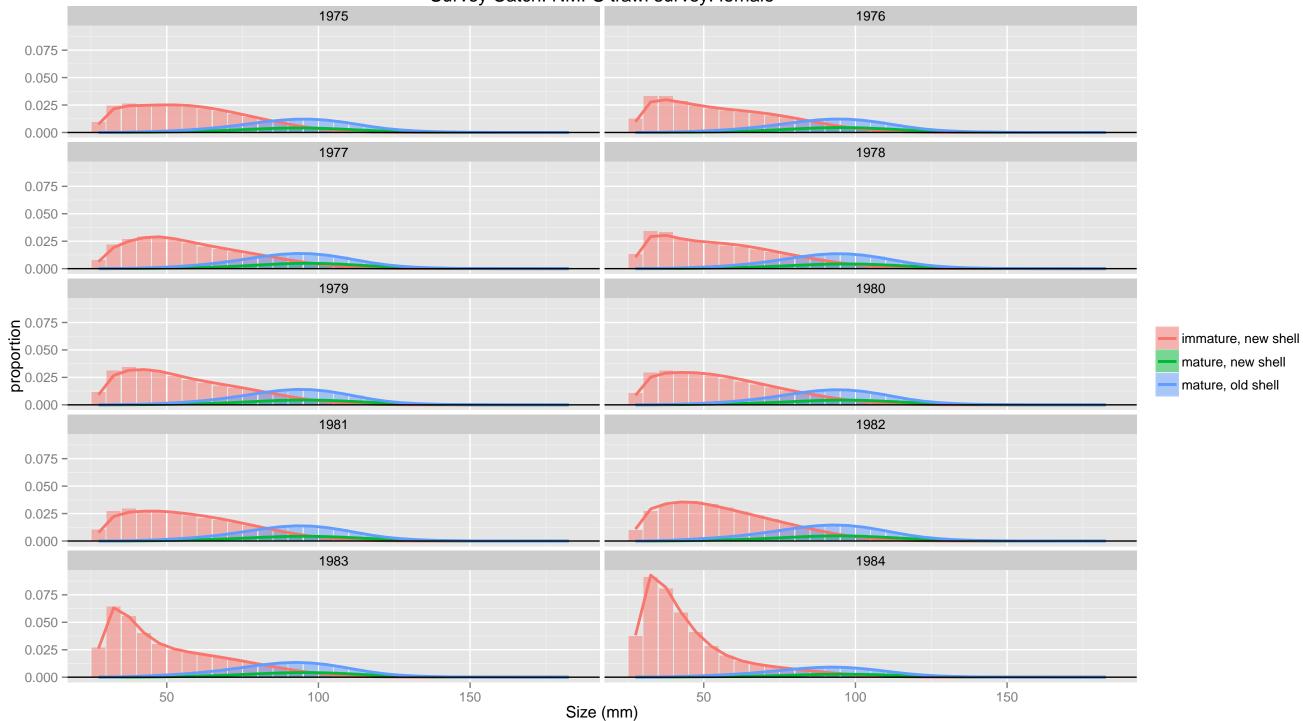




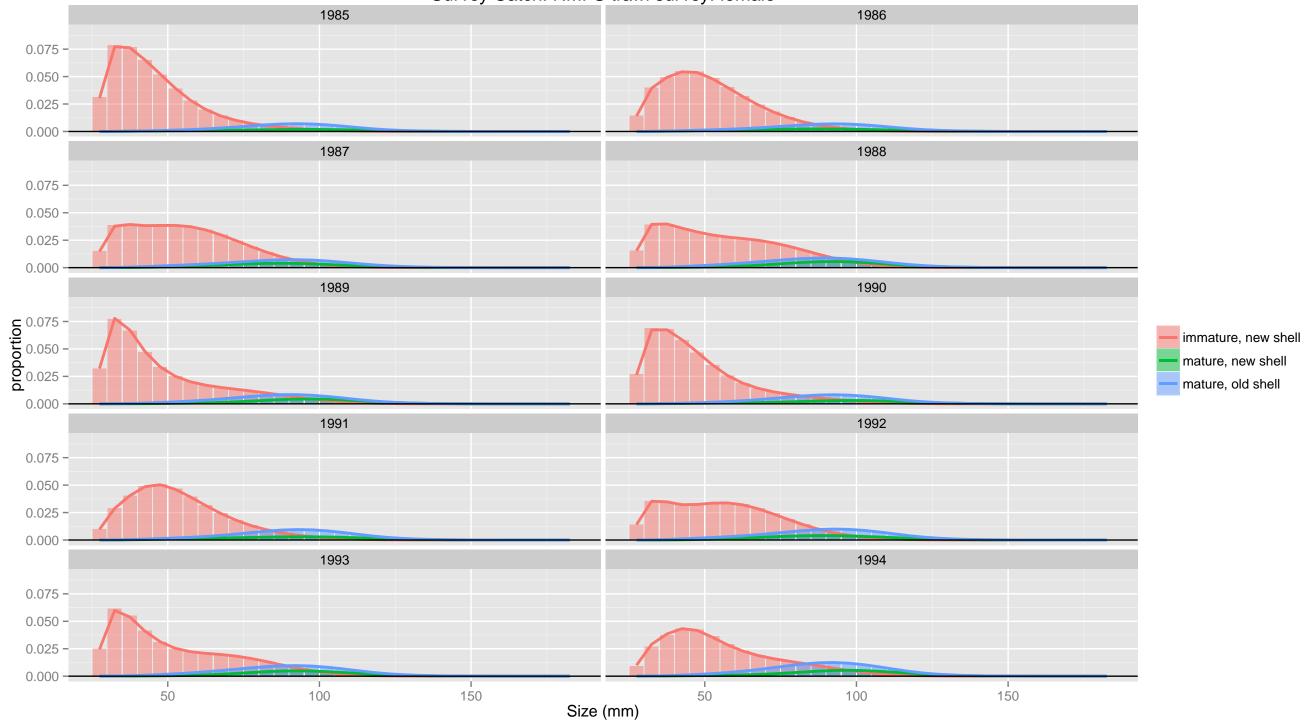




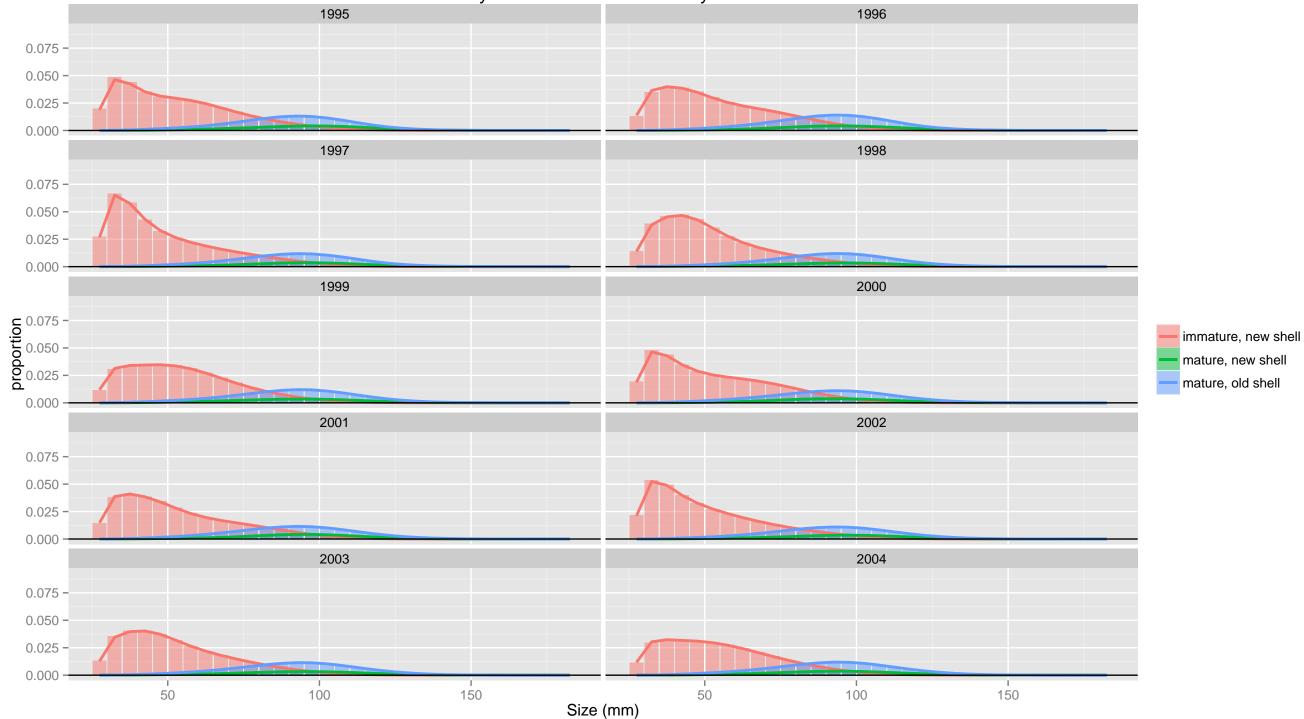
Survey Catch: NMFS trawl survey: female



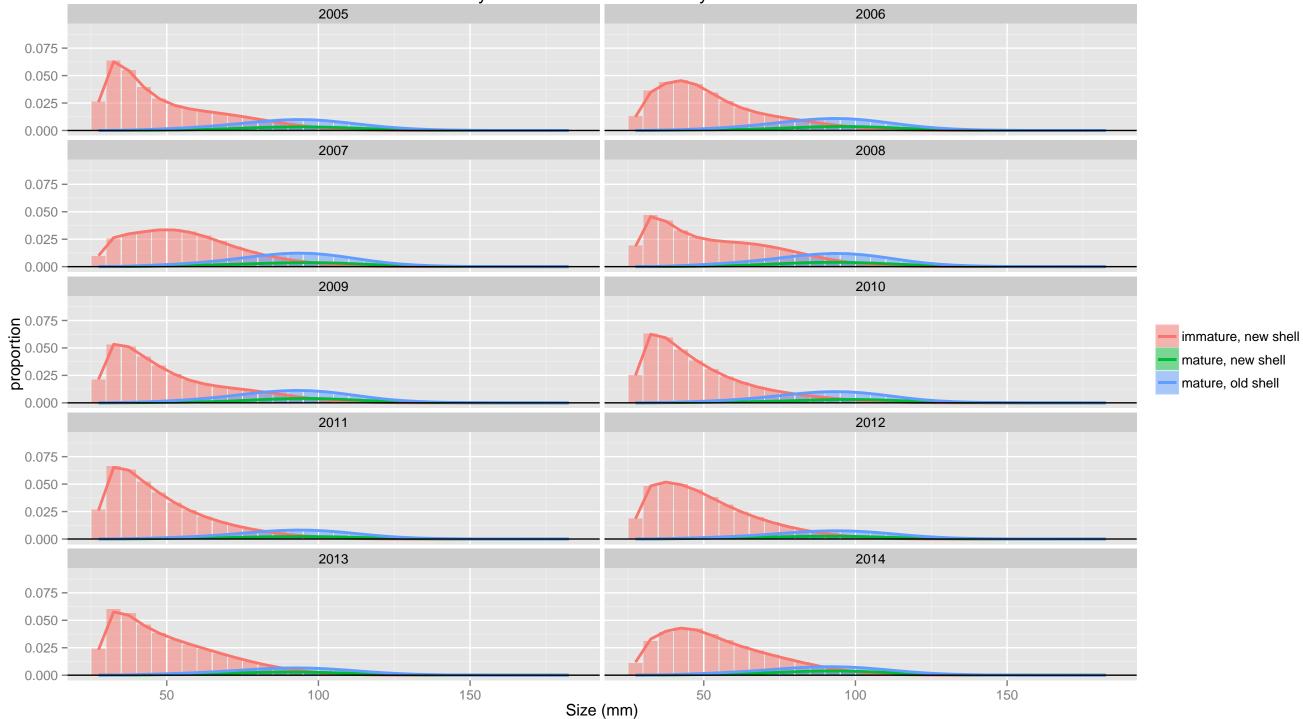
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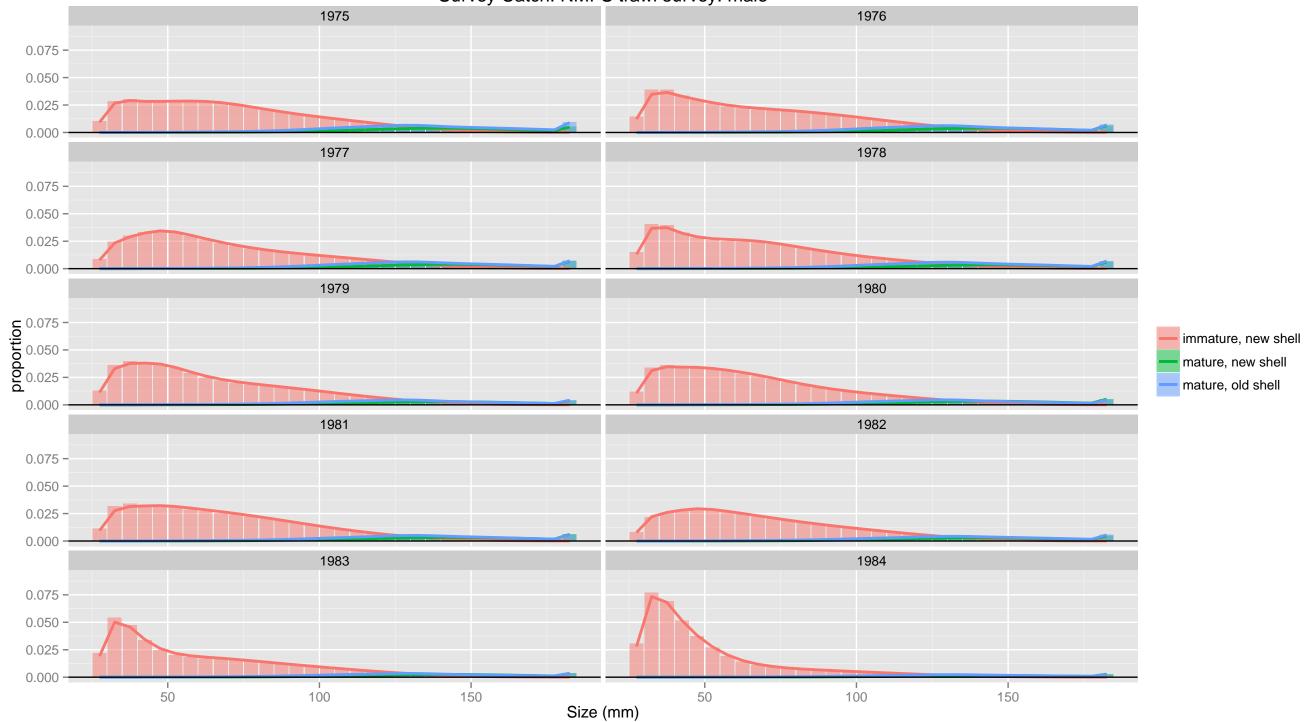
Survey Catch: NMFS trawl survey: female



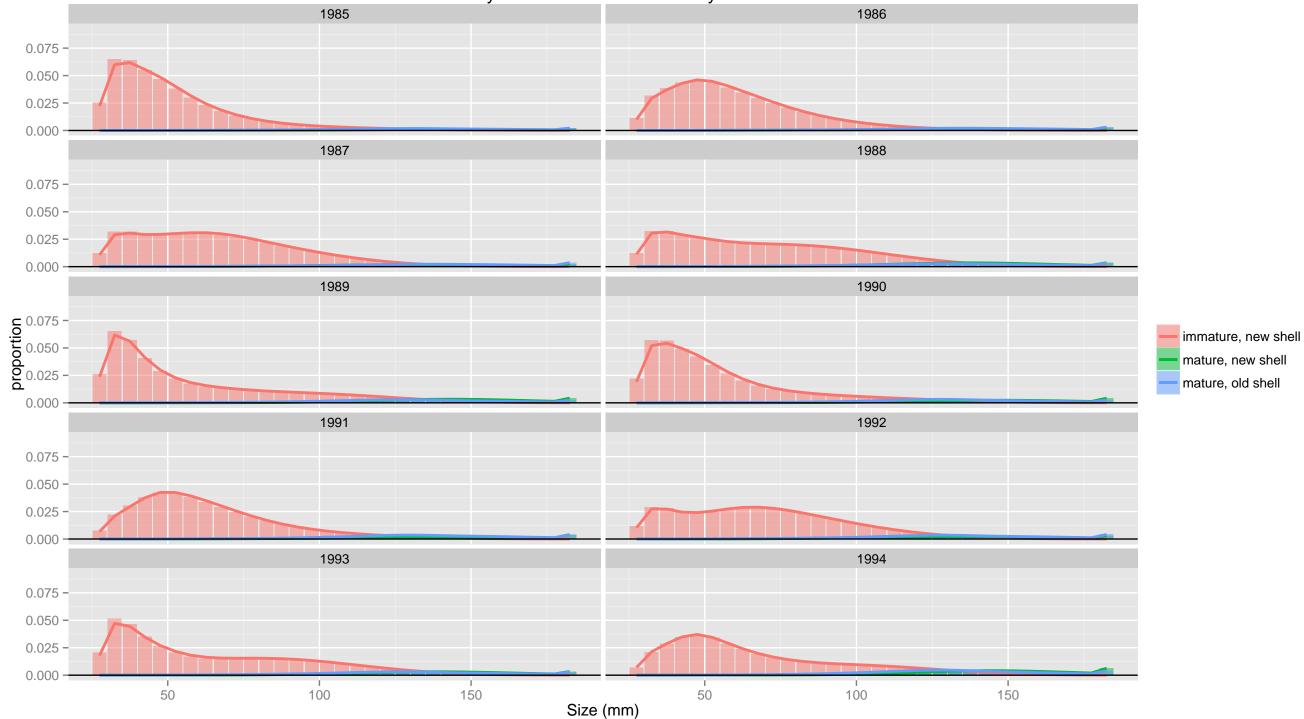
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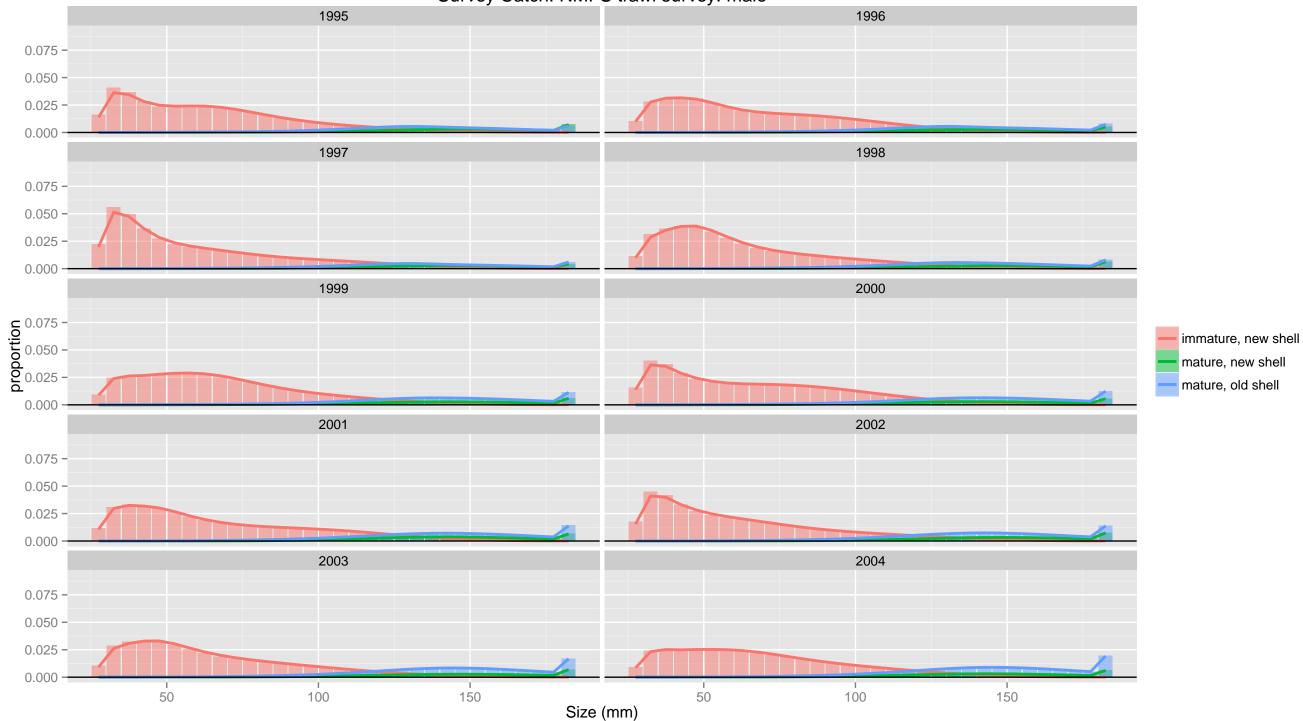
Survey Catch: NMFS trawl survey: male



Survey Catch: NMFS trawl survey: male

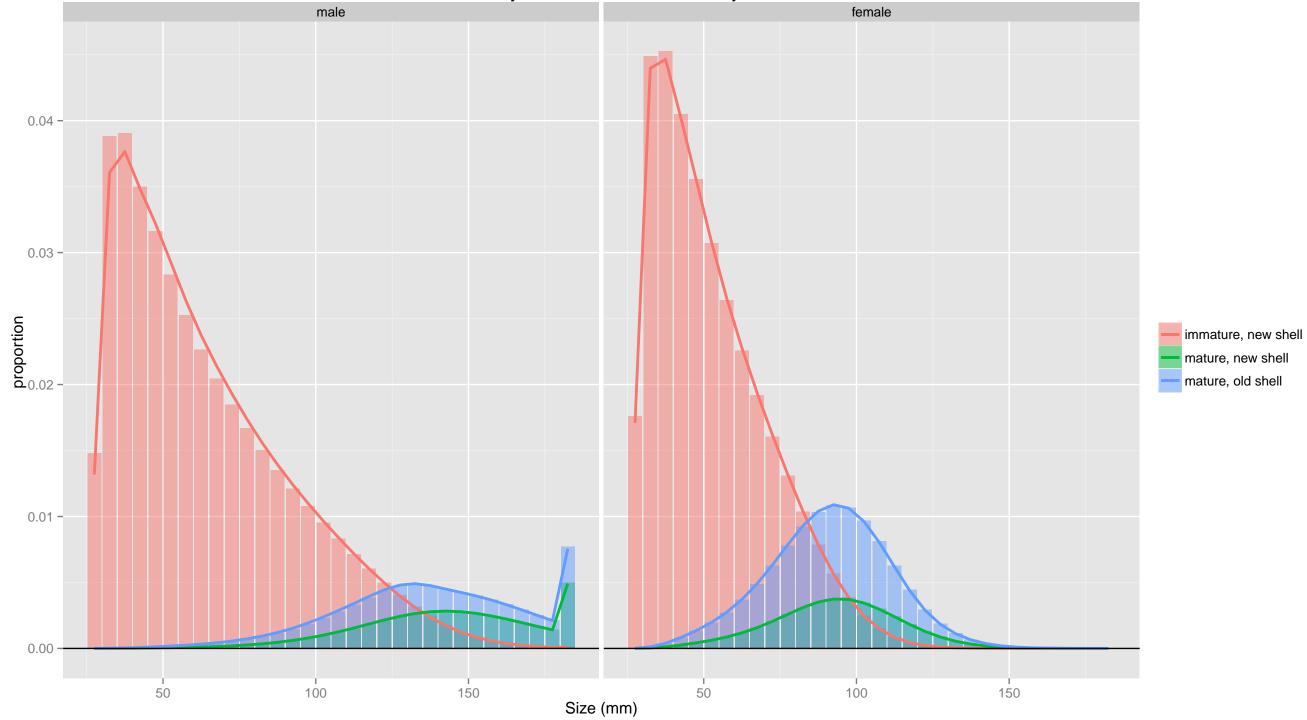


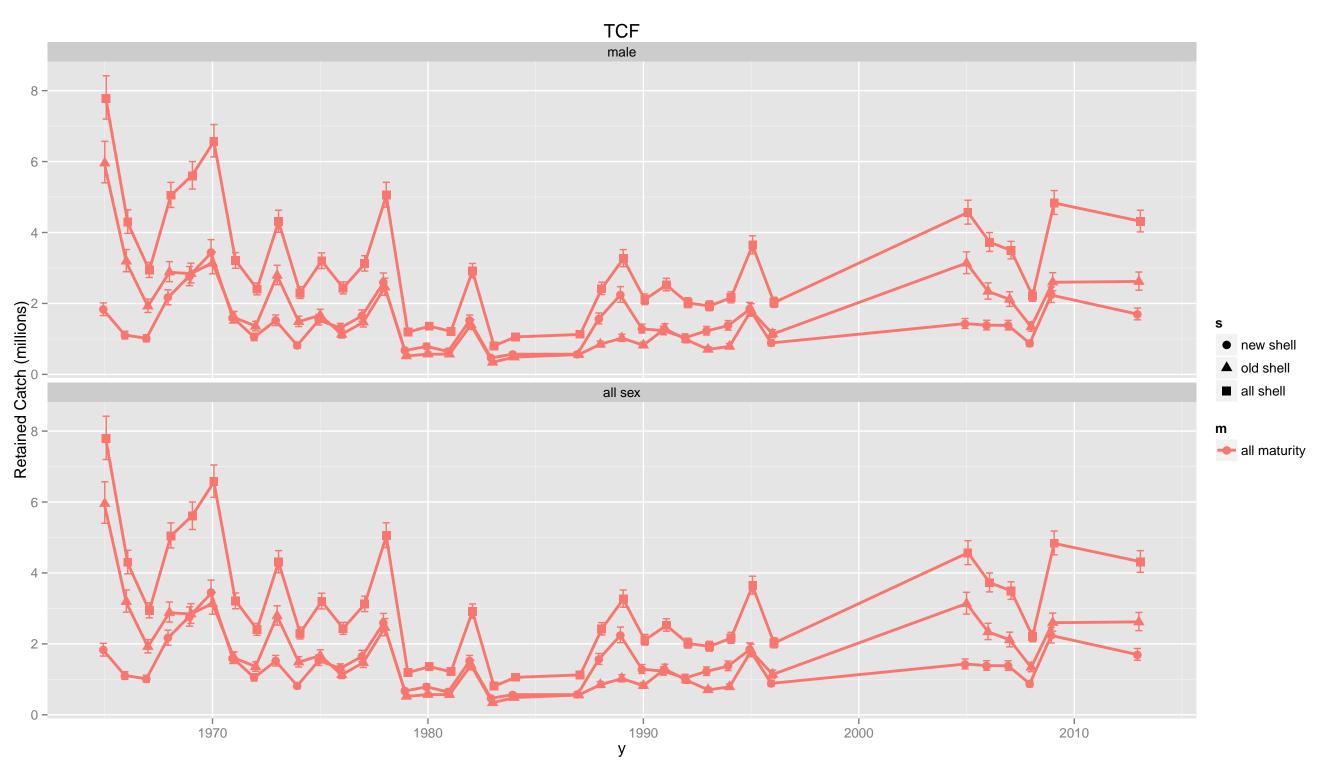
Survey Catch: NMFS trawl survey: male

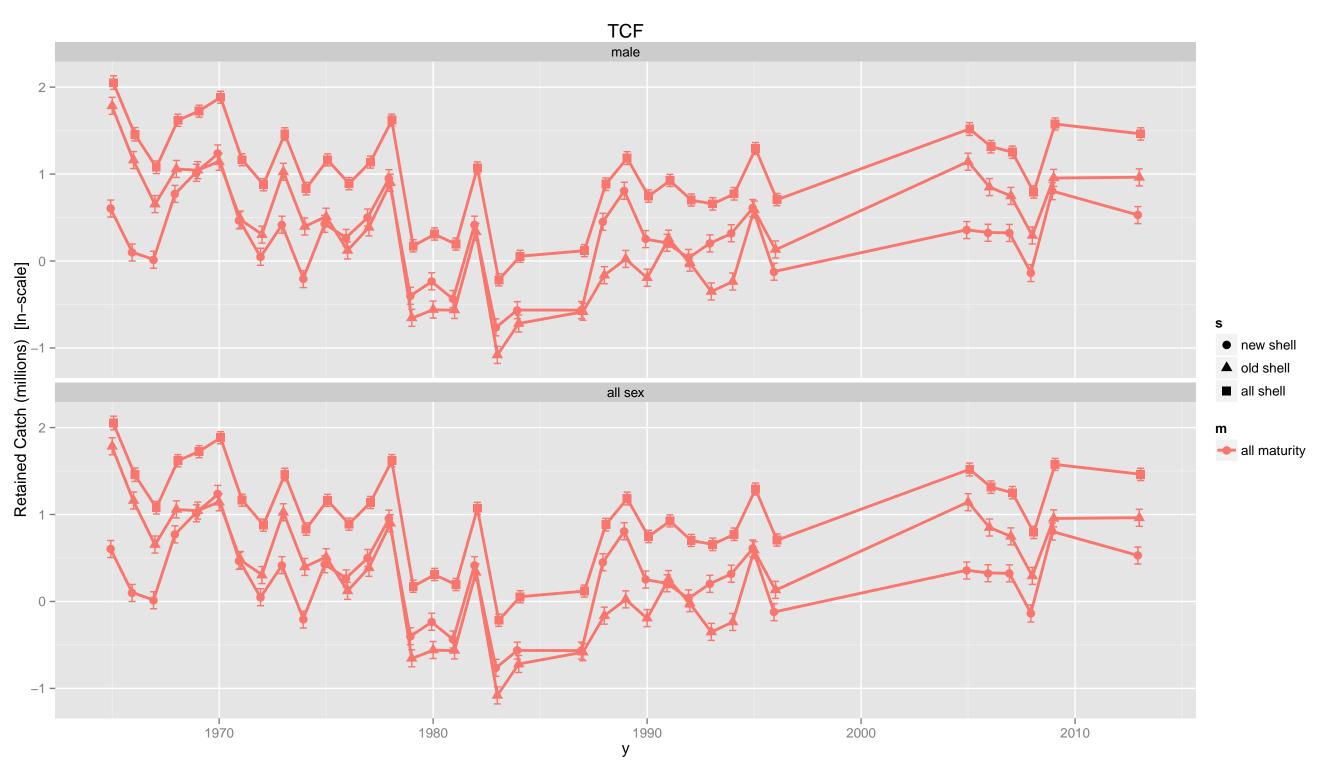


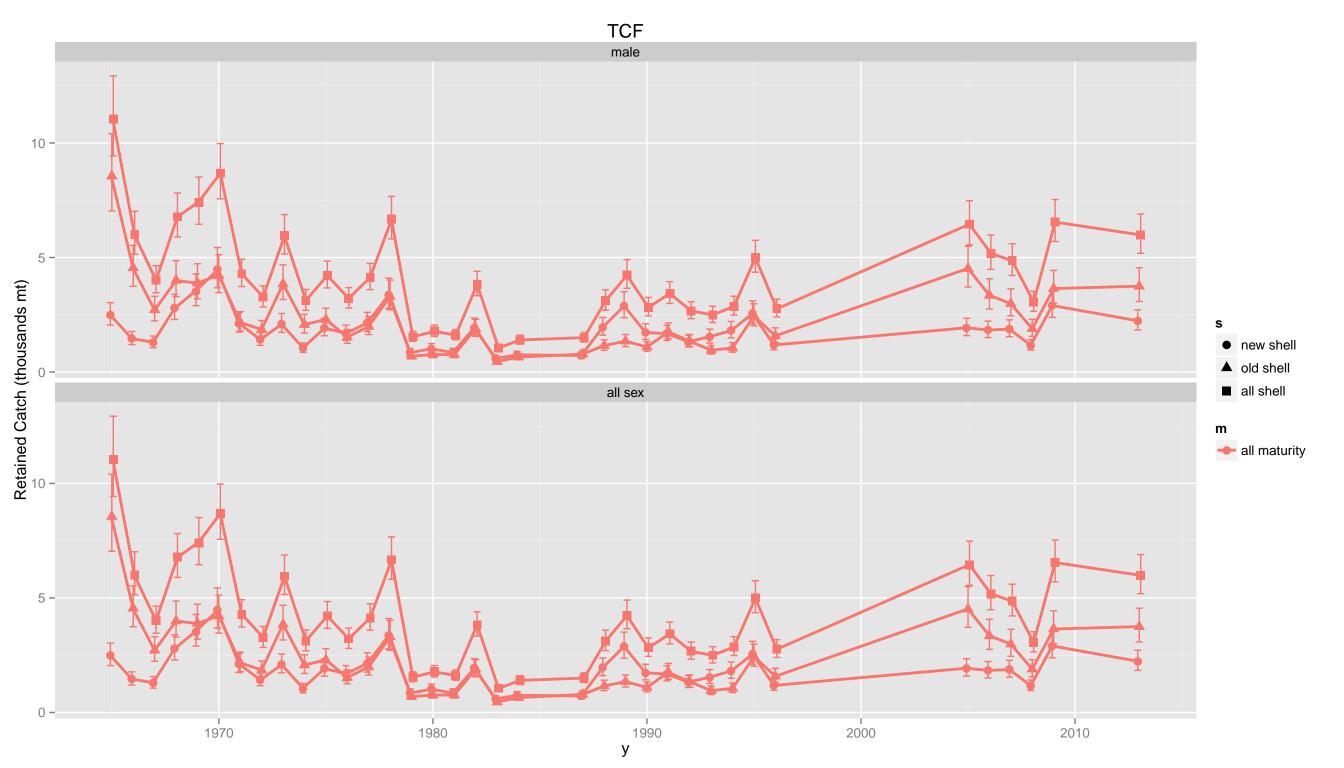
Survey Catch: NMFS trawl survey: male 2005 2006 0.075 -0.050 -0.025 -0.000 -2008 2007 0.075 -0.050 -0.025 -0.000 · 2009 2010 u 0.075 -brodoution 0.050 -0.025 immature, new shell mature, new shell mature, old shell 0.000 · 2011 2012 0.075 -0.050 -0.025 -0.000 -2013 2014 0.075 -0.050 -0.025 -0.000 -1 Т 100 50 150 100 50 150 Size (mm)

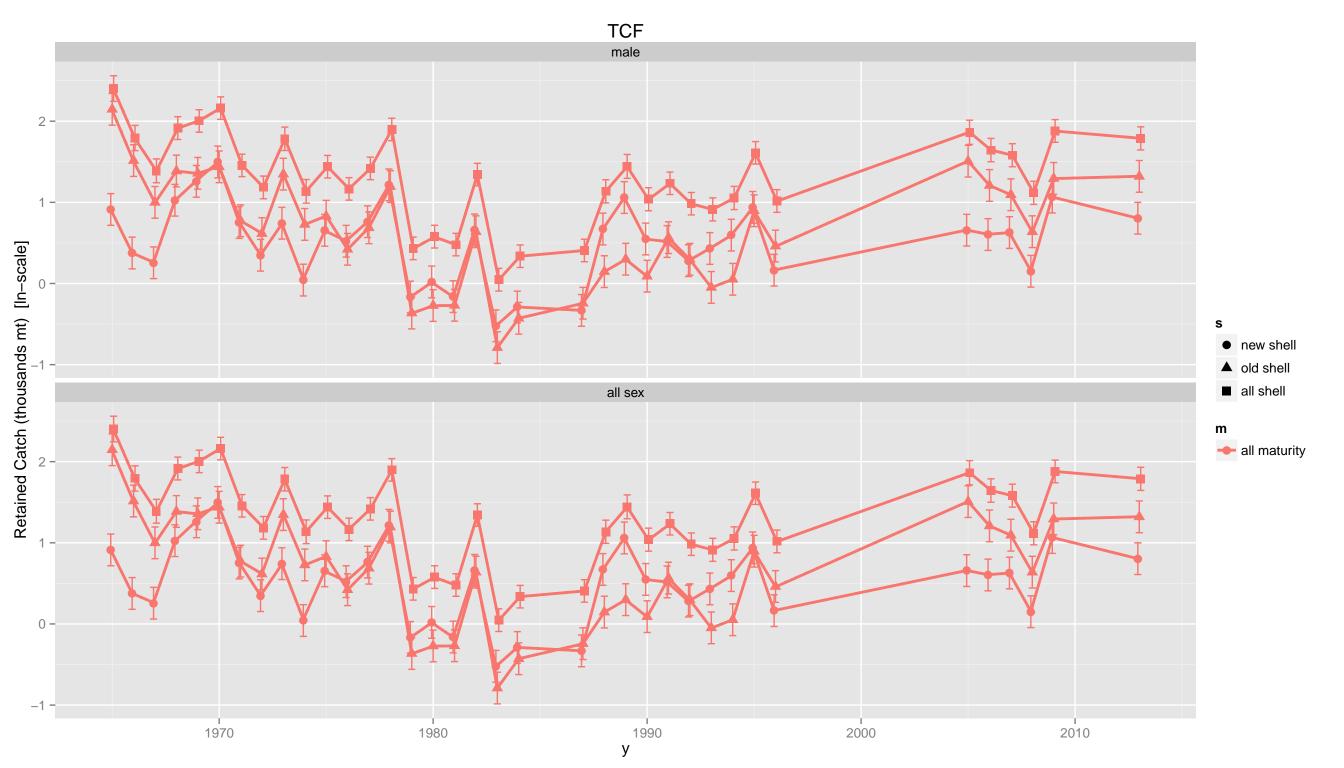
Survey Catch: NMFS trawl survey



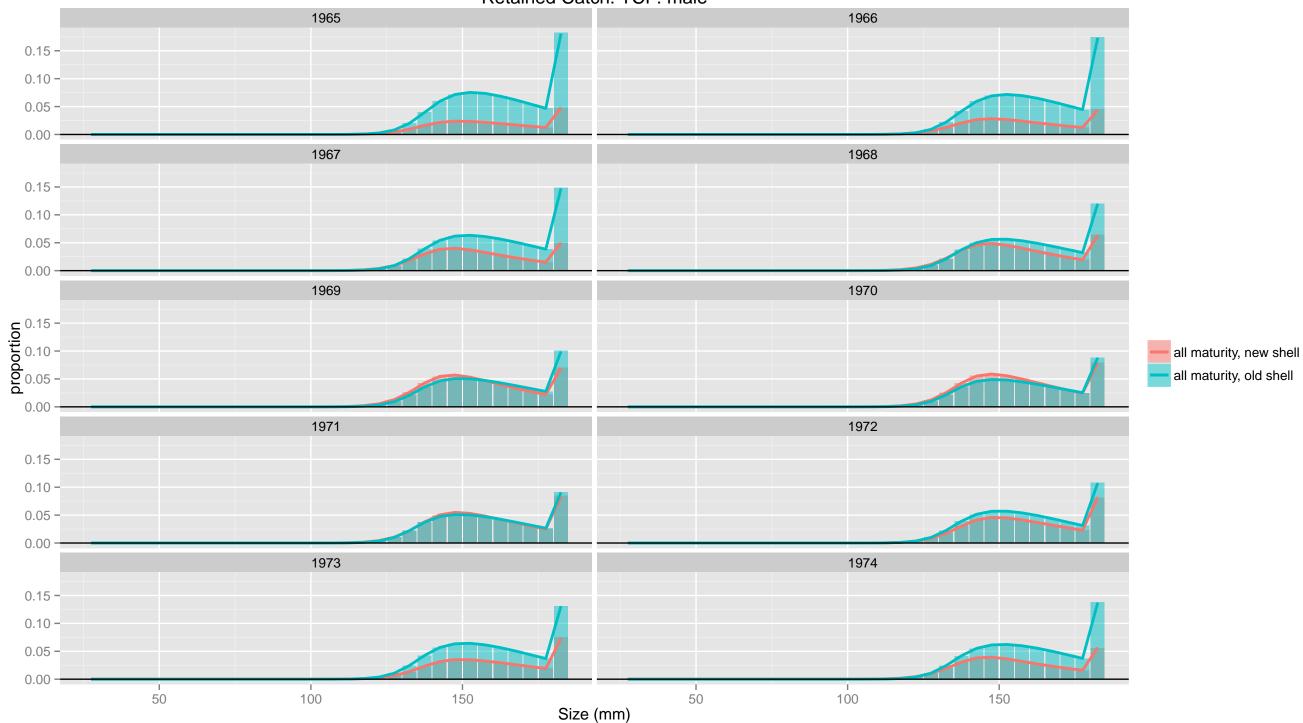




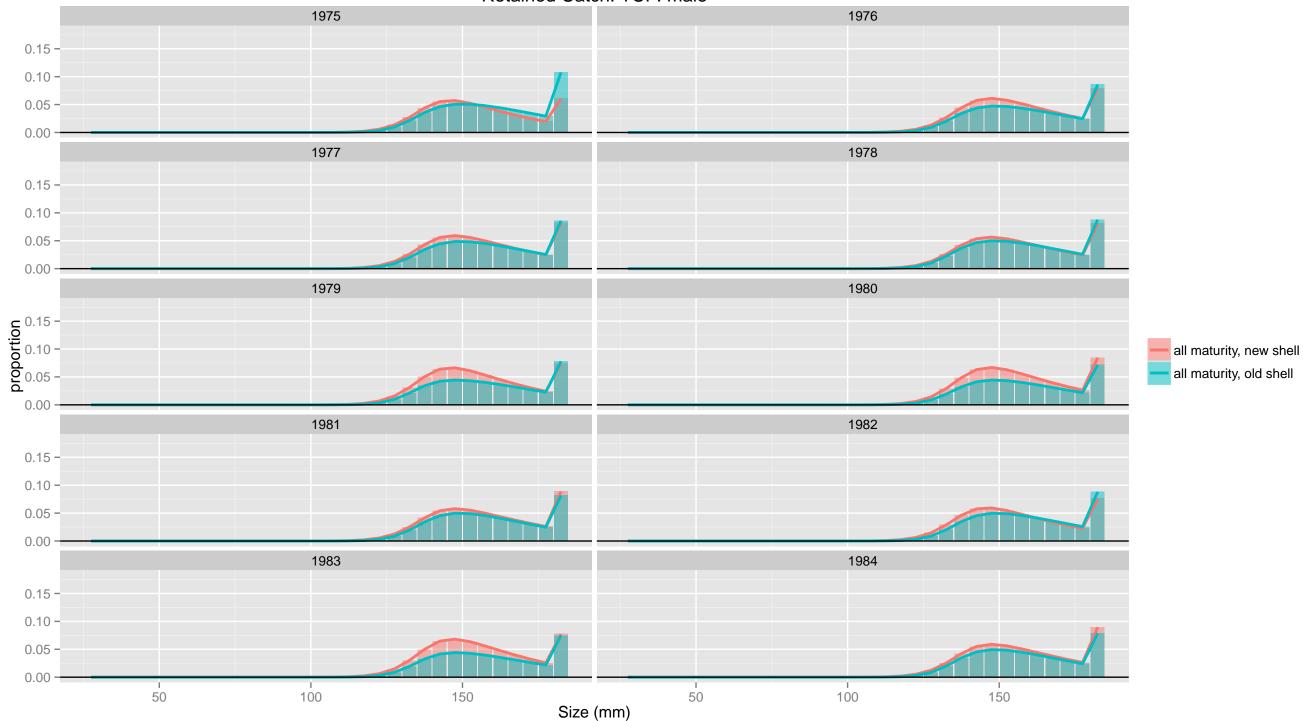




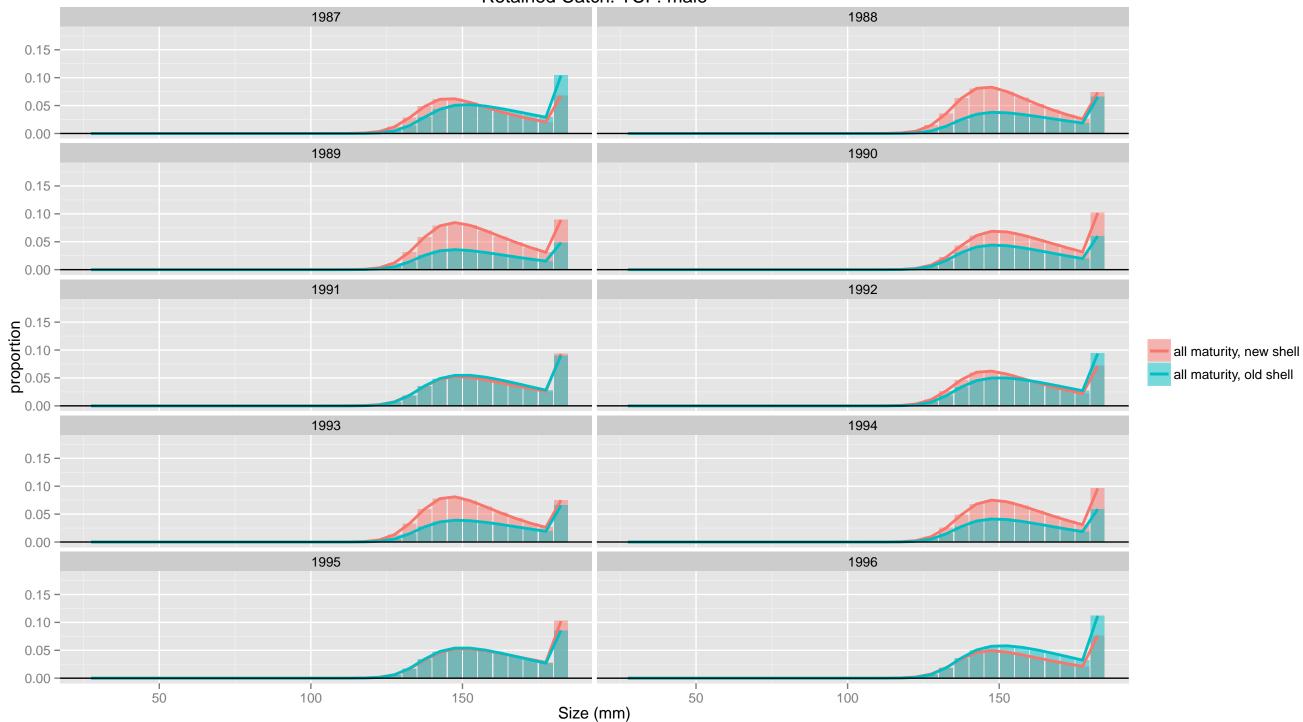
Retained Catch: TCF: male



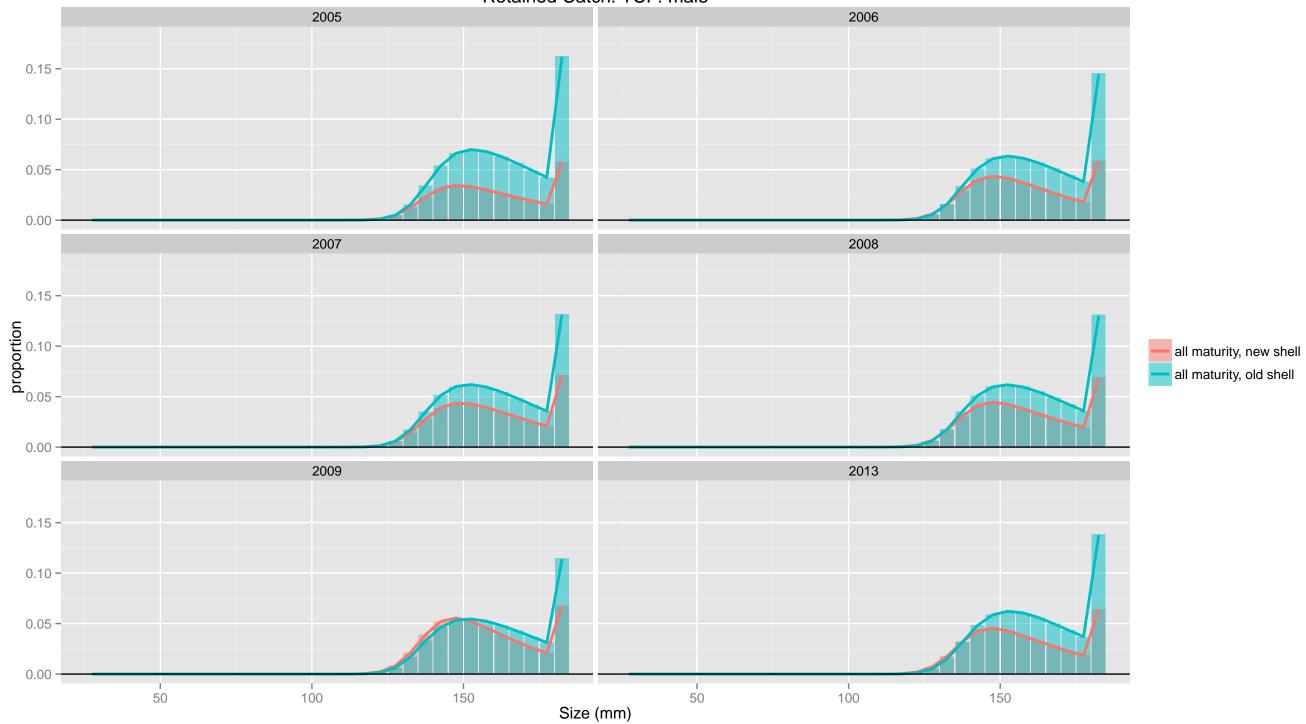
Retained Catch: TCF: male

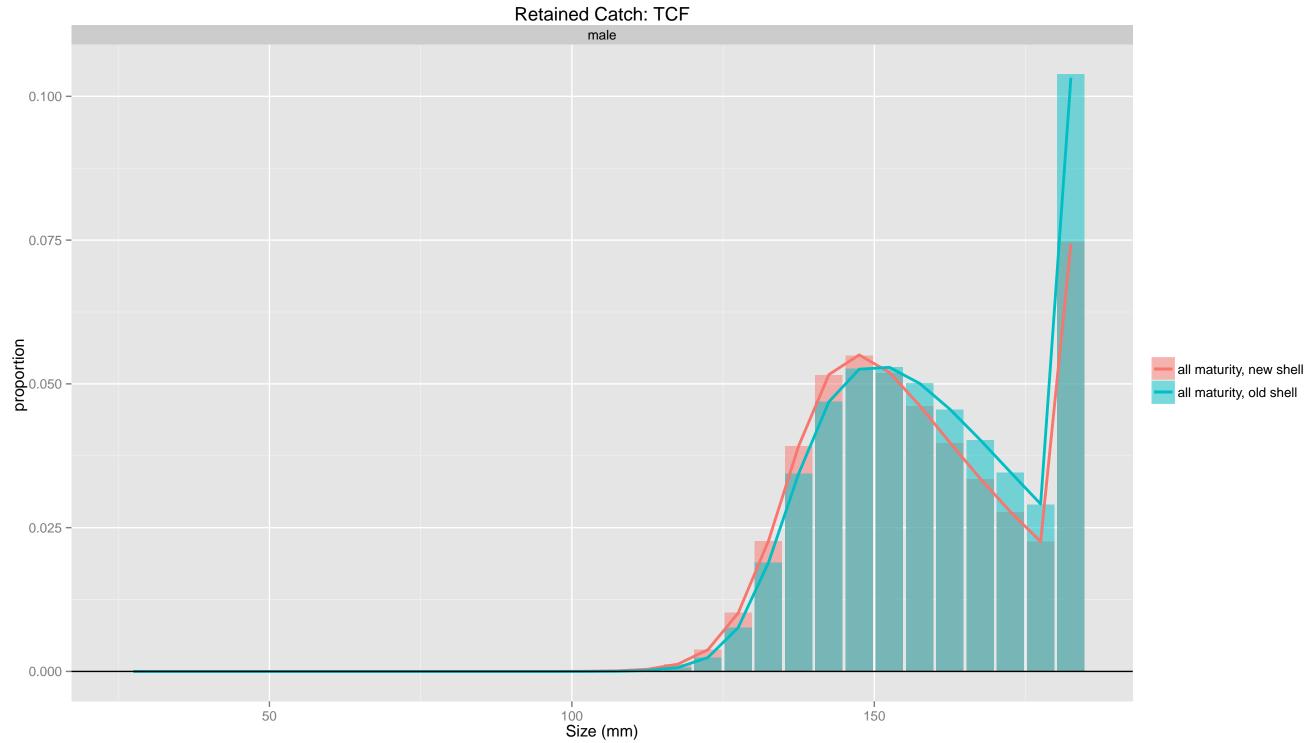


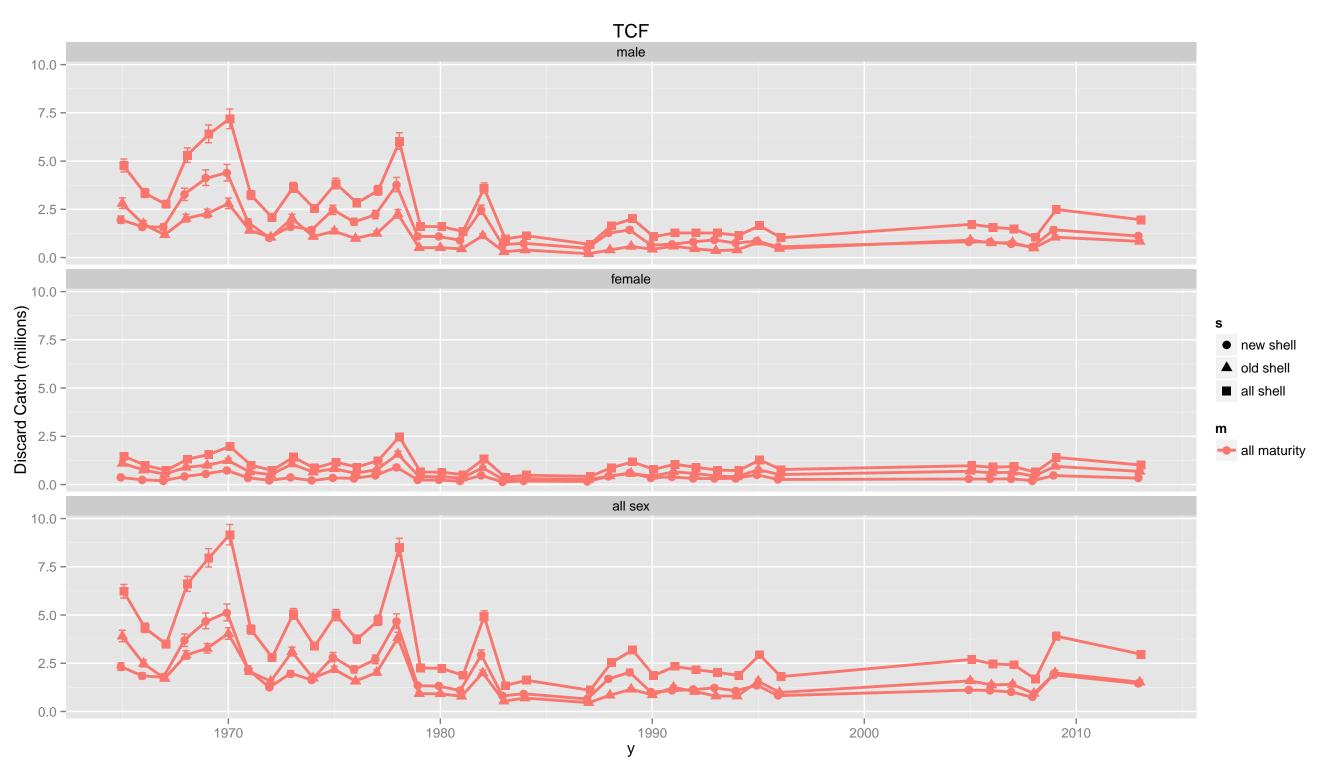
Retained Catch: TCF: male

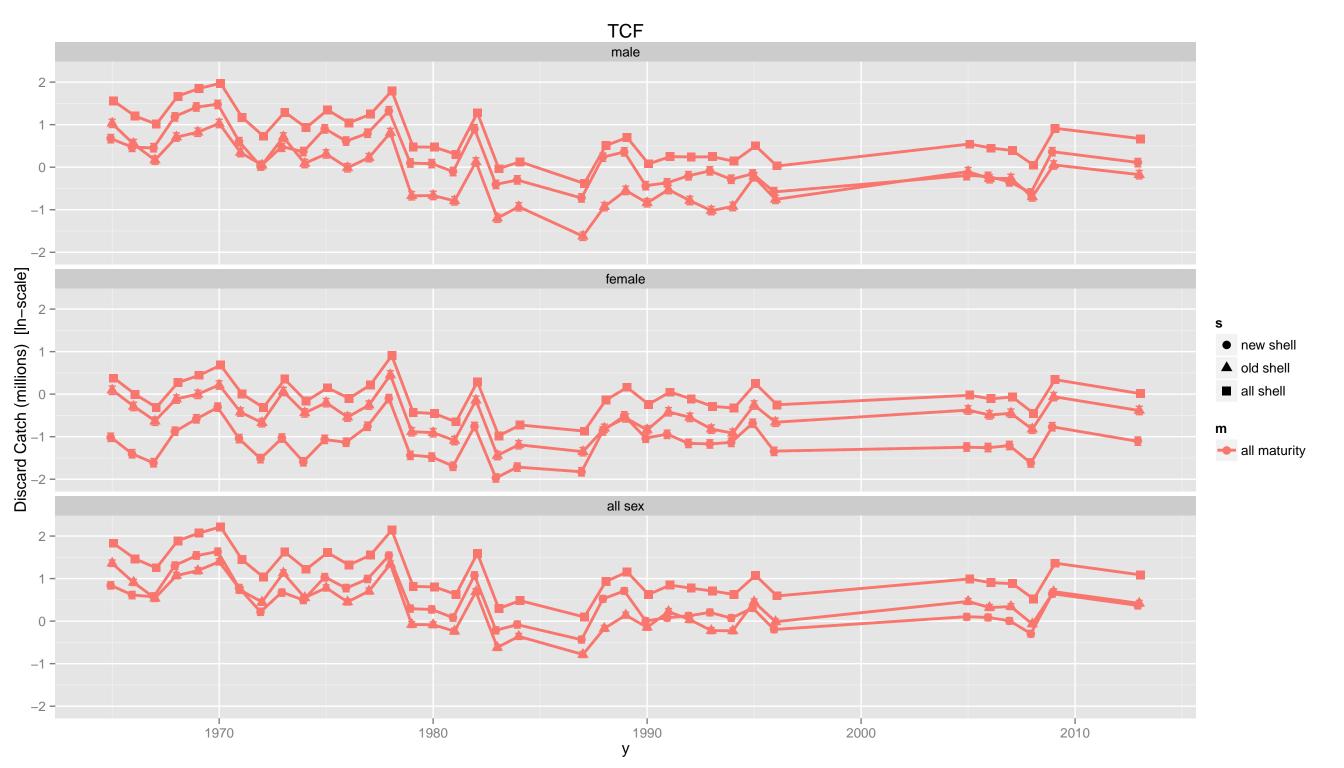


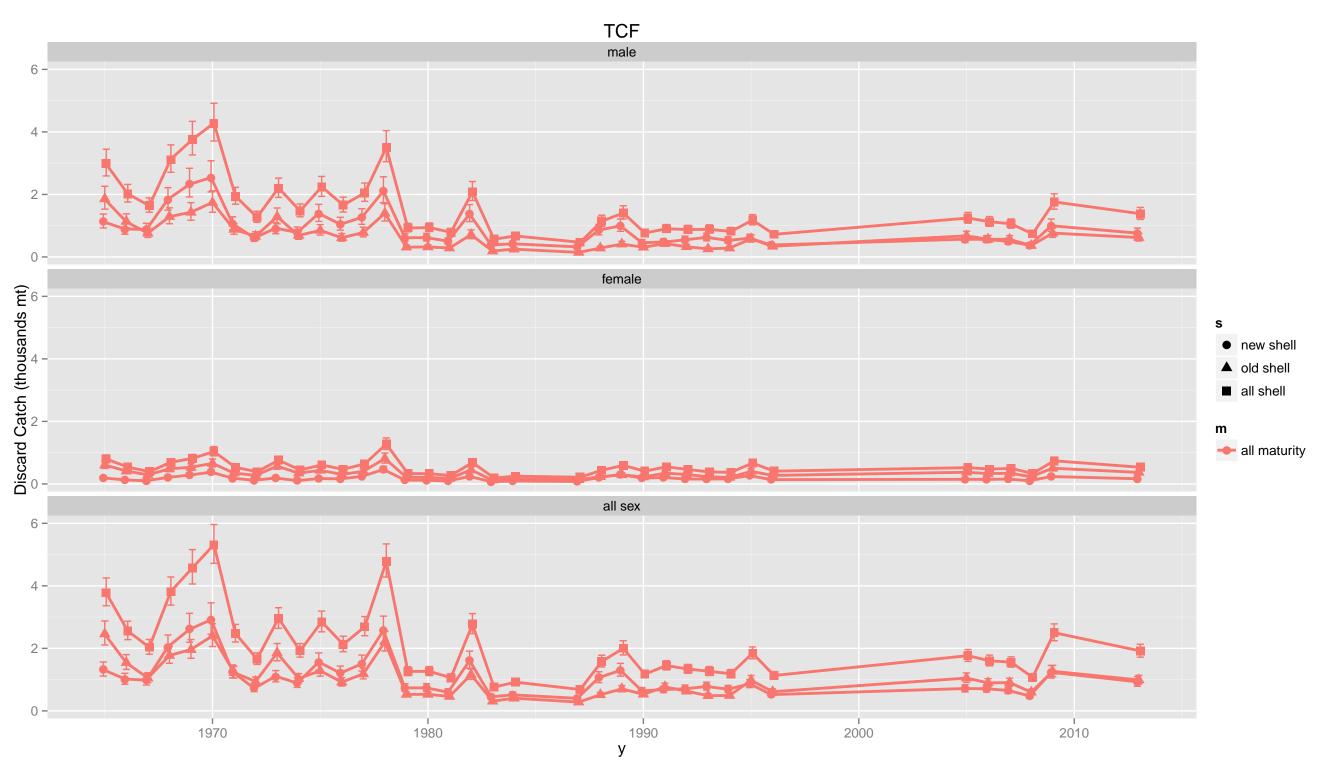
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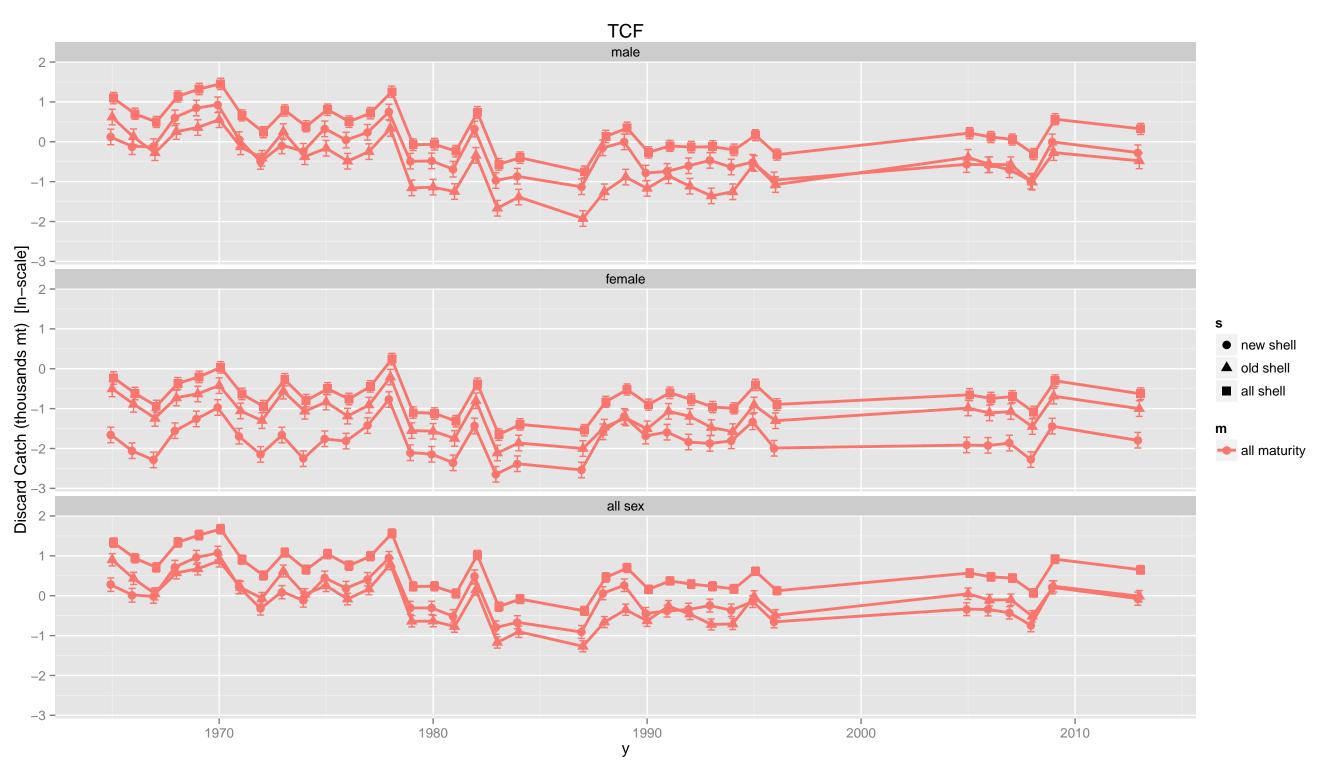


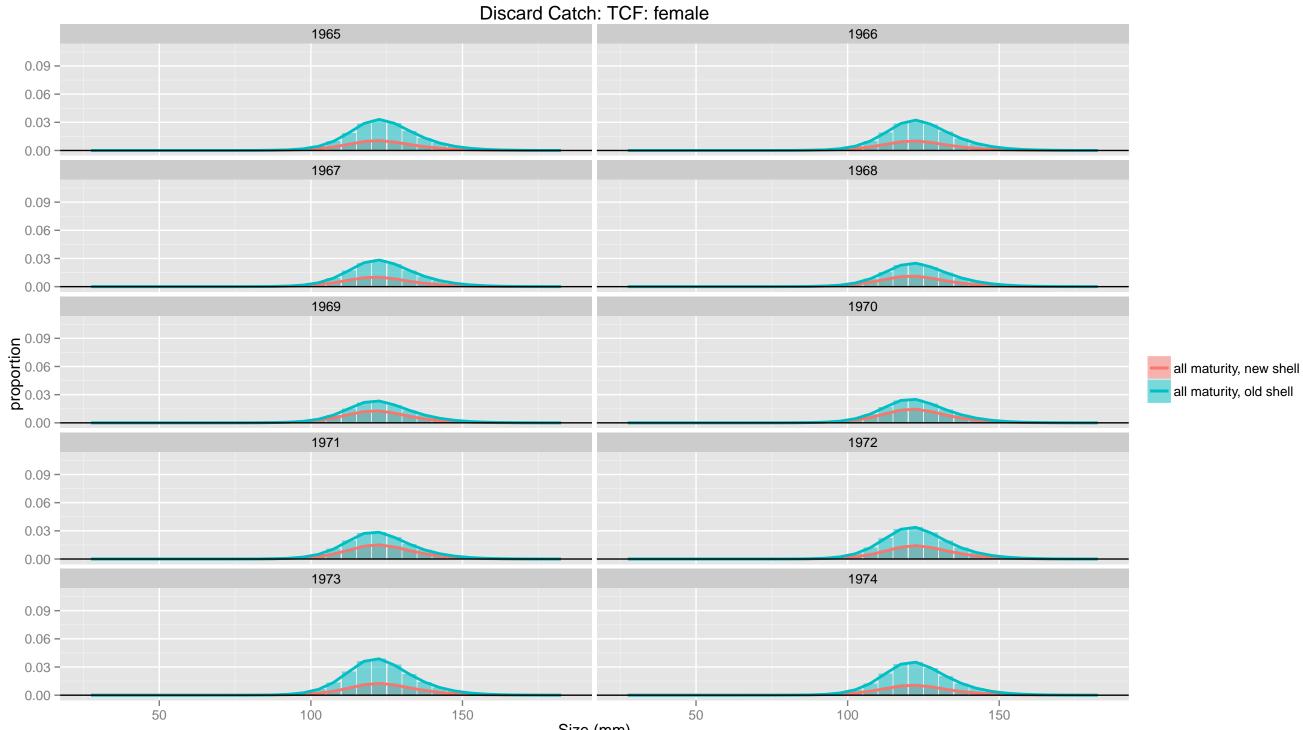




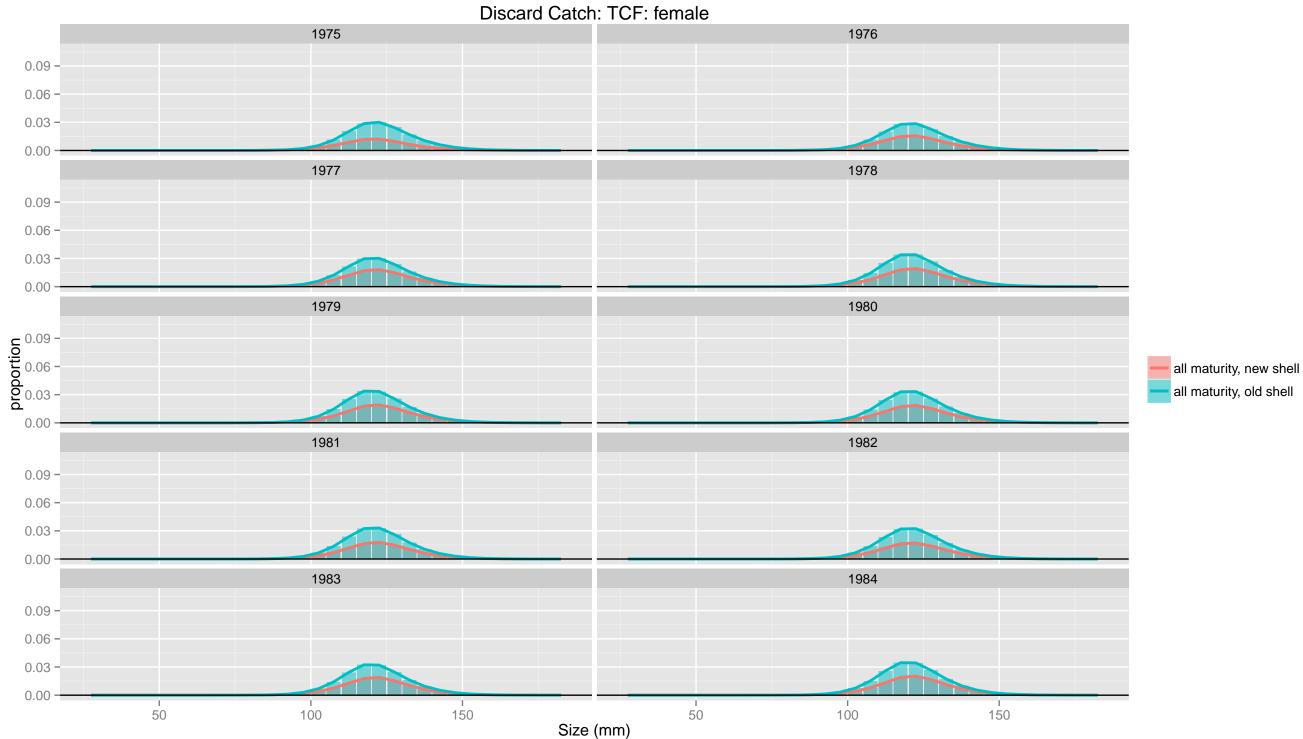


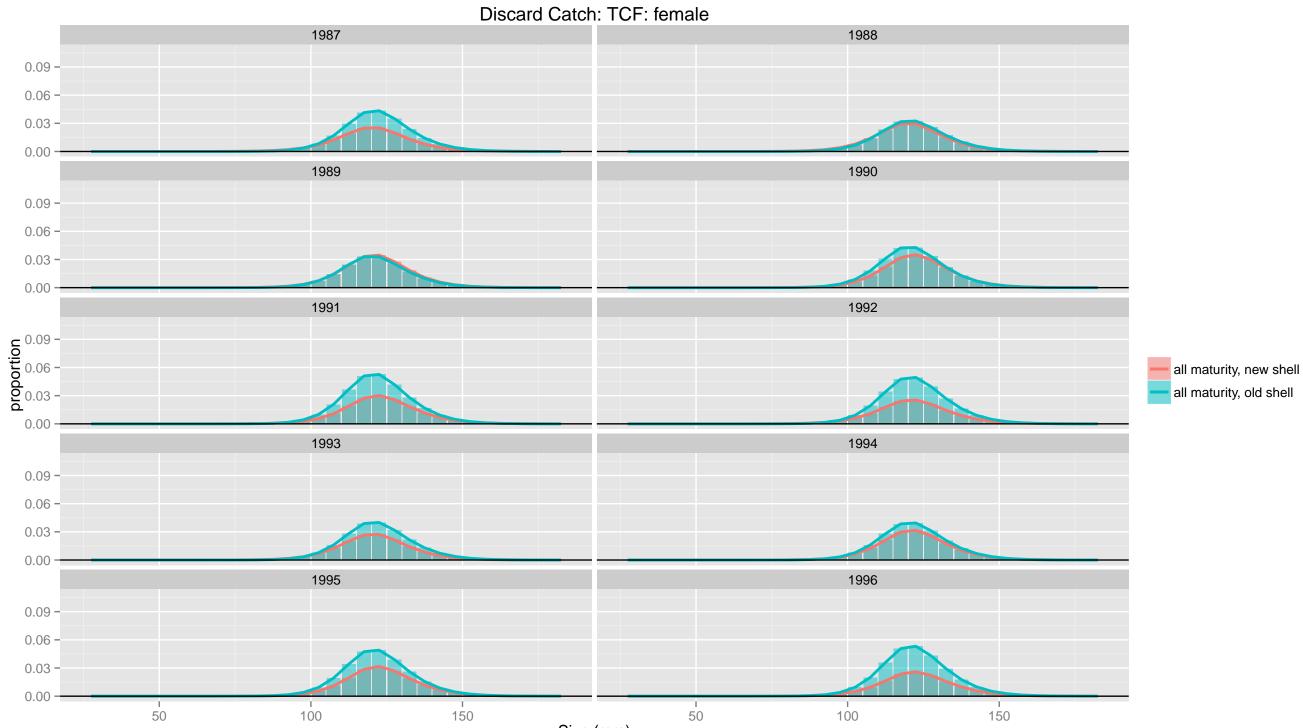






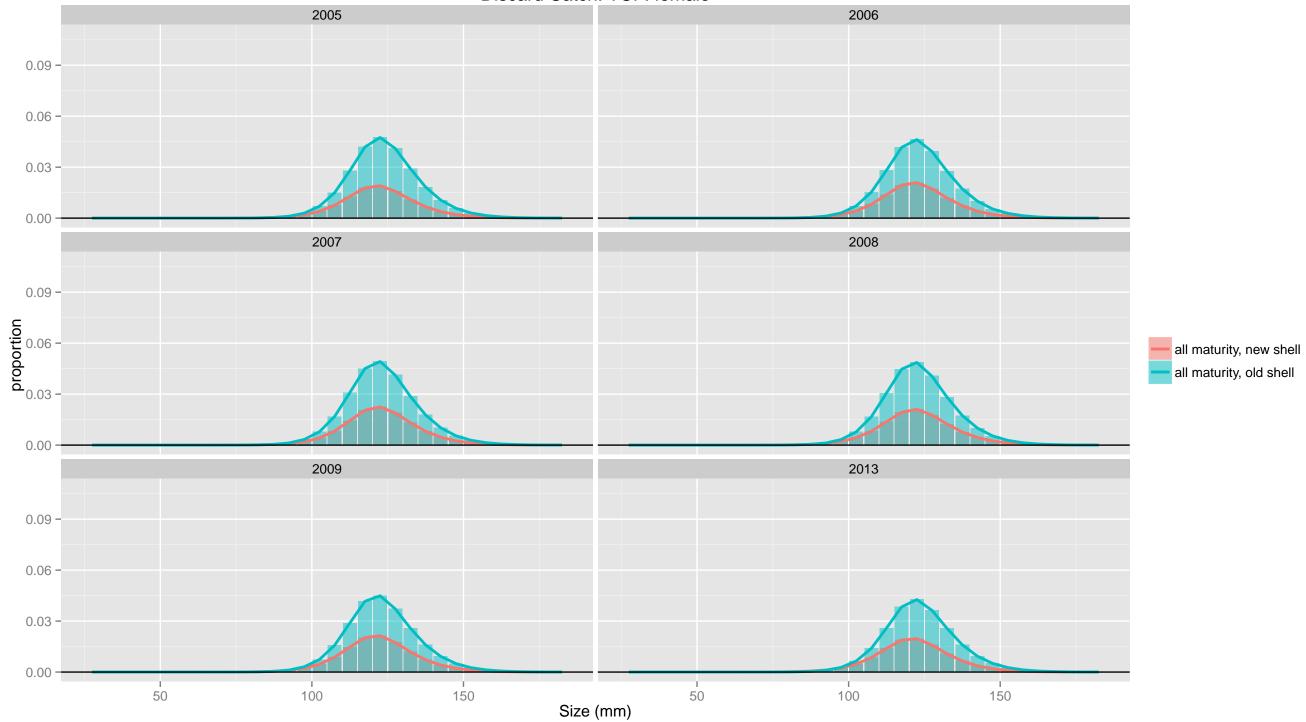
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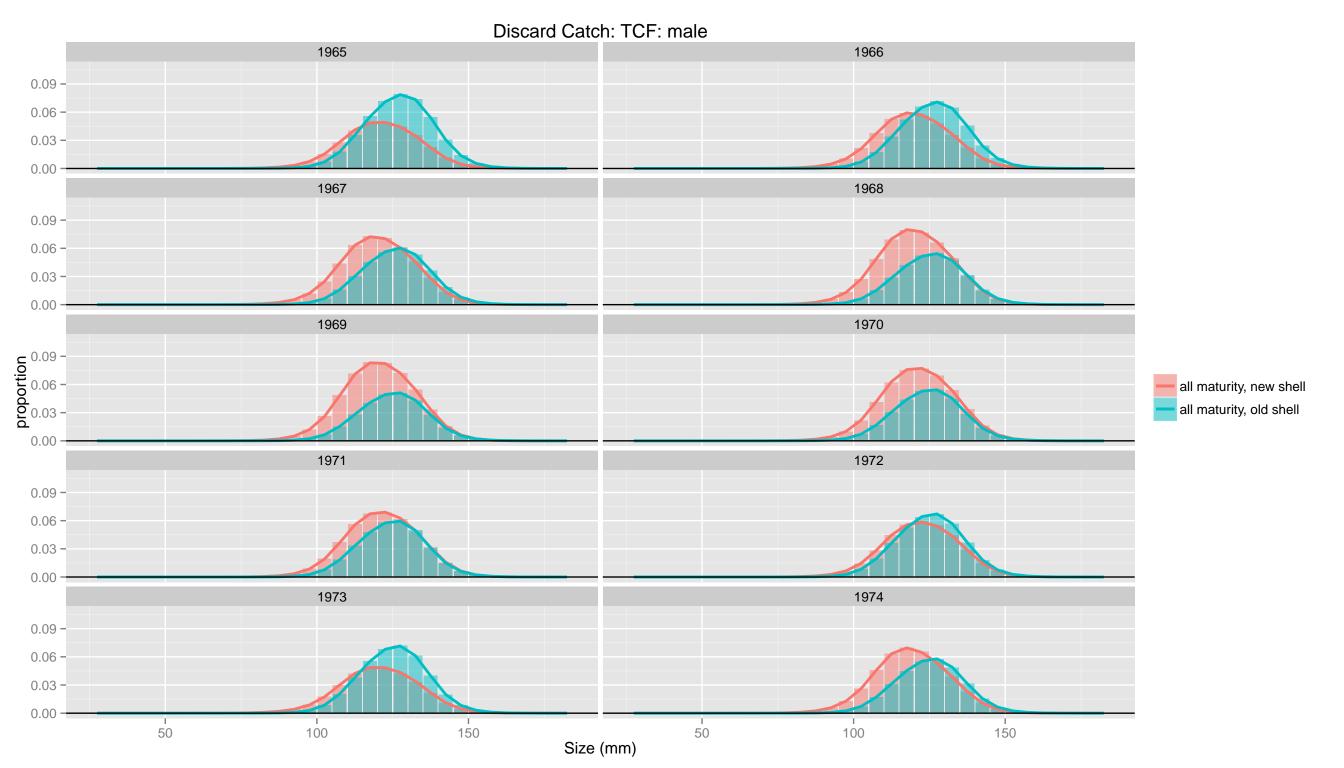


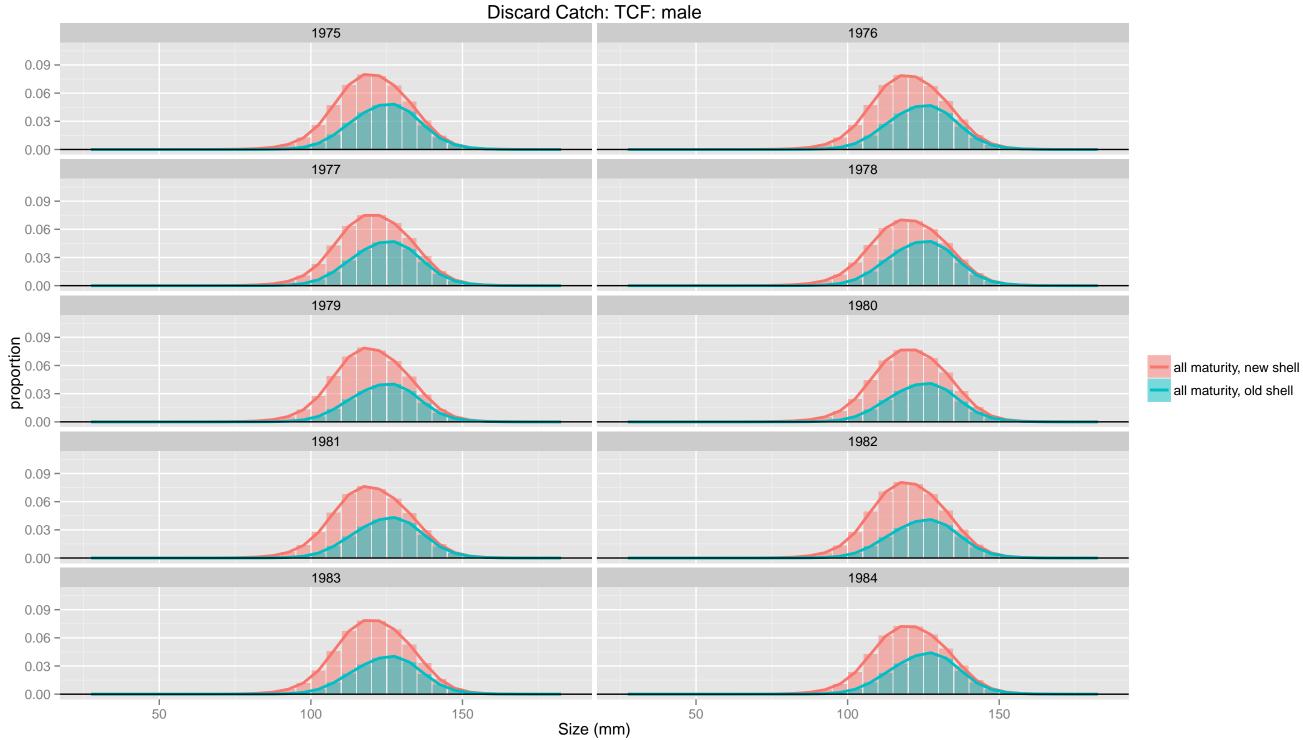


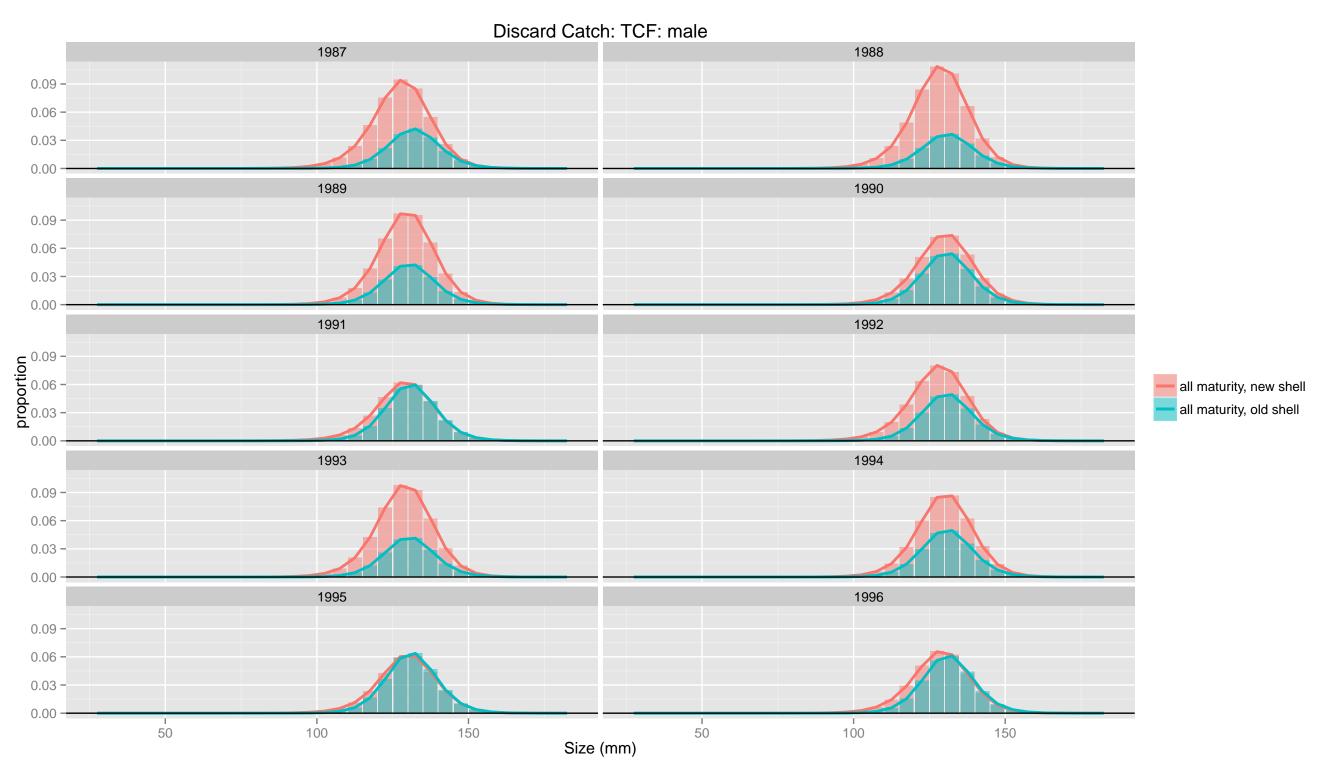
Size (mm)

Discard Catch: TCF: female

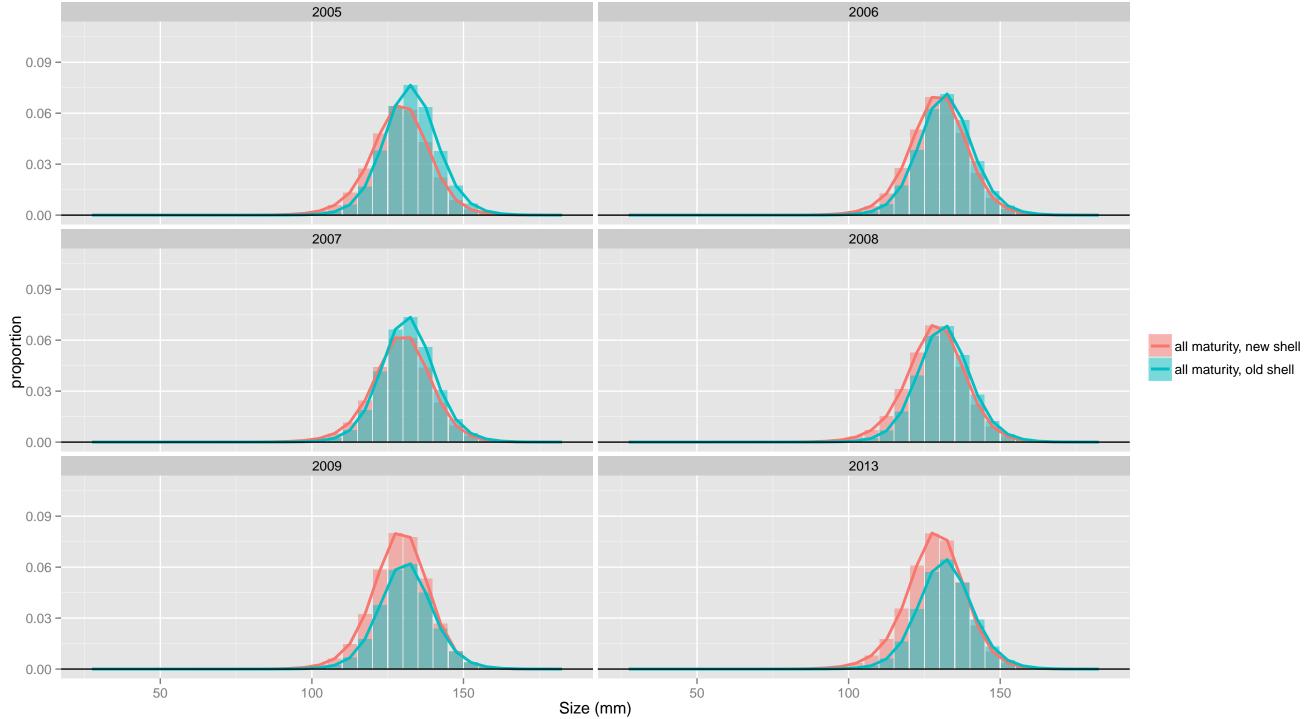




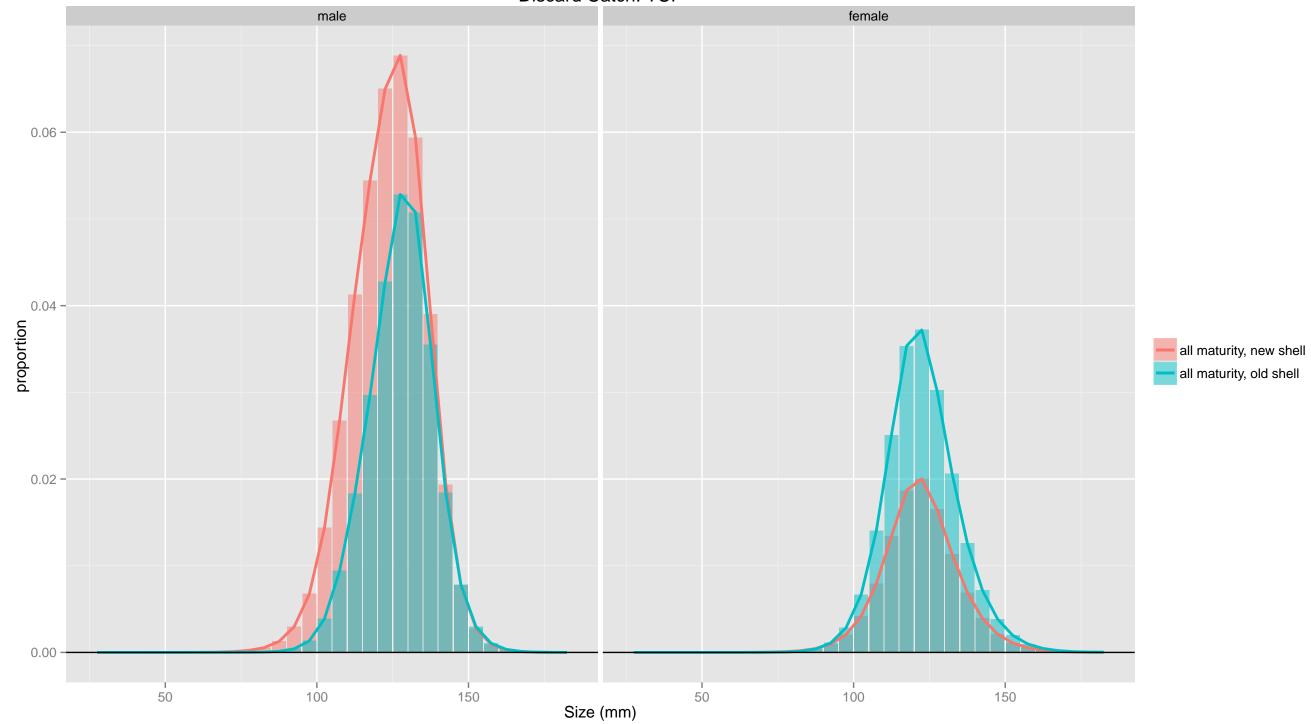


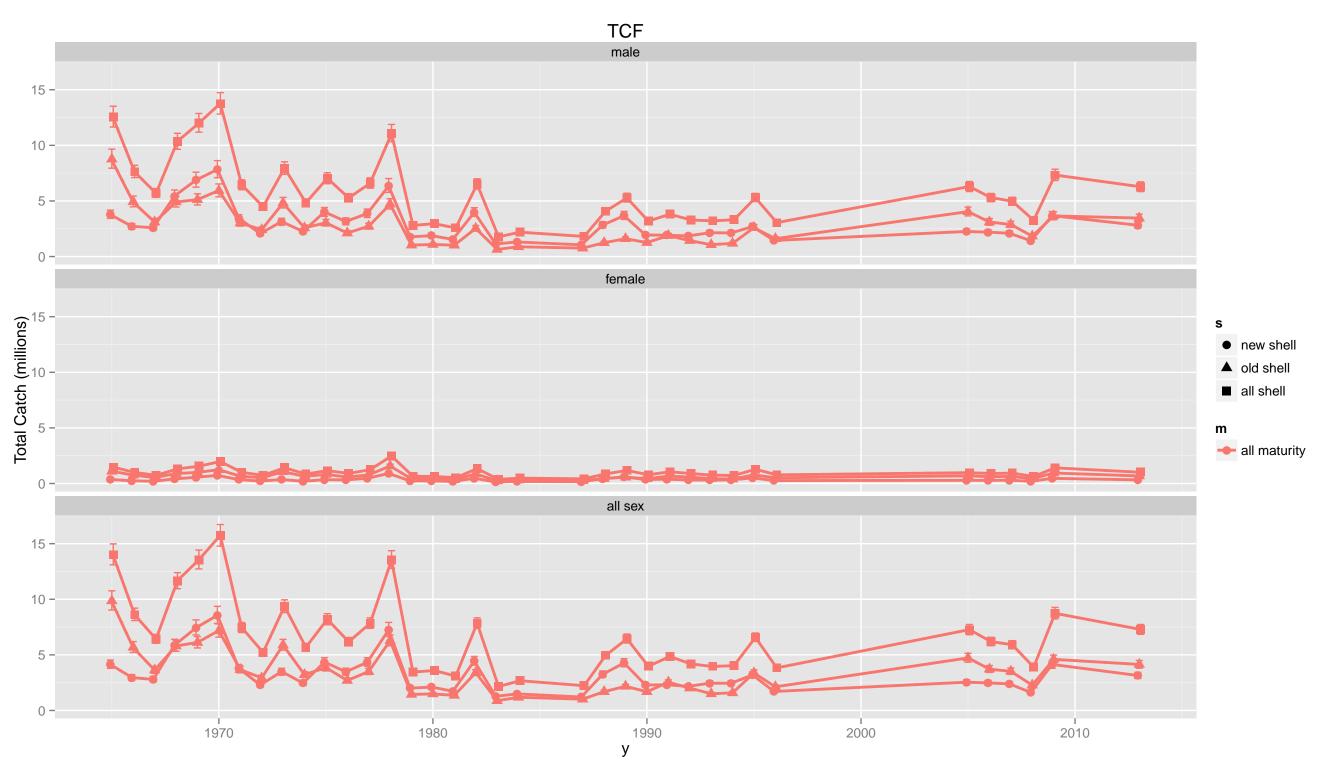


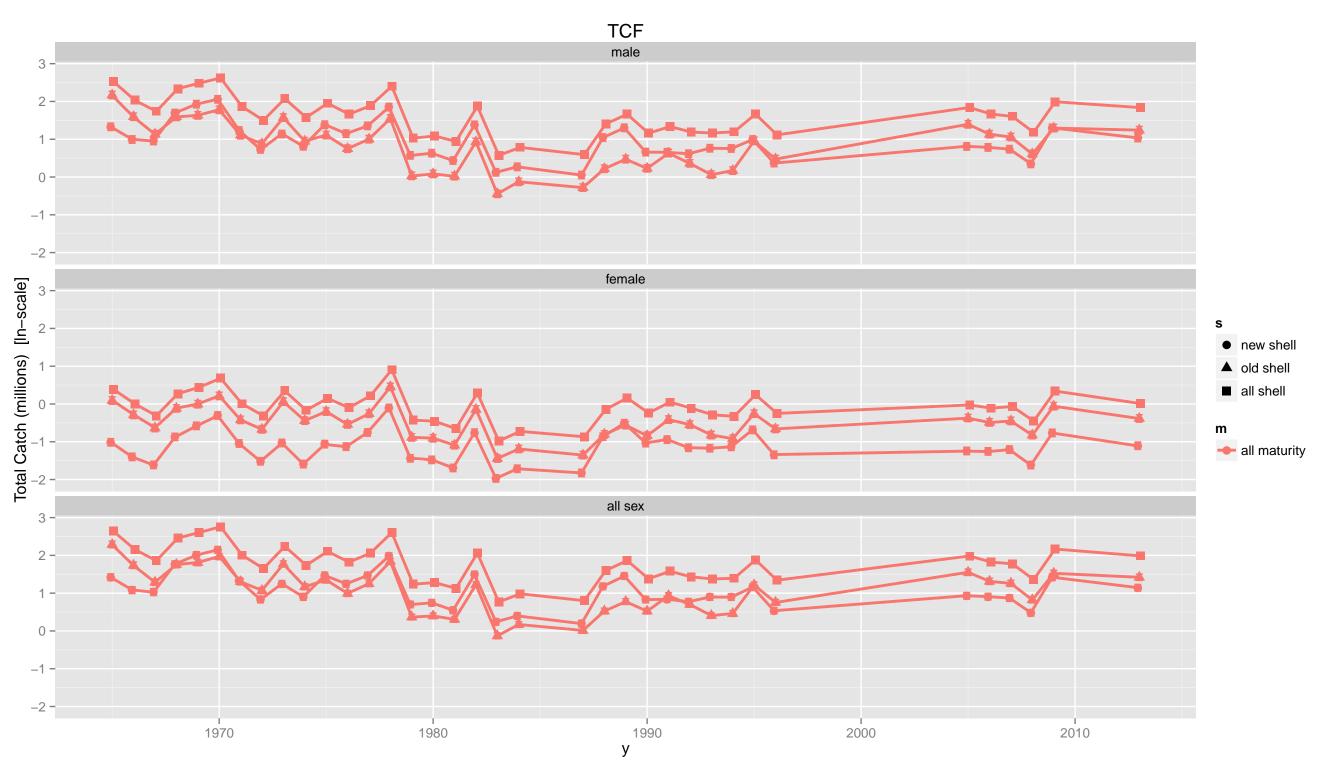
Discard Catch: TCF: male

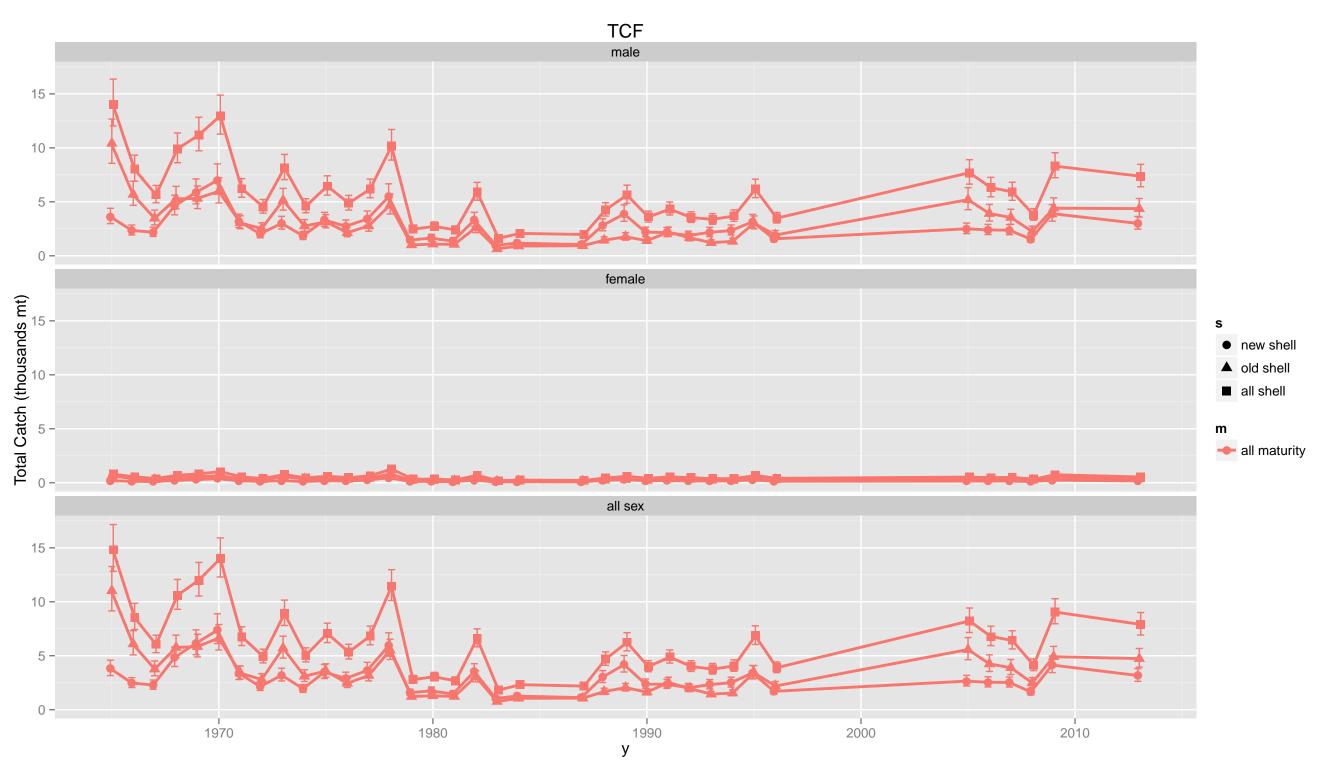


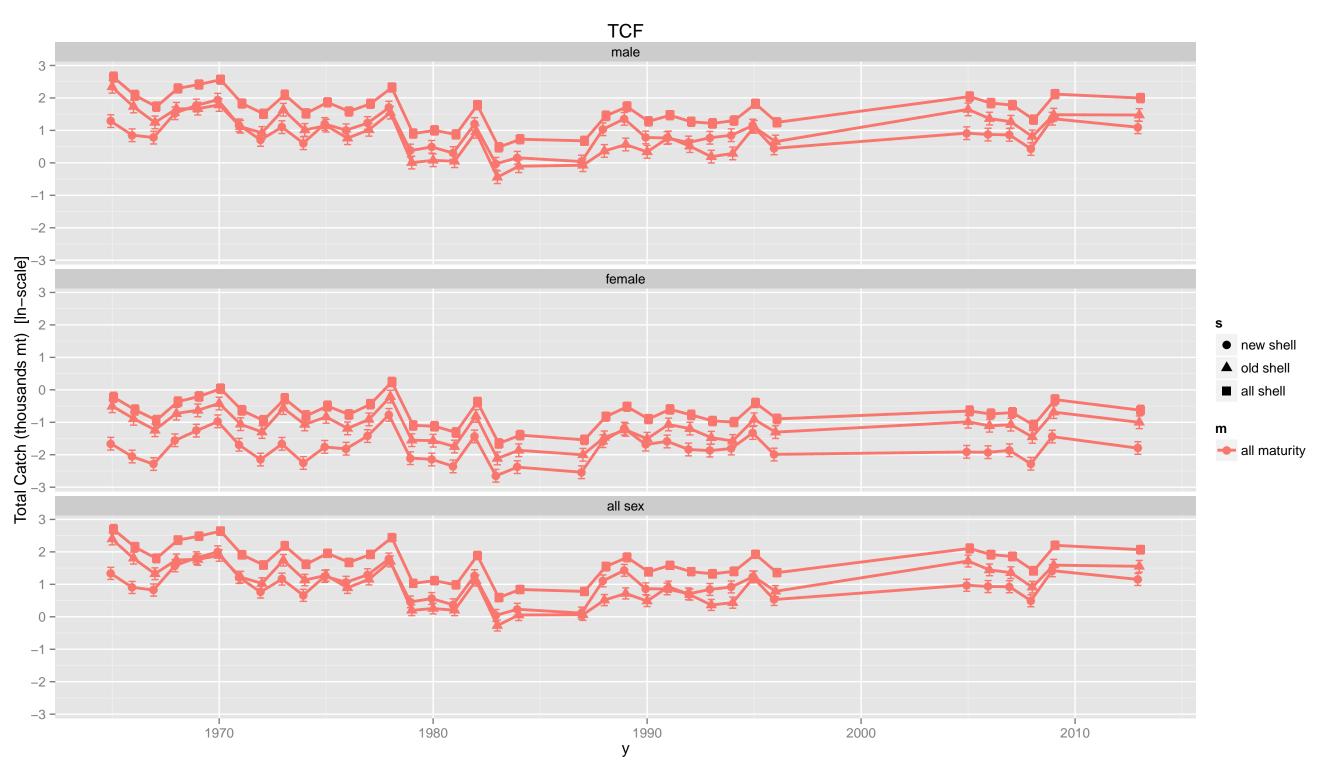
Discard Catch: TCF

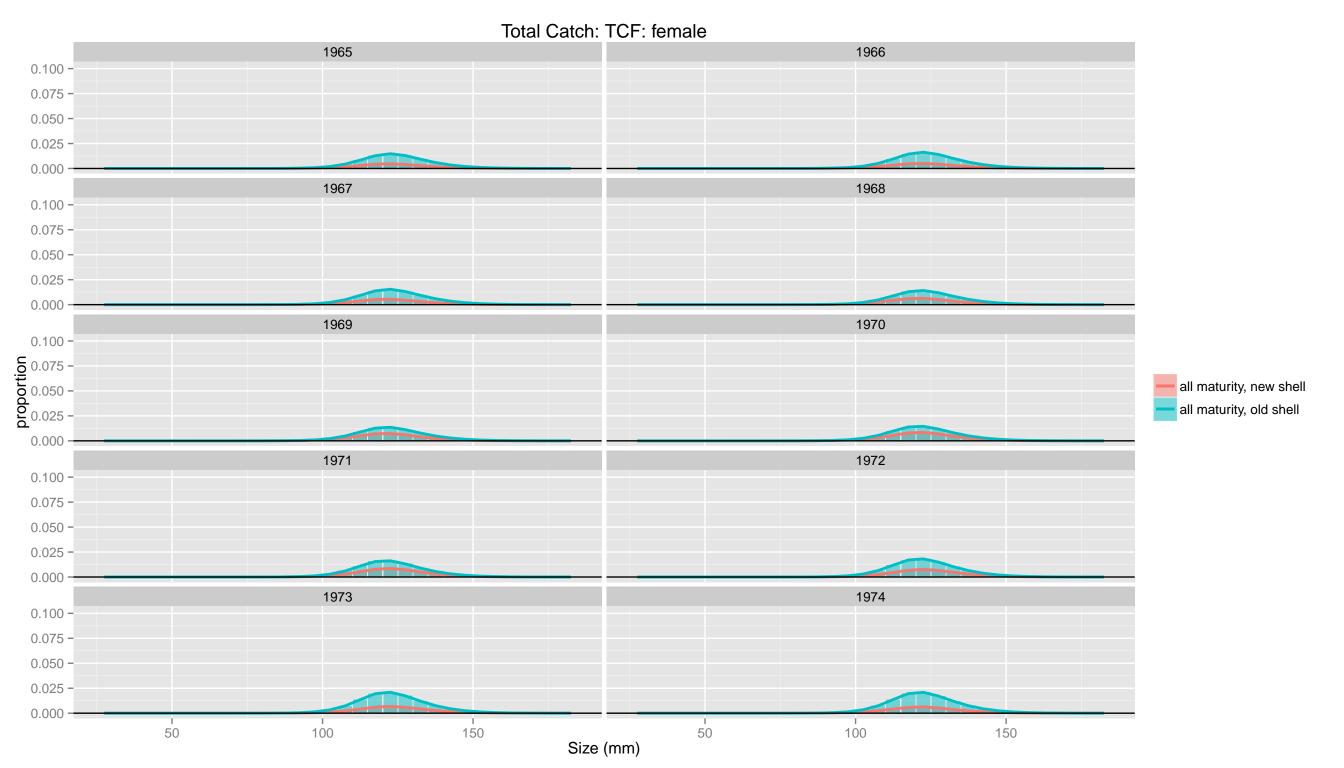


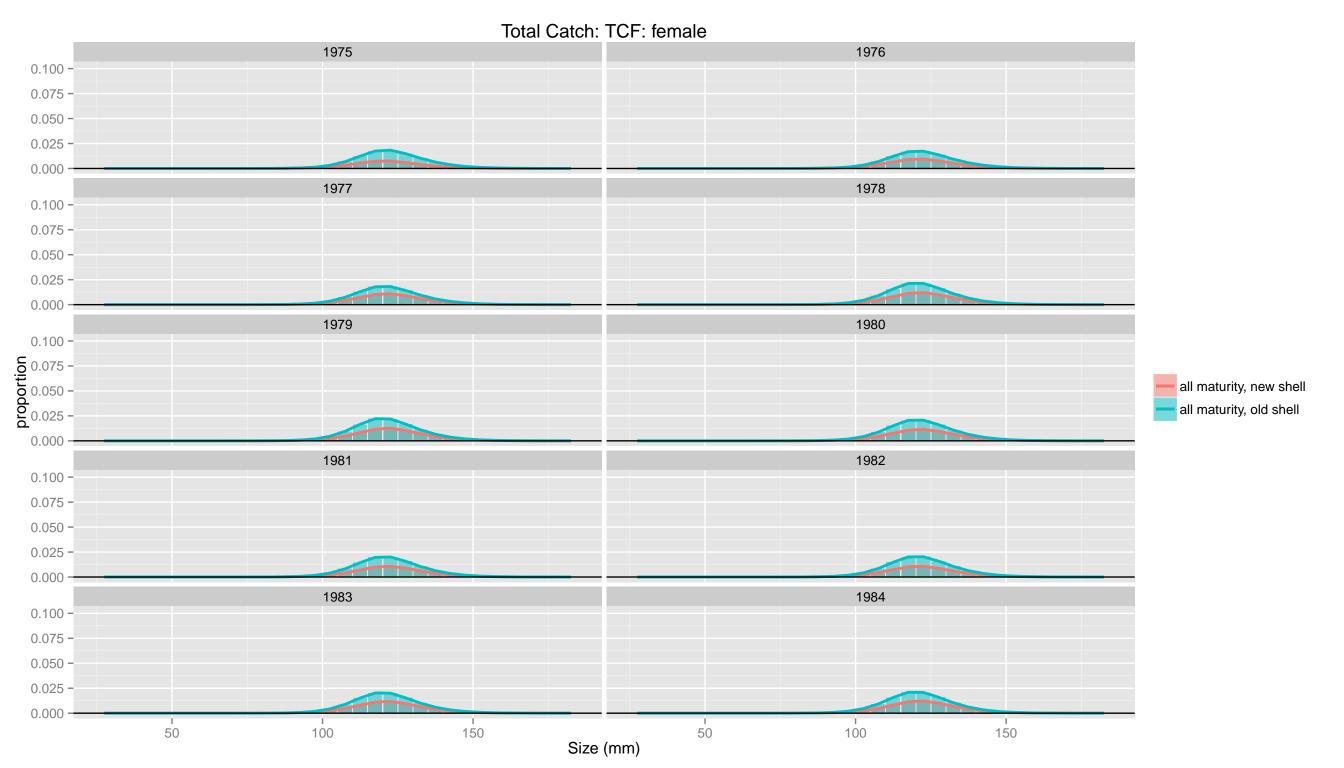


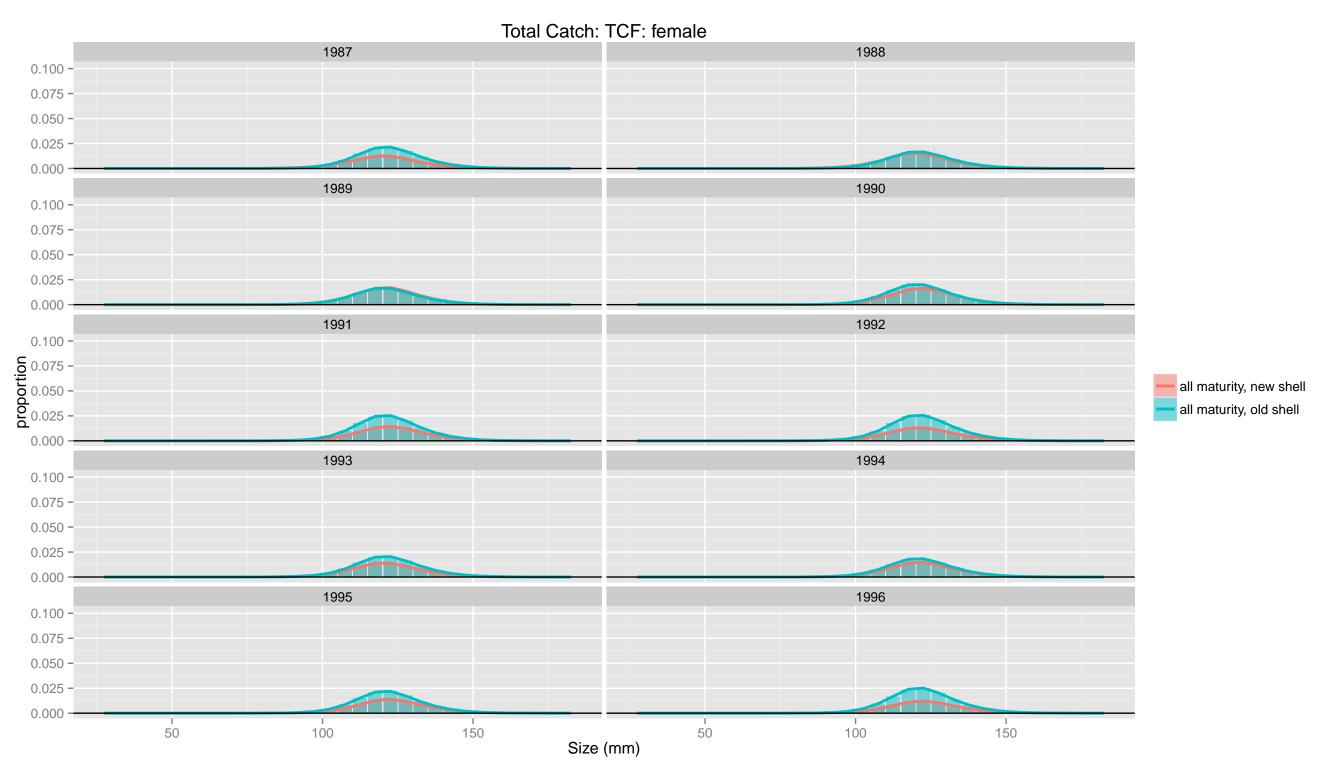


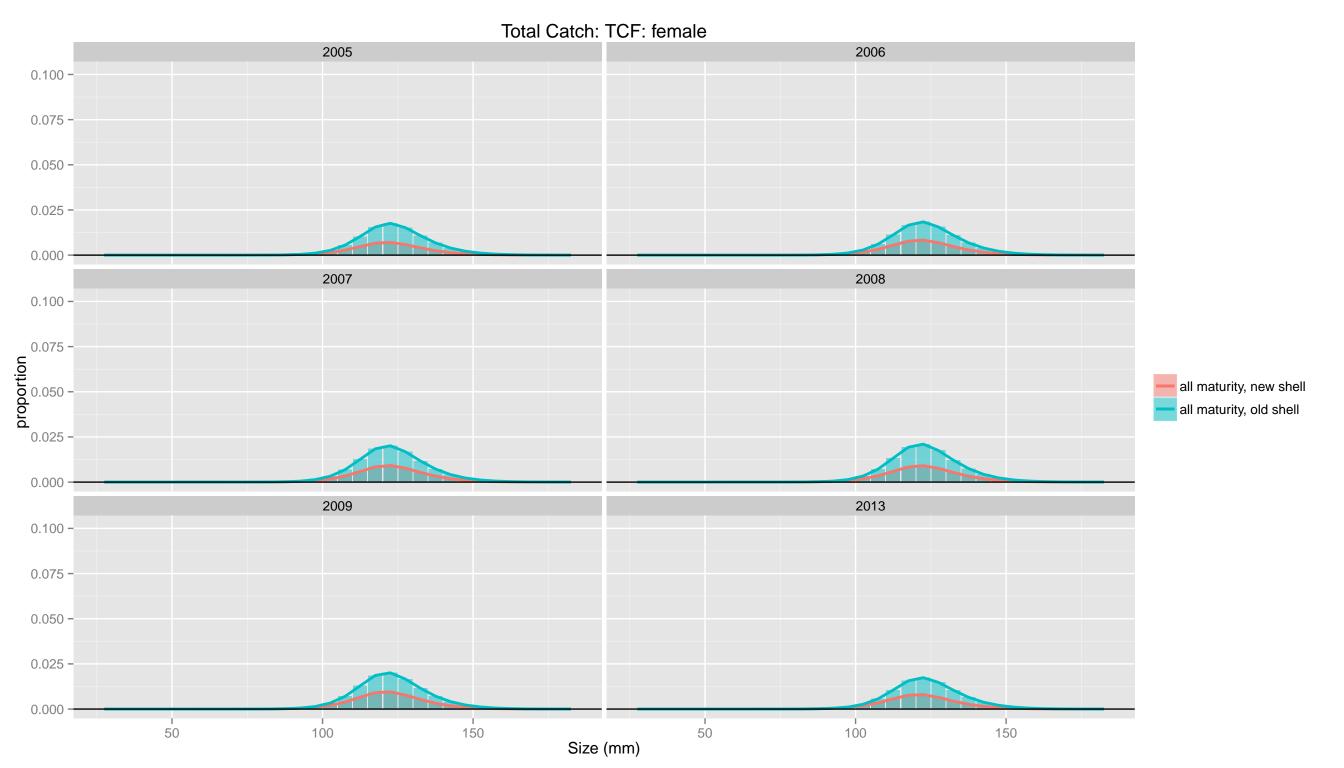


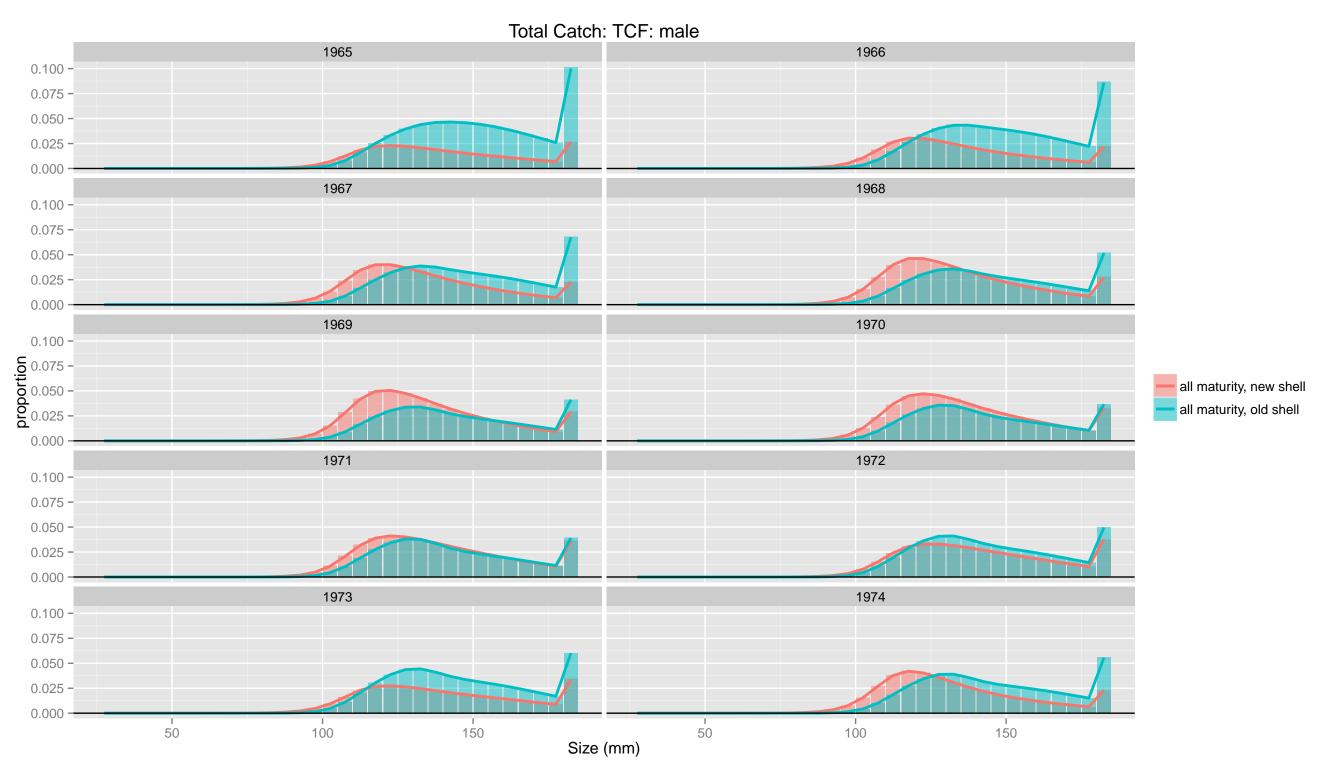


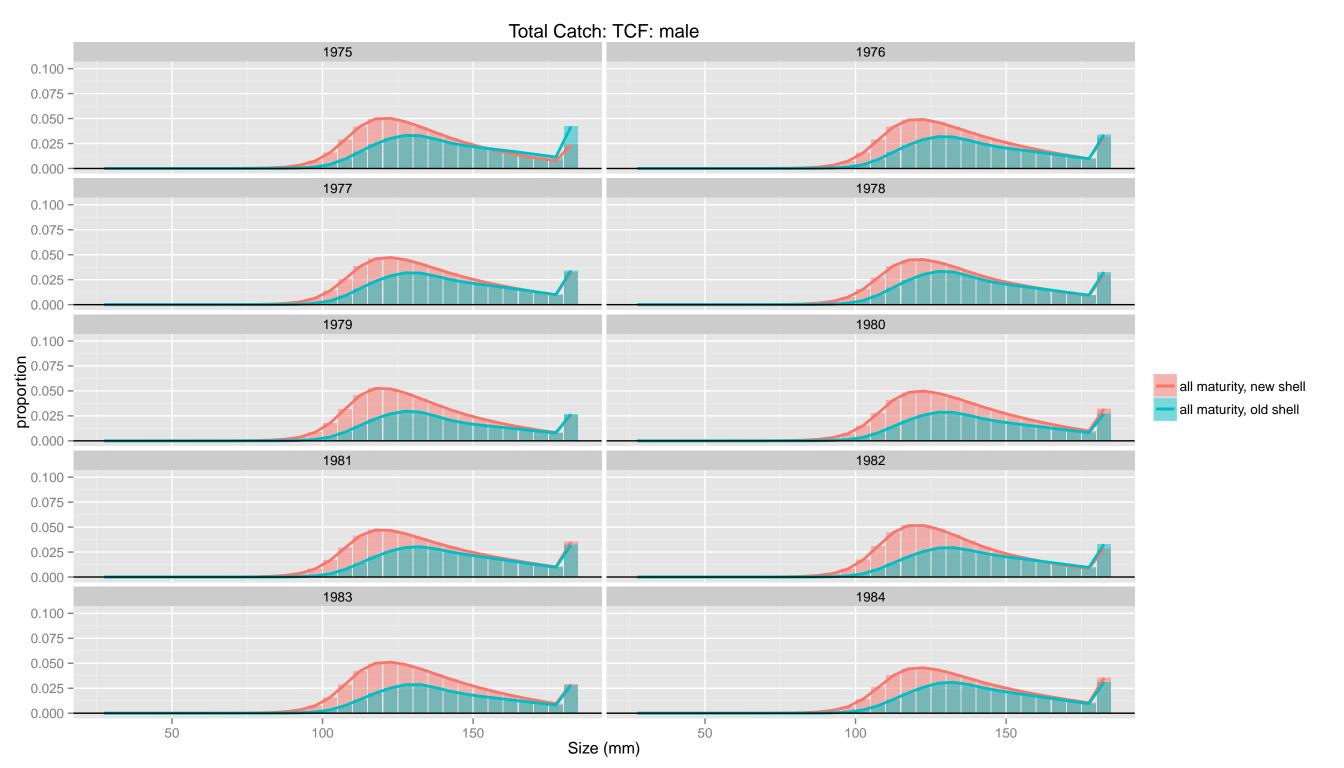


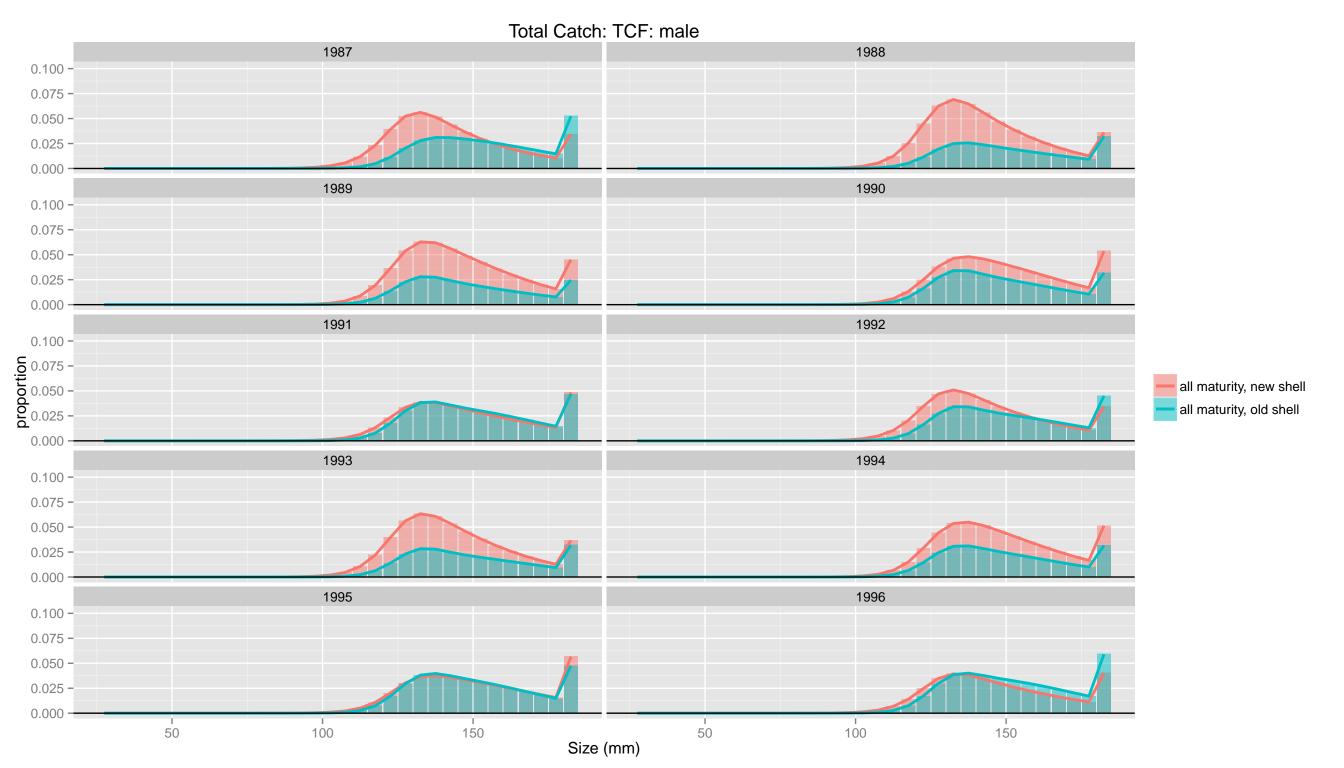


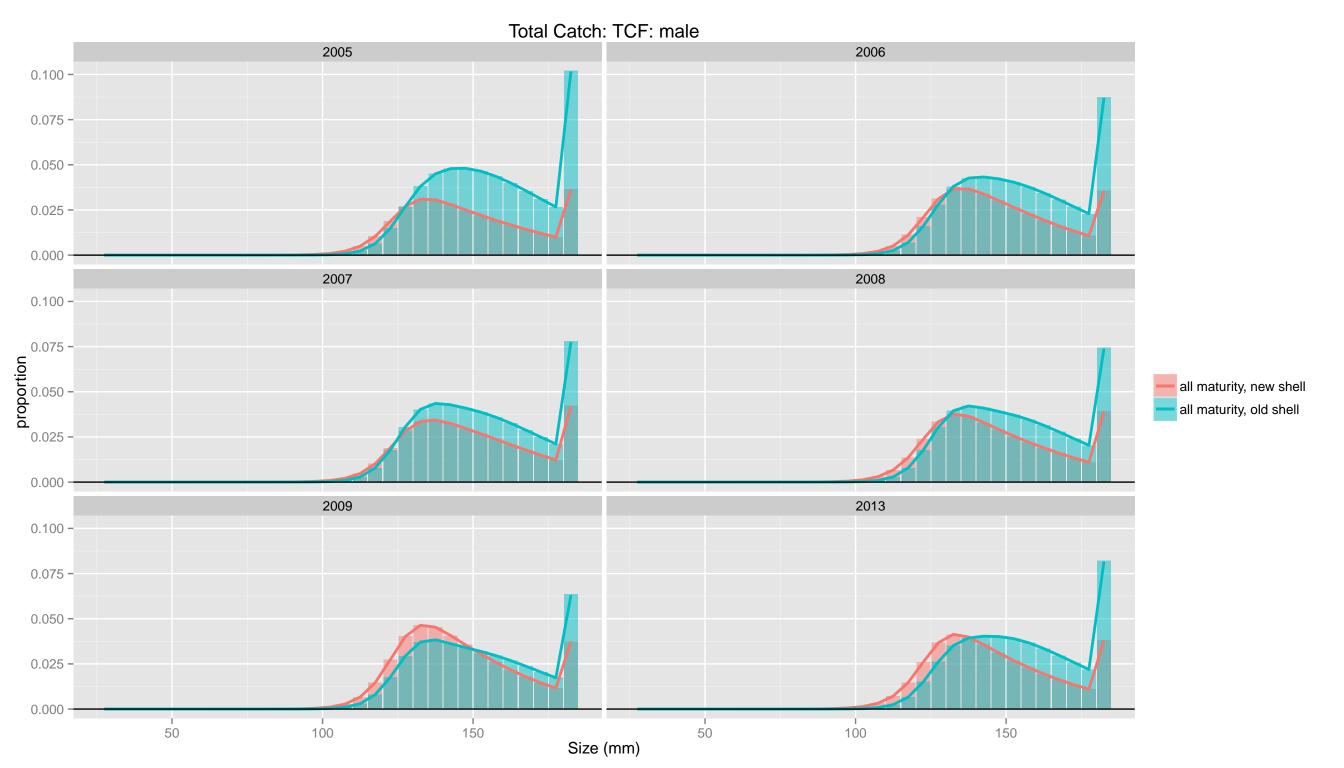


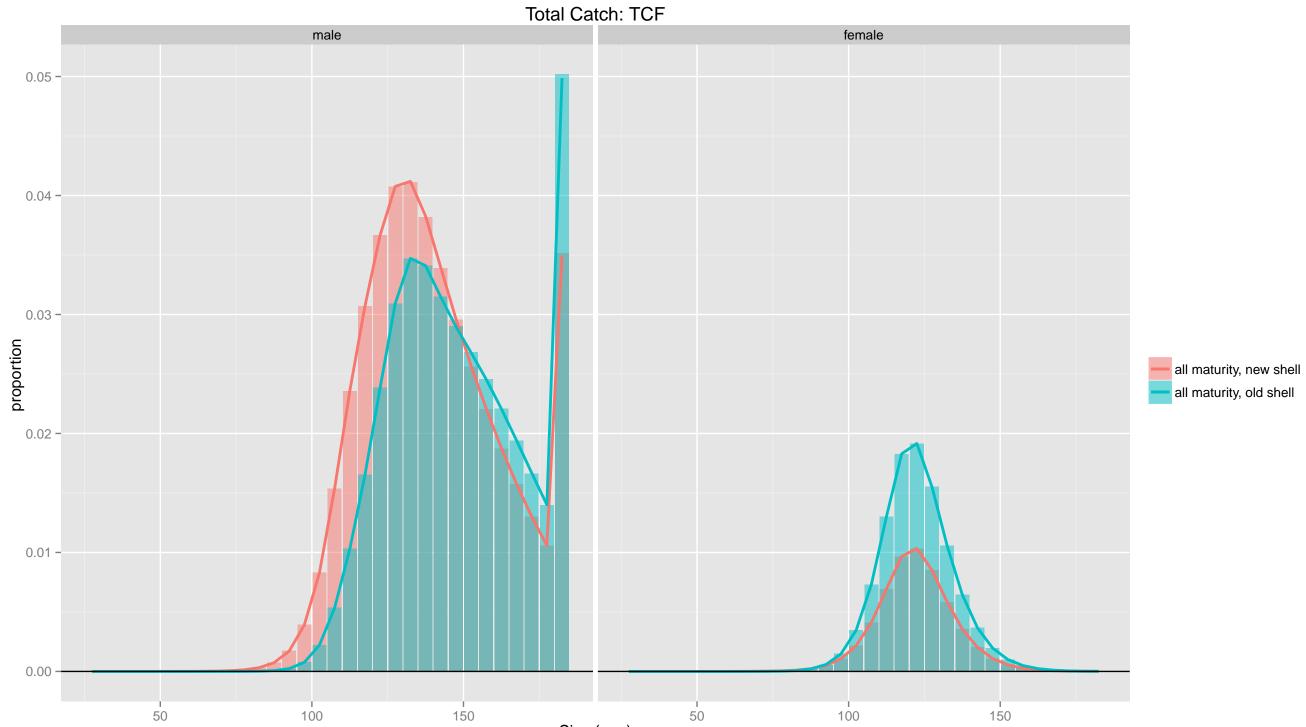




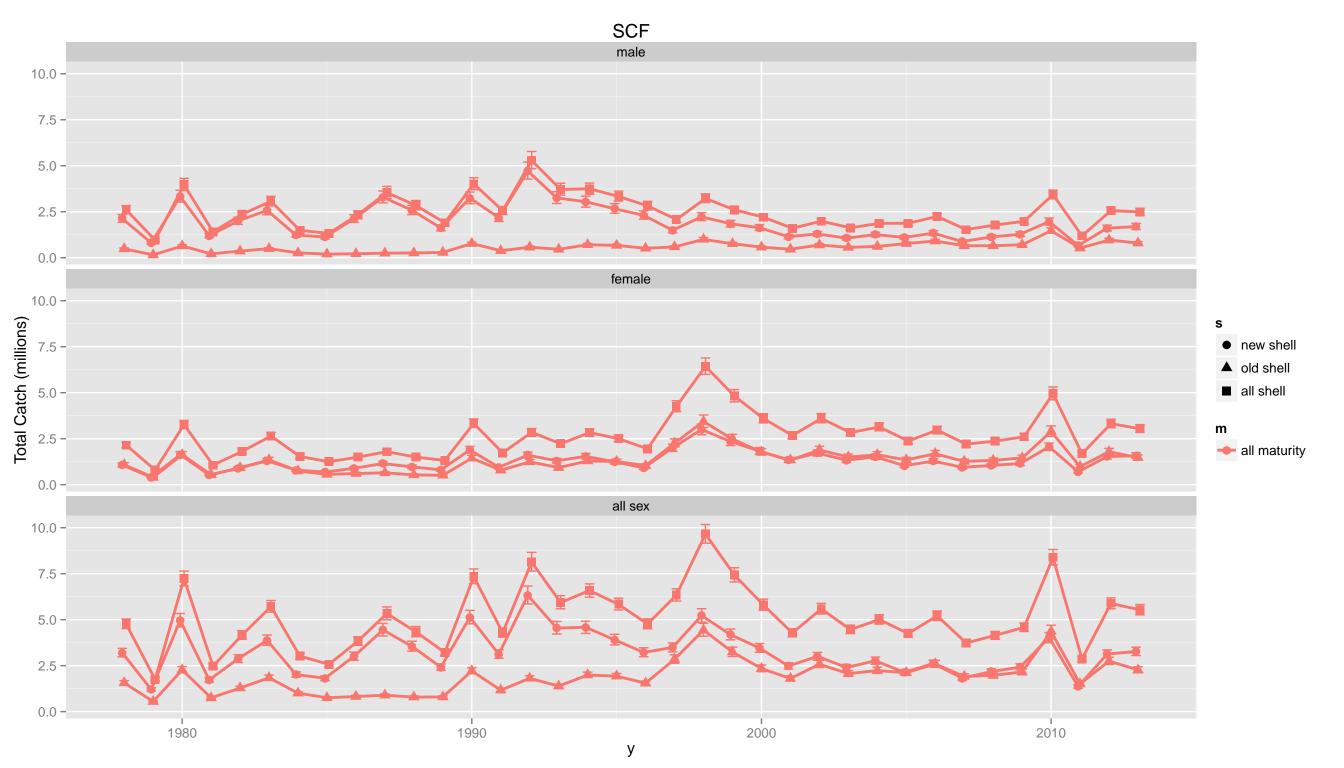


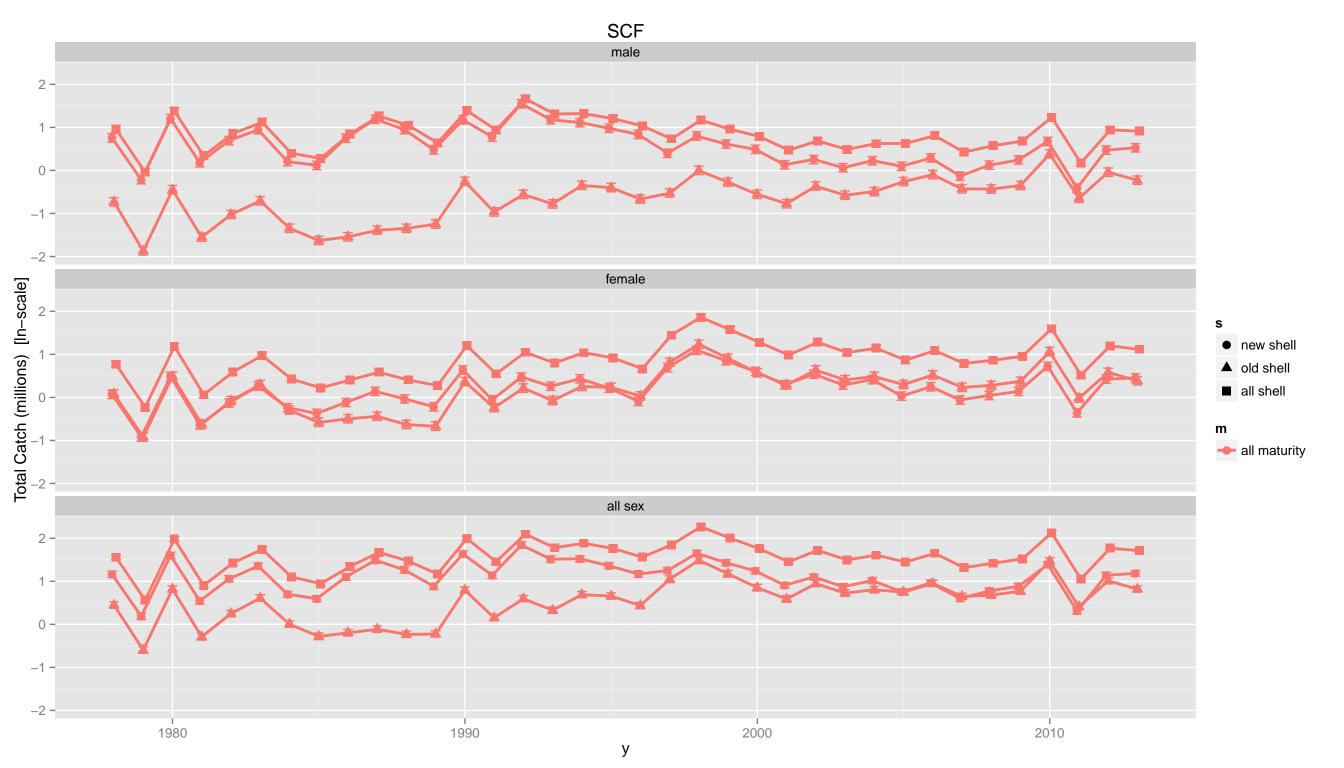


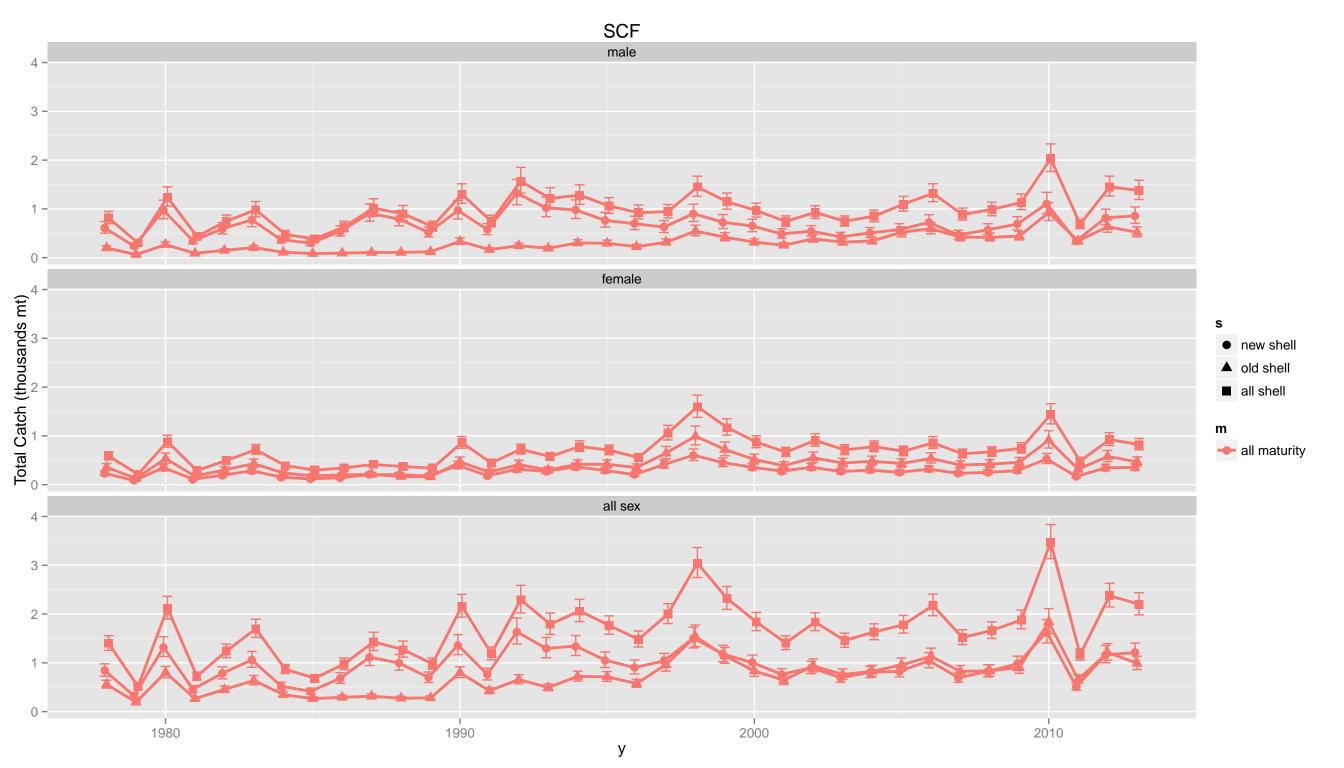


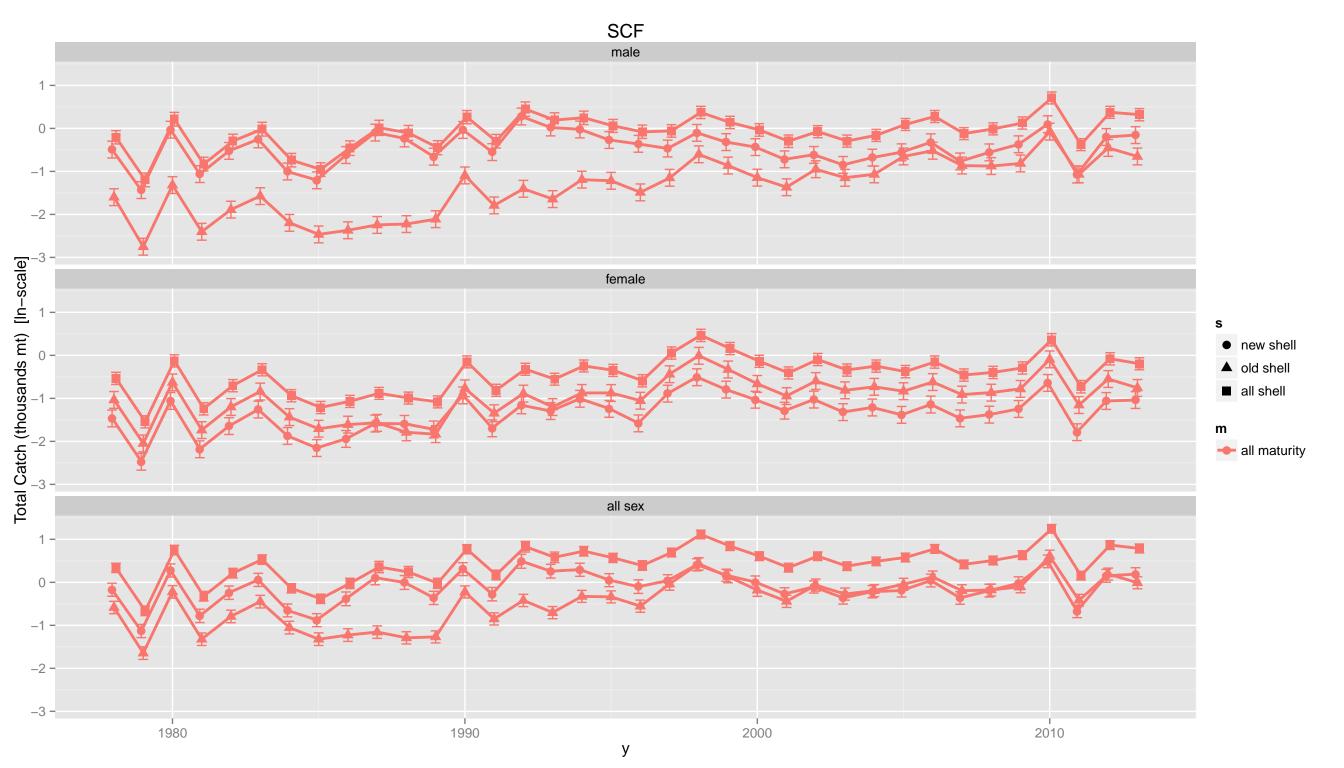


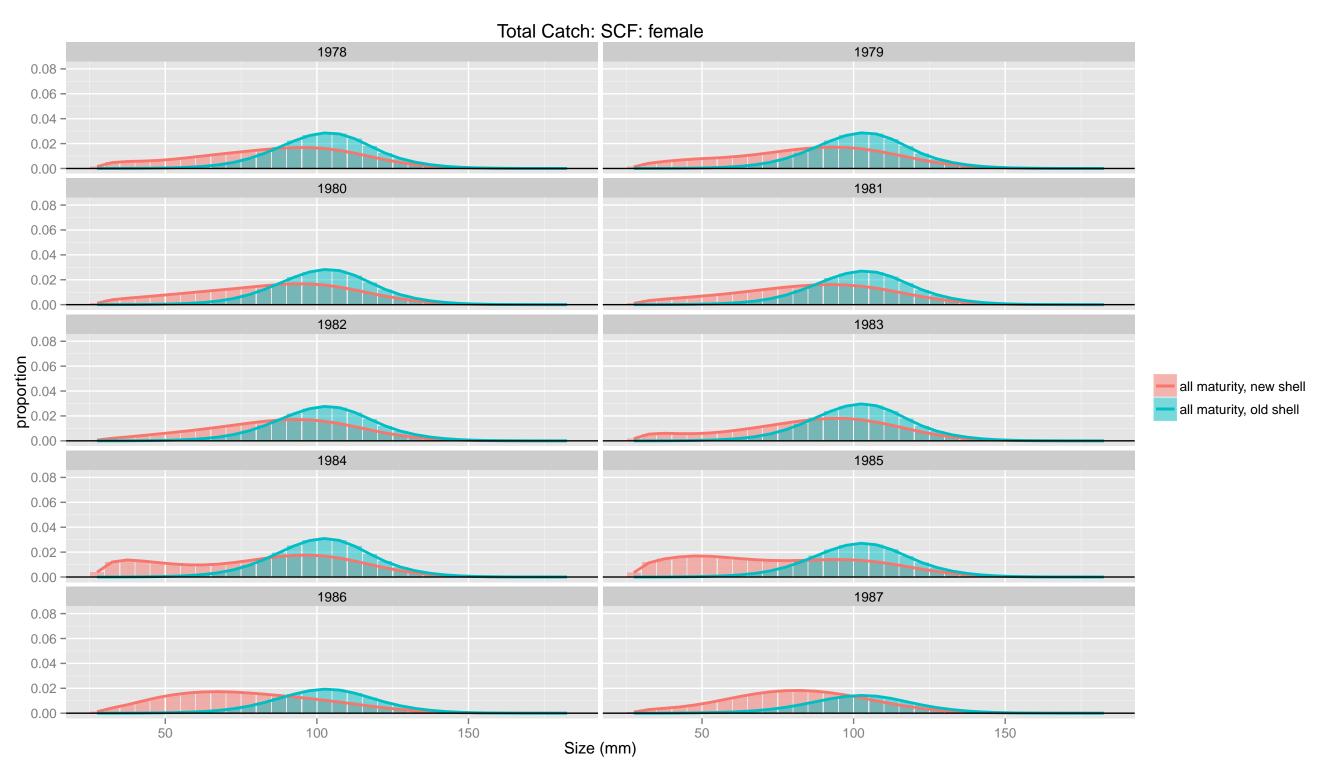
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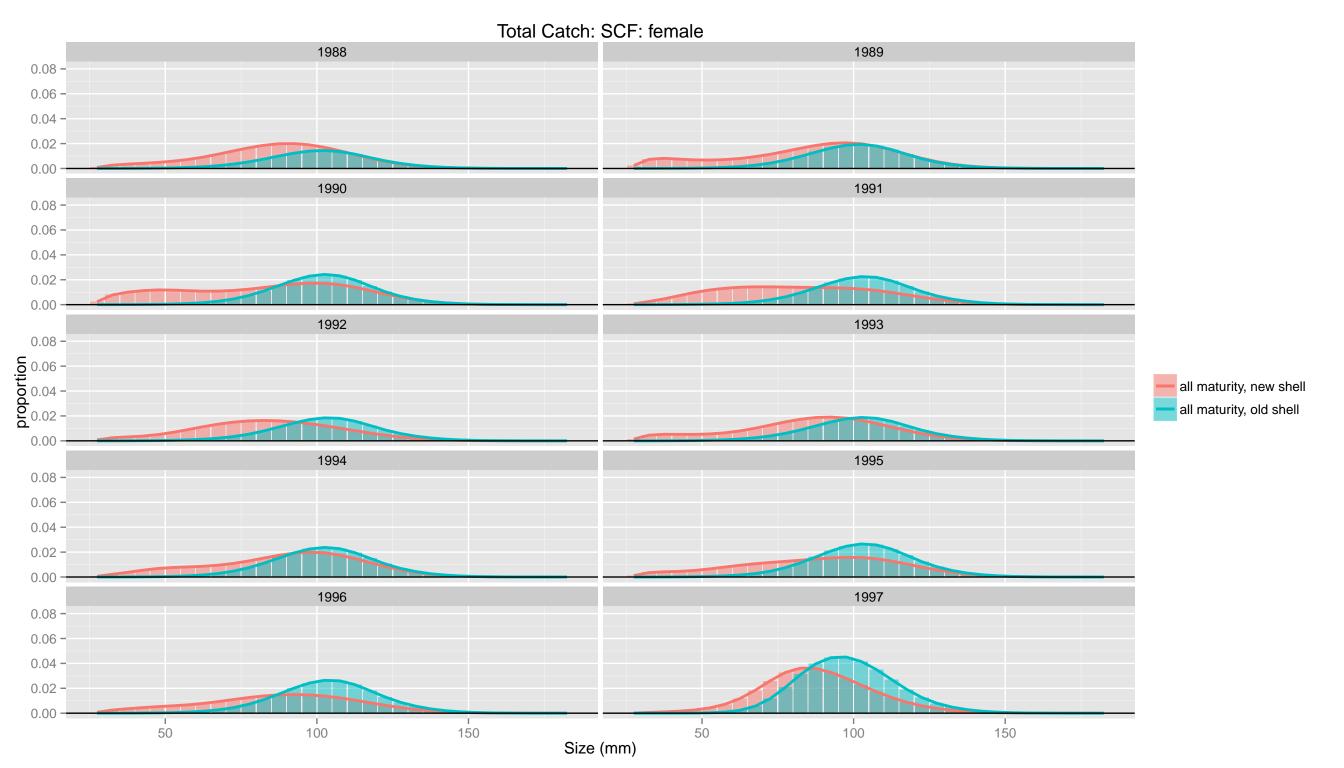


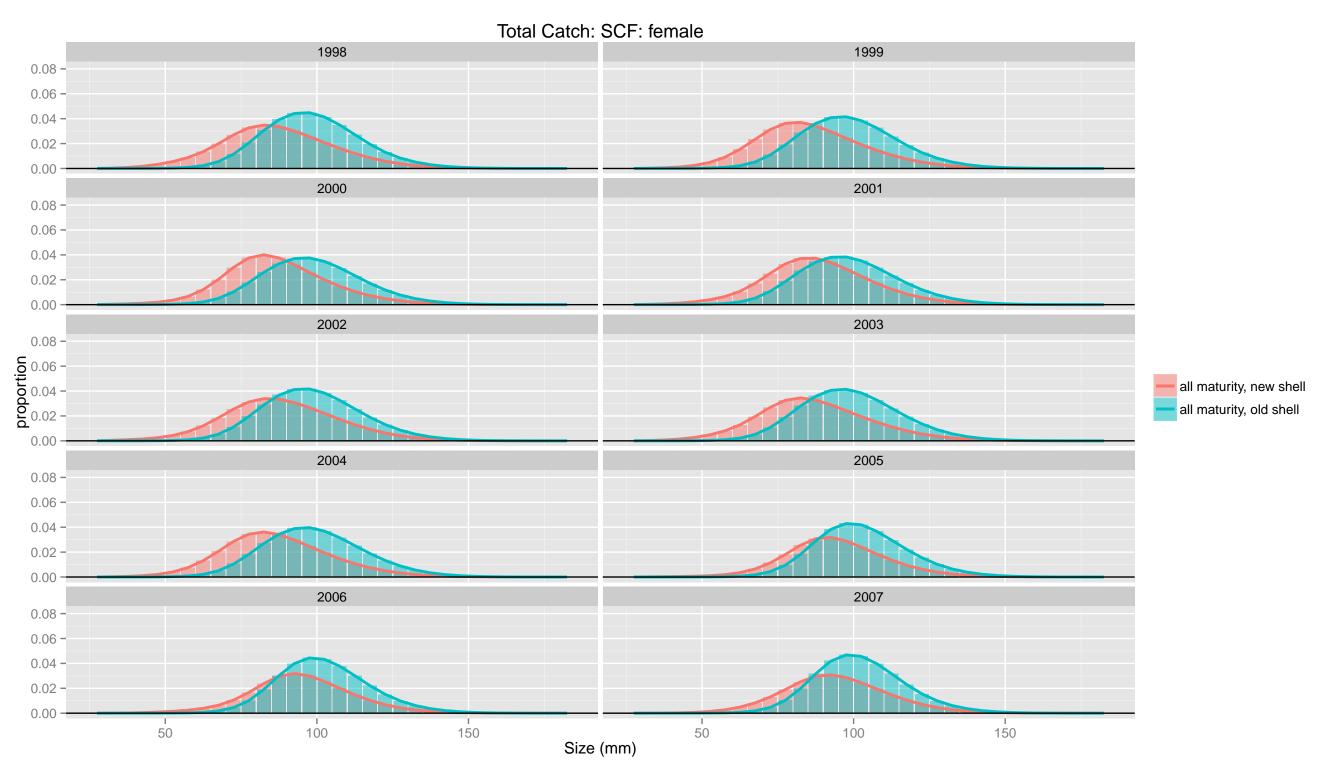




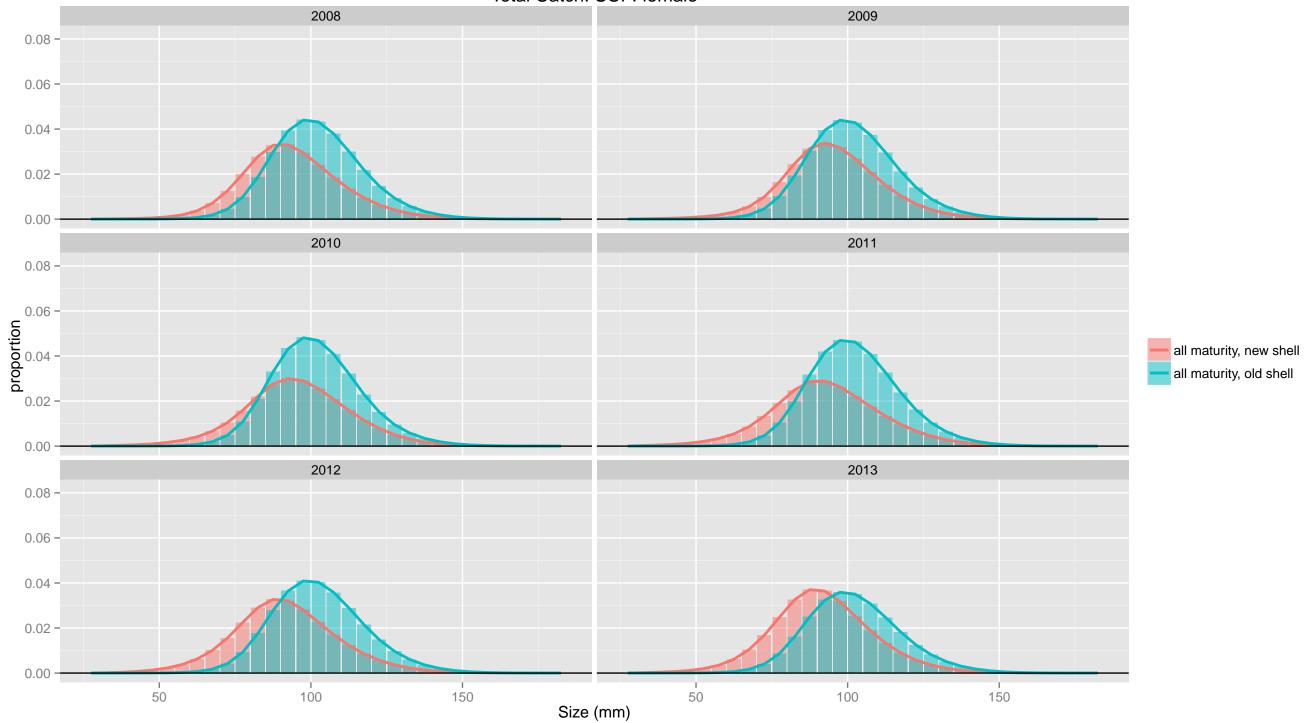


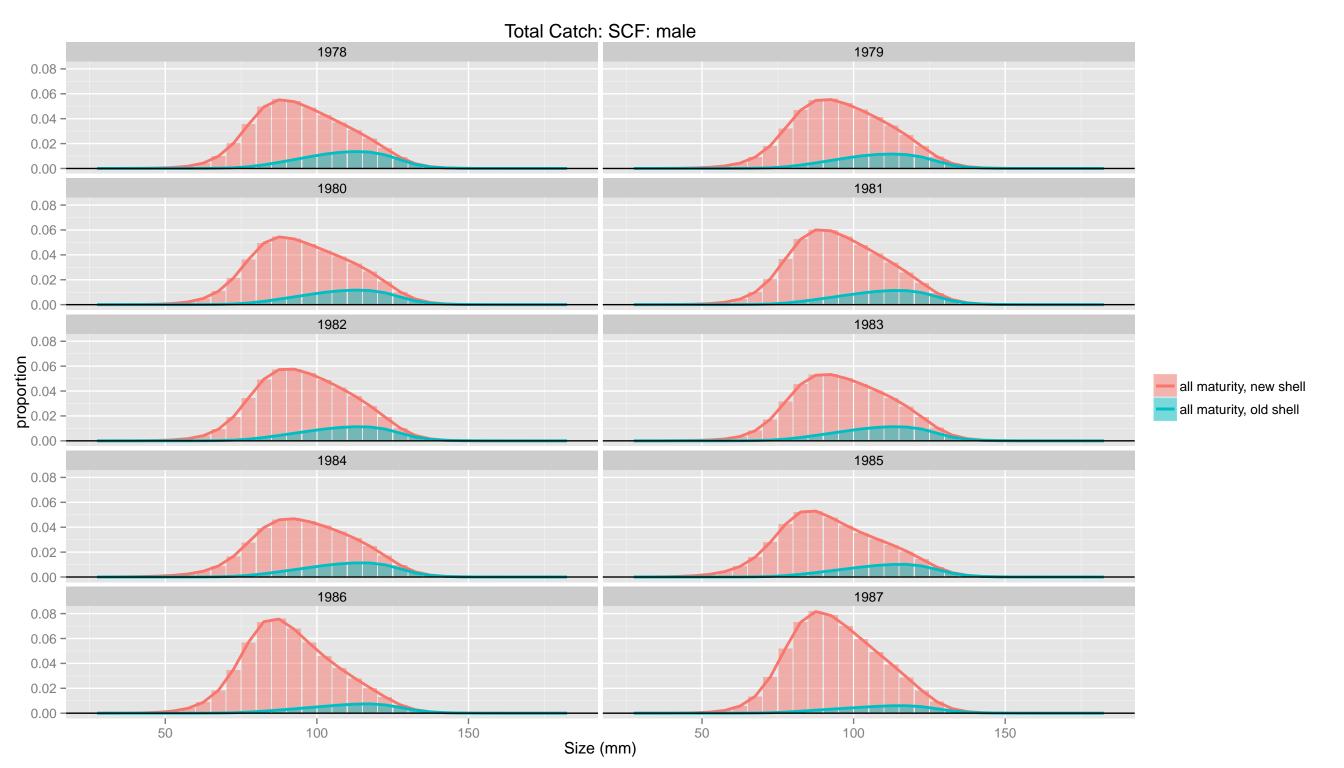


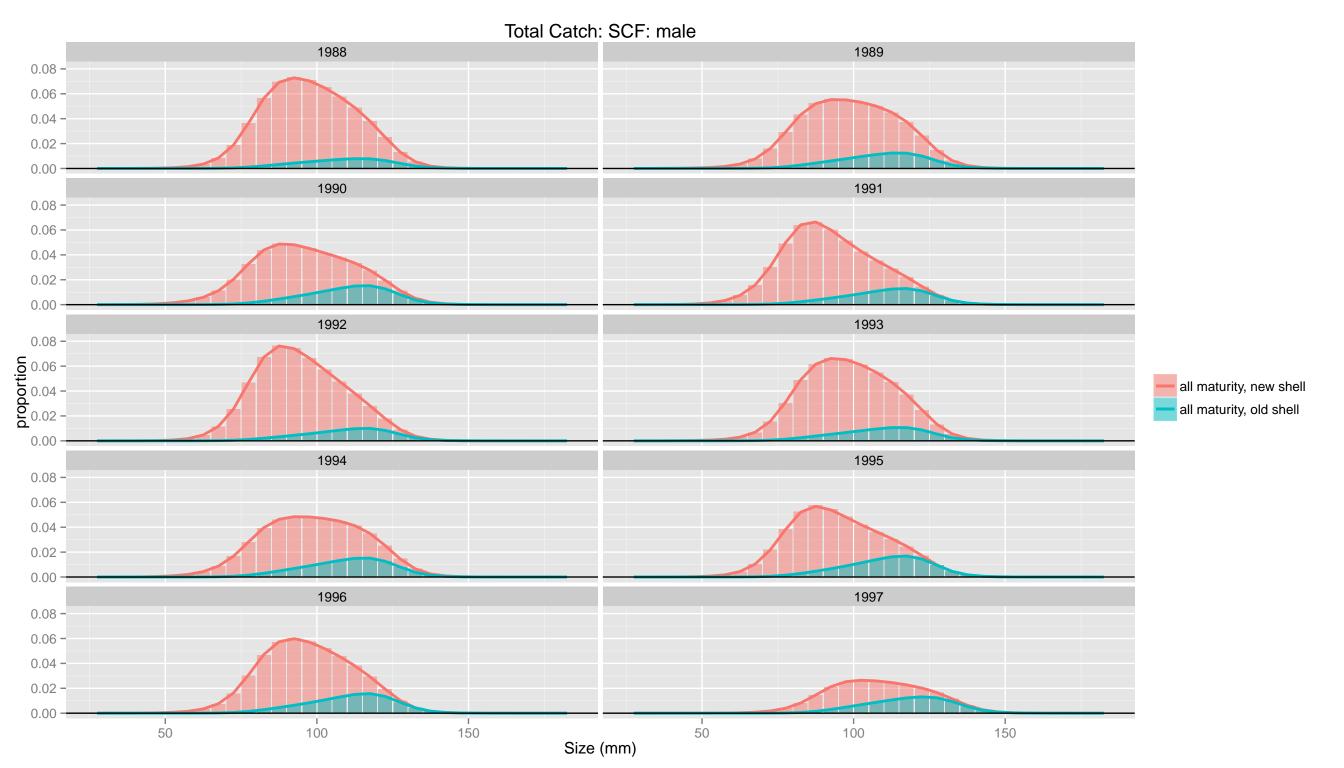


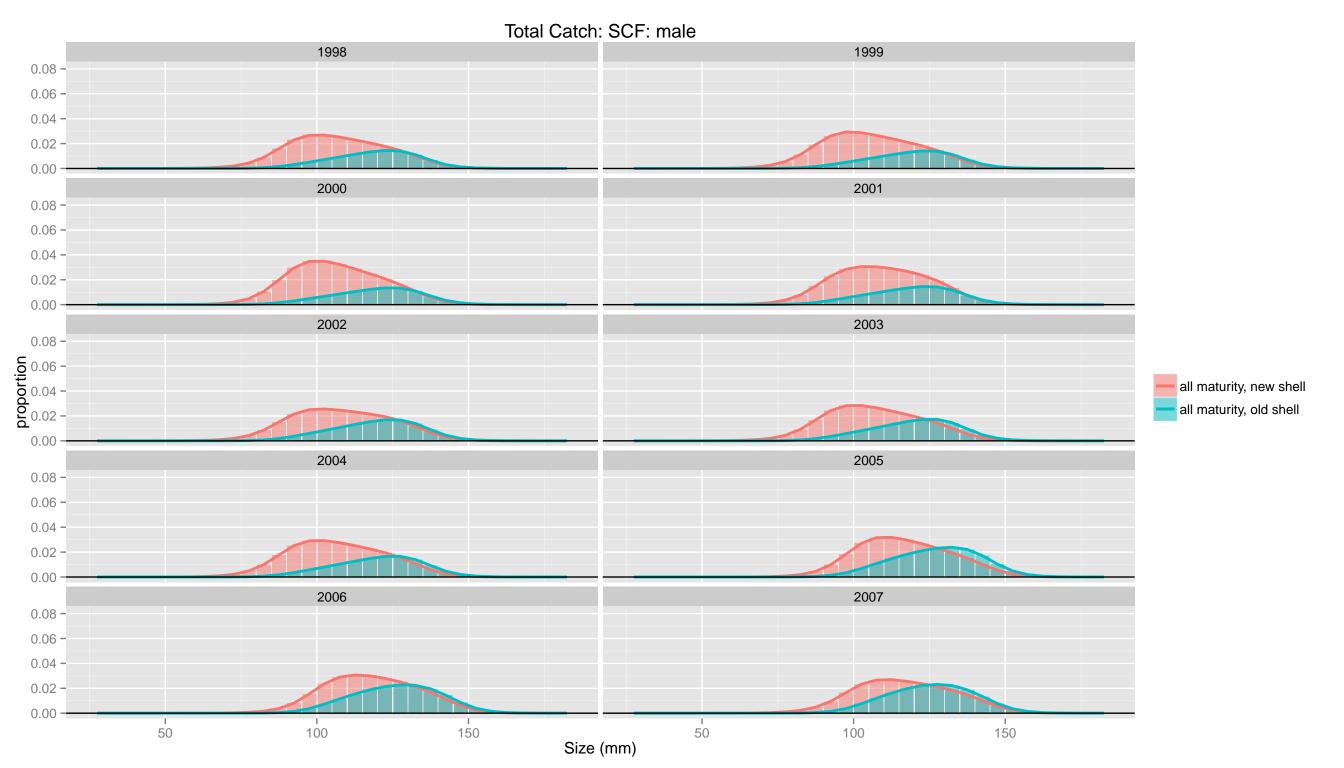


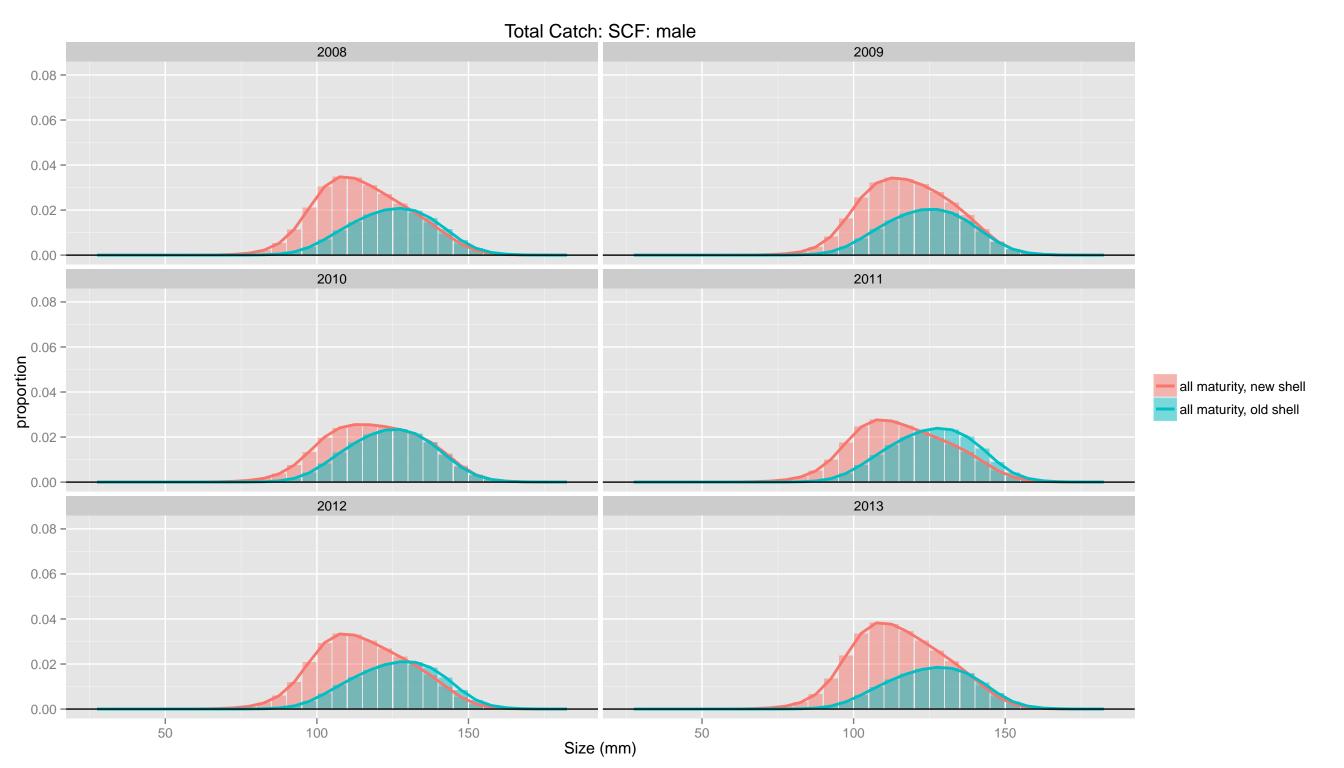
Total Catch: SCF: female

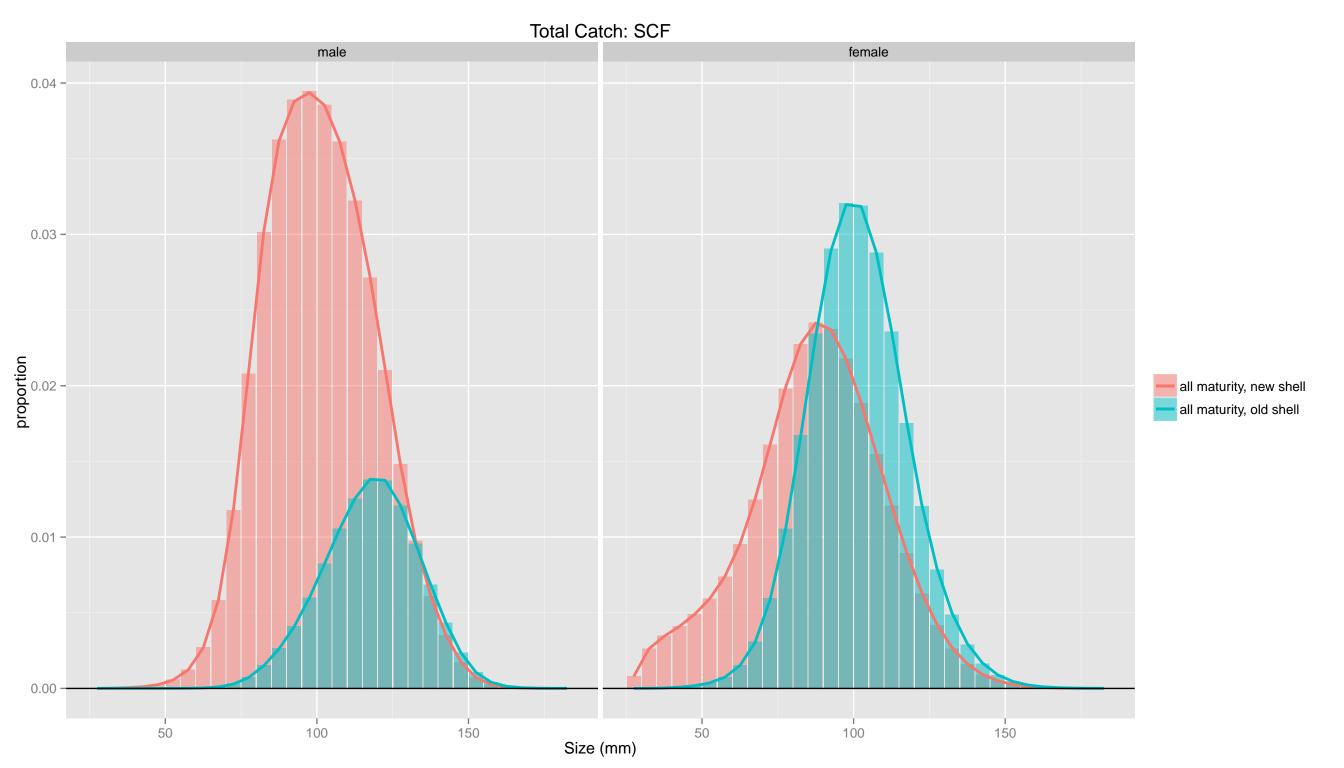


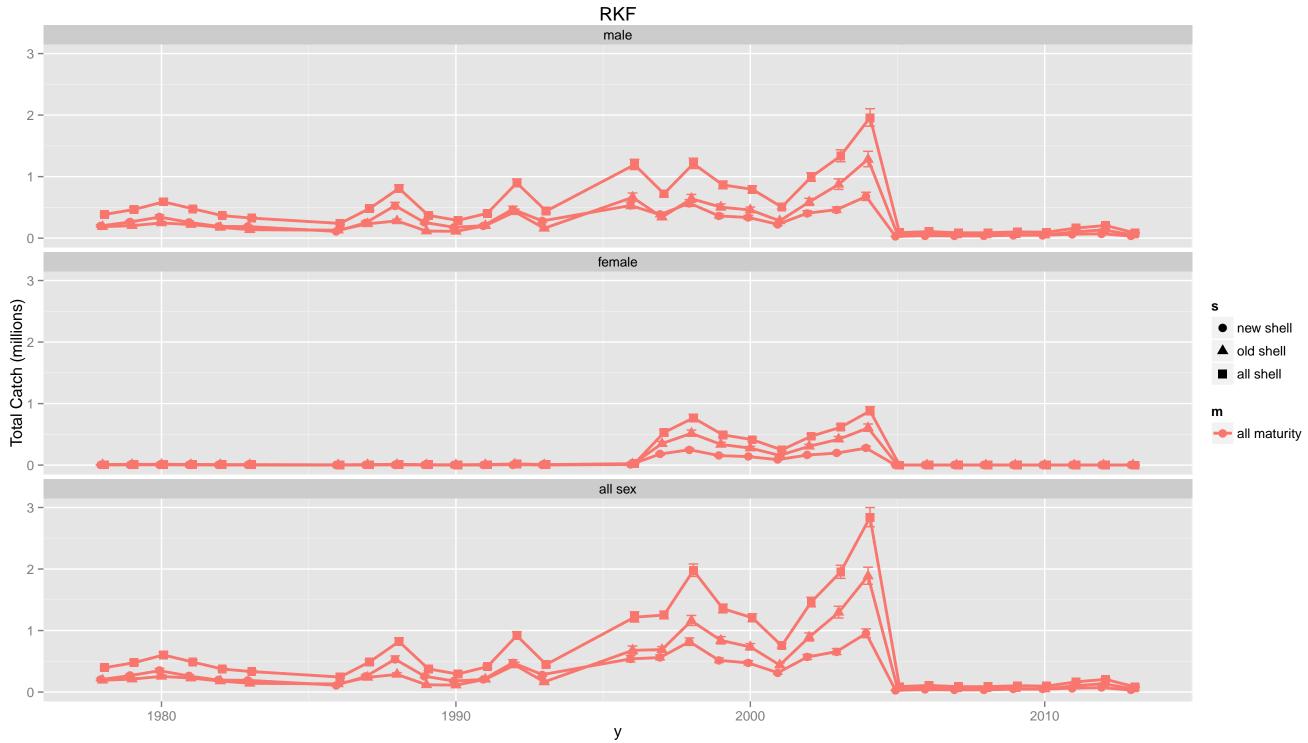


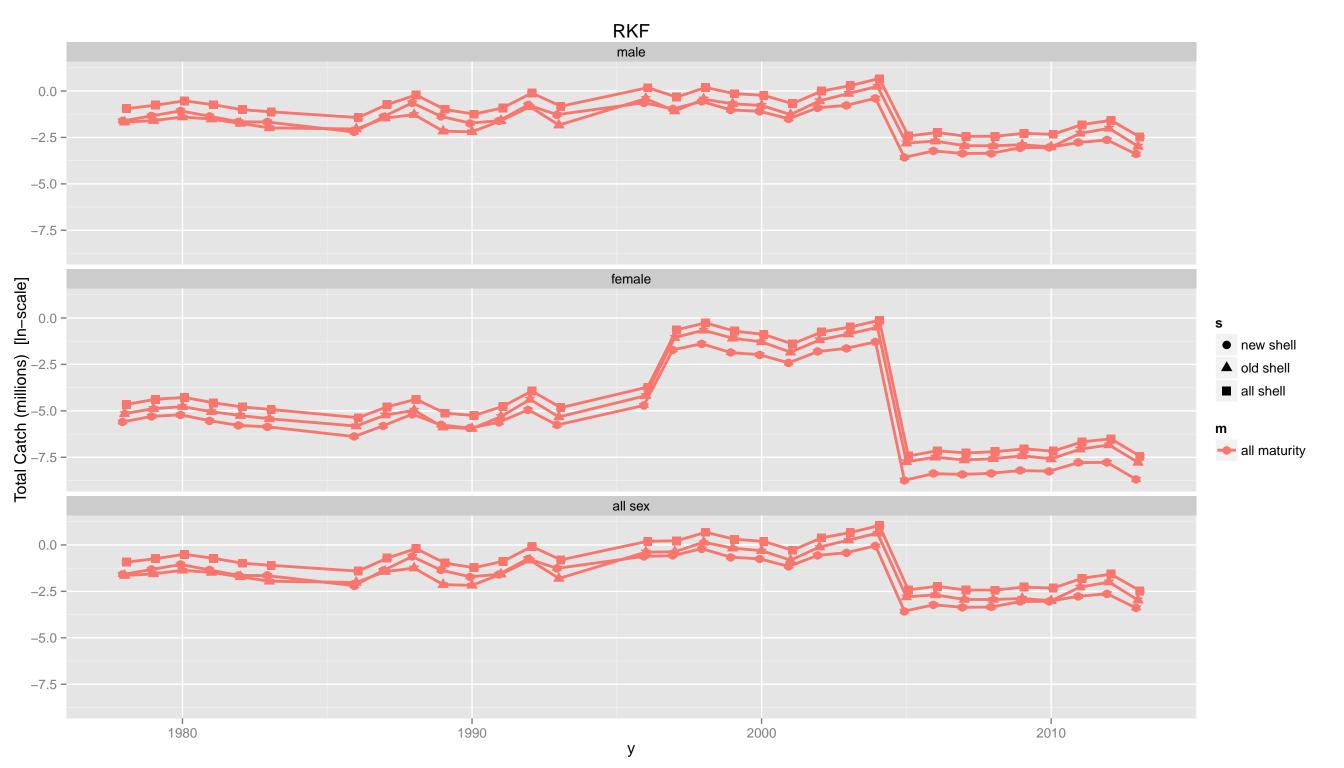


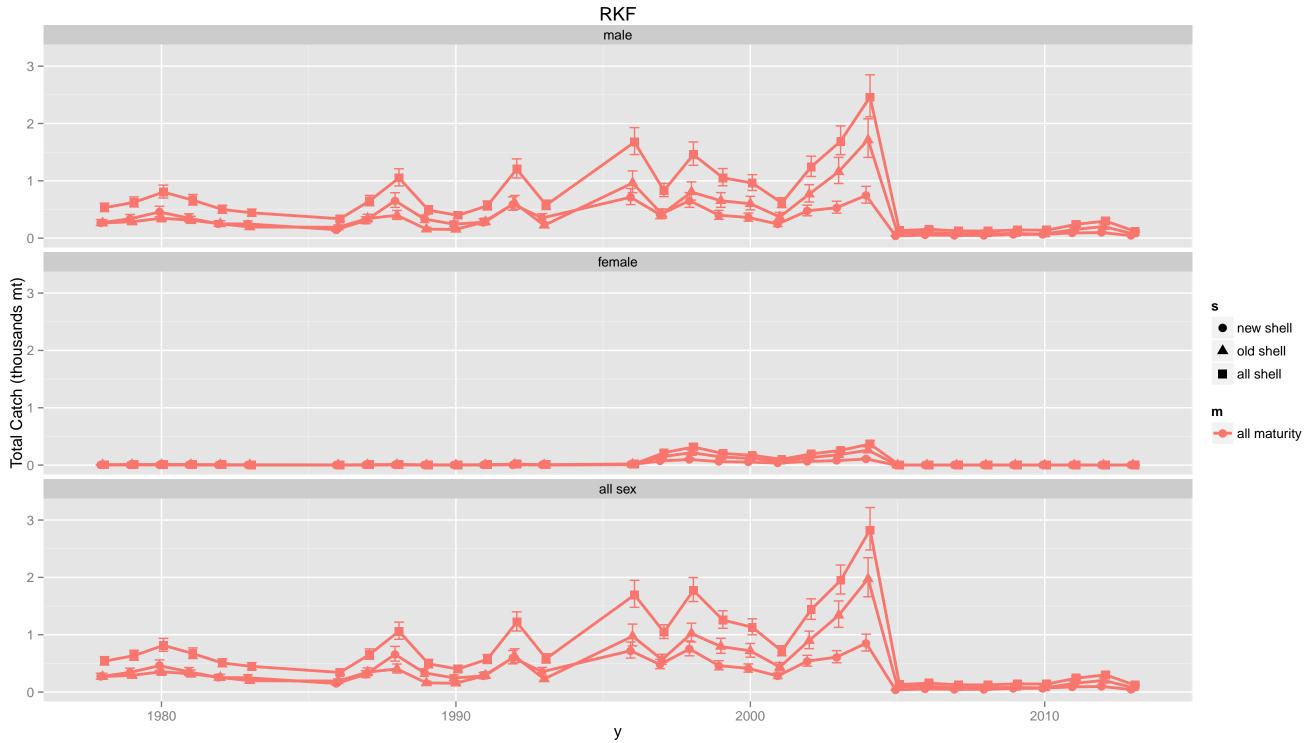


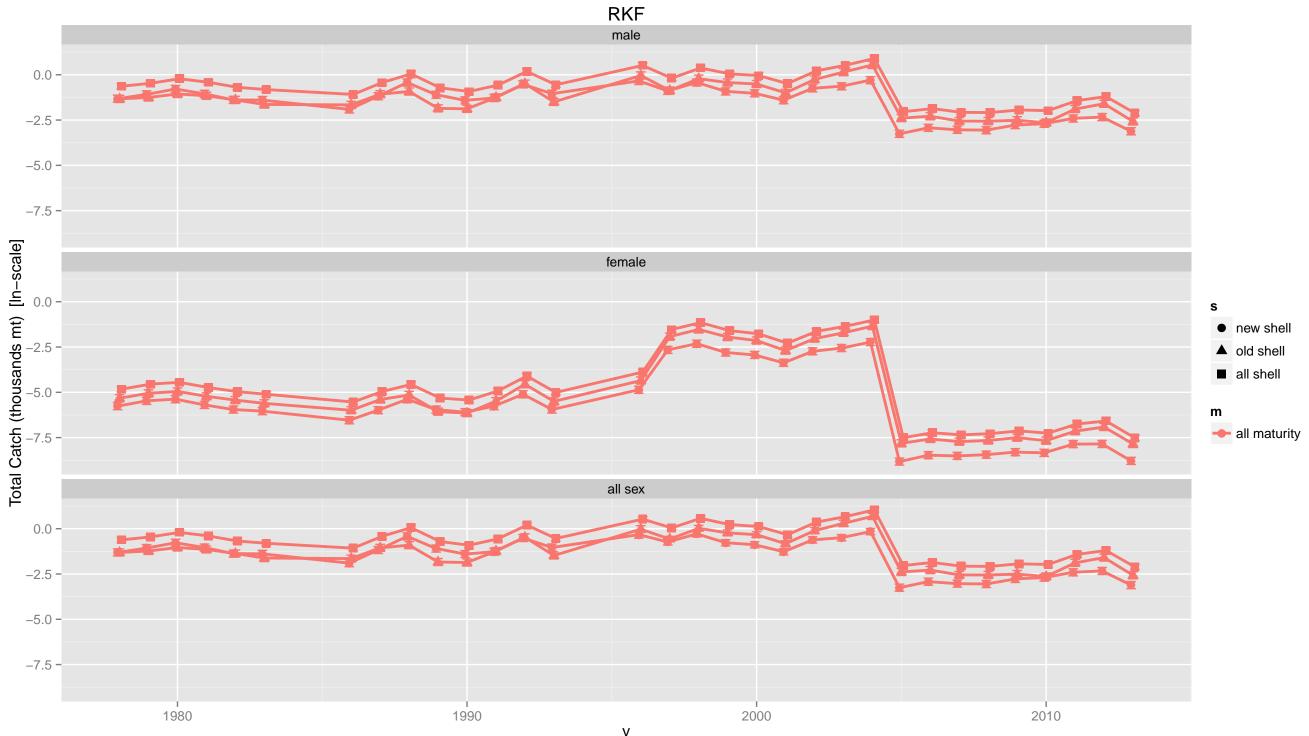






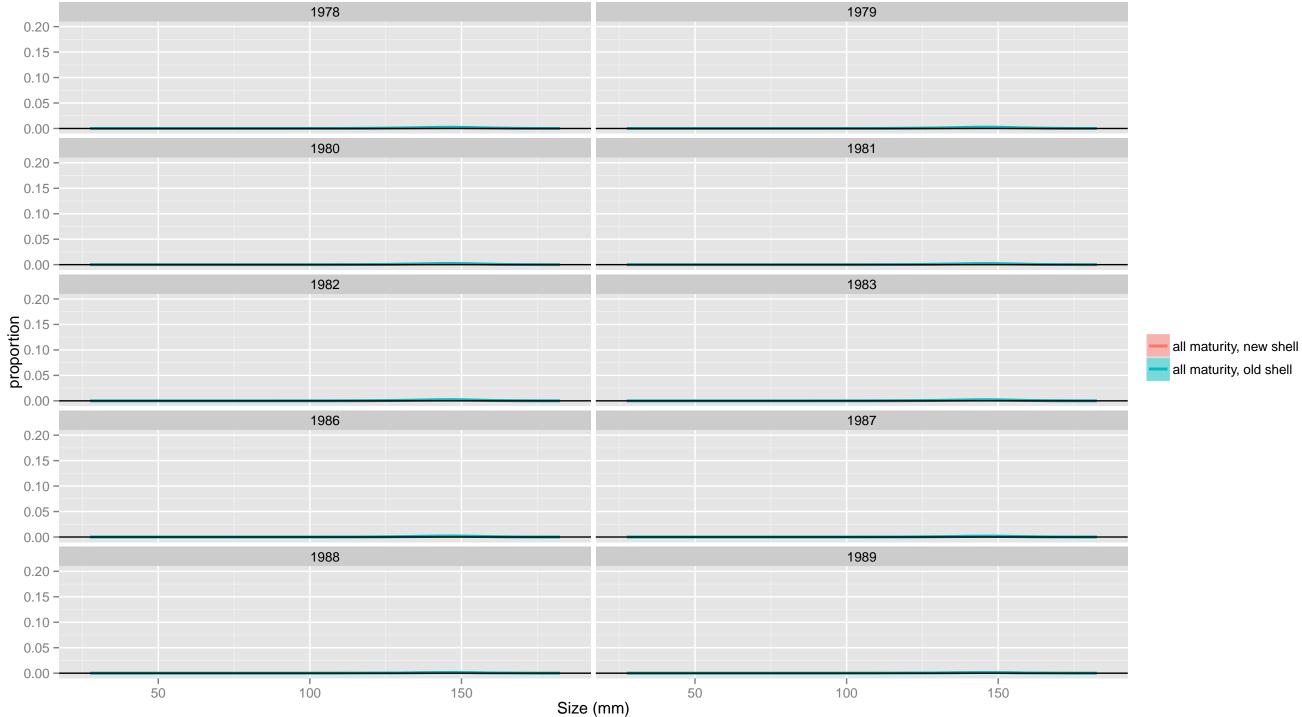




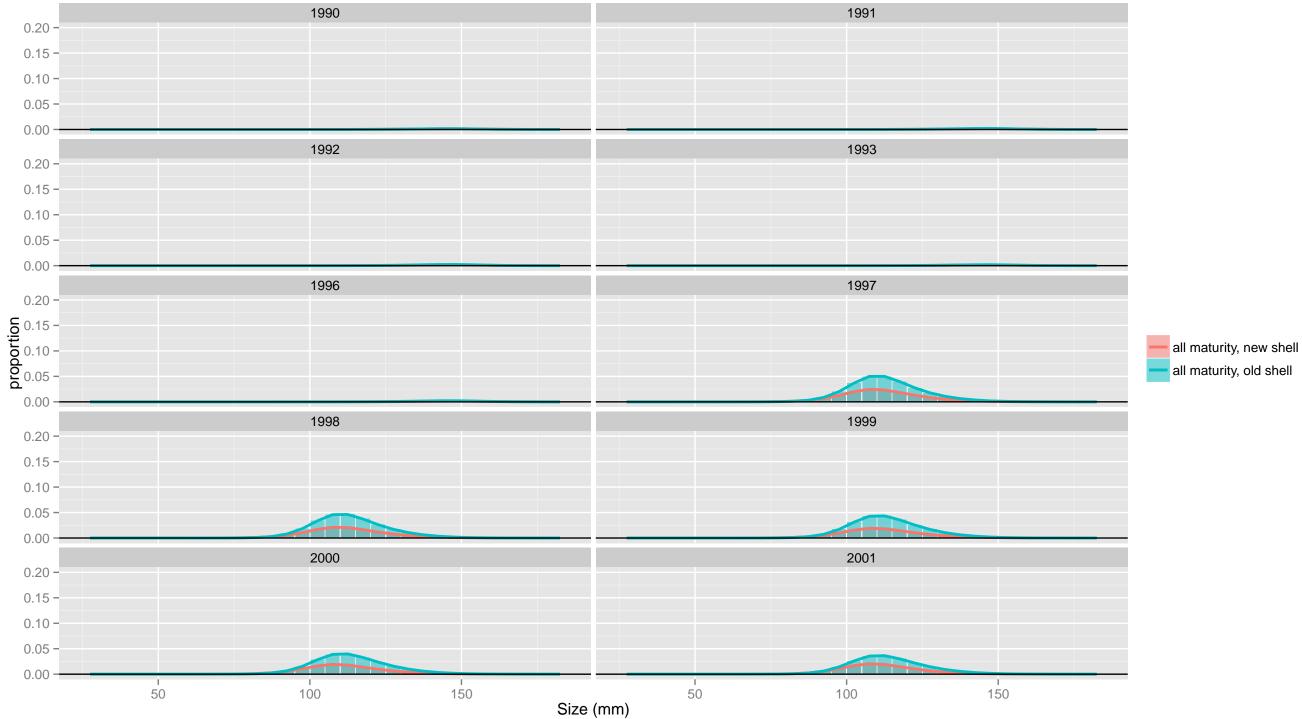


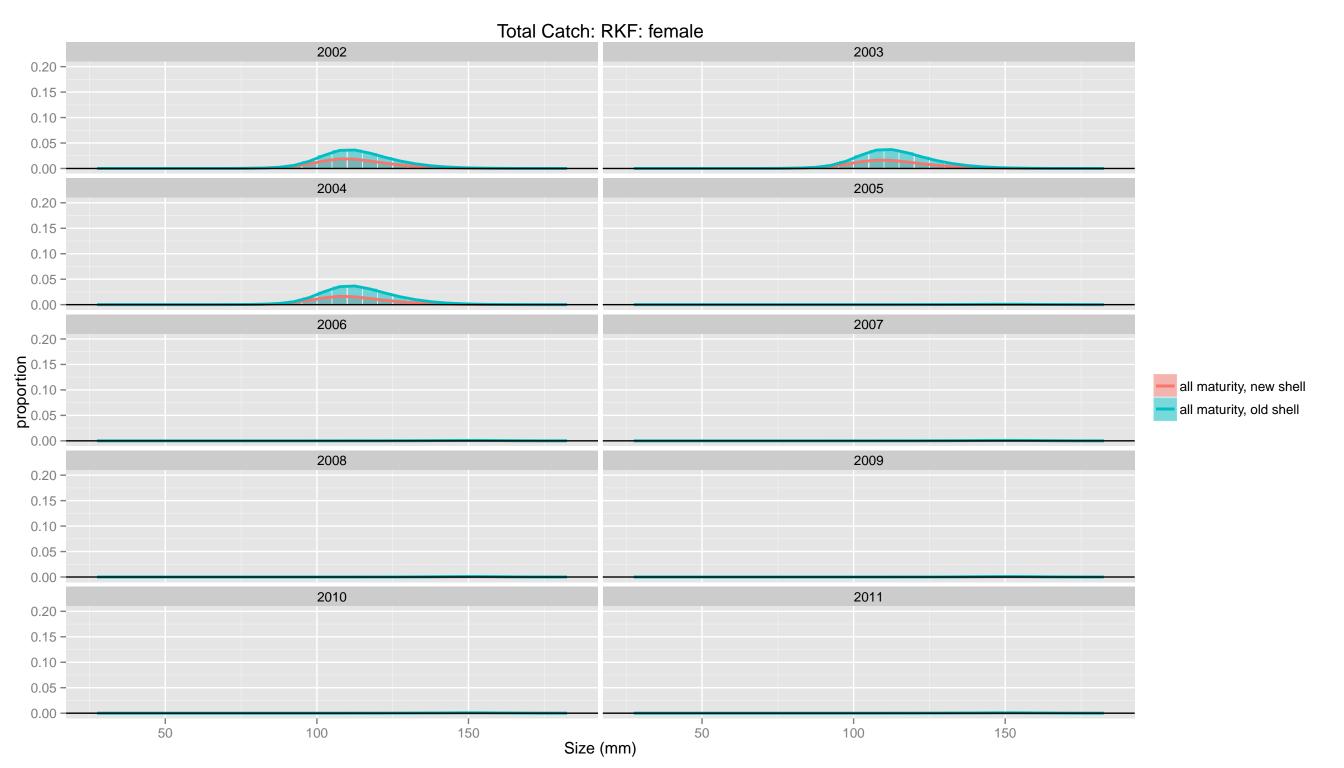
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Total Catch: RKF: female

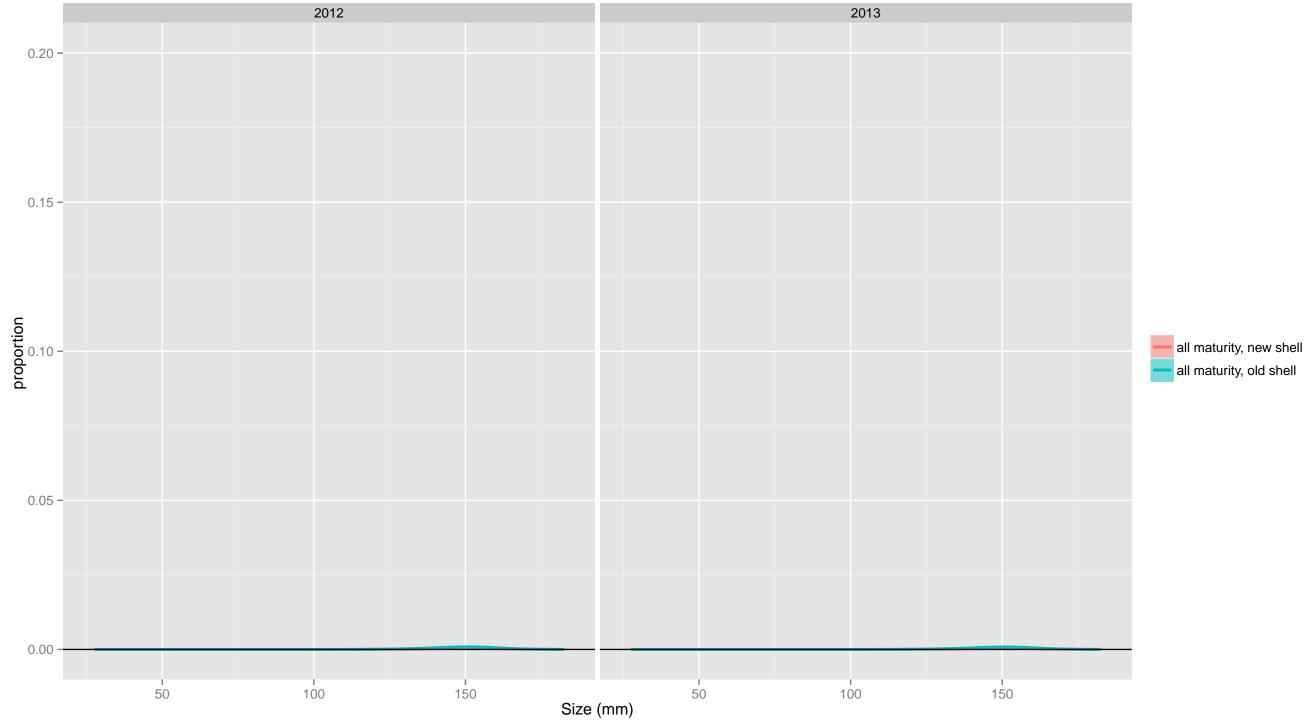


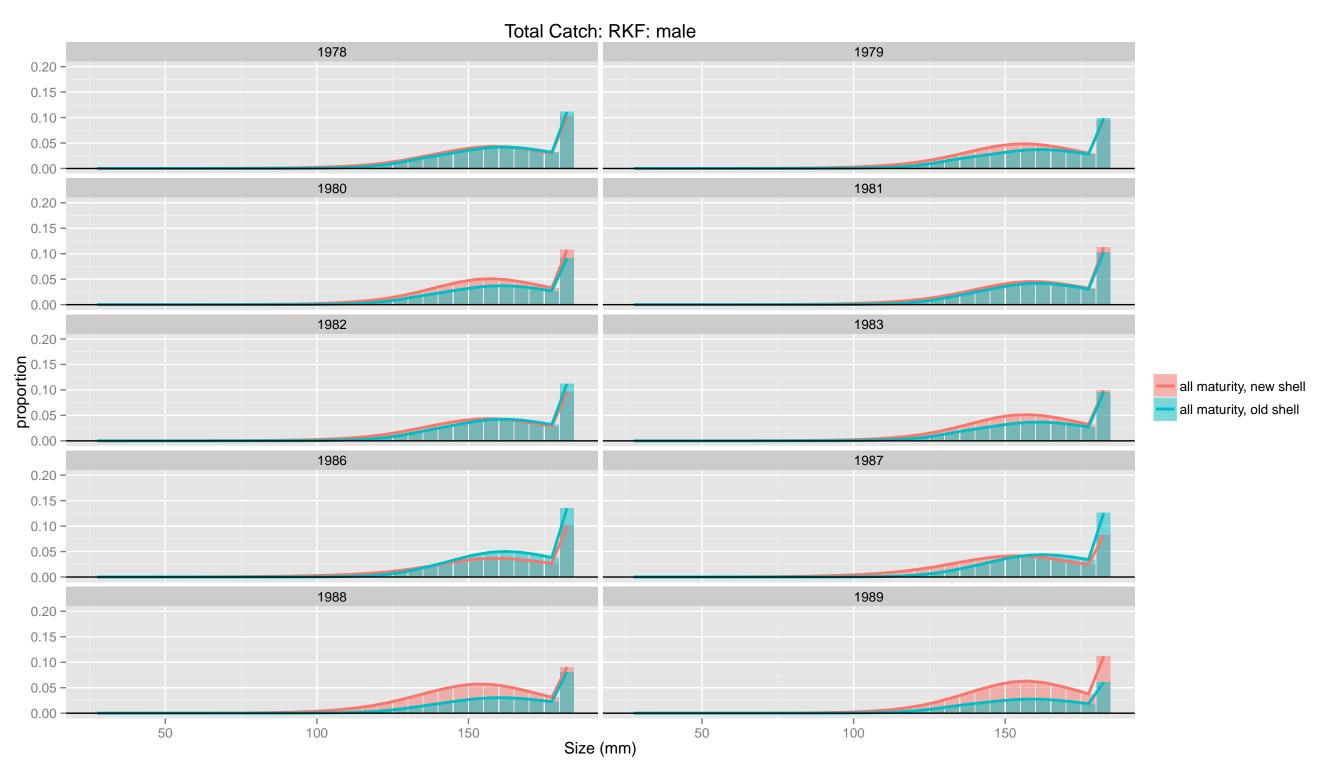
Total Catch: RKF: female

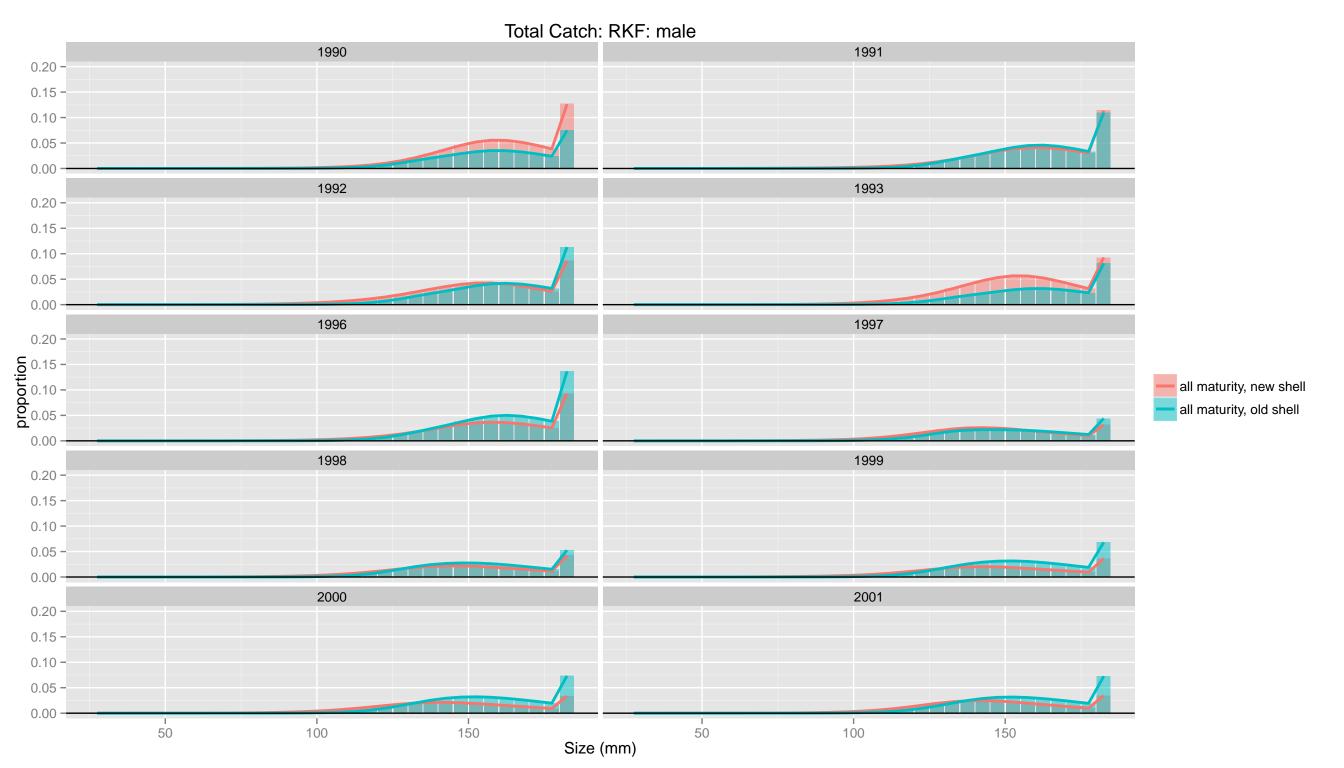


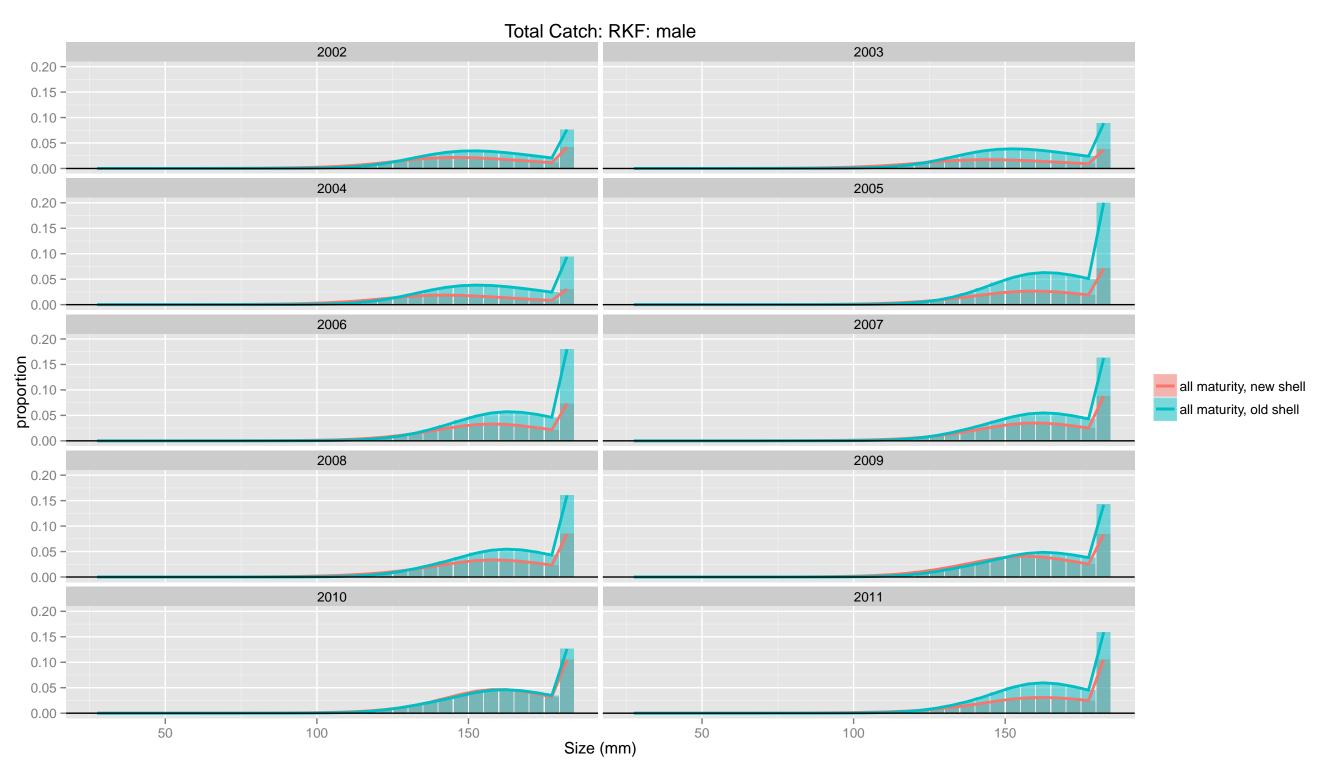


Total Catch: RKF: female

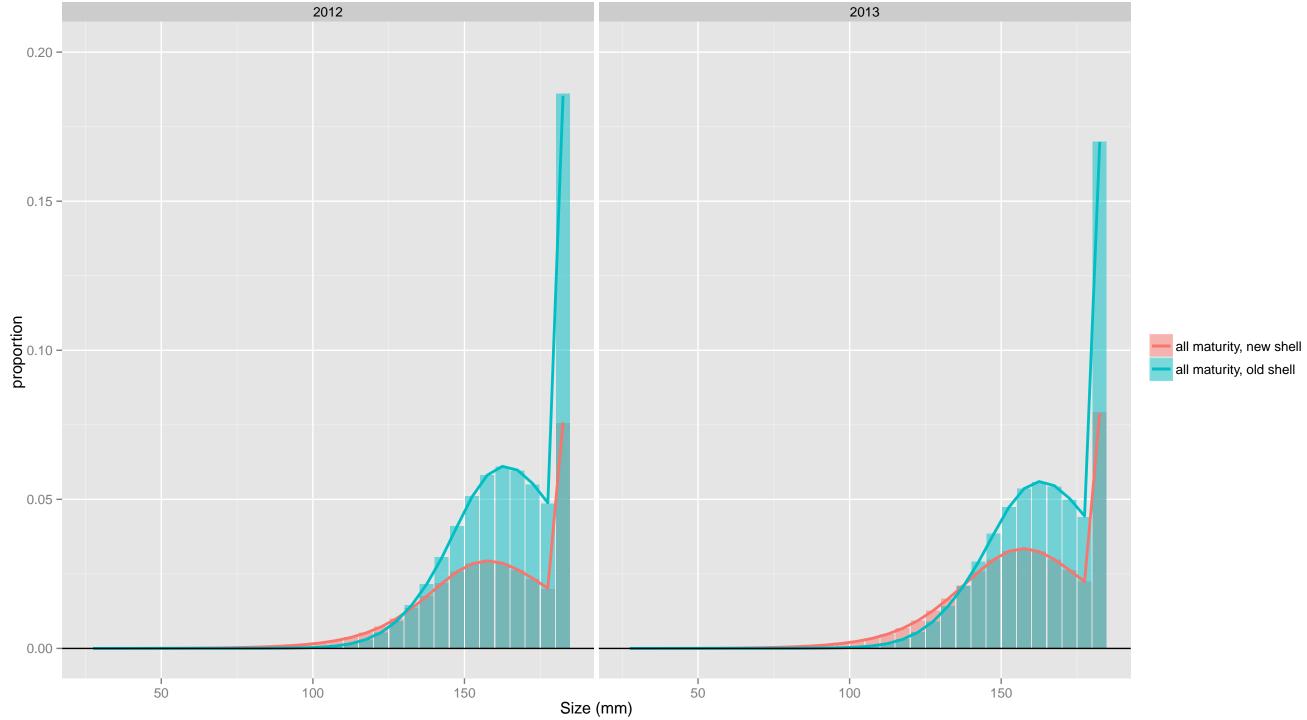




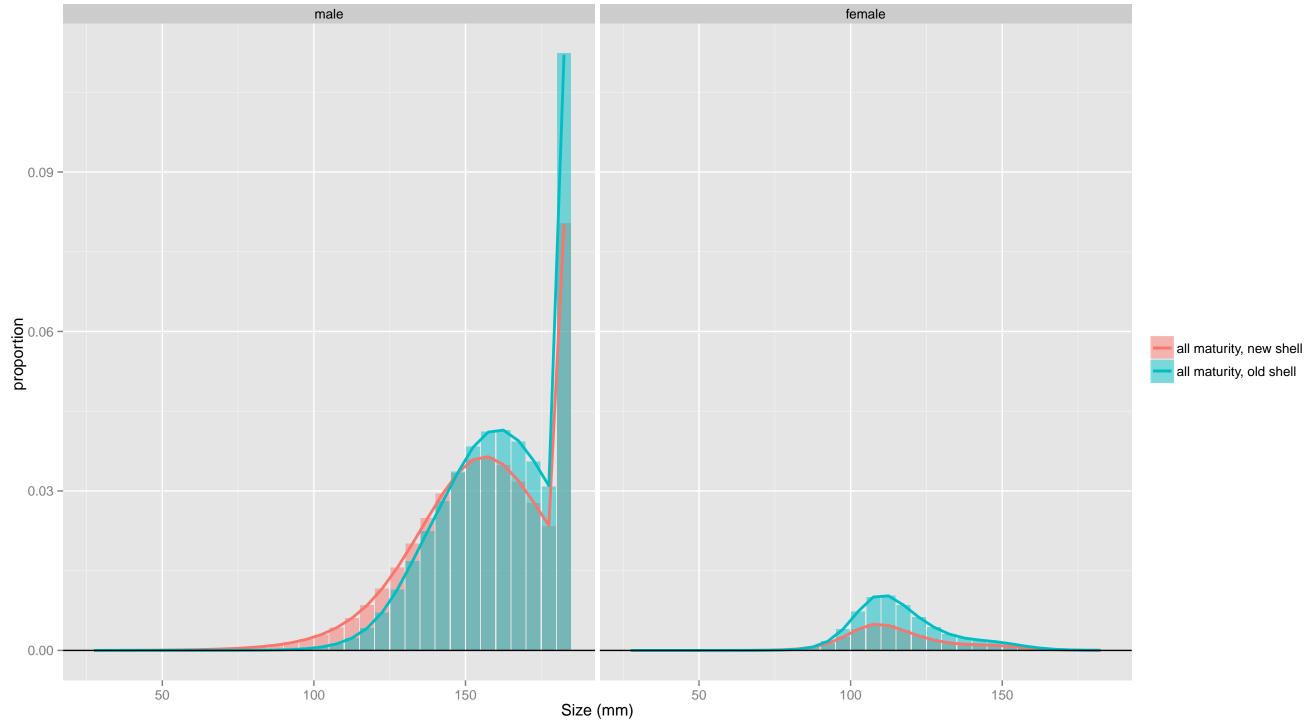


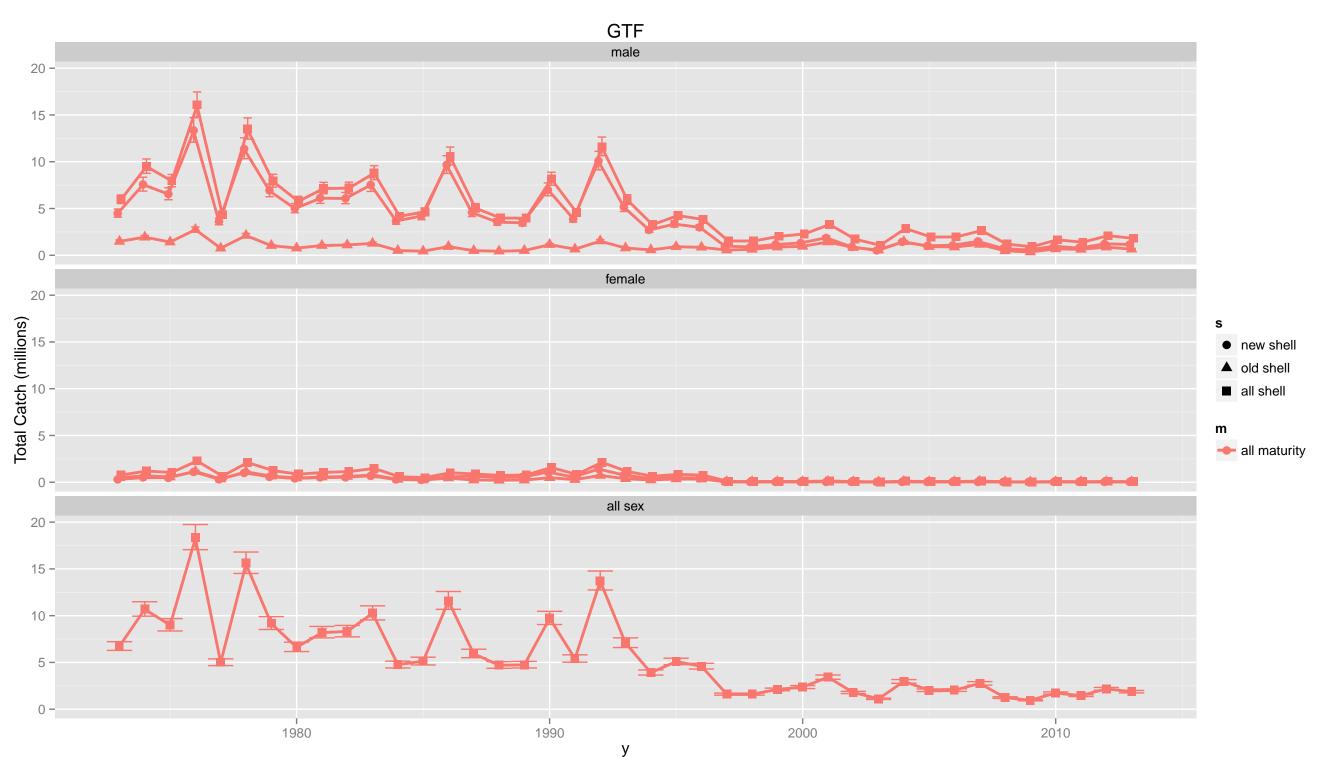


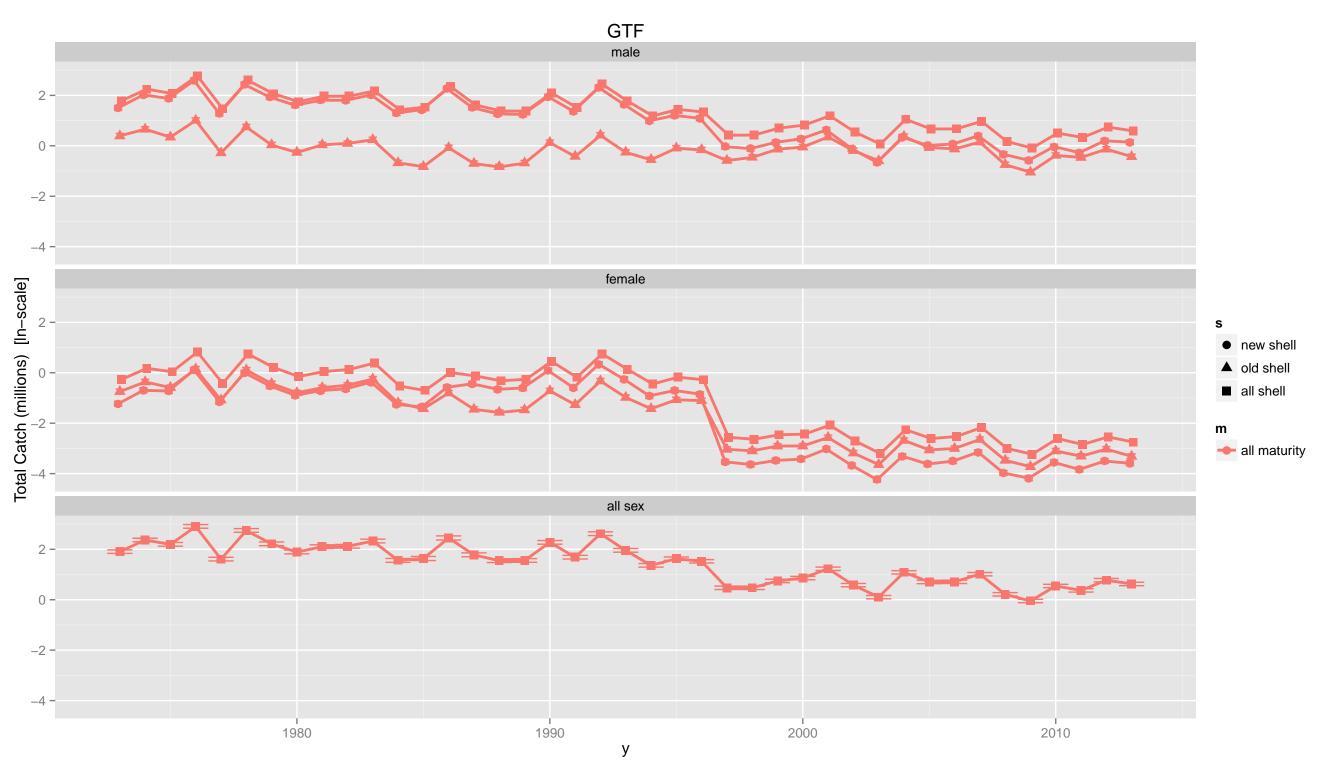
Total Catch: RKF: male

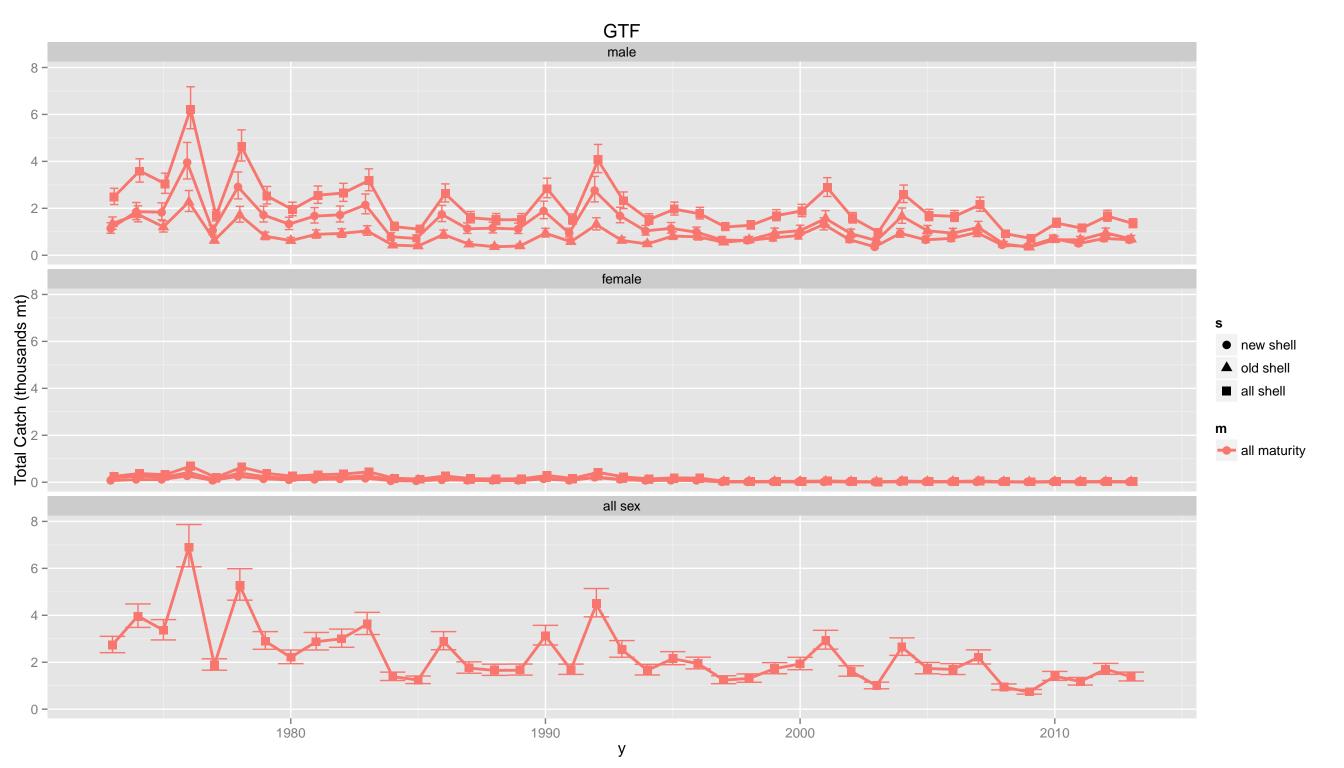


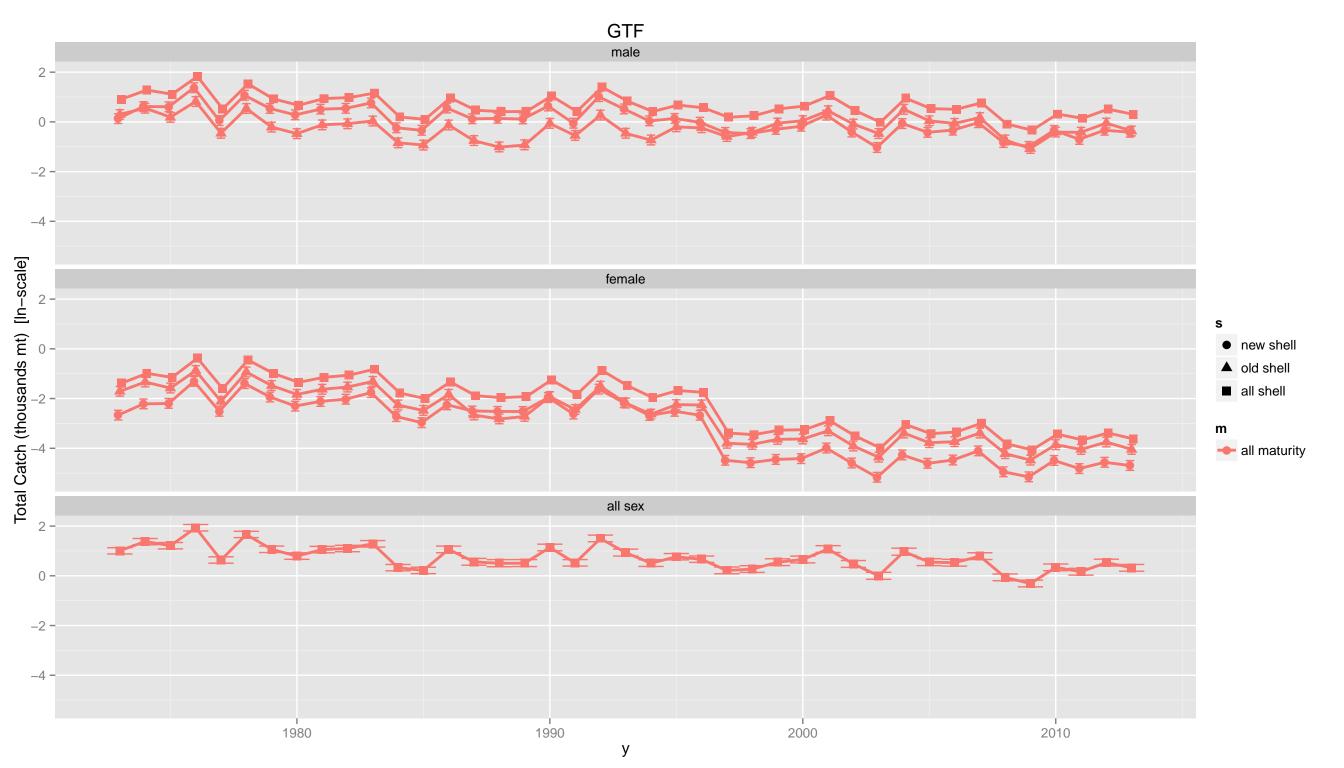


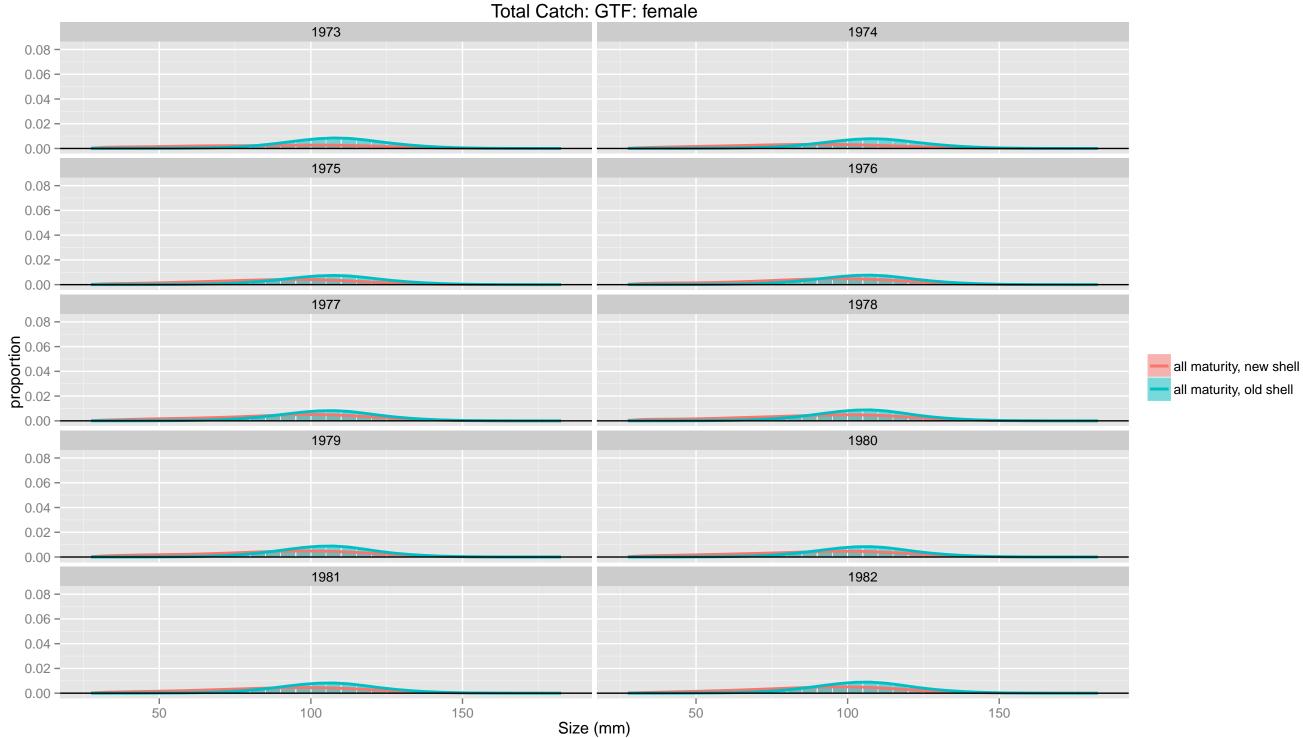


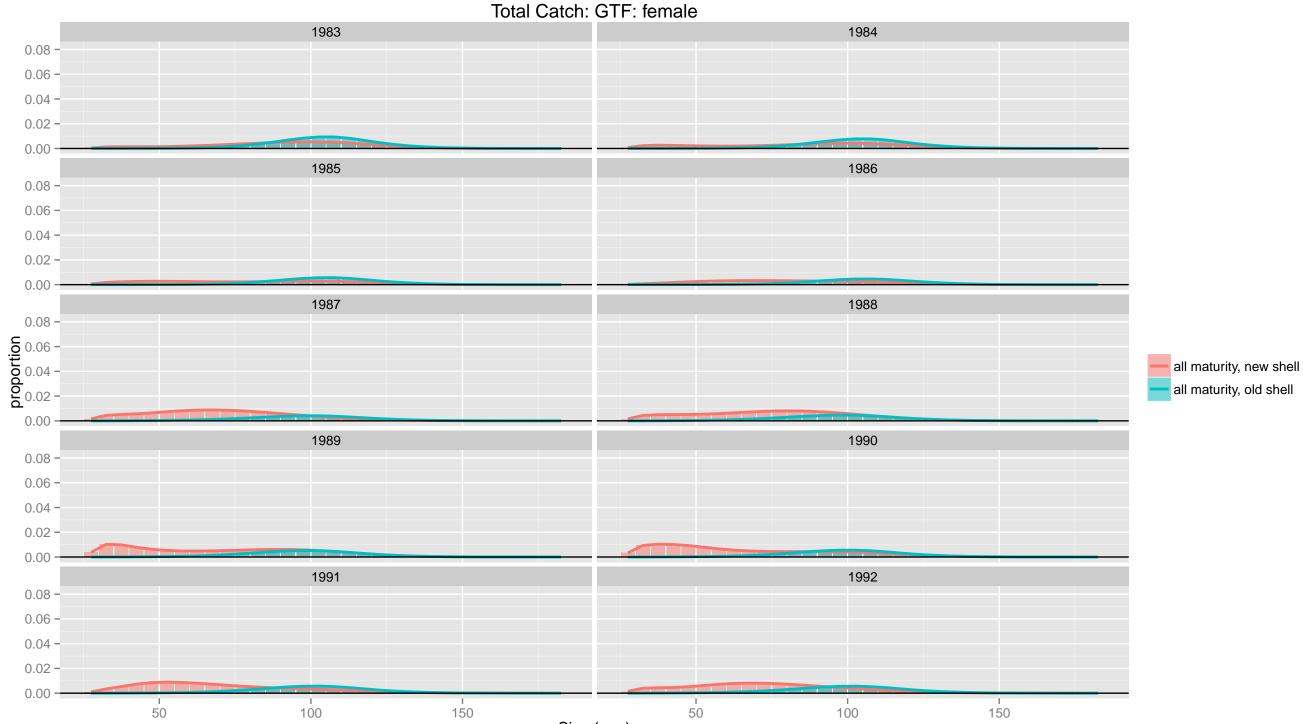




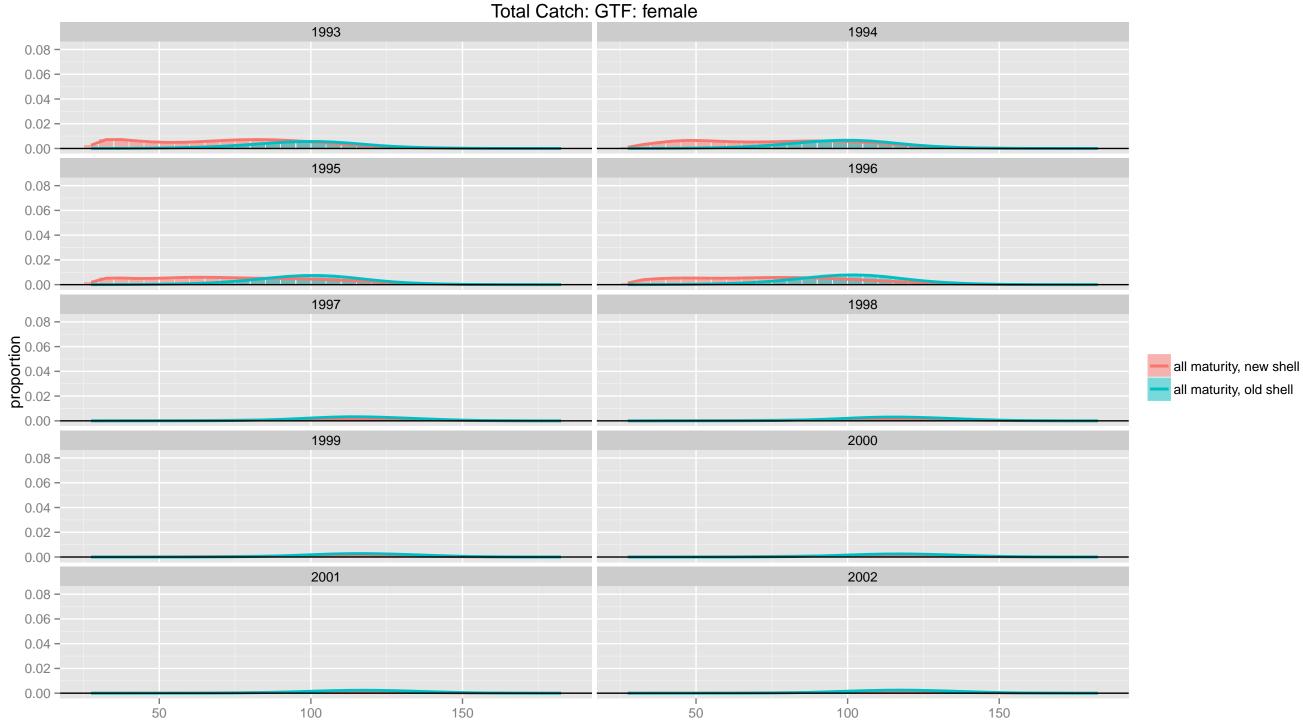






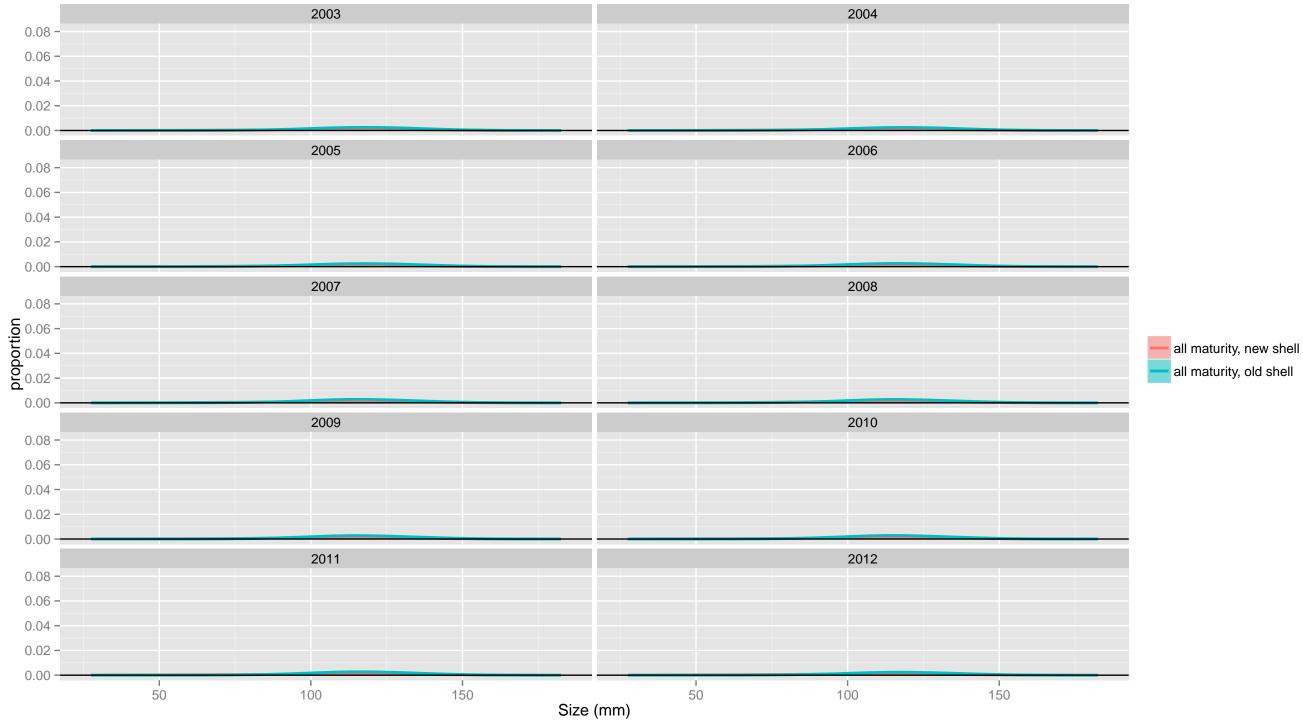


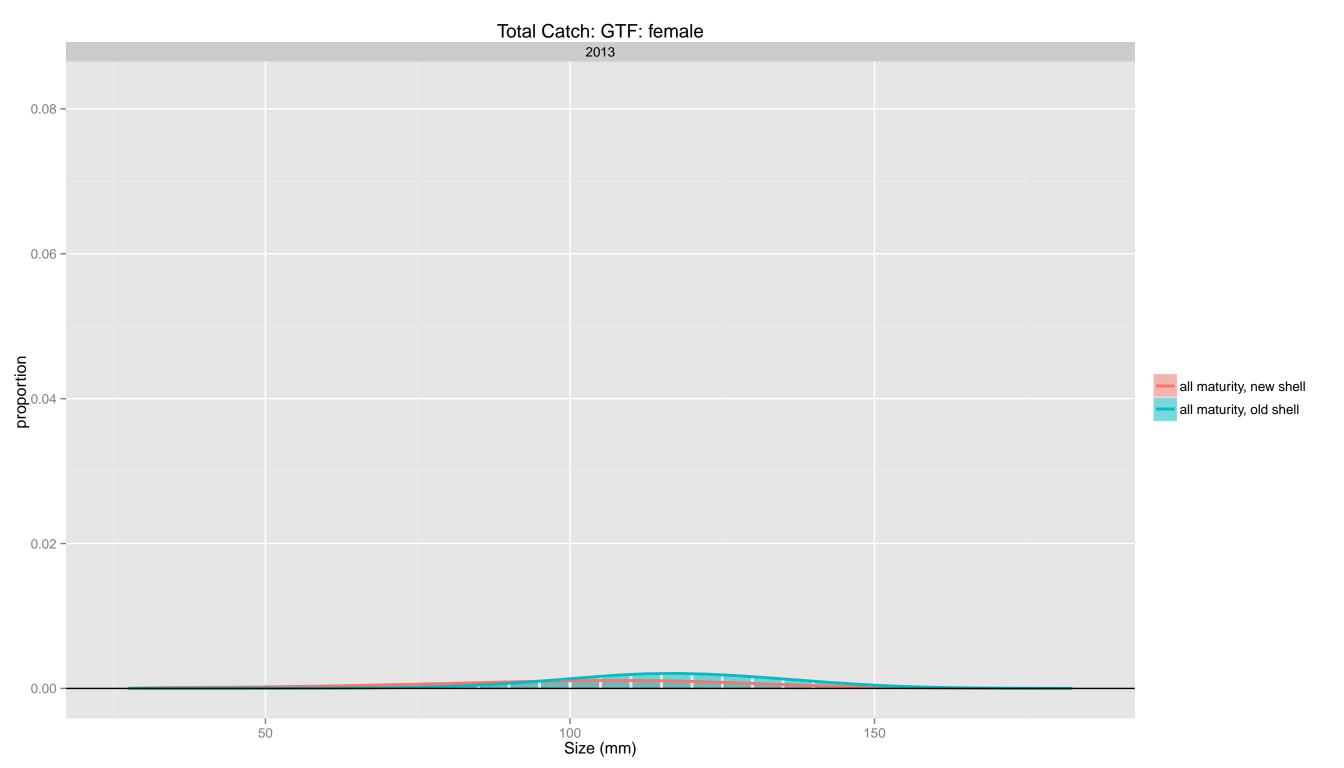
Size (mm)

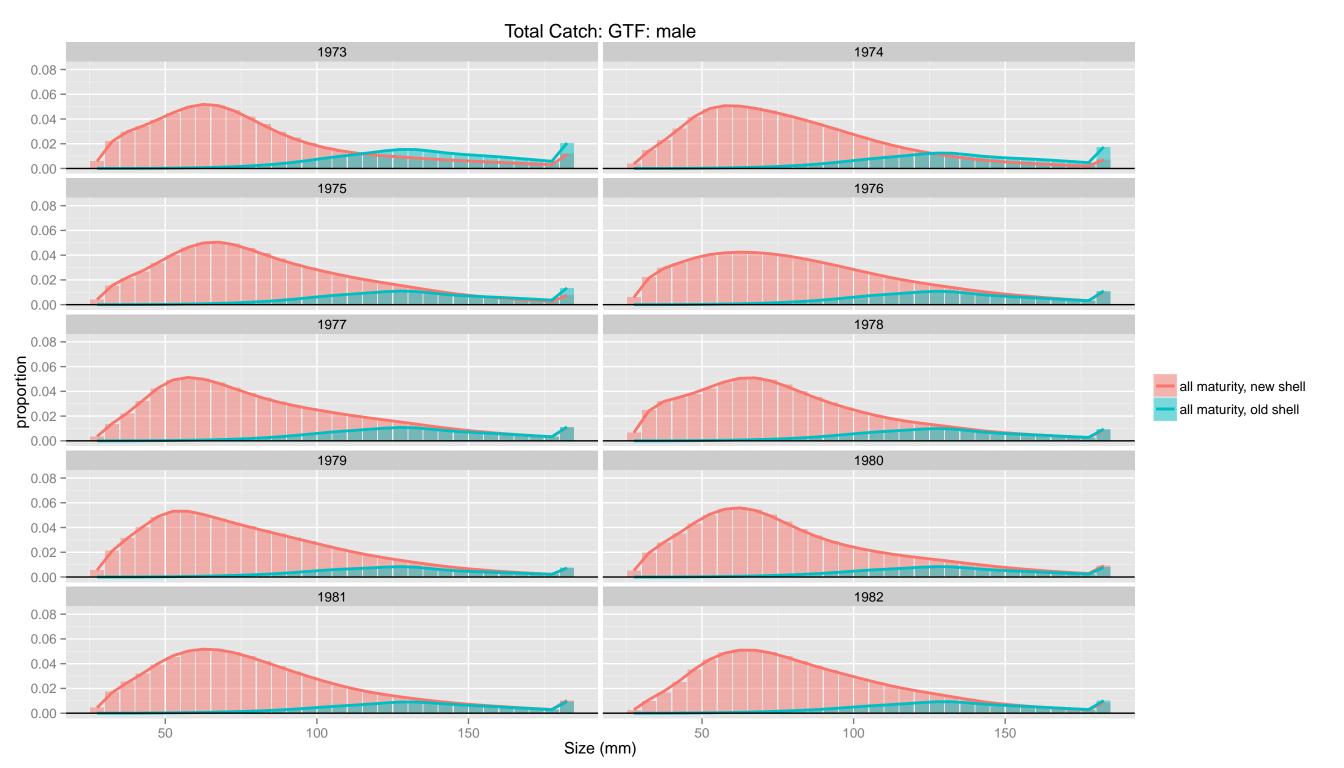


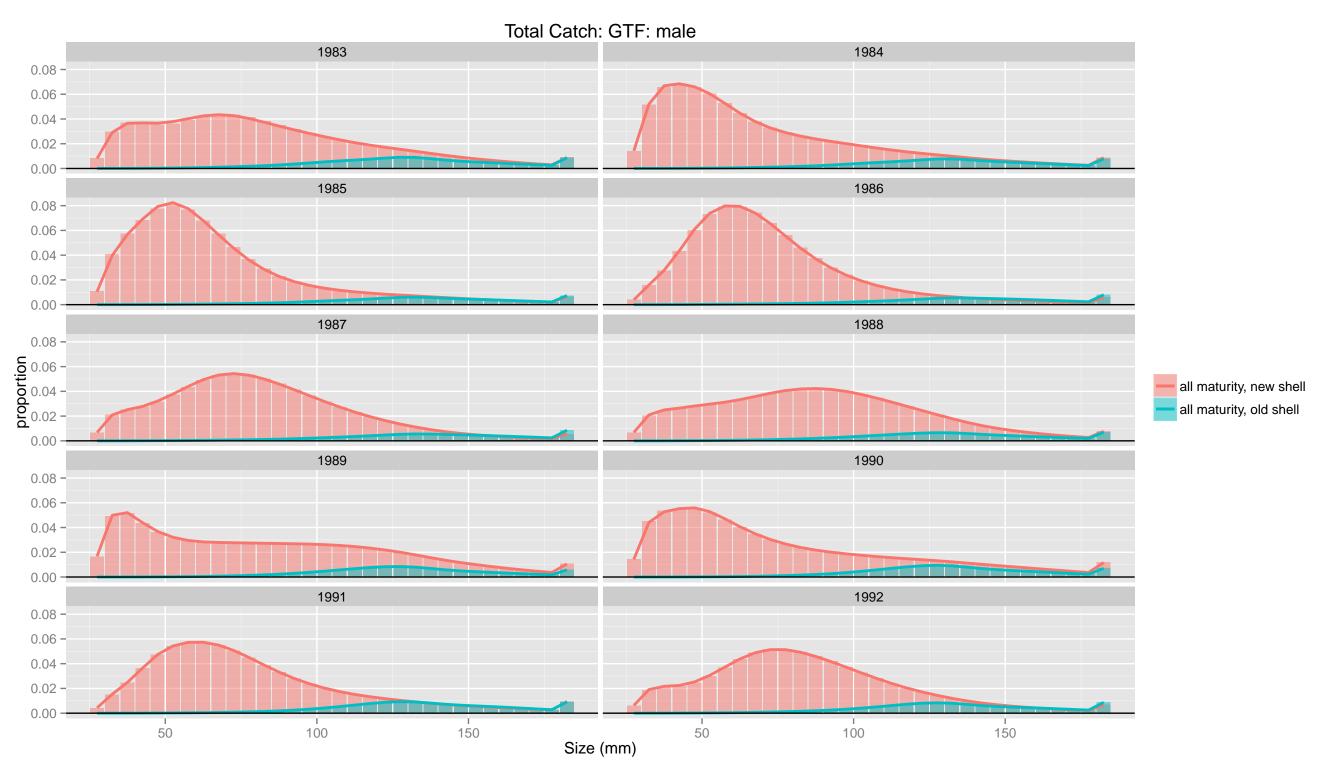
Size (mm)

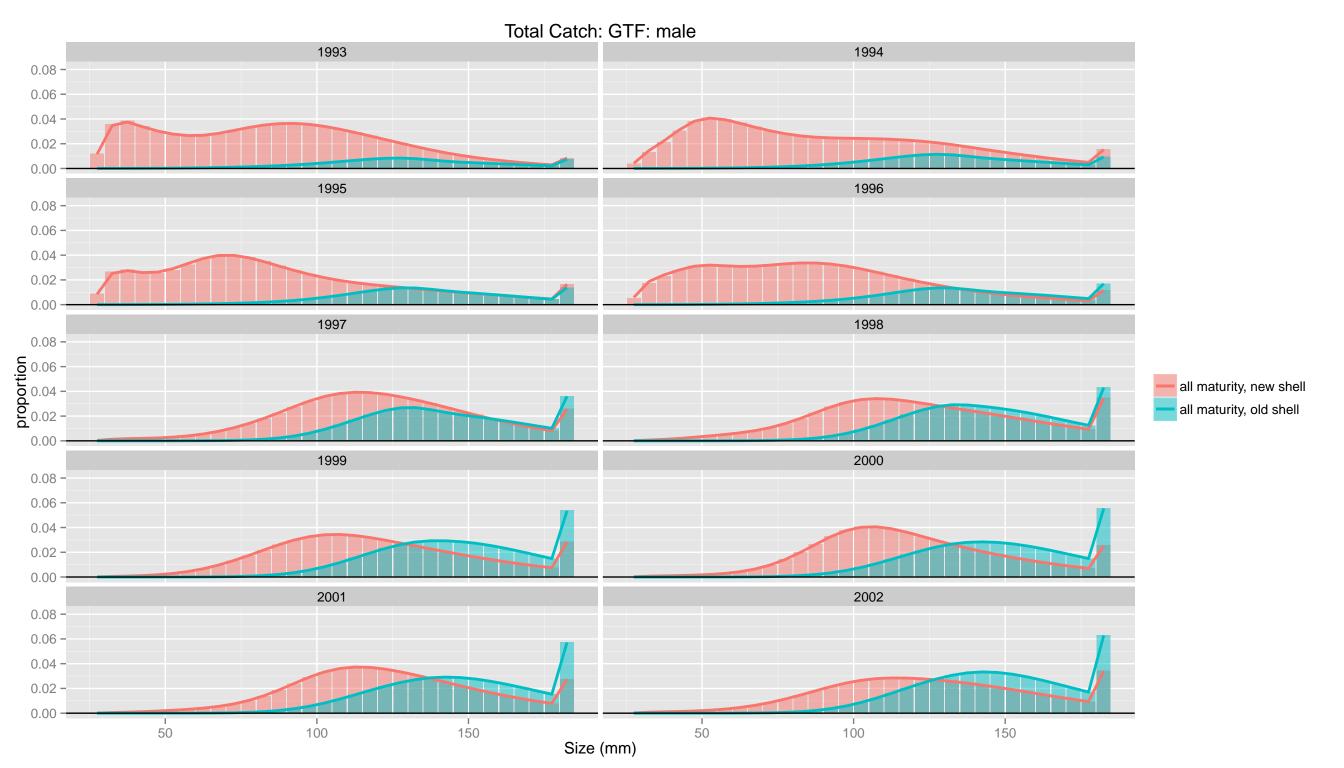
Total Catch: GTF: female



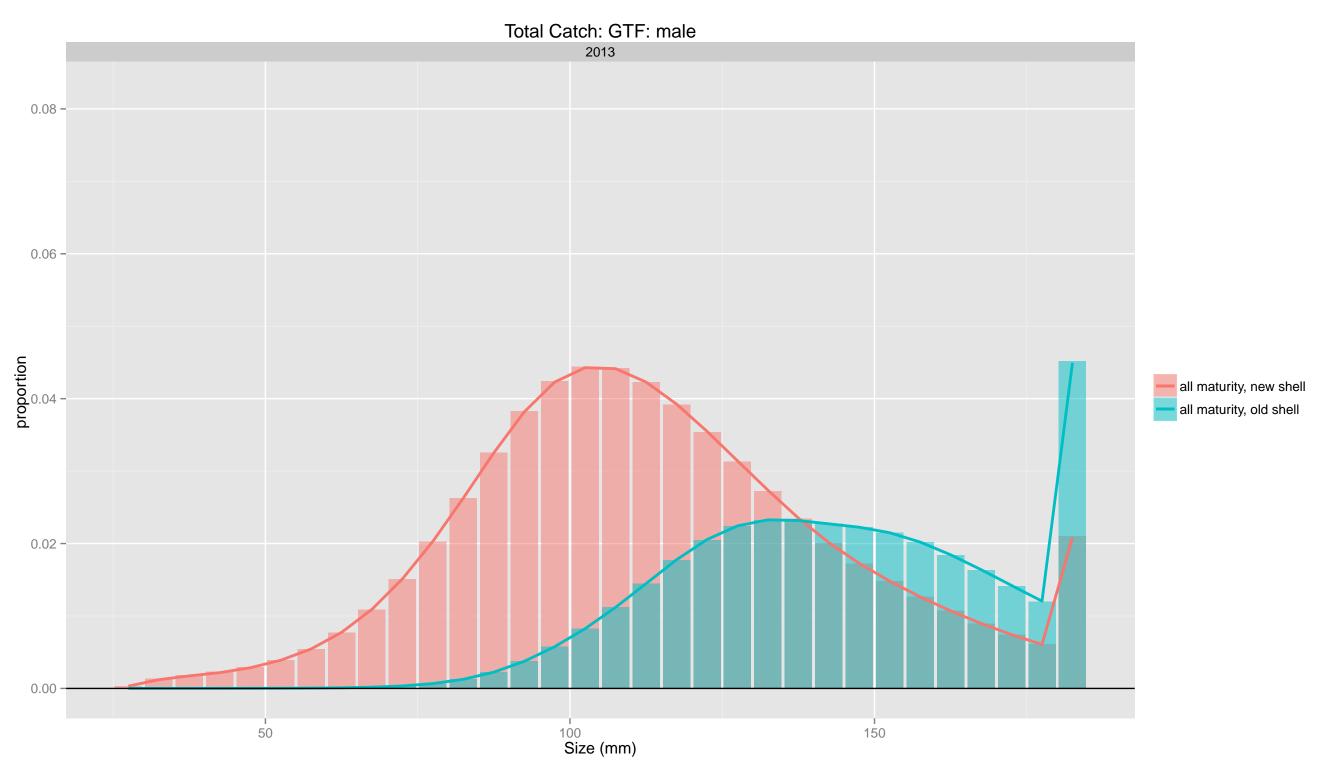




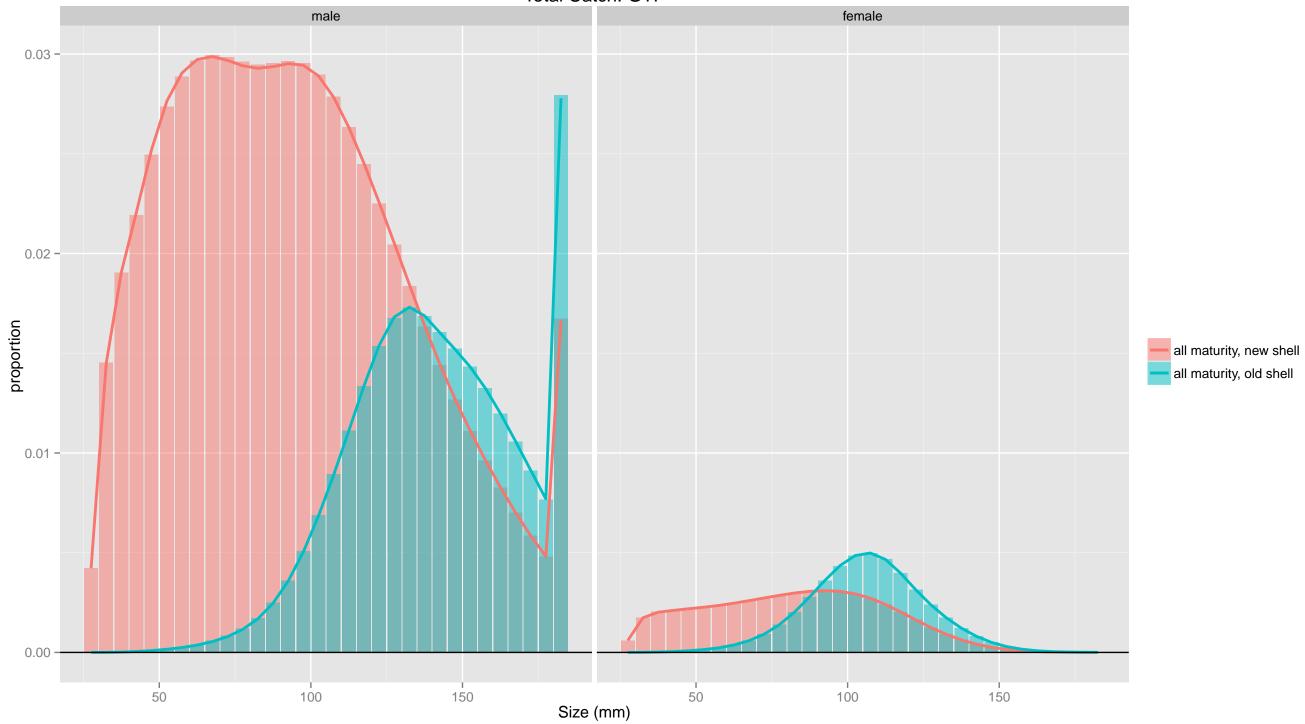


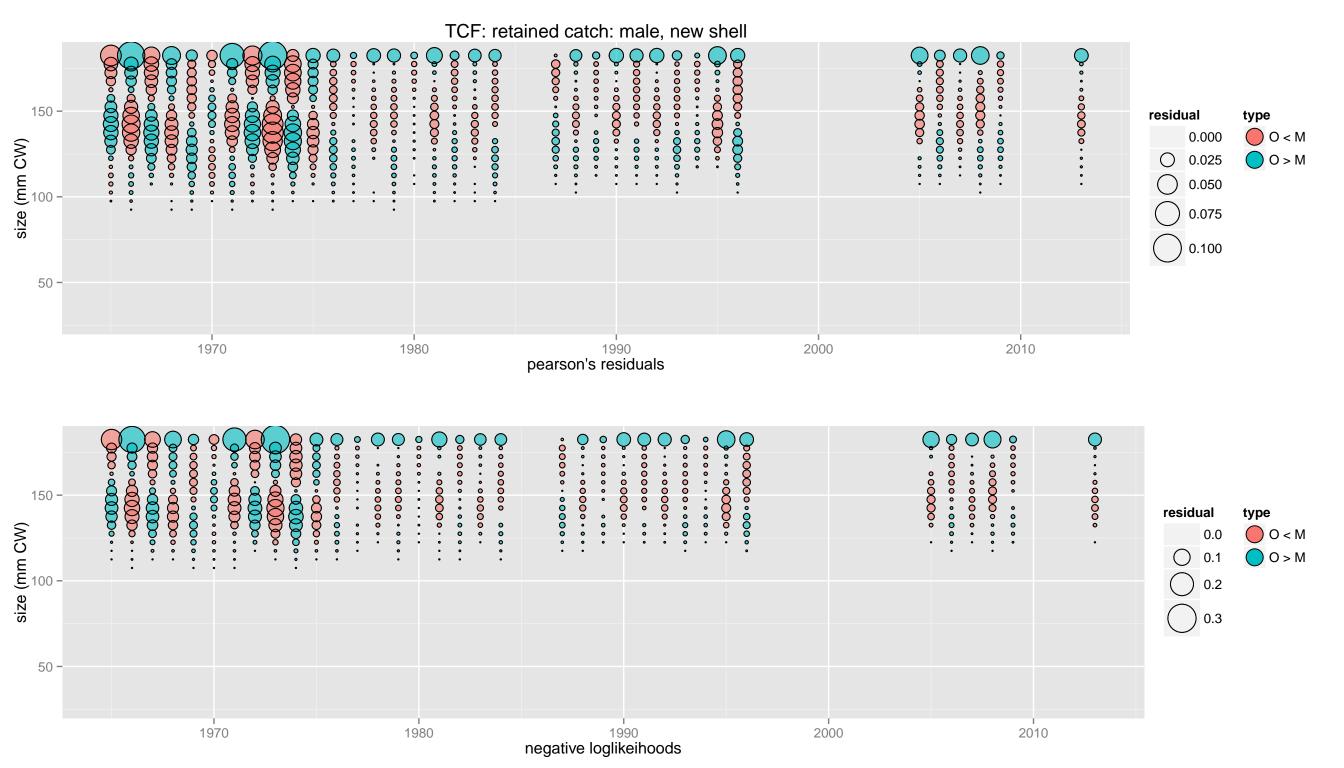


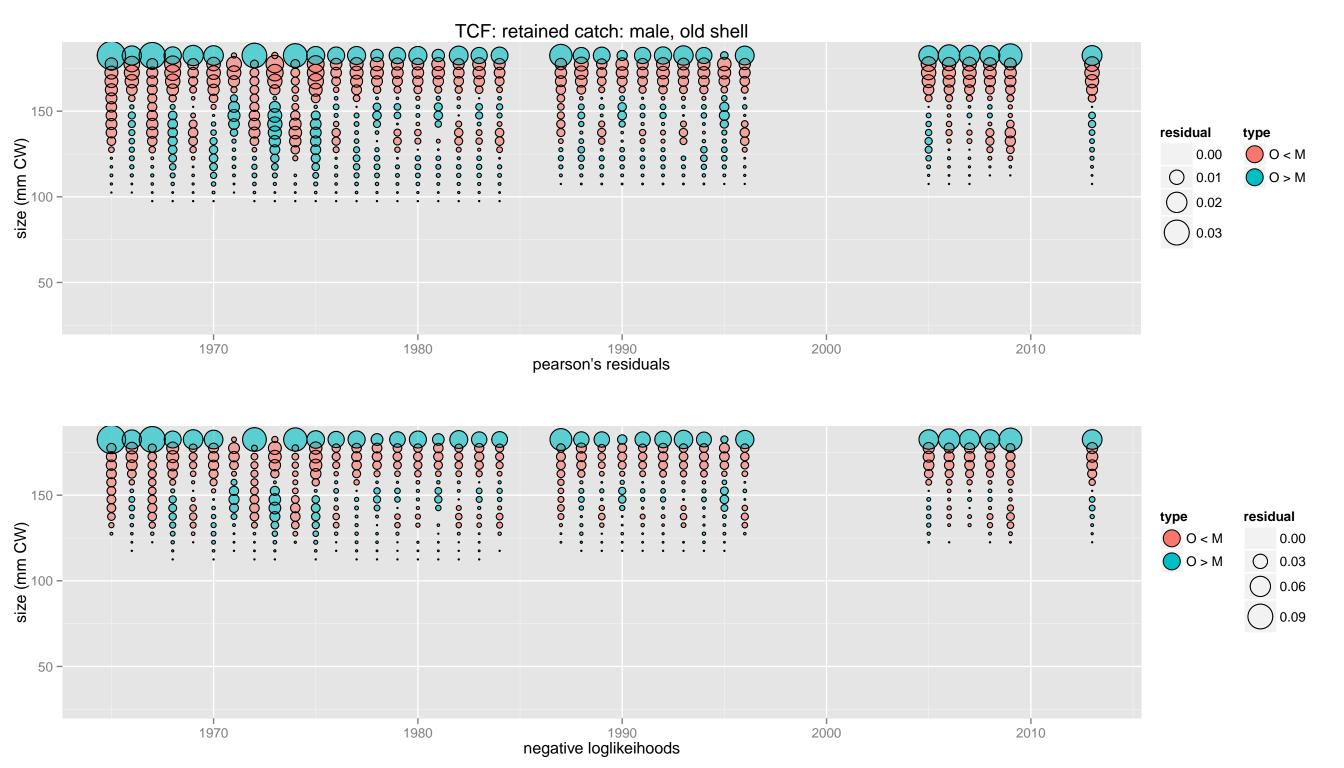


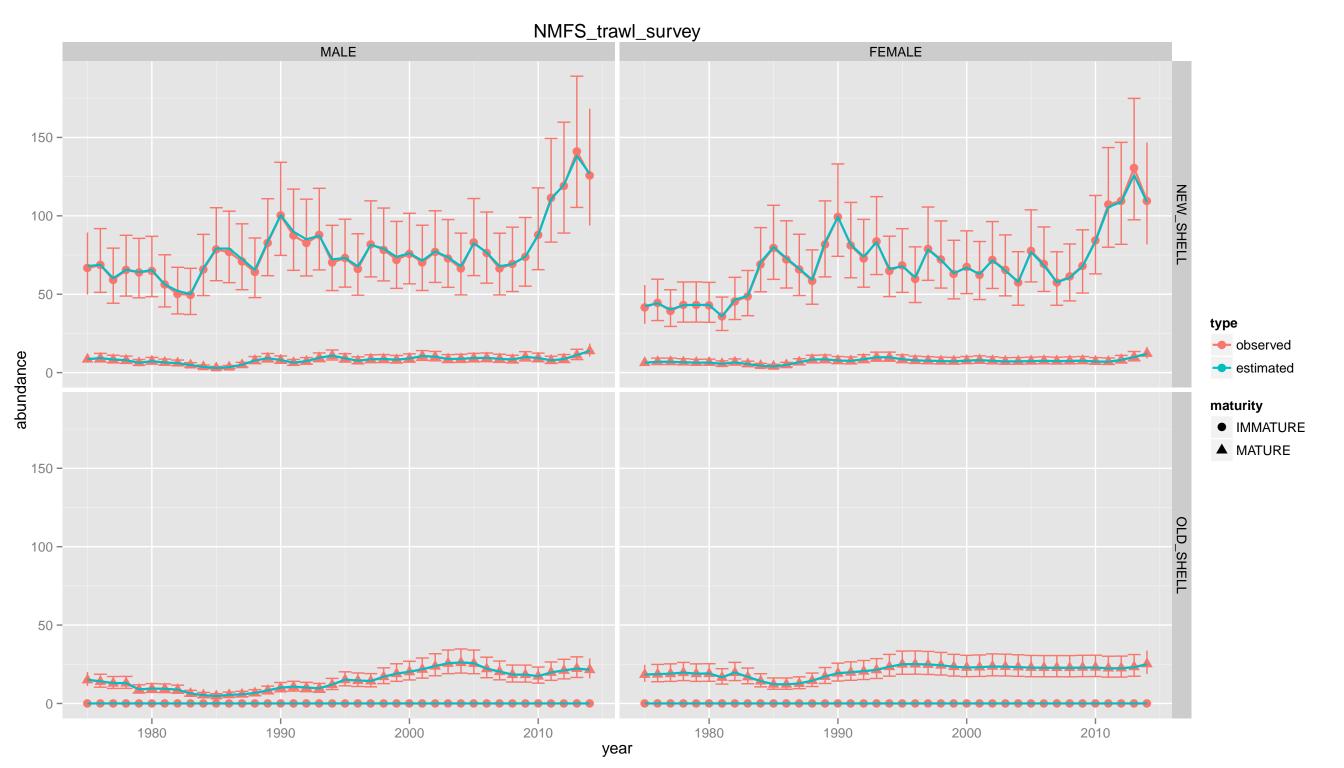


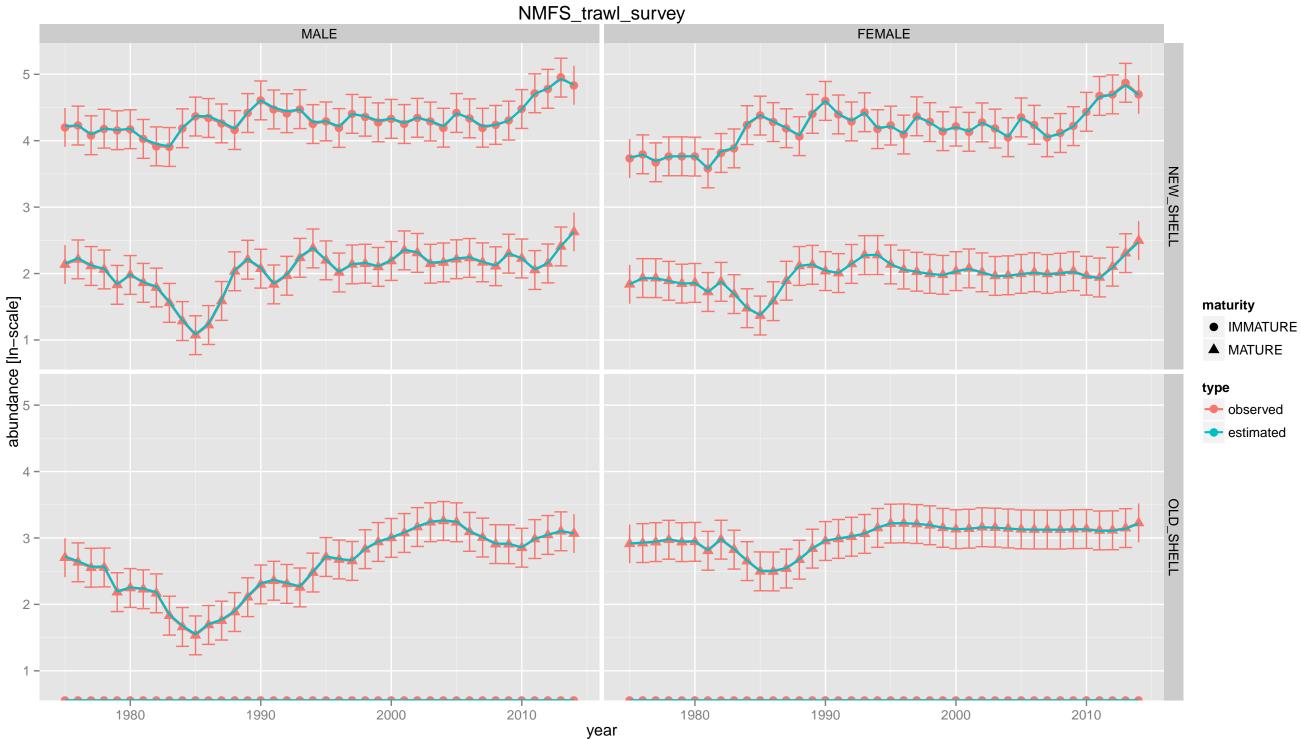


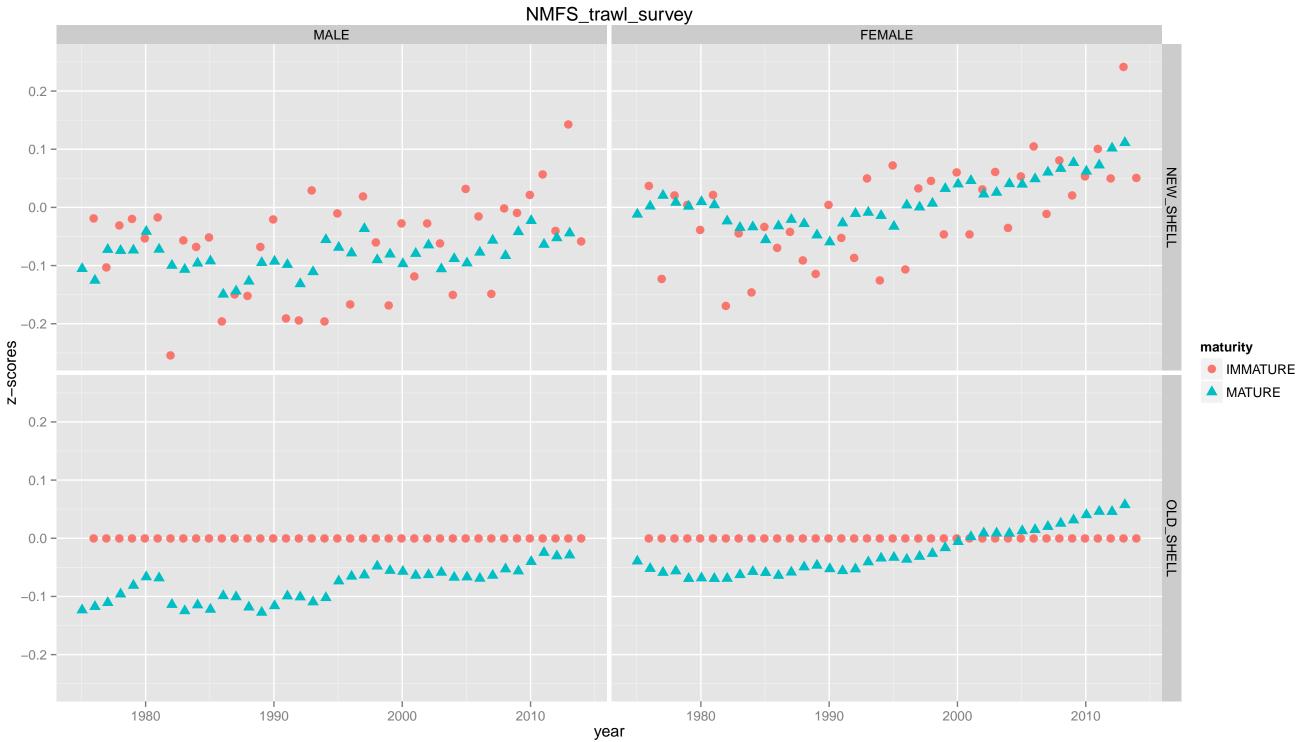




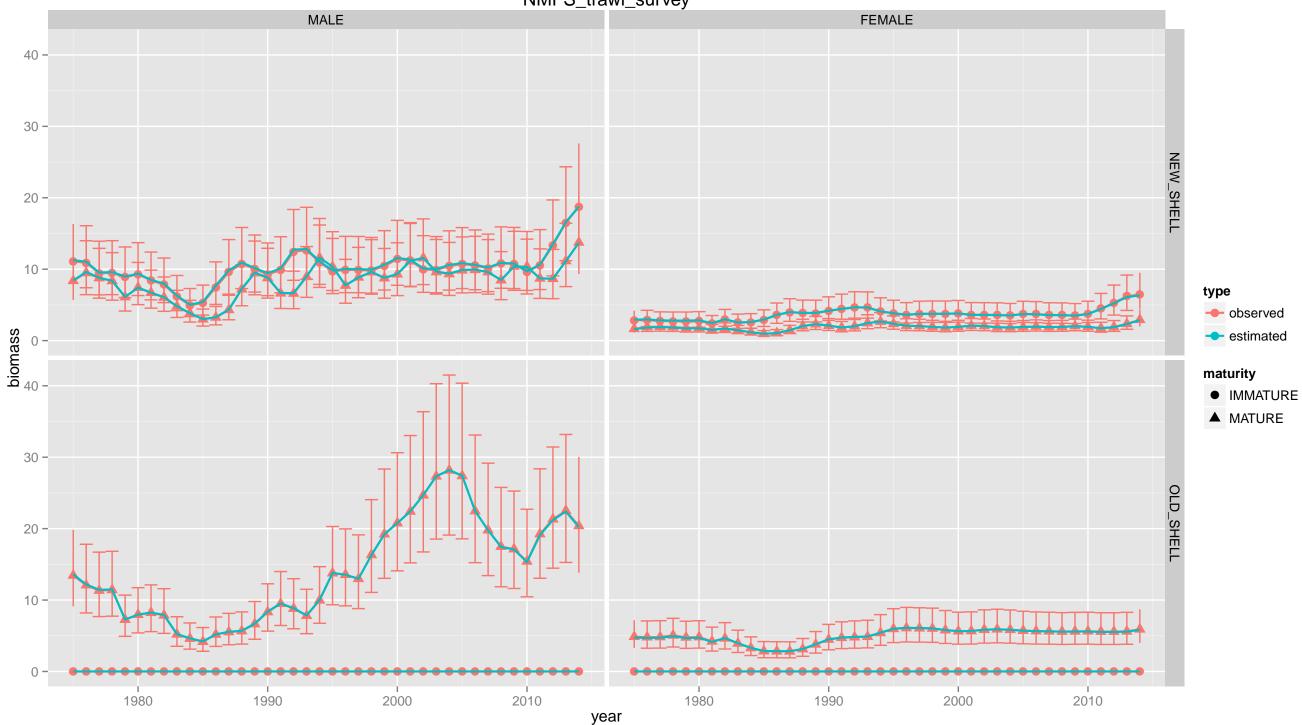




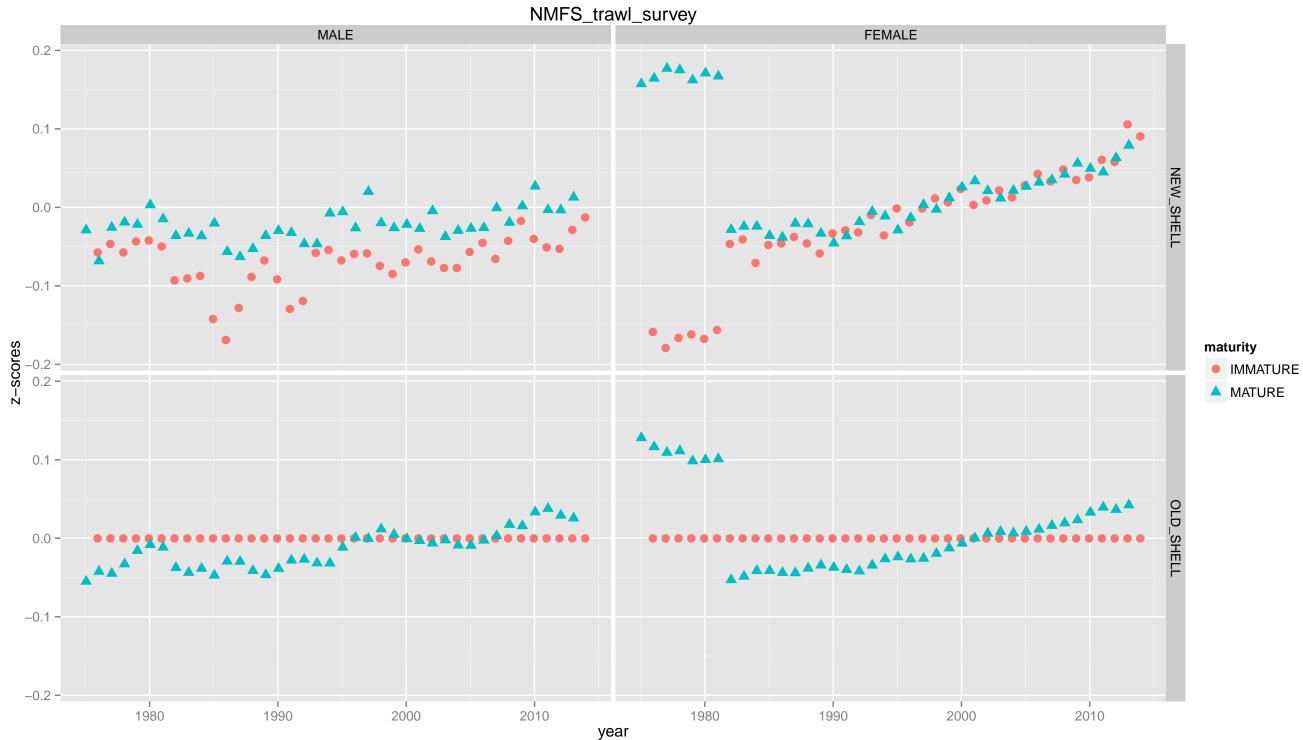




NMFS\_trawl\_survey







150 -			0 0 0 0 0 0 0 0 0 0 0 0 0																0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0				0 0 0 0 0 0 0 0 0 0 0 0 0							0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					
100 -	0 0	0	0 0	0	0	0	0	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	0 0	0	0 0		• • •	。 0 0	Õ	• • • •	0 0 0		0 0 0	• • • •		0	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	0	0	0	0	0	0		,	$\overline{)}$	0.05
50 -	1	<u> </u>									-	-		0					Õ																		

NMFS\_trawl\_survey: male, immature, new shell

150

size (mm CW)

5

1980

1990

2000

2010

type

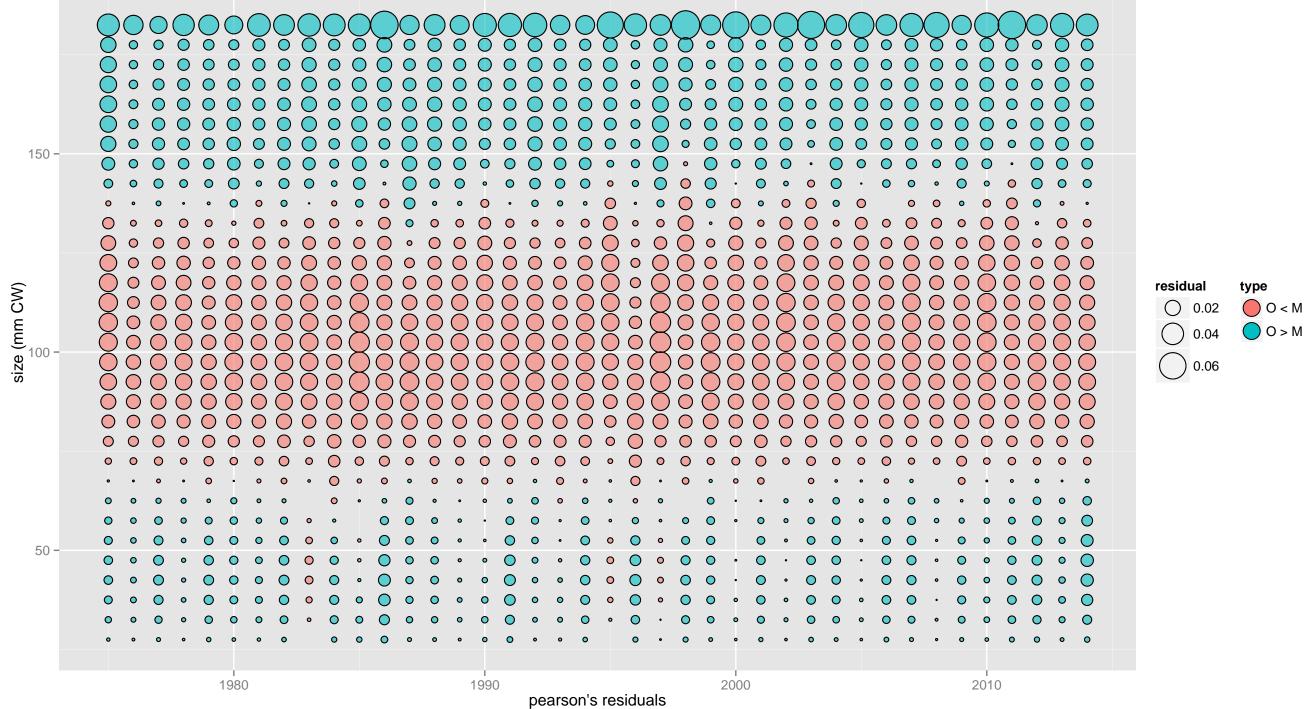
**O** < M

O > M

pearson's residuals

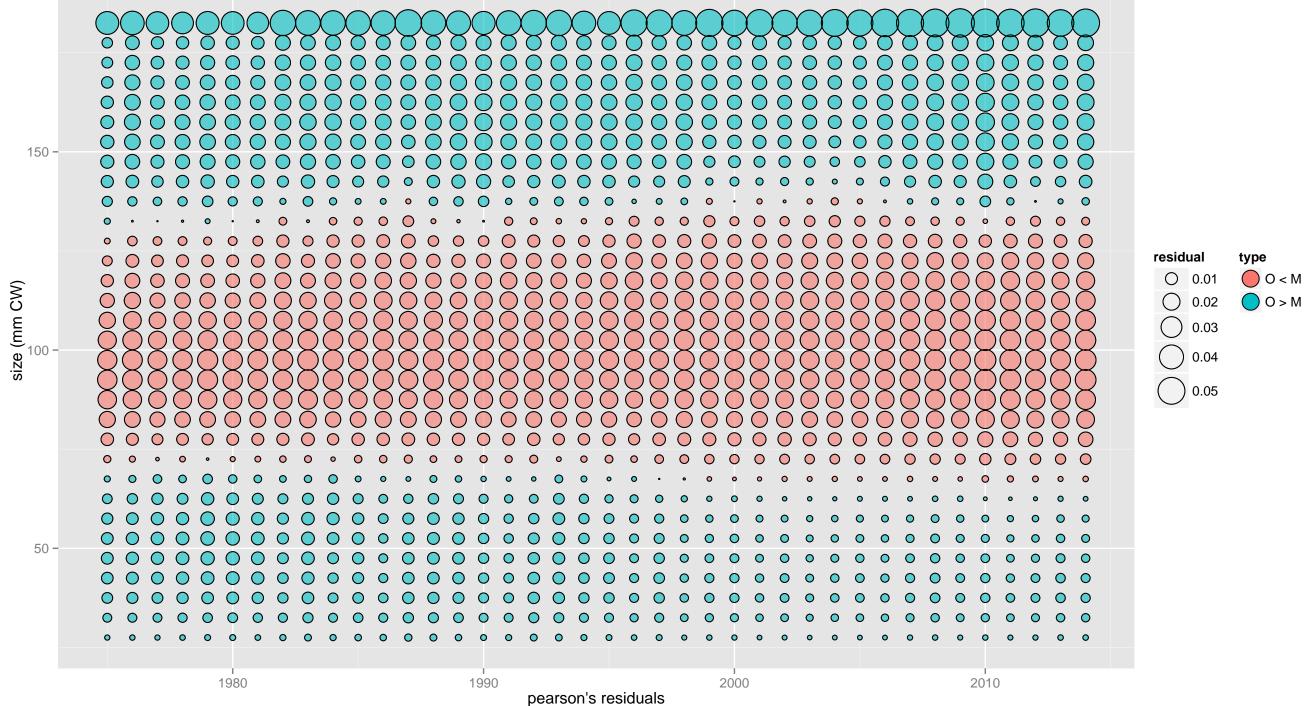
<pre></pre>
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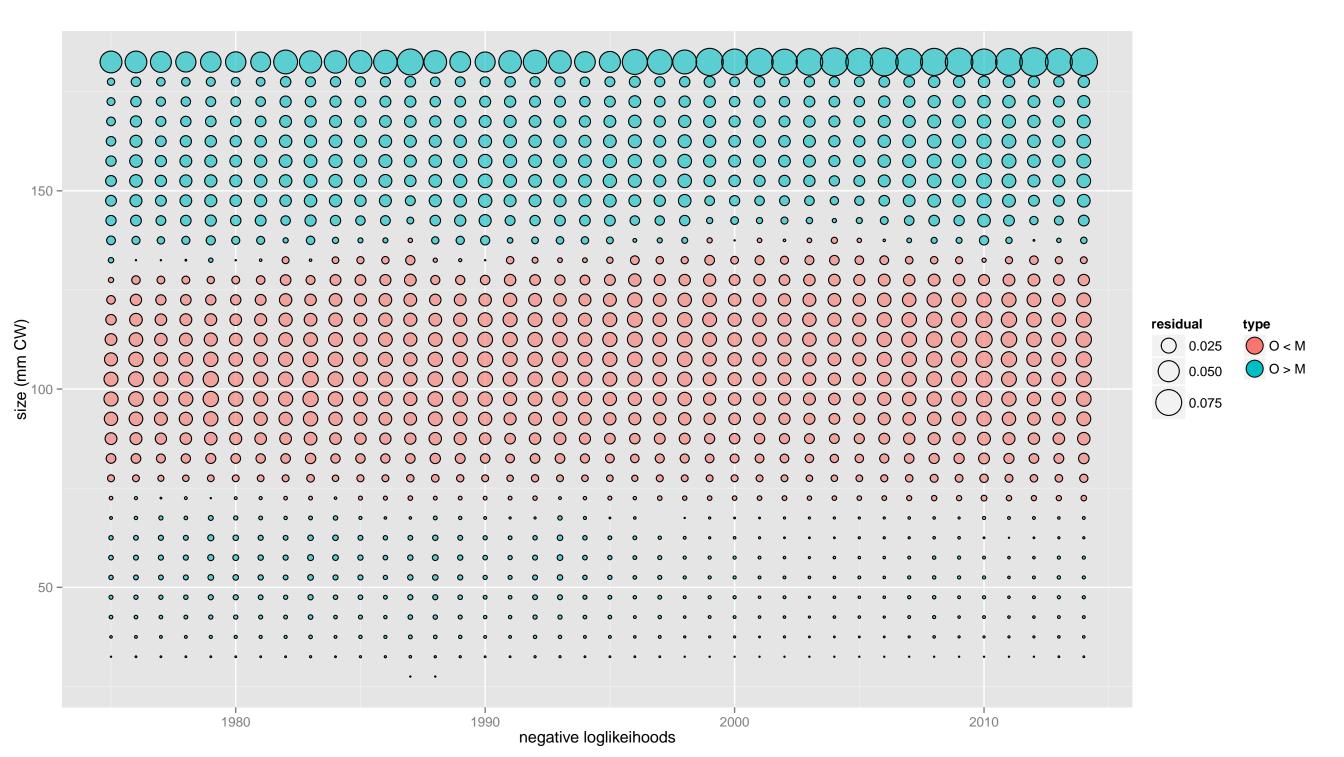
NMFS\_trawl\_survey: male, mature, new shell



Testul     Tes
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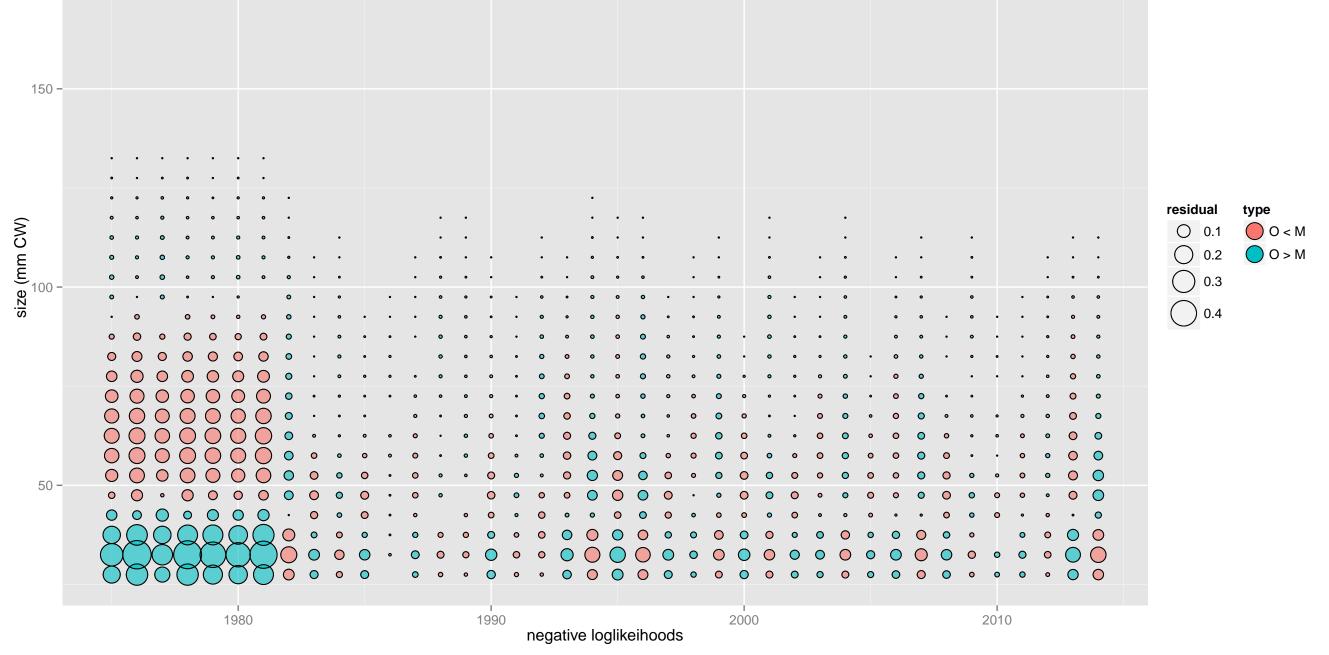
NMFS\_trawl\_survey: male, mature, old shell

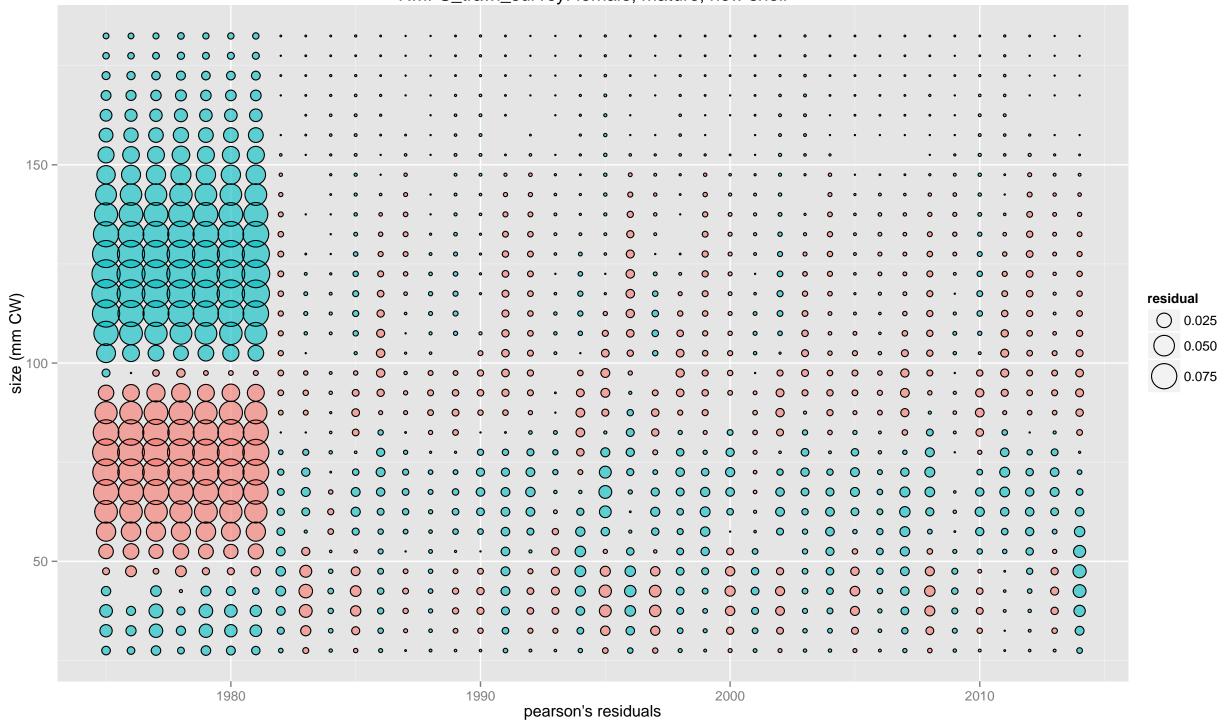




150 - 100 - 100 -		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
50		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
50 -		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	1980 1990 2000 pearson's residuals	2010

NMFS\_trawl\_survey: female, immature, new shell





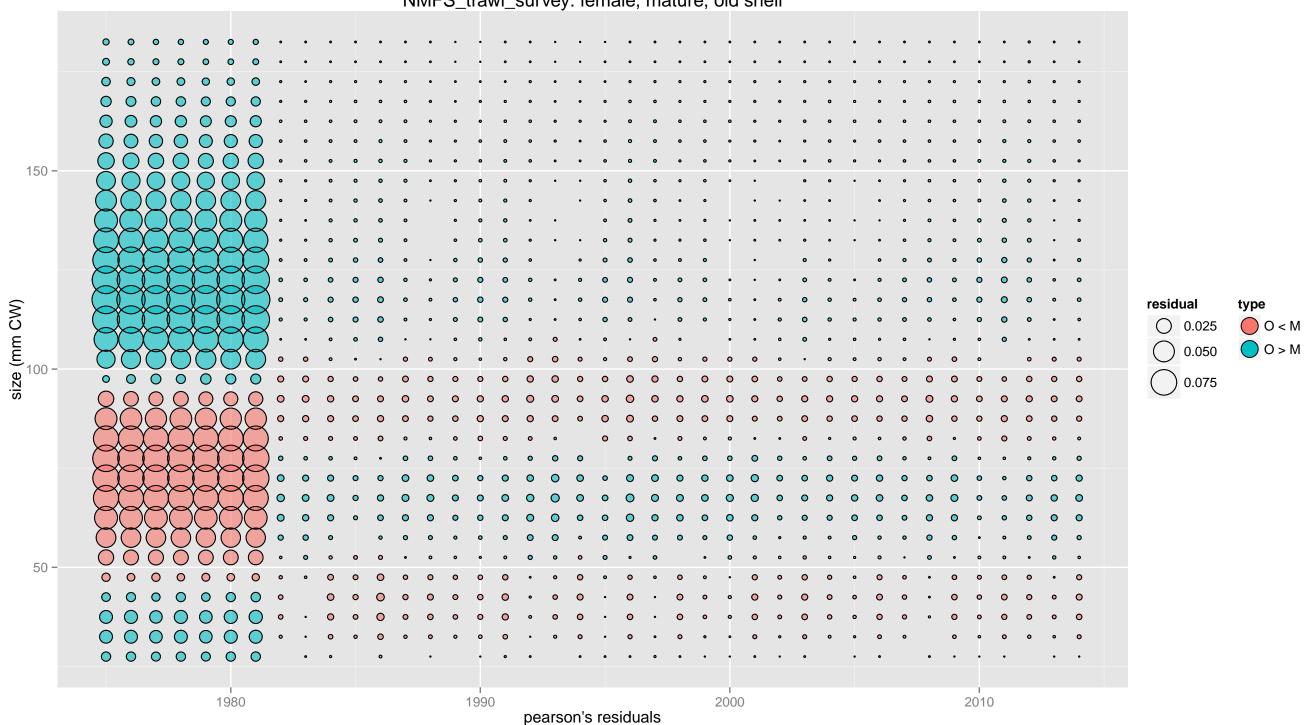
type

🔵 0 < M

🔵 O > M

NMFS\_trawl\_survey: female, mature, new shell

150 - size (mm CM) 50 -		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	• • • • • • • • • • • • • • • • • • • •	residualtype $\bigcirc$ $0.025$ $\bigcirc$ $\bigcirc$ $0.050$ $\bigcirc$ $\bigcirc$ $0.075$ $\bigcirc$ $\bigcirc$ $0.100$
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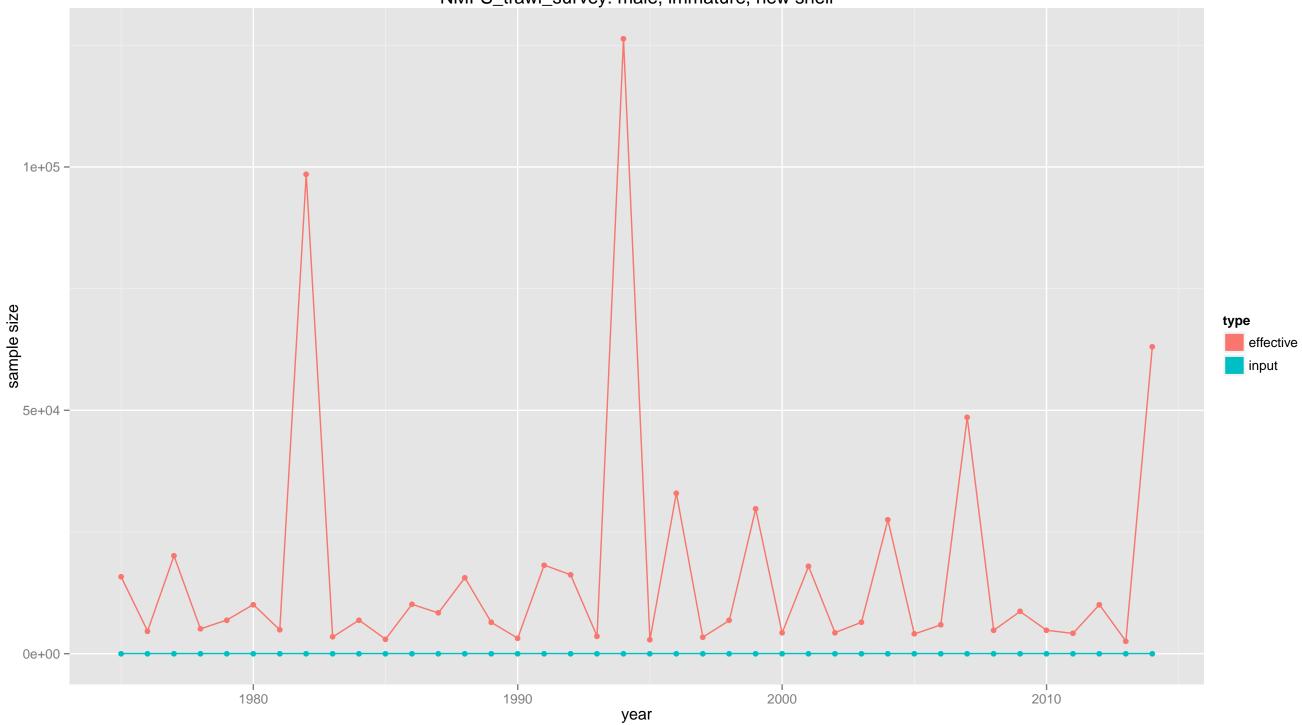
🔵 0 > M

NMFS\_trawl\_survey: female, mature, old shell

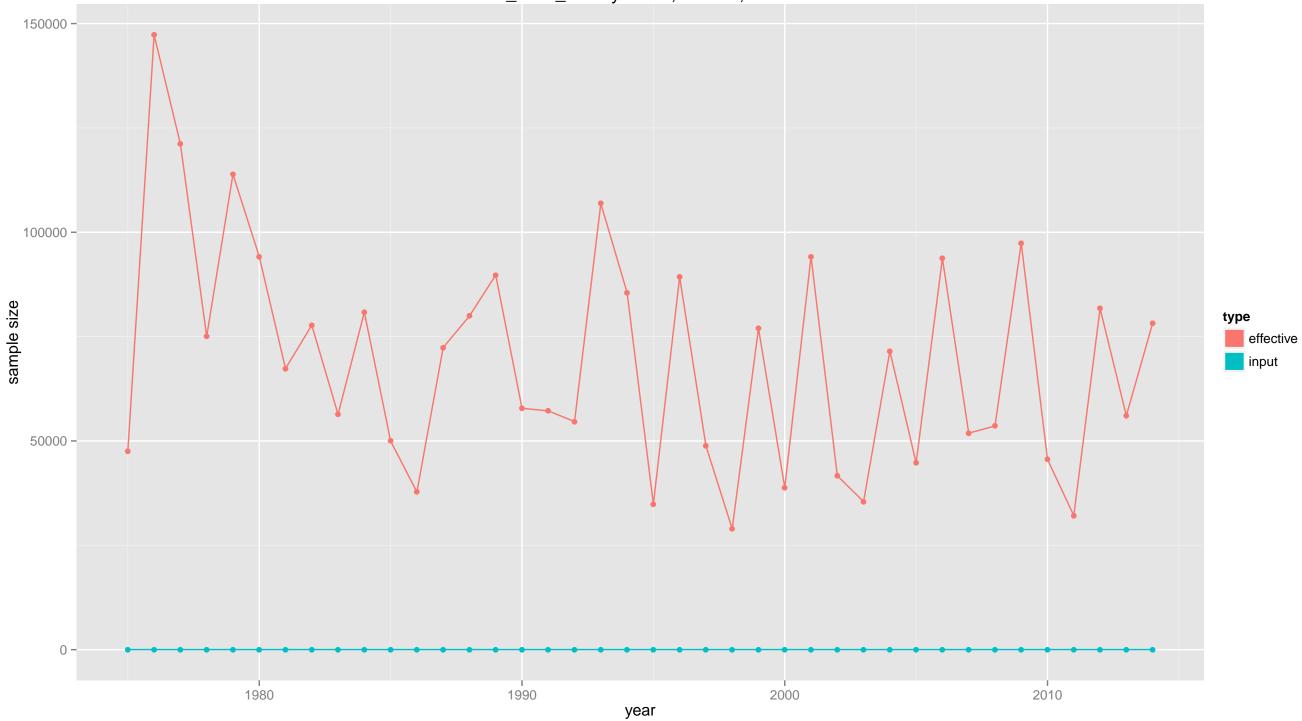
150 - 150 - 350 -		.       .	<pre></pre>									
	1980 1990 2000 2010 negative loglikeihoods											

**type** O < M O > M

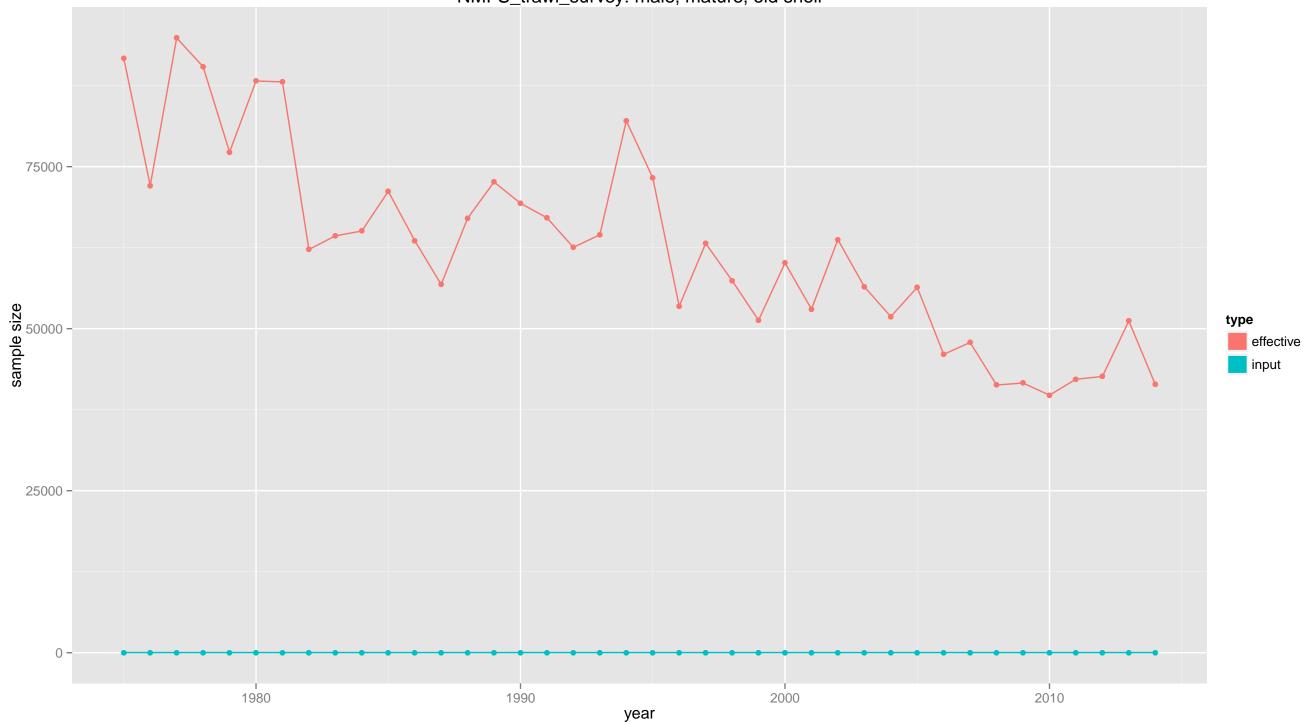
NMFS\_trawl\_survey: male, immature, new shell



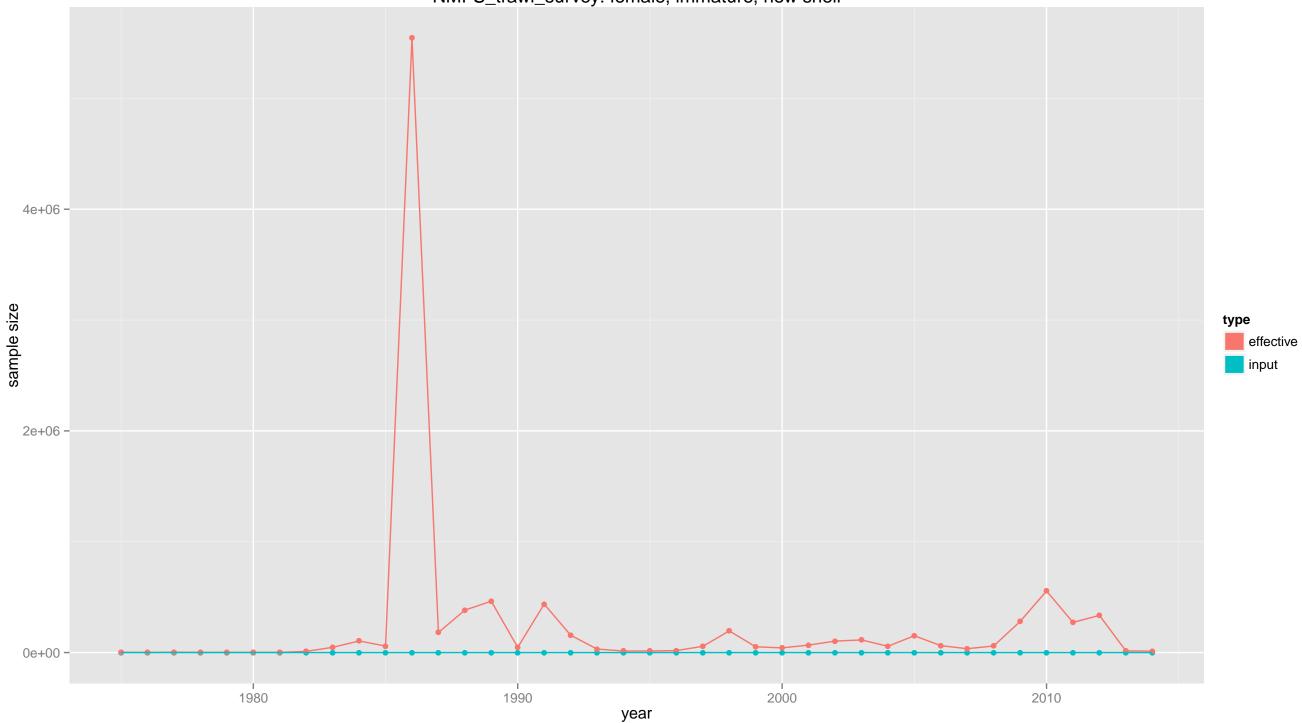
NMFS\_trawl\_survey: male, mature, new shell



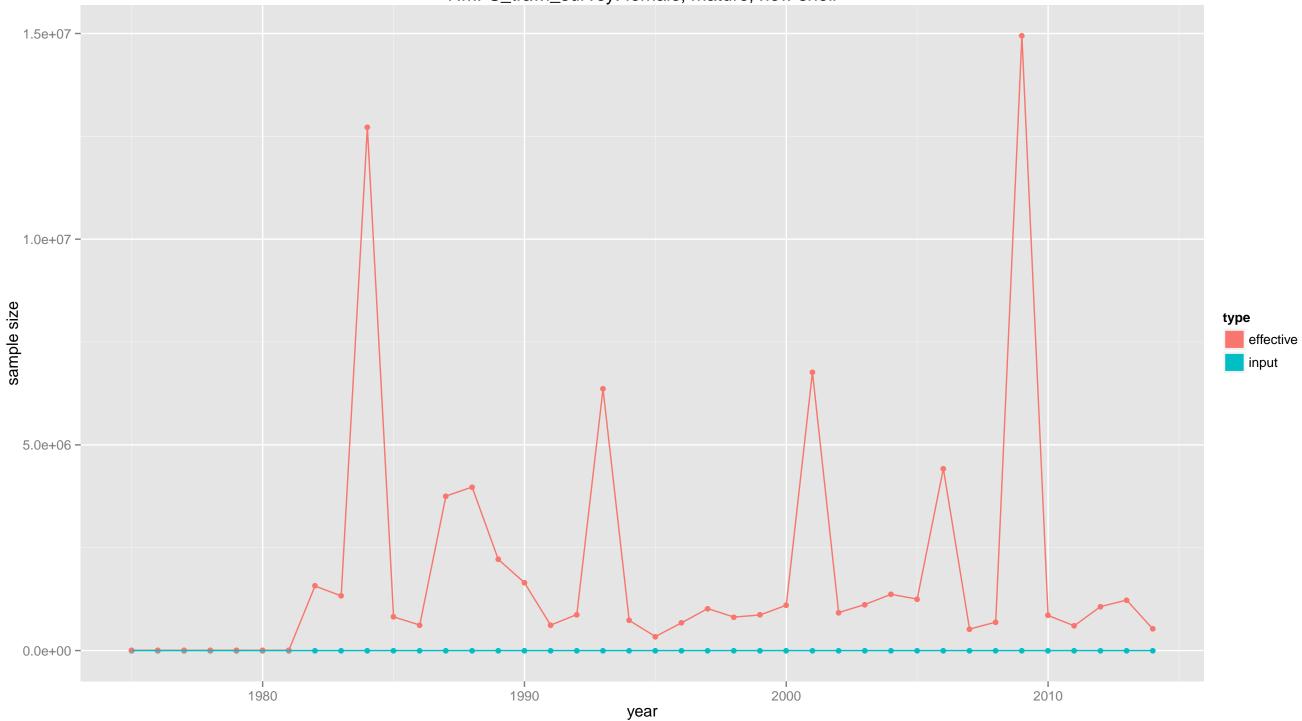
NMFS\_trawl\_survey: male, mature, old shell



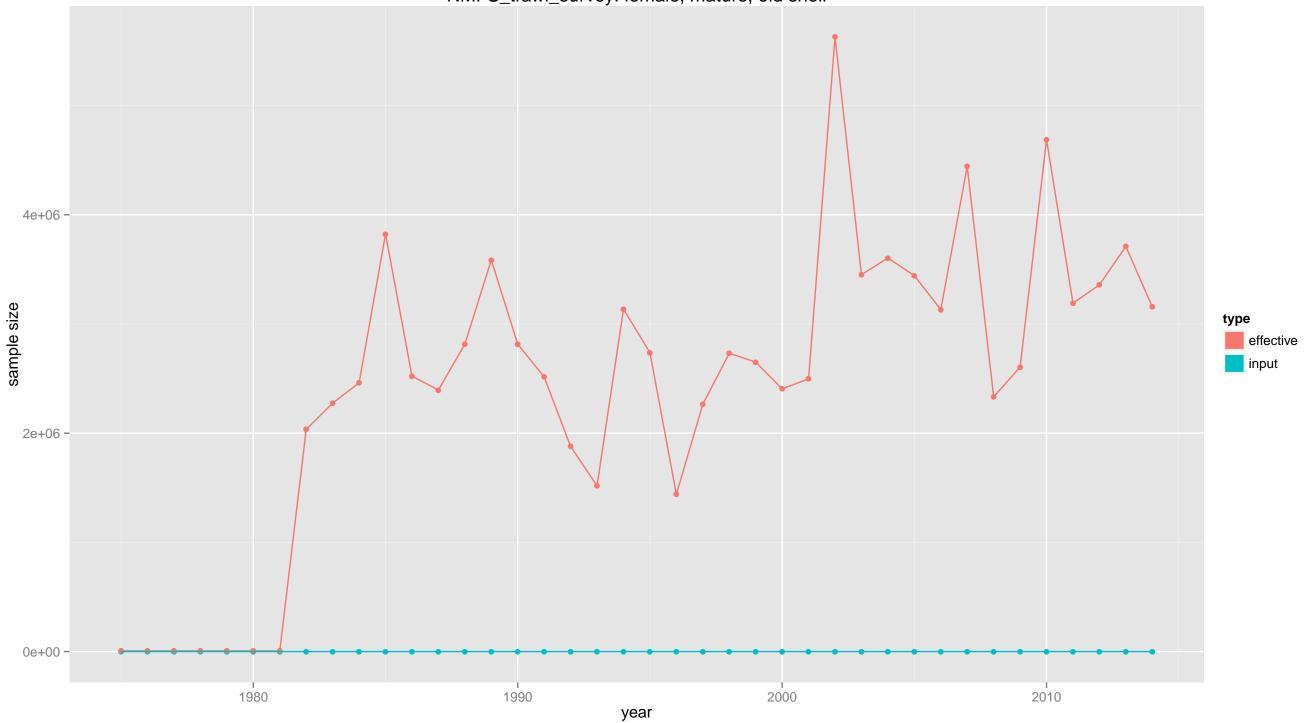
NMFS\_trawl\_survey: female, immature, new shell



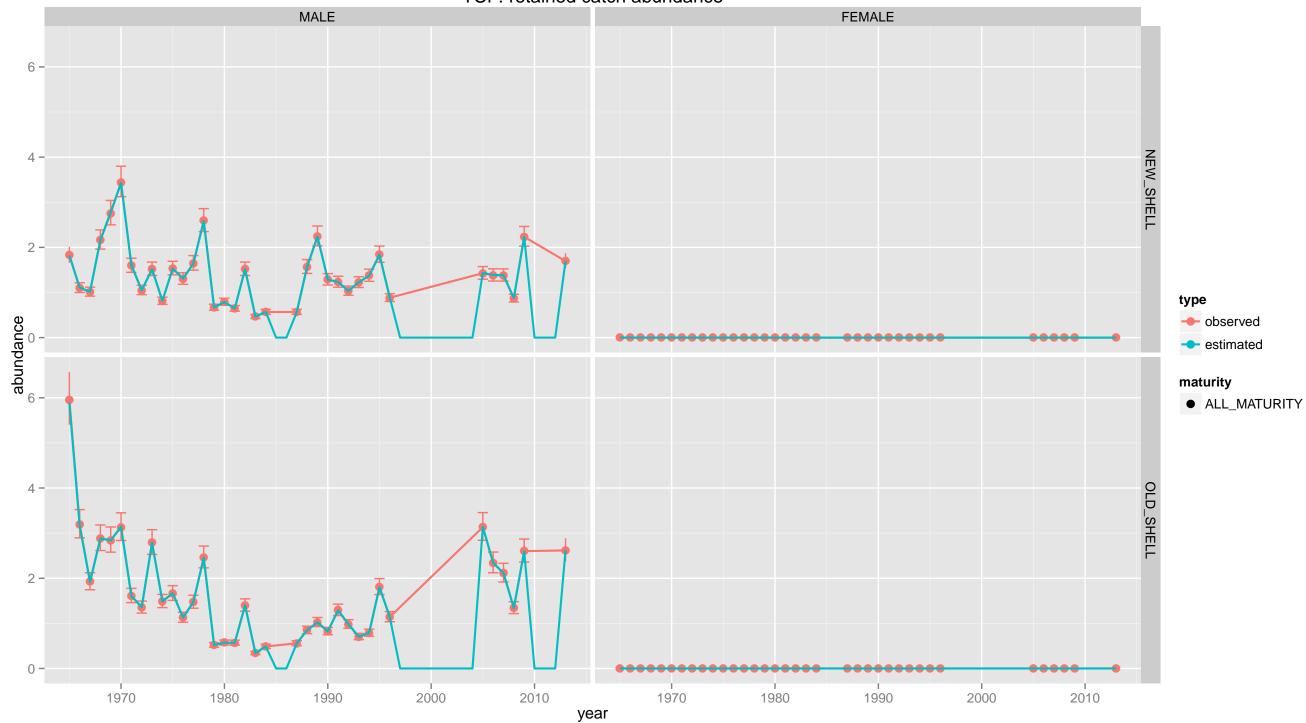
NMFS\_trawl\_survey: female, mature, new shell



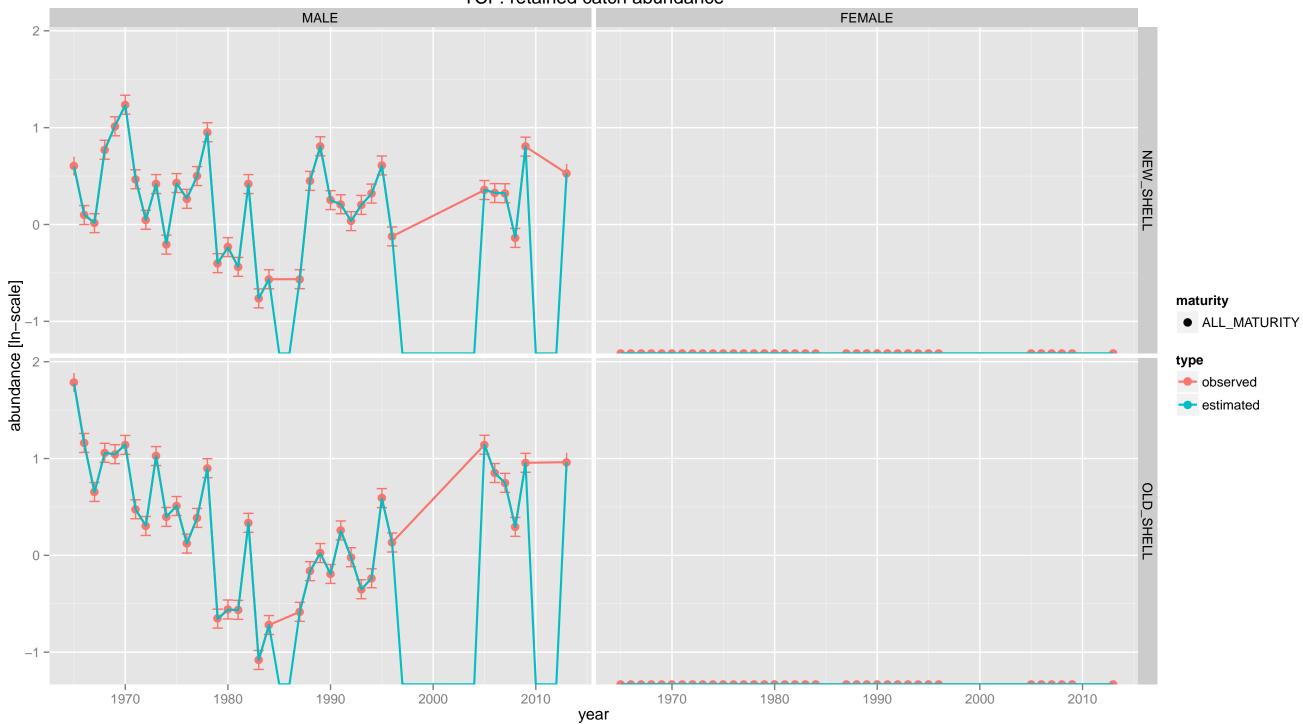
NMFS\_trawl\_survey: female, mature, old shell

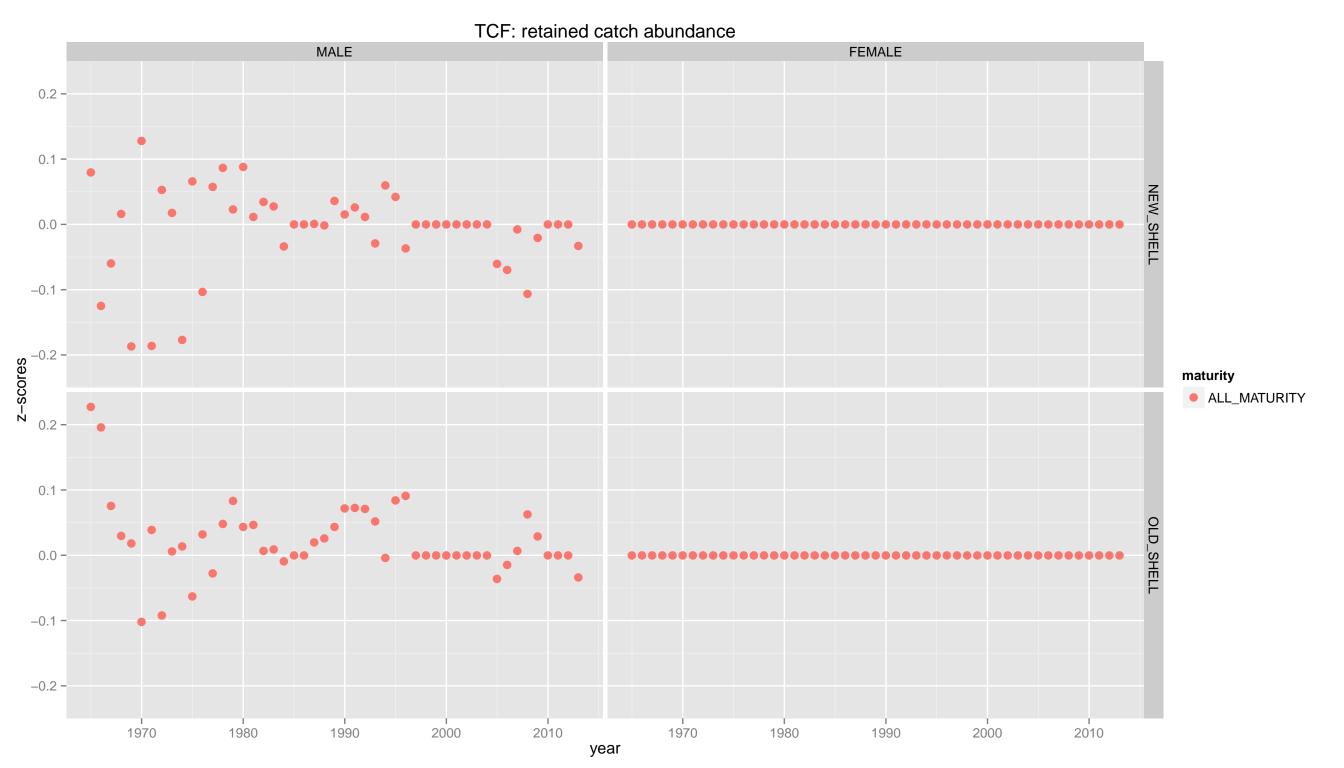


TCF: retained catch abundance

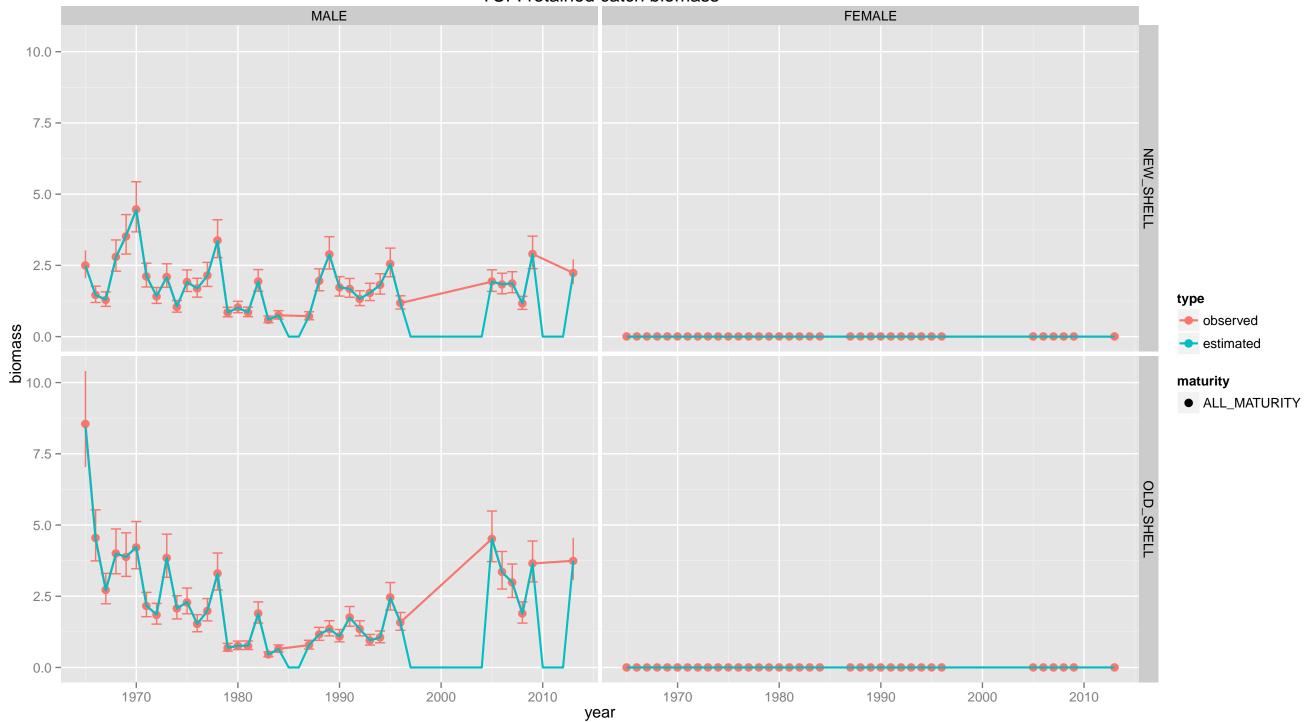


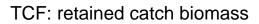
TCF: retained catch abundance

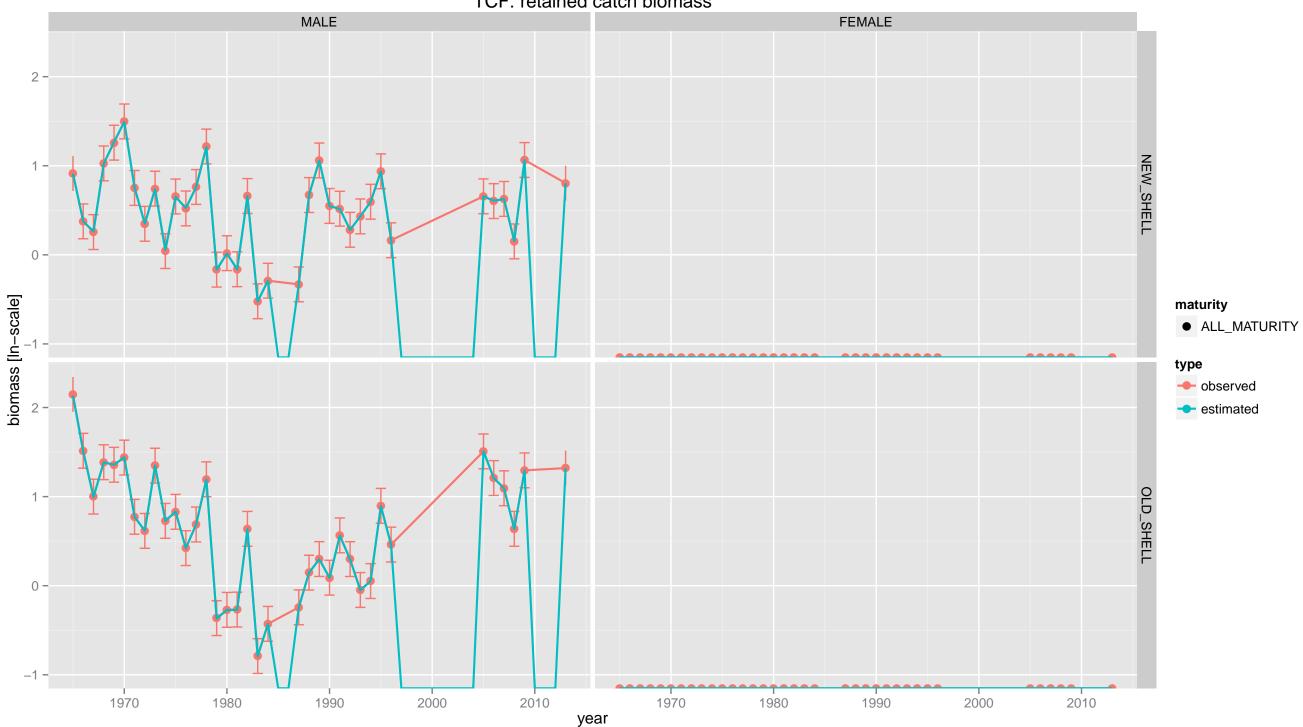


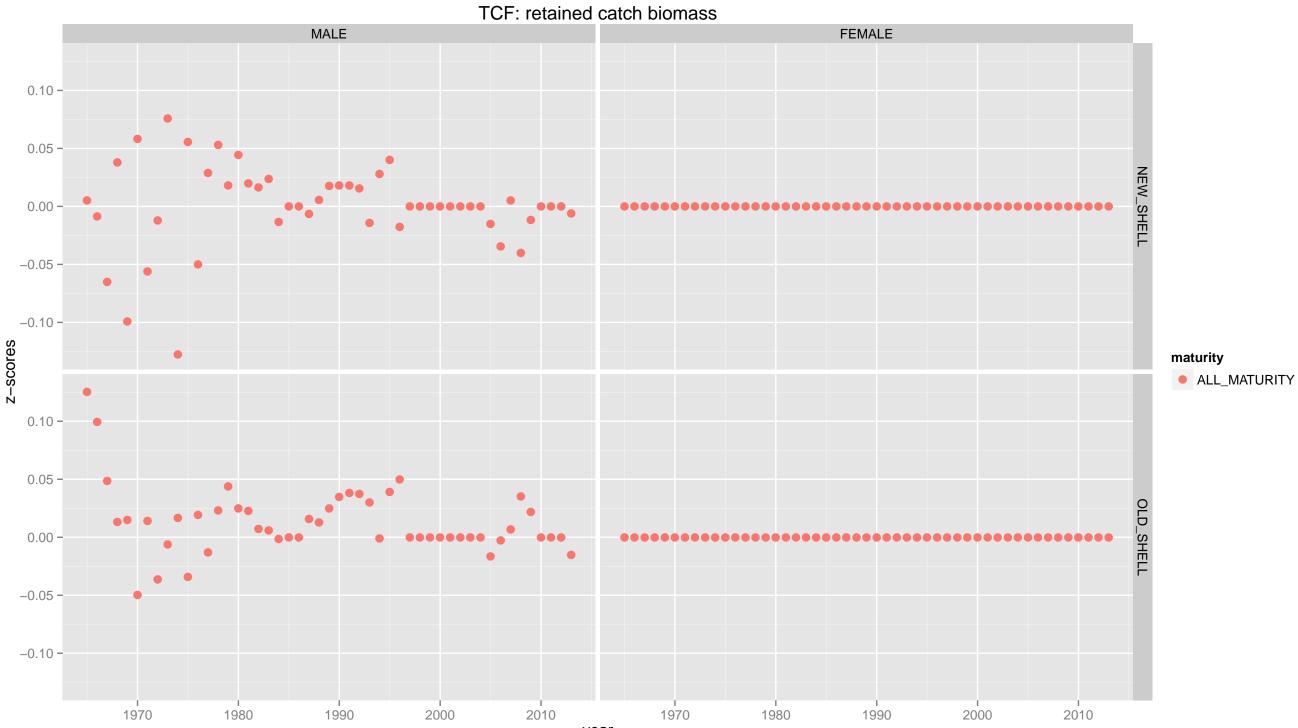


TCF: retained catch biomass









year

year

TCF: retained catch: male, new shell

150 -			$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				
size (mm CW)		0000000000000				•	residual     type       0.000     0 < M
50	_						
		1970 198	30 199 pearson's res	90 20 Siduals	1000 20 <sup>7</sup>	10	

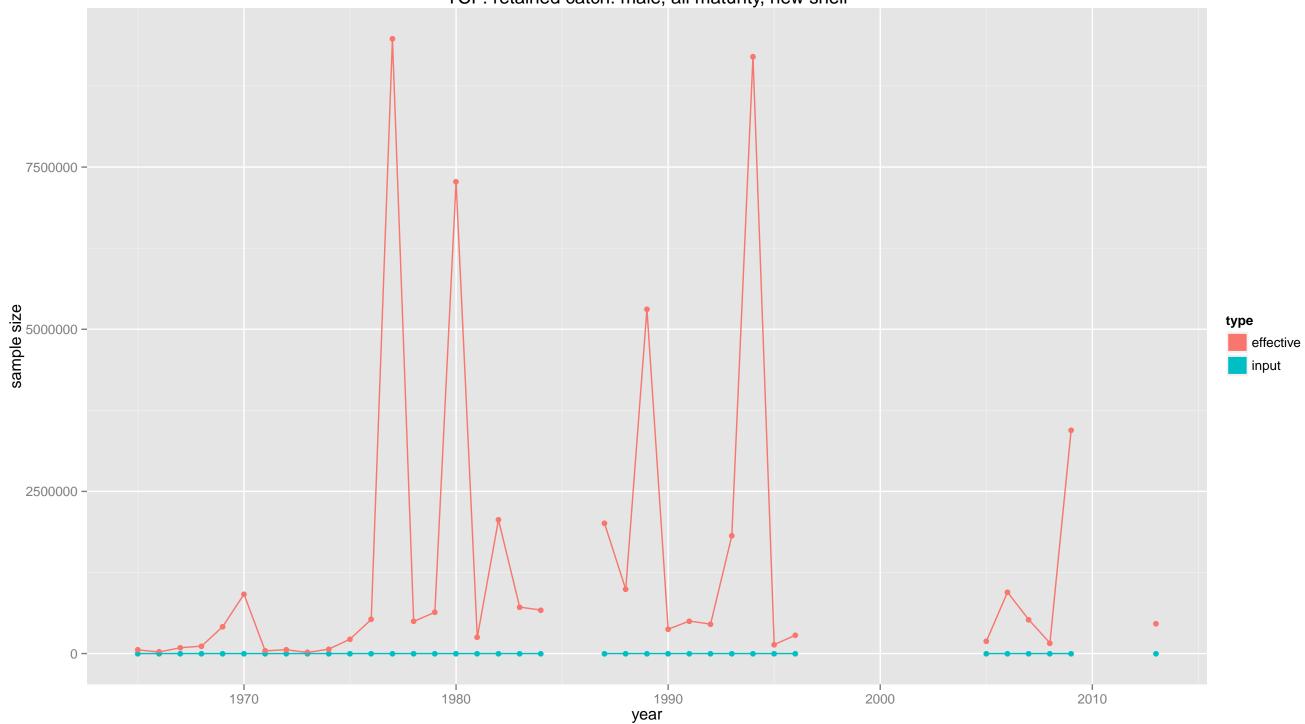
	101 101	● 0 < M
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TCF: retained catch: male, old shell

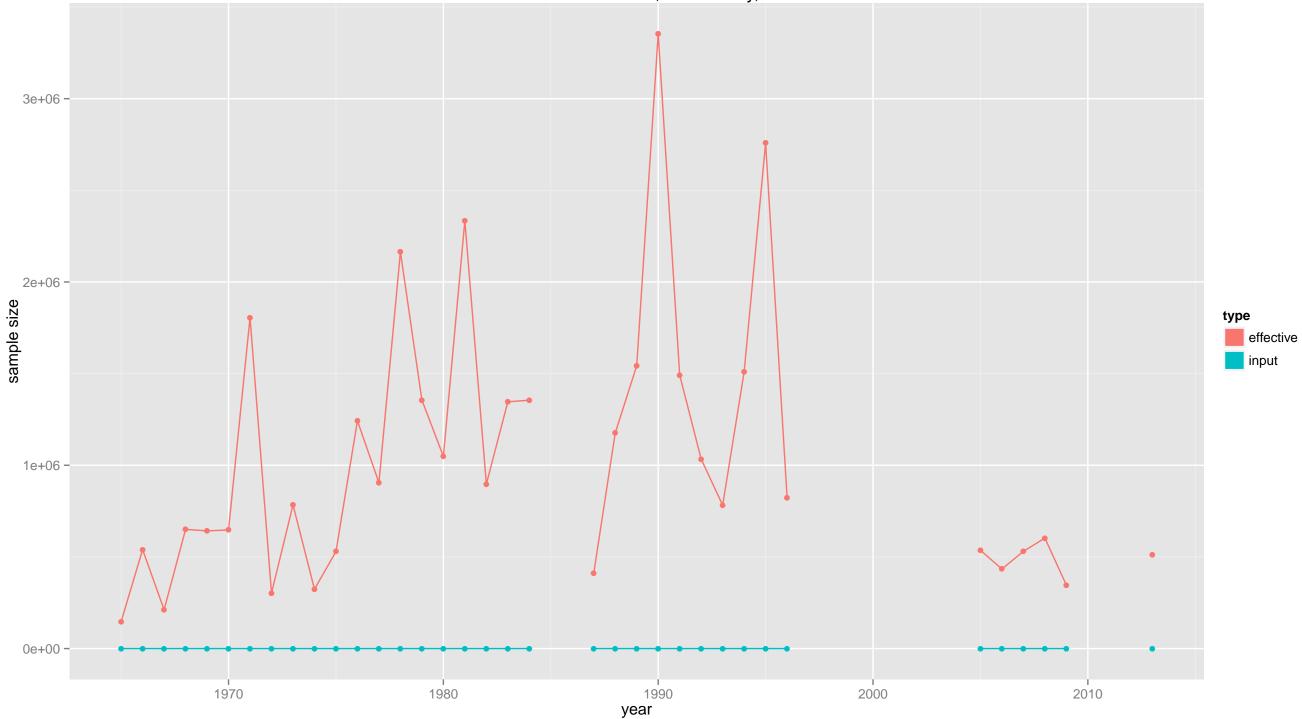
150				residual       type $0.00$ $\bigcirc O < M$ $0.01$ $\bigcirc O > M$ $0.02$ $0.03$
50 -	1980	1990 20 pearson's residuals	000 2010	

1970 1980 1990 2000 2010 negative loglikeihoods	150 - 100 - 50 -									10	typeresidual $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $0.00$ $\bigcirc$ $0.03$ $\bigcirc$ $0.06$ $\bigcirc$ $0.09$
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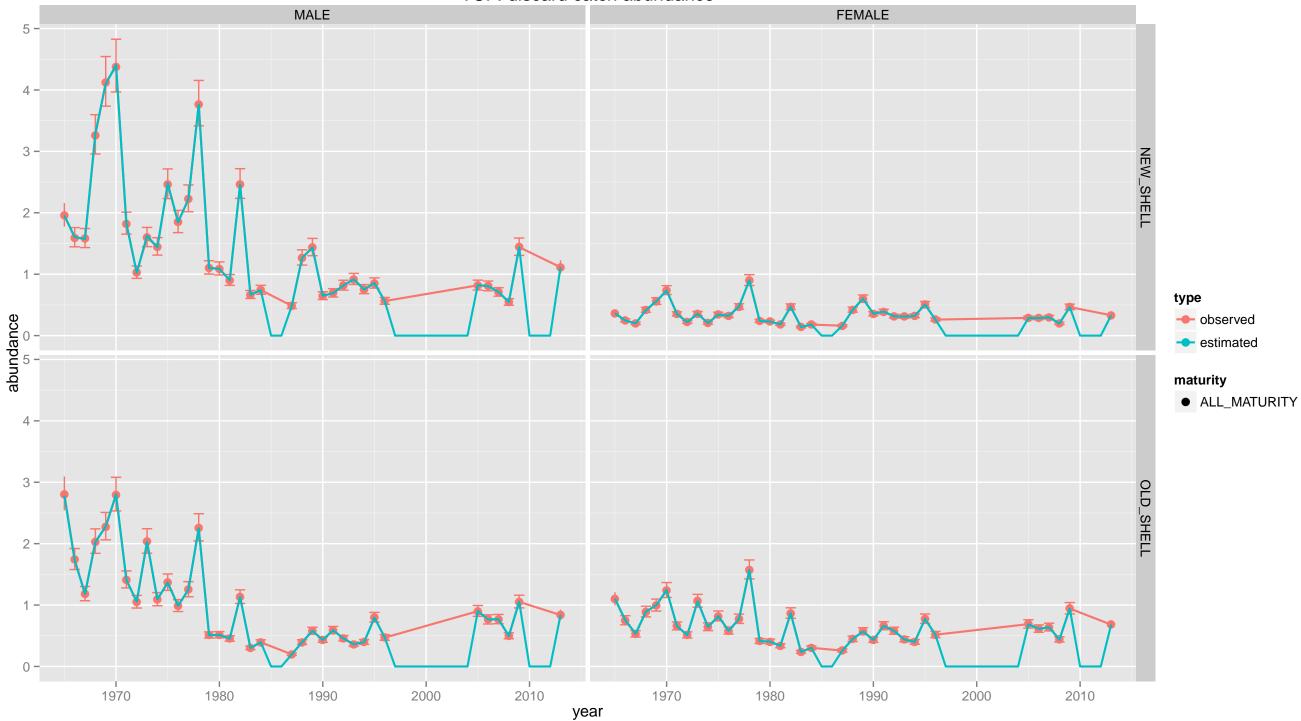
TCF: retained catch: male, all maturity, new shell

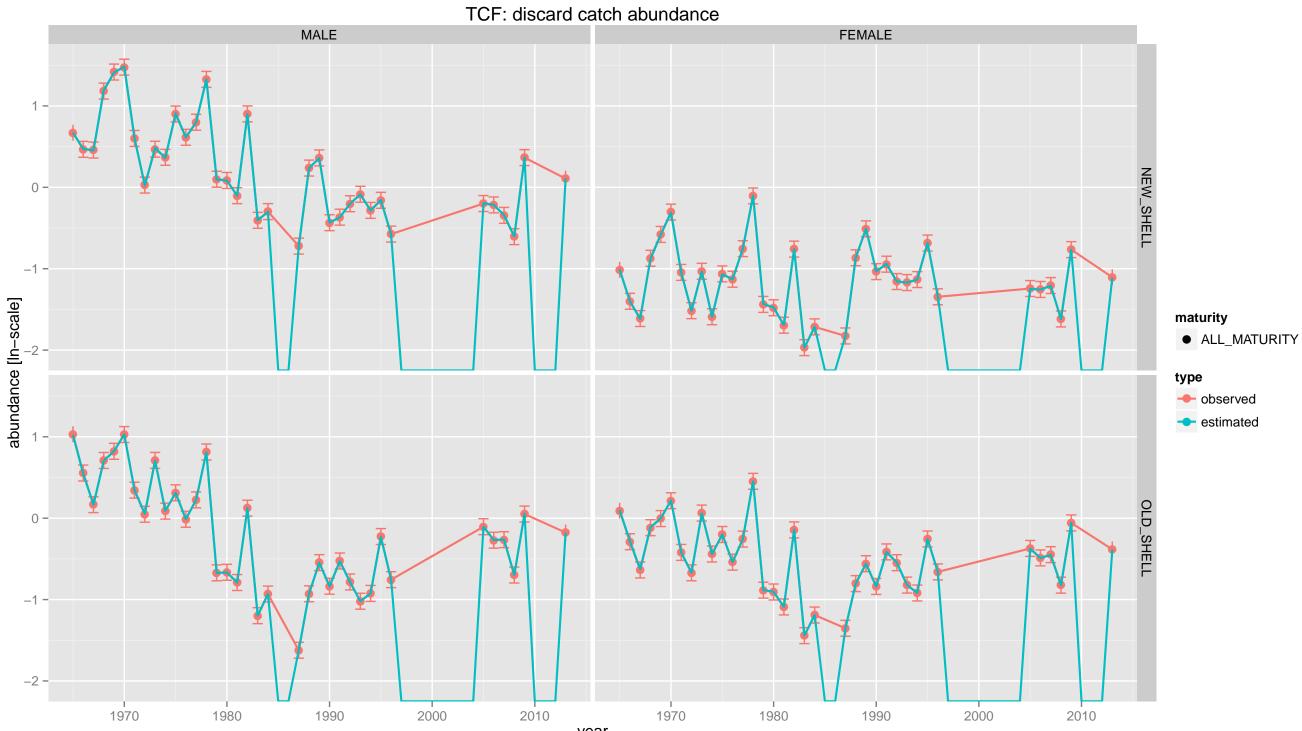


TCF: retained catch: male, all maturity, old shell

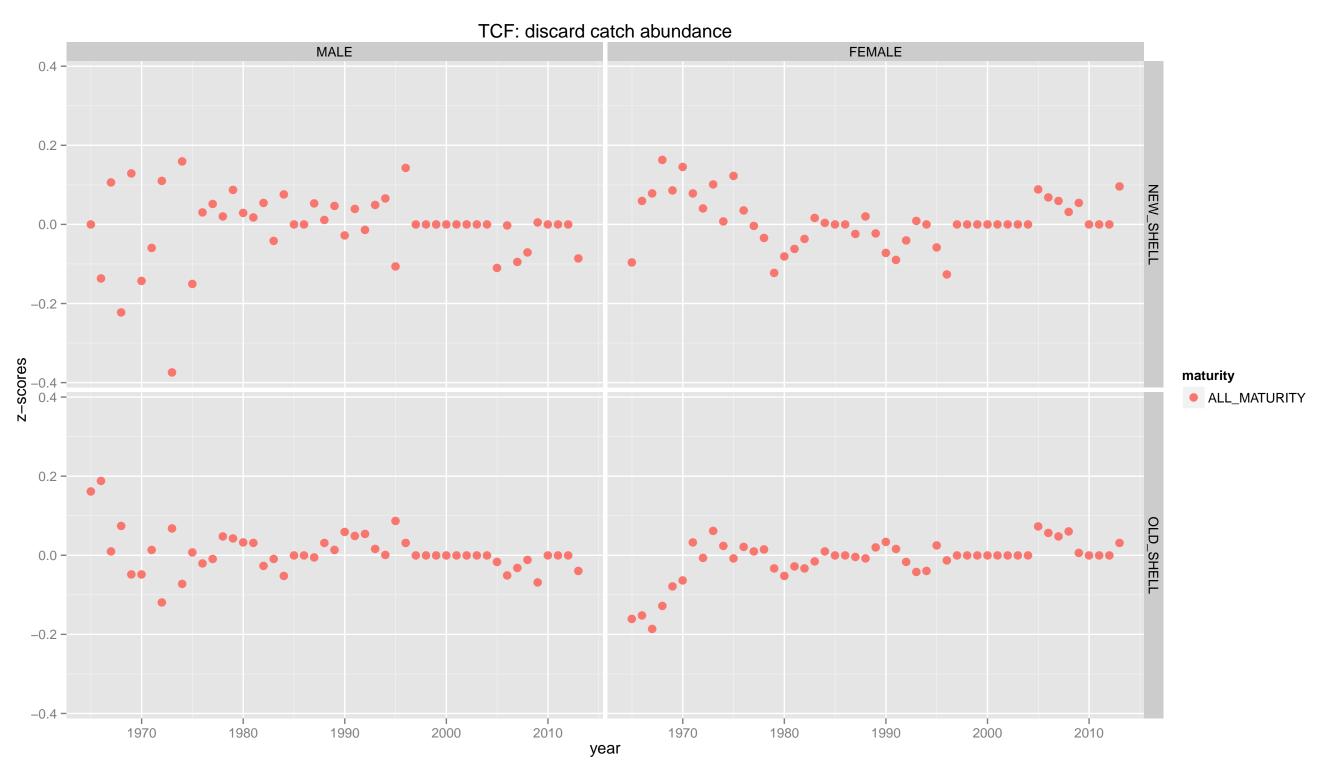


TCF: discard catch abundance

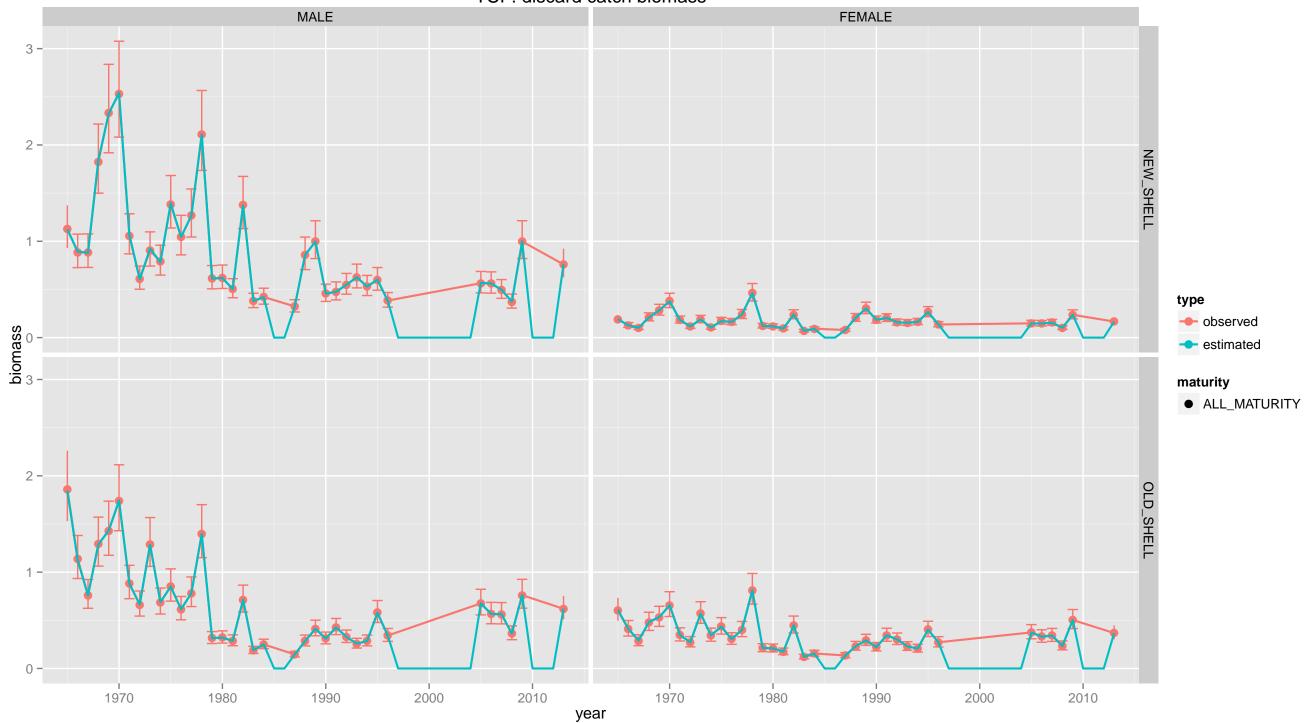




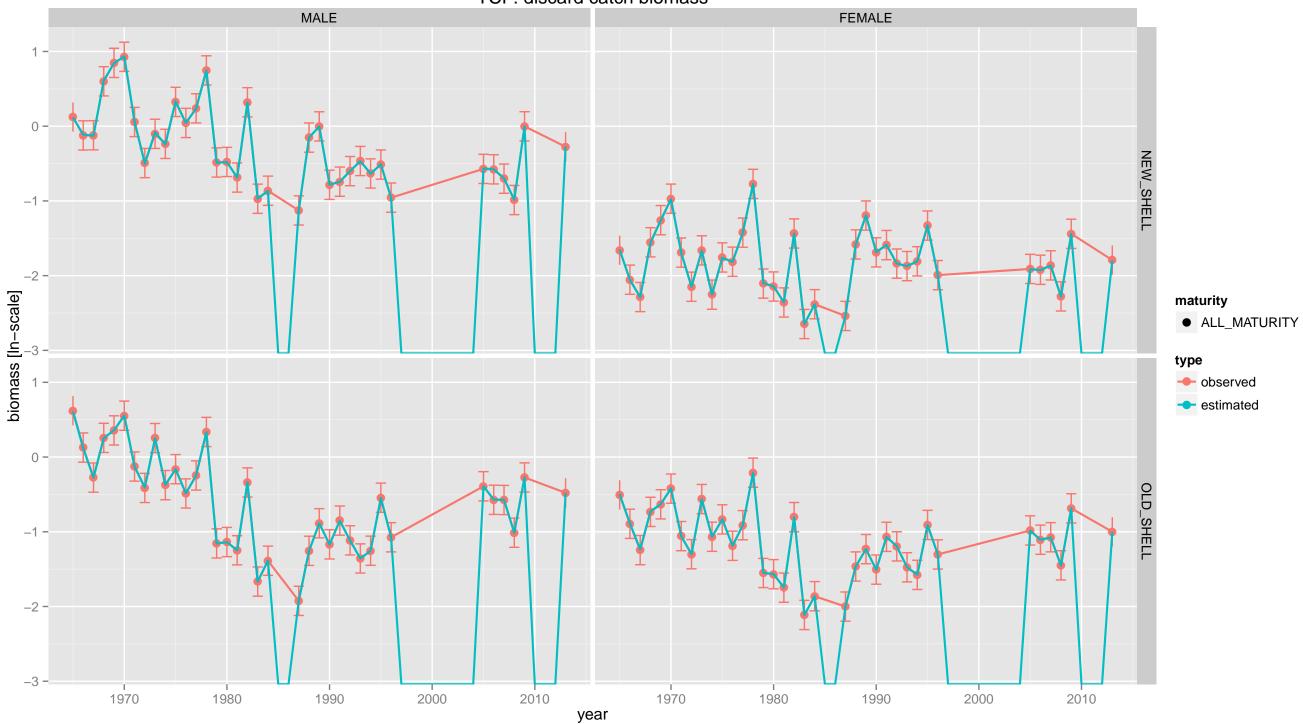
year

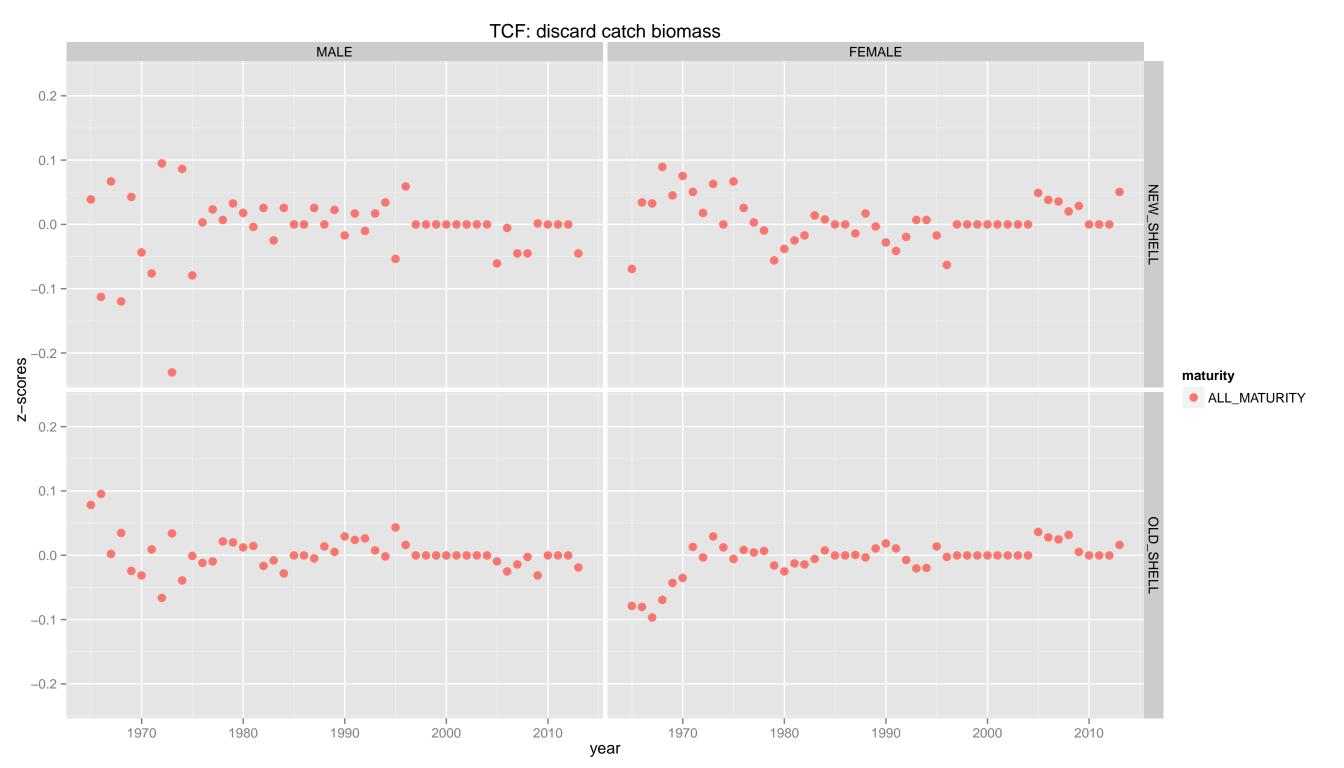


TCF: discard catch biomass



TCF: discard catch biomass





TCF: discard catch: male, new shel	TCF:	discard	catch:	male,	new	shell
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150 - size (mm CM) 50 -	•       •	1990	<ul> <li>.</li> <li>.</li></ul>
		pearson's residuals	

150 - 100 - 100 - 50 -					typeresidual $\bigcirc$
	1370	1300	negative loglikeihoods	2010	

TCF: discard catch: male, old shell

100 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
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1970 1980 1990 2000 2010 negative loglikeihoods
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			1000	pearson's residuals	2010	
		1970	1980	1990 20	2010	
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			000000000	$\bigcirc \bigcirc $	00000 0	
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	×			$\bigcirc \circ \circ \circ \bigcirc \bigcirc \circ \circ \bigcirc \bigcirc$	00000 0	
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50		~~~	0 0 0 0 0 0 0 0 0	$\bigcirc \circ \circ \circ \circ \circ \circ \circ \bigcirc \bigcirc \bigcirc \bigcirc$	• • • • • • •	
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				$\circ \bigcirc \bigcirc$	$\bigcirc \bigcirc $	0.005
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	• • • •	0 0 0 0 0 0		$\circ \circ $	00000 0	
				ard catch. lemale, new shell		

**type** O < M O > M

TCF: discard catch: female, new shell

150

size (mm CW)

50



size (mm CW)

type

🔵 0 < M

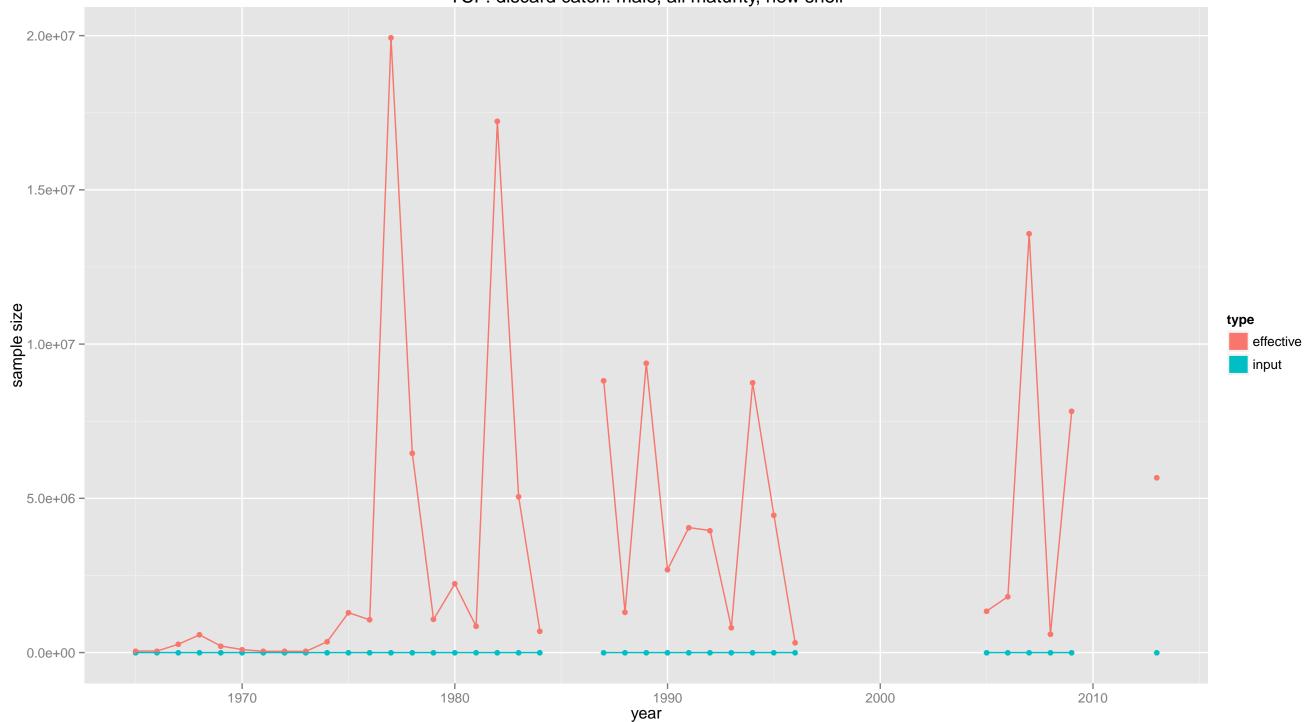
) O > M

TCF: discard catch: female, old shell

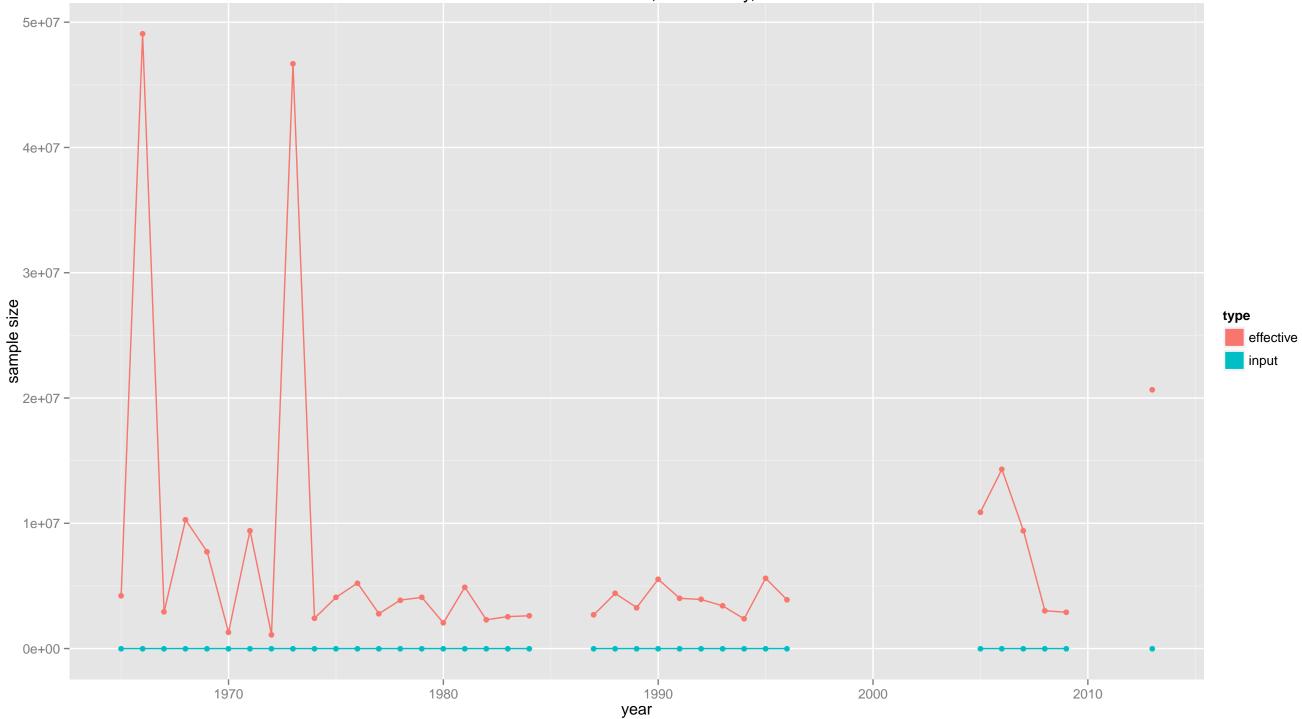
150 - size (mm CM)																										· · · · · · · · · · · · · · · · · · ·						idual 0.00 0.01 0.01	0 5 0 5	type	0 < N	
			19	ı 70					19	ı 80		ne	ega	ativ	e lo	1 Dali	990 kei	ho	she	:			20	ı )00				20	i 10							

size (mm CW)

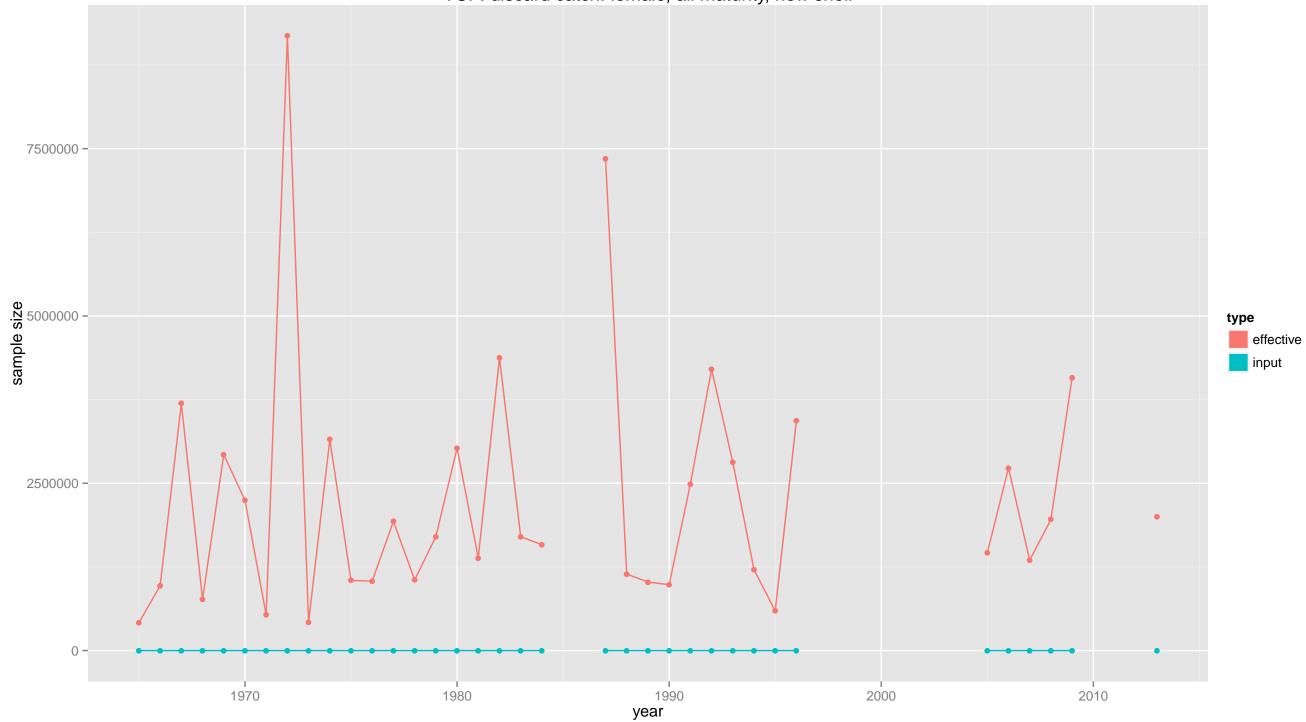
TCF: discard catch: male, all maturity, new shell



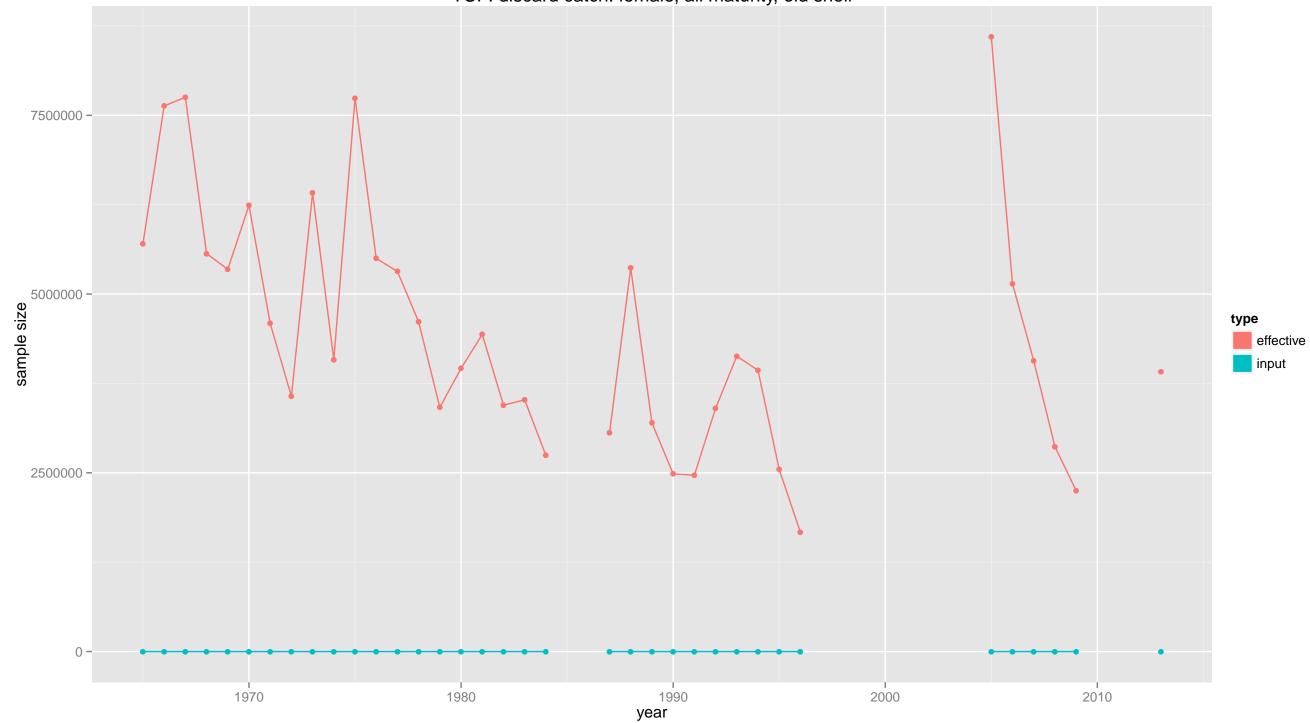
TCF: discard catch: male, all maturity, old shell

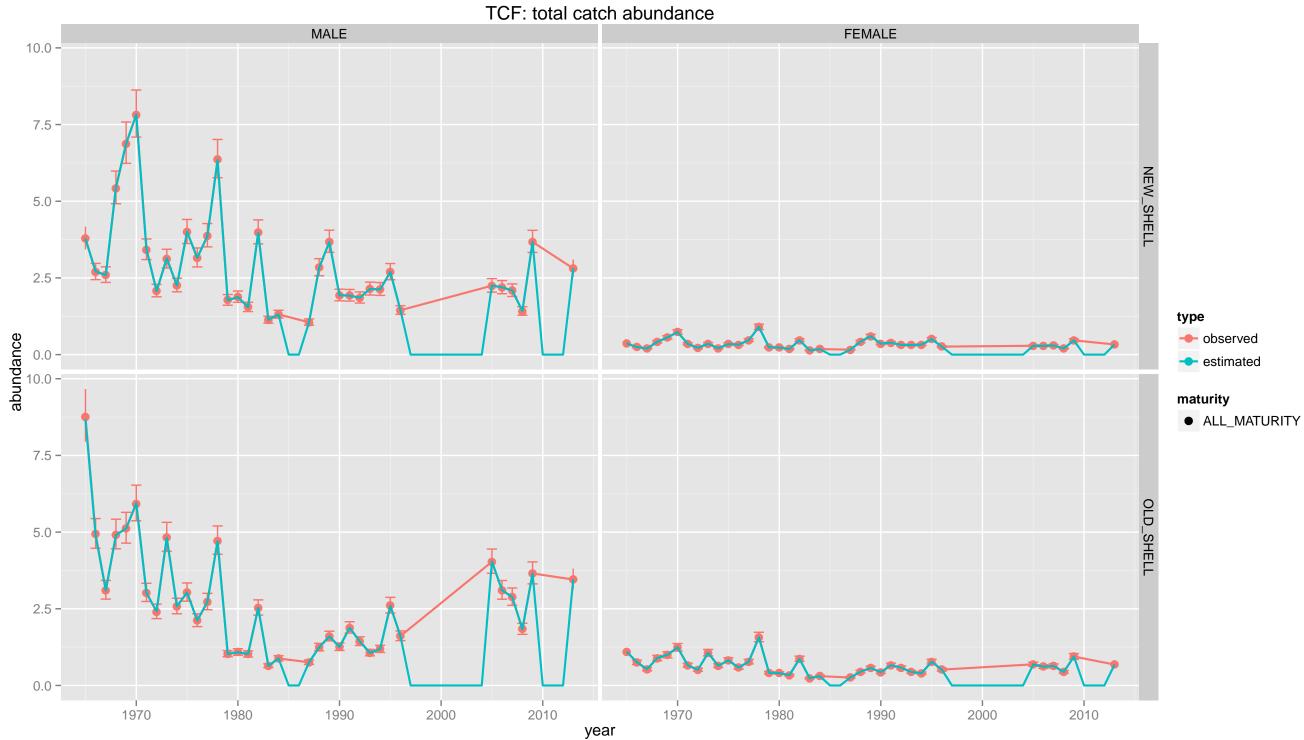


TCF: discard catch: female, all maturity, new shell

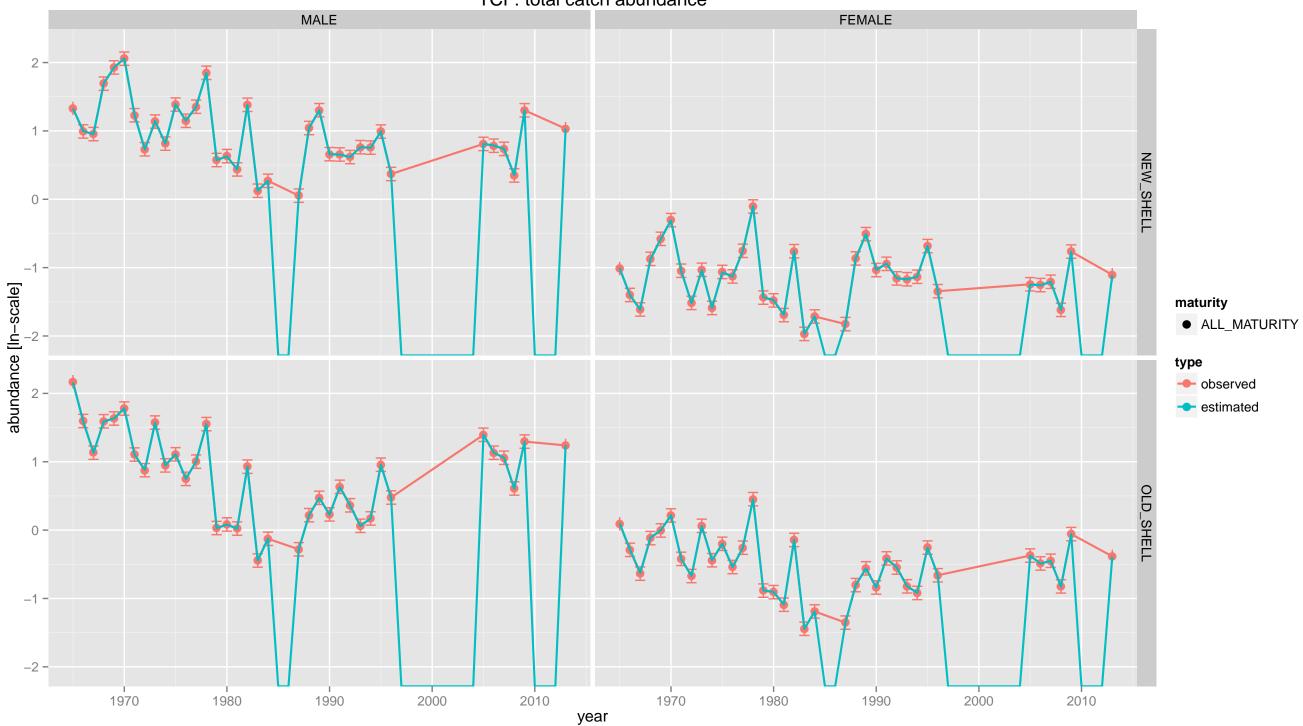


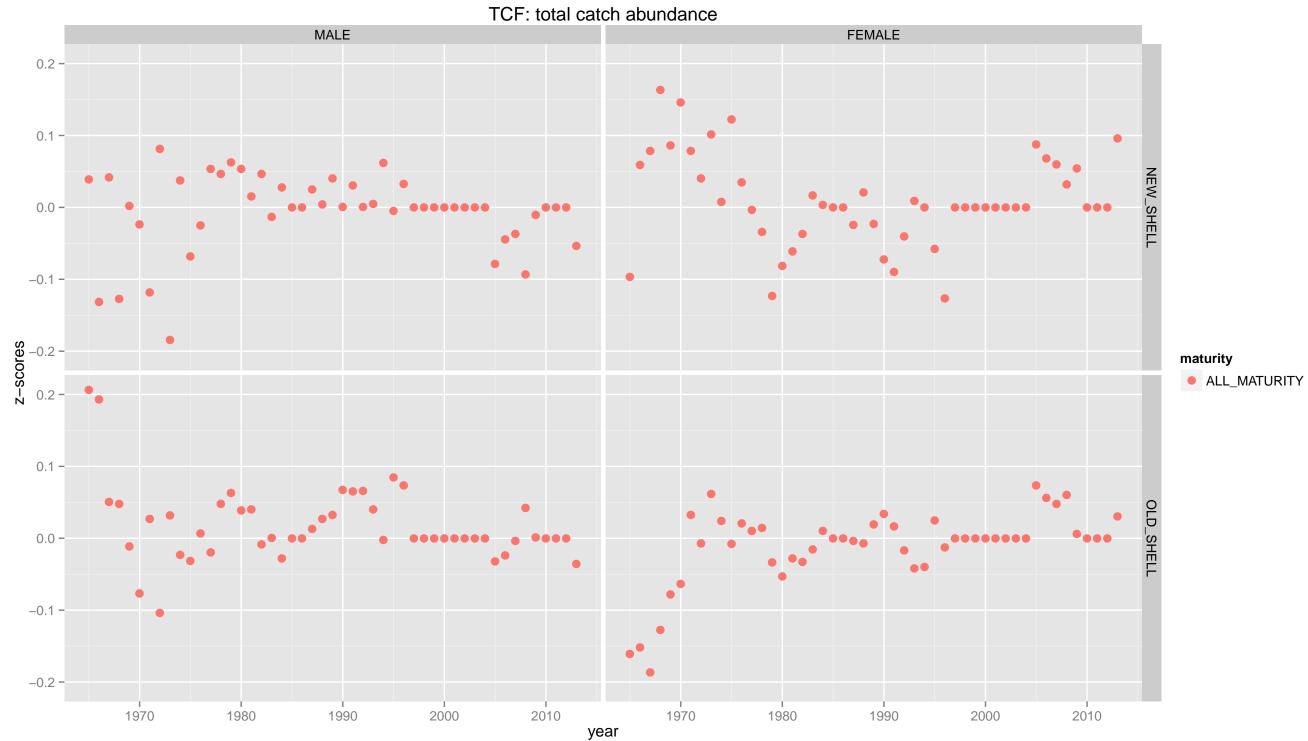
TCF: discard catch: female, all maturity, old shell



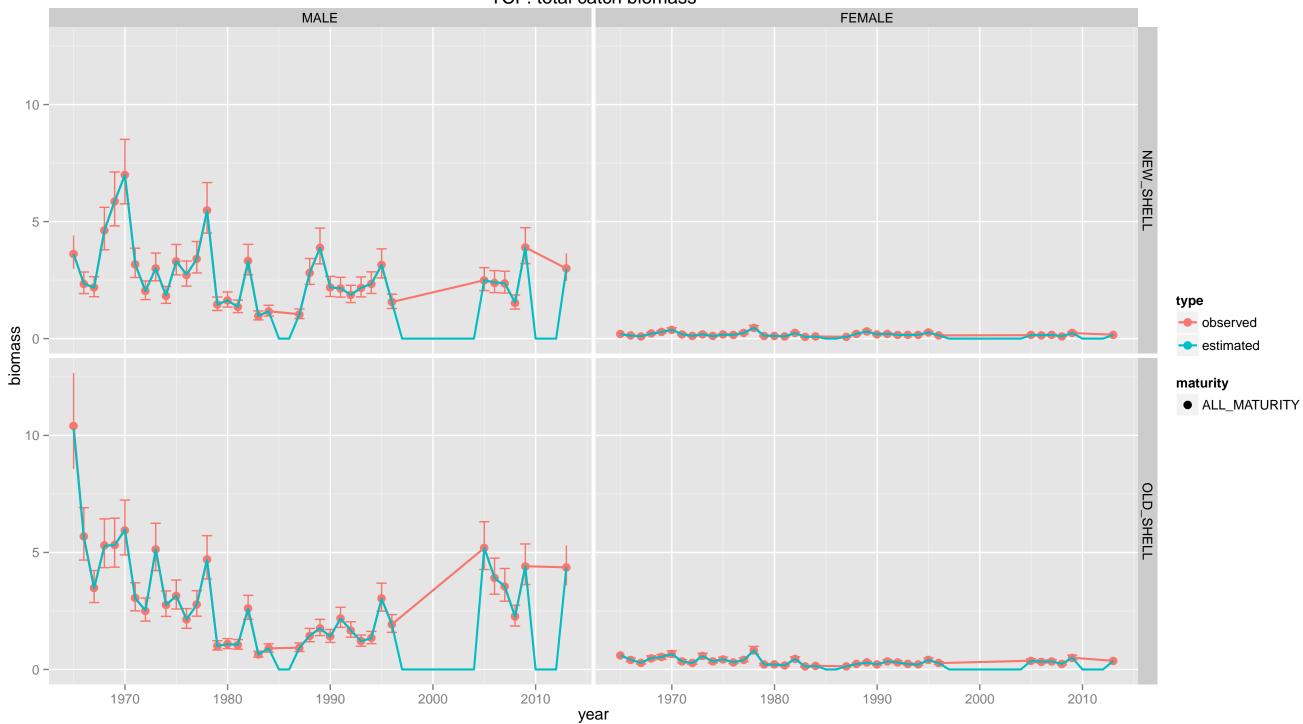


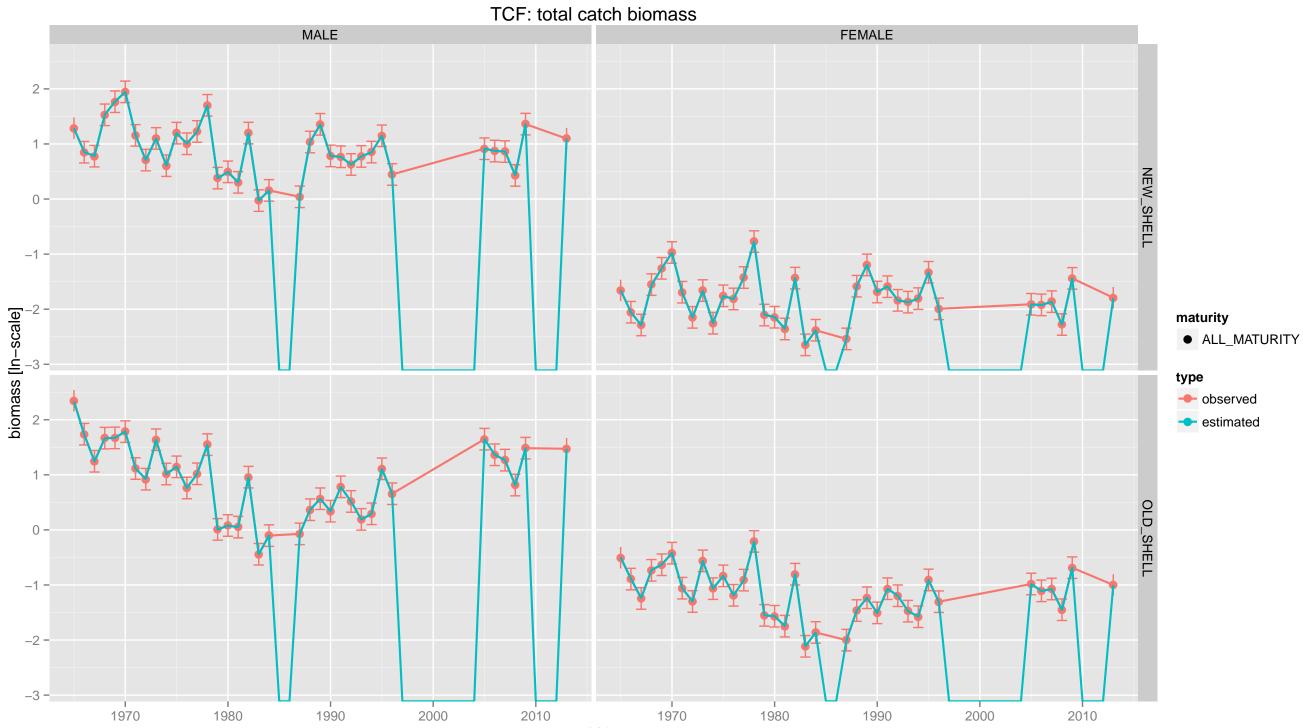
TCF: total catch abundance





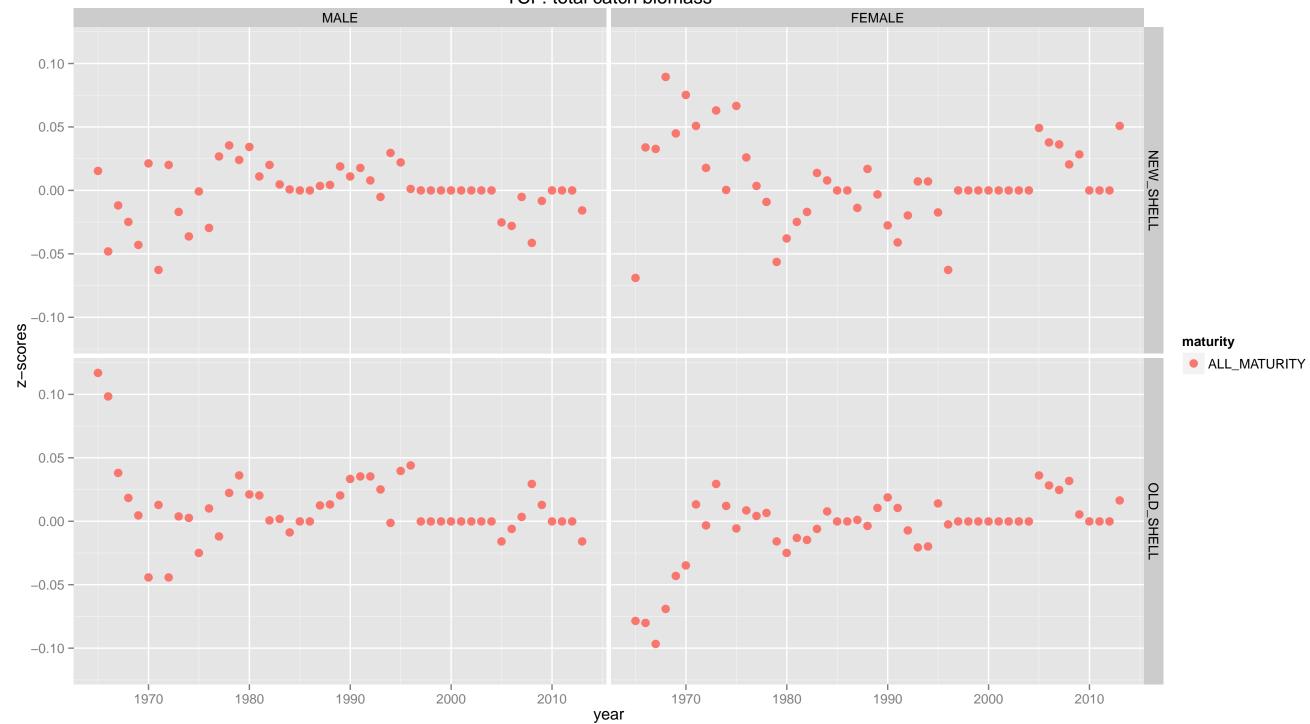
TCF: total catch biomass





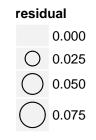
year

TCF: total catch biomass



TCF: total catch: male, new shell

150 - size (mm CM) 100 -				<ul> <li>○</li> <li>○</li></ul>
50 -	• • • • • • • • • • • • • • • • • • •			•
	1970 1980	1990 2 pearson's residuals	2000 2010	



150-       0	150 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0				$ \begin{array}{c} 0.00 \\ 0.05 \\ 0.10 \\ 0.15 \end{array} $
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TCF: total catch: male, old shell

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	$\bigcirc \bigcirc $		$\bigcirc \bigcirc $	
			$\bigcirc \bigcirc \bigcirc \circ \circ \circ \bigcirc \bigcirc$	
	$\bigcirc \circ \circ \bigcirc \bigcirc \bigcirc \bigcirc \circ \circ \bigcirc \bigcirc \bigcirc \circ \circ \circ \circ \circ \circ \circ \circ$		0 0 0 0 0	
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	$\bigcirc \bigcirc \circ \bigcirc \circ \circ \circ \bigcirc \bigcirc \circ \circ$			
	$\bigcirc \bullet \bigcirc \bullet \bigcirc \bullet \circ \bigcirc \bullet \bigcirc \circ \bigcirc \circ \bigcirc \circ \bigcirc \circ \bigcirc \circ \bigcirc $		• • • • •	
	$\circ \circ $		• • • • • •	residual type
Ś	• • • • • • • • • • • • • • • • • • •		• • • • • •	0.00 O < M
Ũ	$\cdot$ $\circ$		• • • • • • • •	-
E			••••••	○ 0.01 ○ 0 > M
size (mm CW) - 001			0 0 0 0 0	0.02
ize	••••••••••••••••••••••••••••••••••••••		0 0 0 • 0	
0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0	0.03
			0 0 0 0 0 0	
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	• • • • • • • • • • • • • • • • • • • •		• • • • • •	
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50 -		•		
	1970 1980	1990 2000 pearson's residuals	2010	
		pearson's residuals		

150 - 100 - size		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0 0 0 0 0         0 0 0 0 0           0 0 0 0 0         0 0 0 0 0	$\mathbf{Fesidual}$ $\mathbf{Fesidual$ $\mathbf{Fesidual}$ $\mathbf{Fesidual}$ $\mathbf{Fesidual$ $\mathbf{Fesidual$ $\mathbf{Fesidual}$ $Fesidua$
	1970	1980 1990 negative loglikeiho	2000	2010

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	$\bigcirc \circ \circ \cdot \circ \cdot \circ $	0 0 0 0 0 0 0	$\circ \circ $	0 0 0 0 o	
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**type** O < M O > M

TCF: total catch: female, new shell

size (mm CW)



) O > M

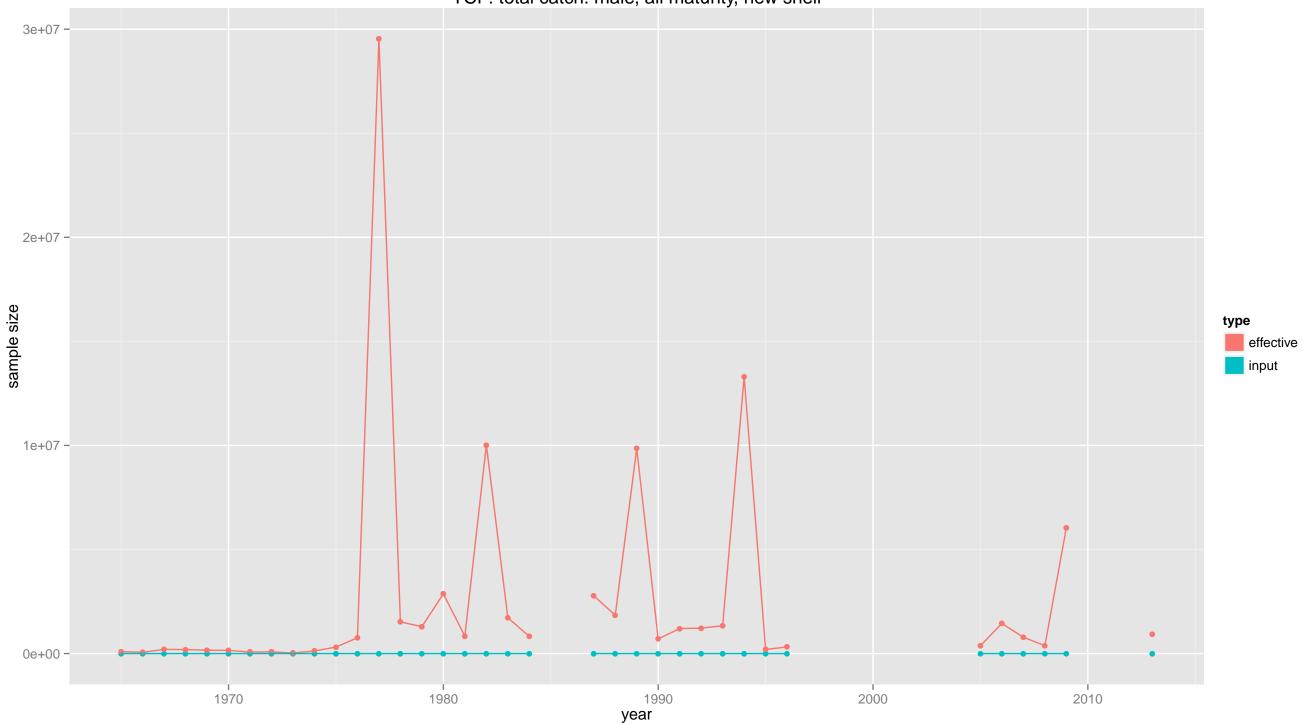
size (mm CW)

TCF: total catch: female, old shell

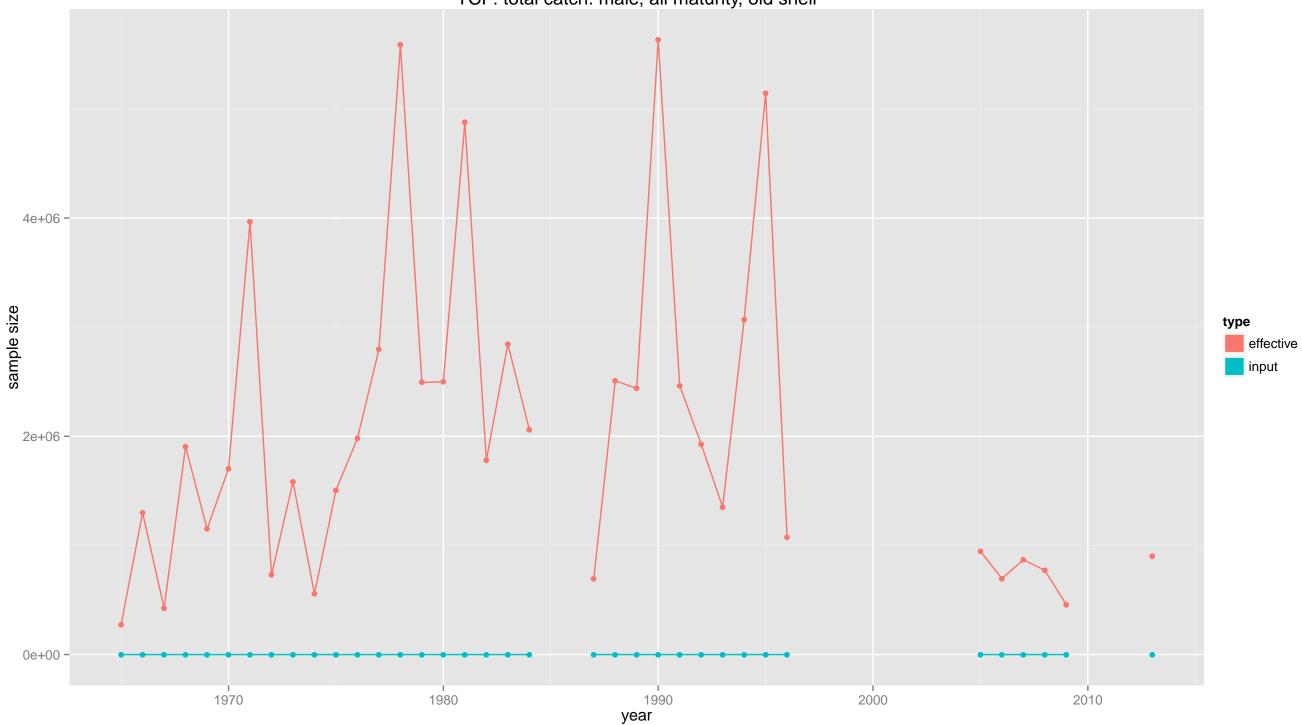
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size (mm CW)

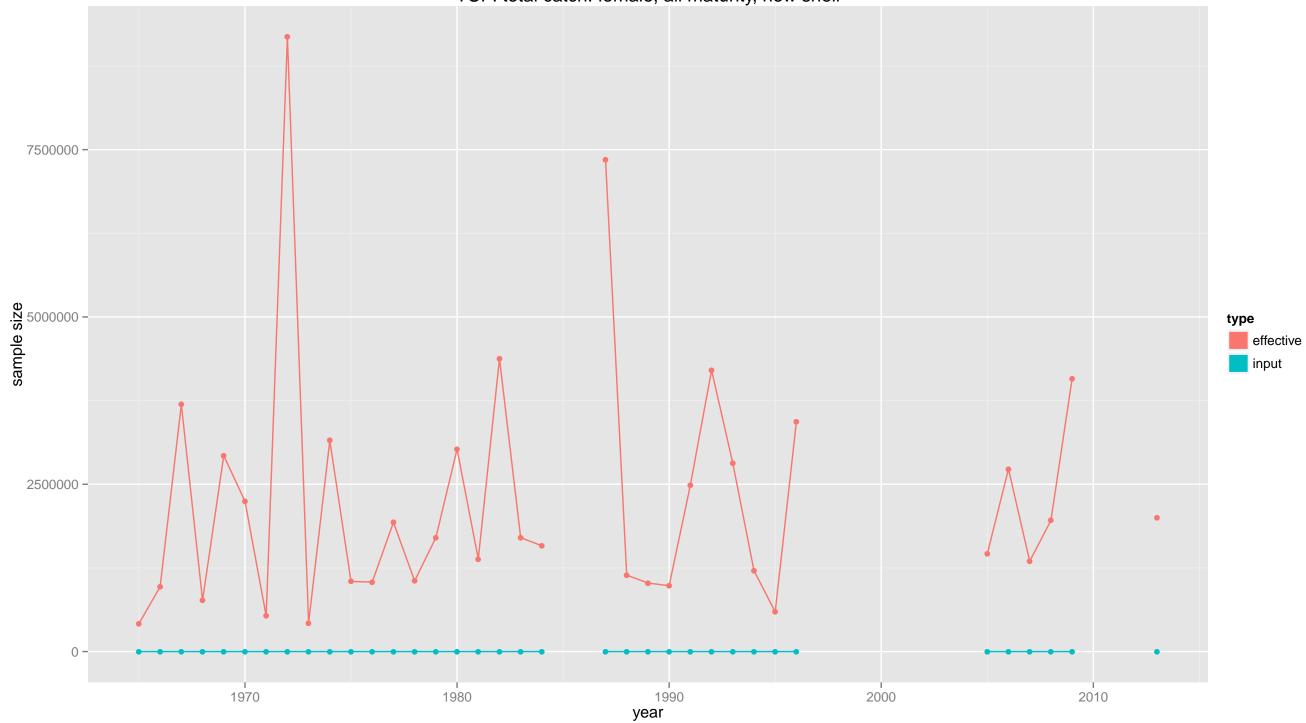
TCF: total catch: male, all maturity, new shell



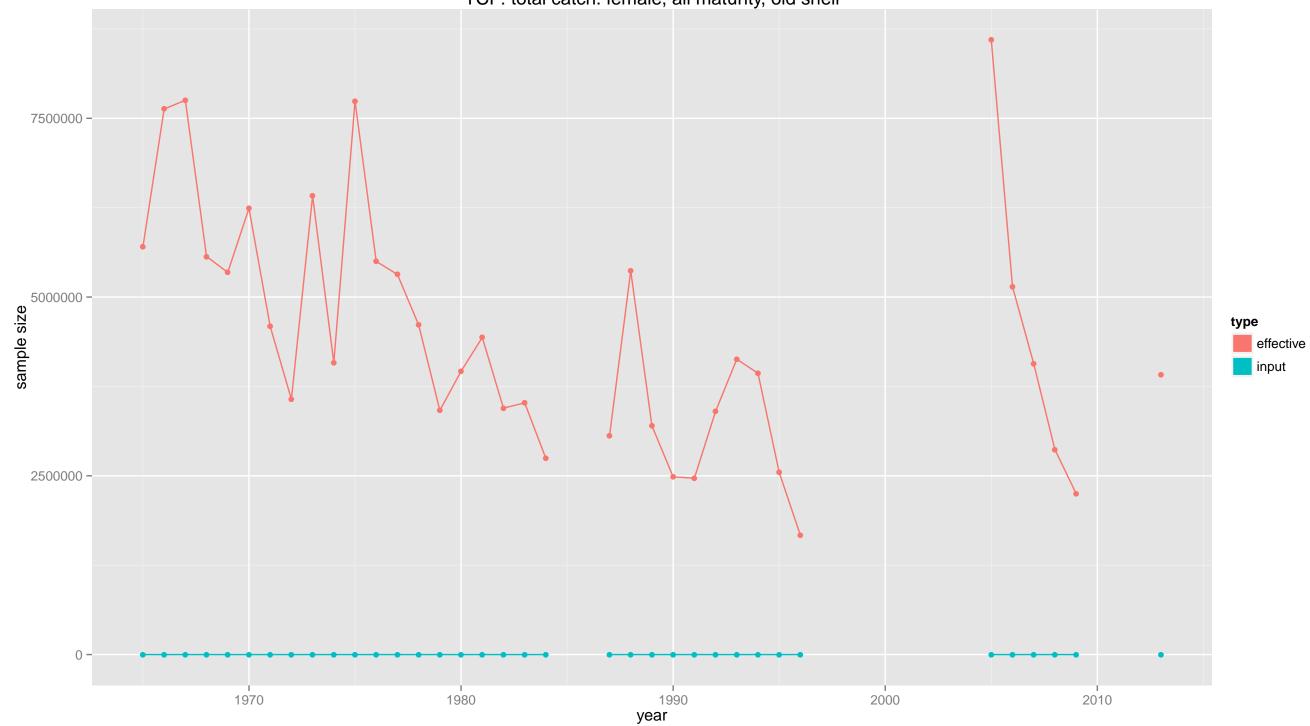
TCF: total catch: male, all maturity, old shell



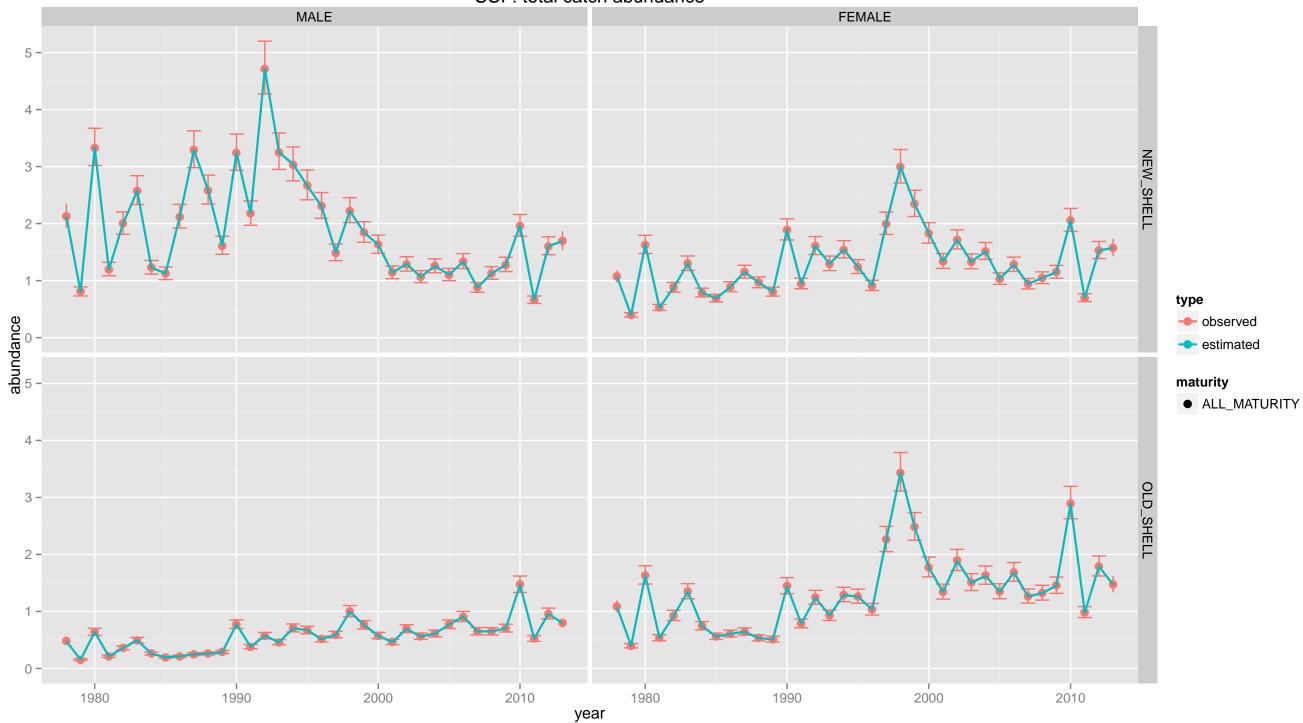
TCF: total catch: female, all maturity, new shell

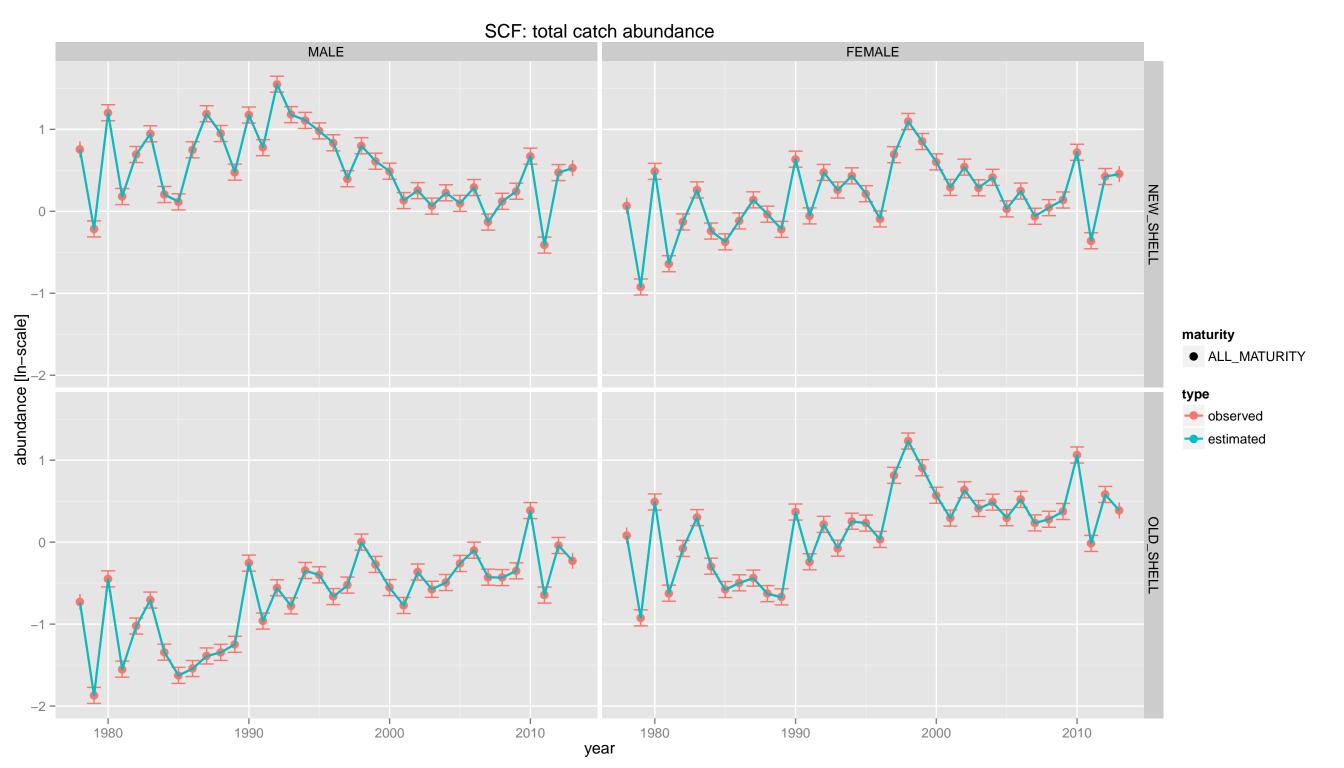


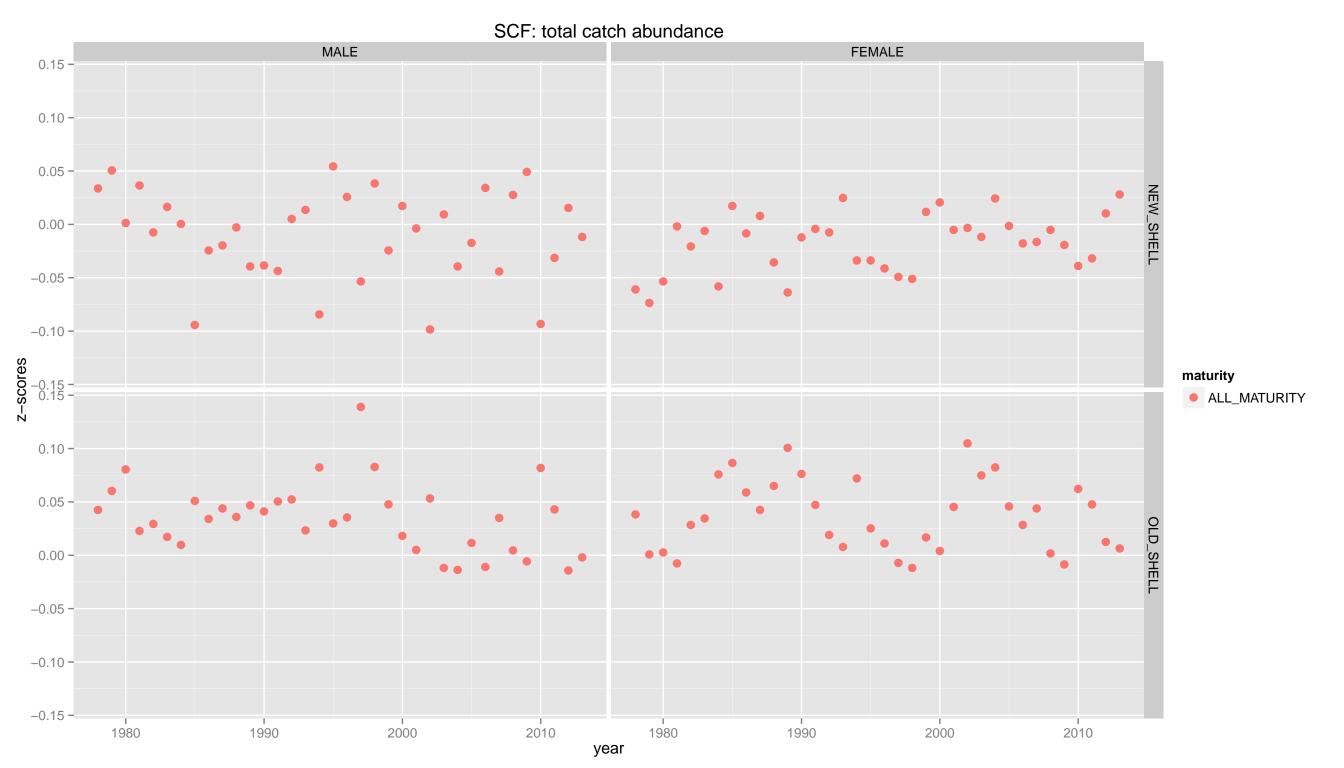
TCF: total catch: female, all maturity, old shell



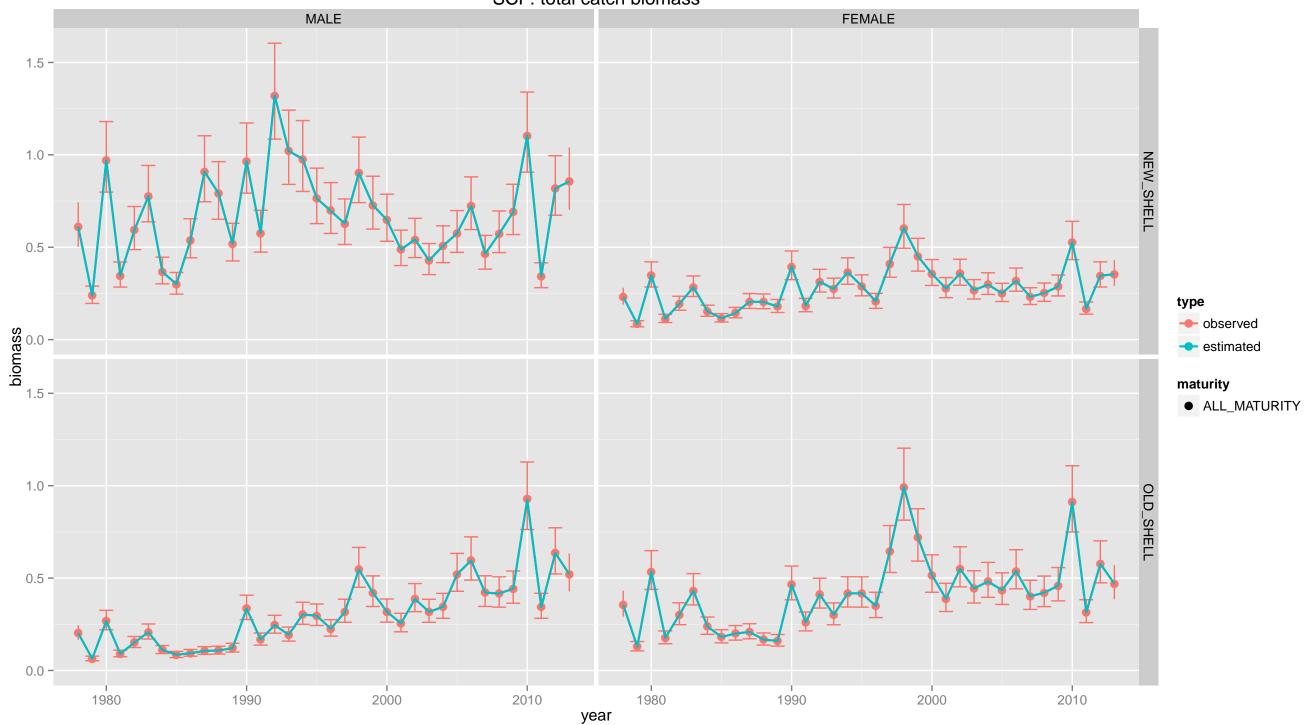
SCF: total catch abundance





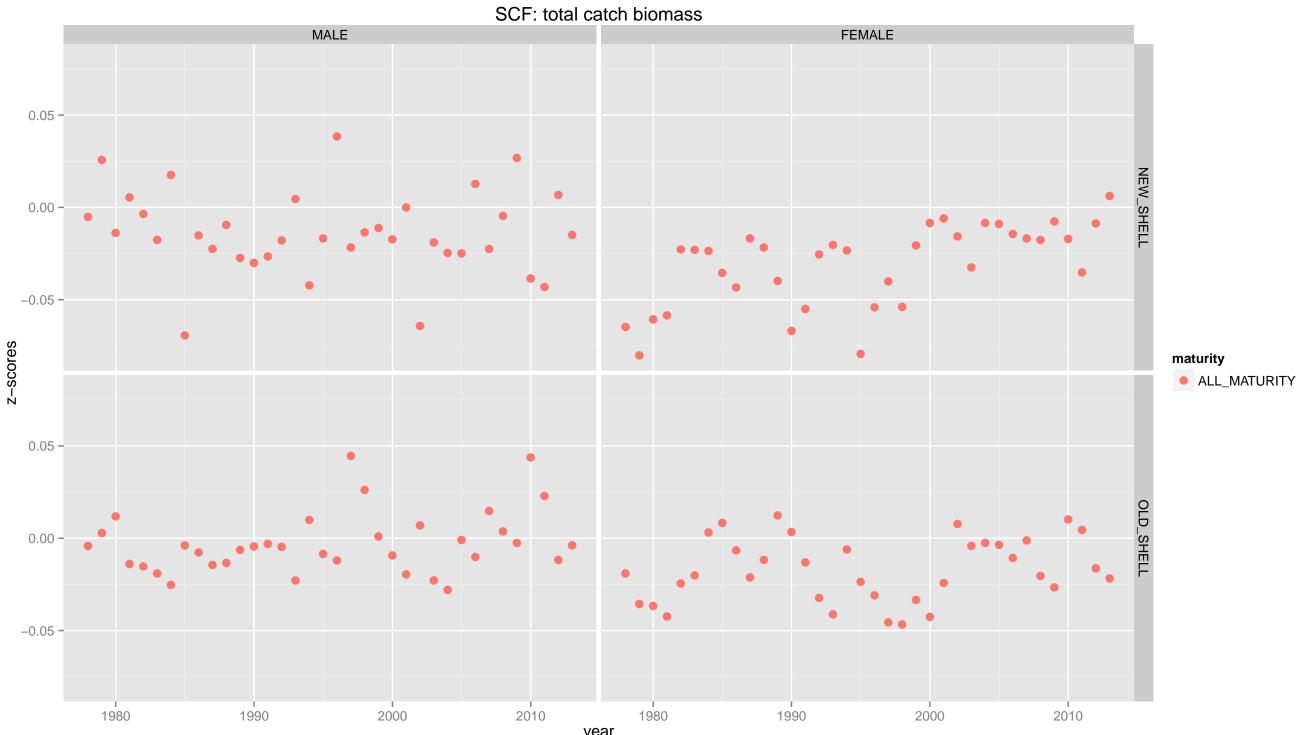








year

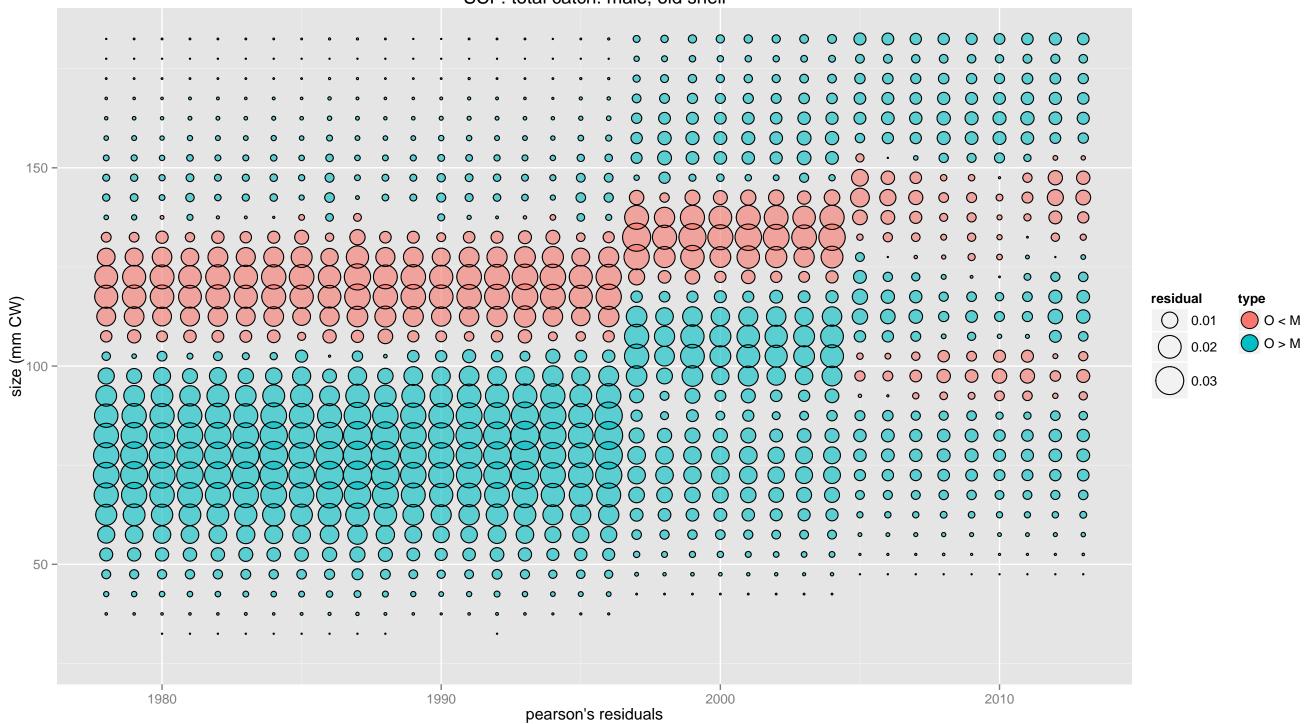


year

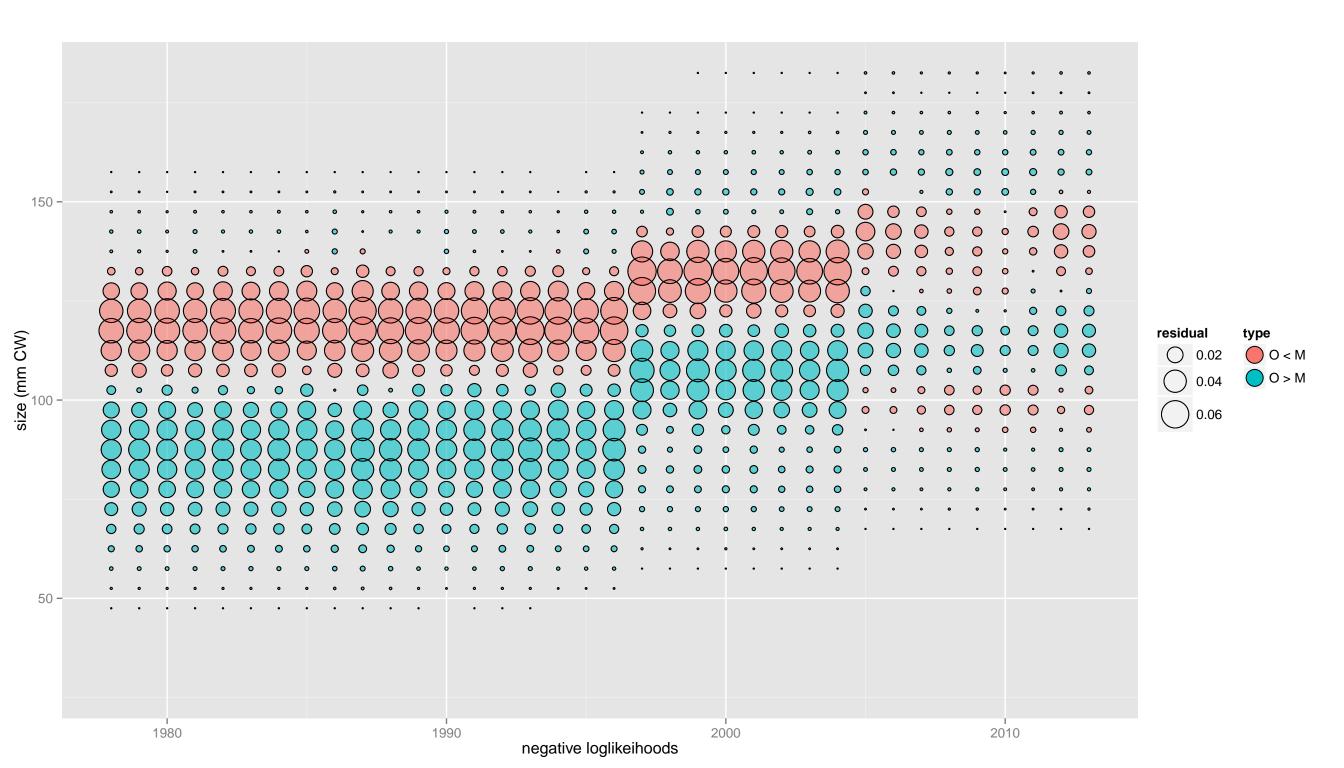
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150 - size (mm CM) 100 - 50 -							SCF:		· · · · · · · · · · · · · · · · · · ·																<ul> <li>•</li> <li>•&lt;</li></ul>		<b>residual</b> ○ 0.01 ○ 0.02 ○ 0.03 ○ 0.04	<b>type</b> ● O < M ● O > M
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SCF: total catch: male, new shell

negative loglikeihoods	150 - size (um CM) 50 -		· • • • • • • • • • • • • • • • • • • •																																				000	idual ) 0.02 ) 0.04 ) 0.06	<b>type</b> ● 0 < ● 0 >	
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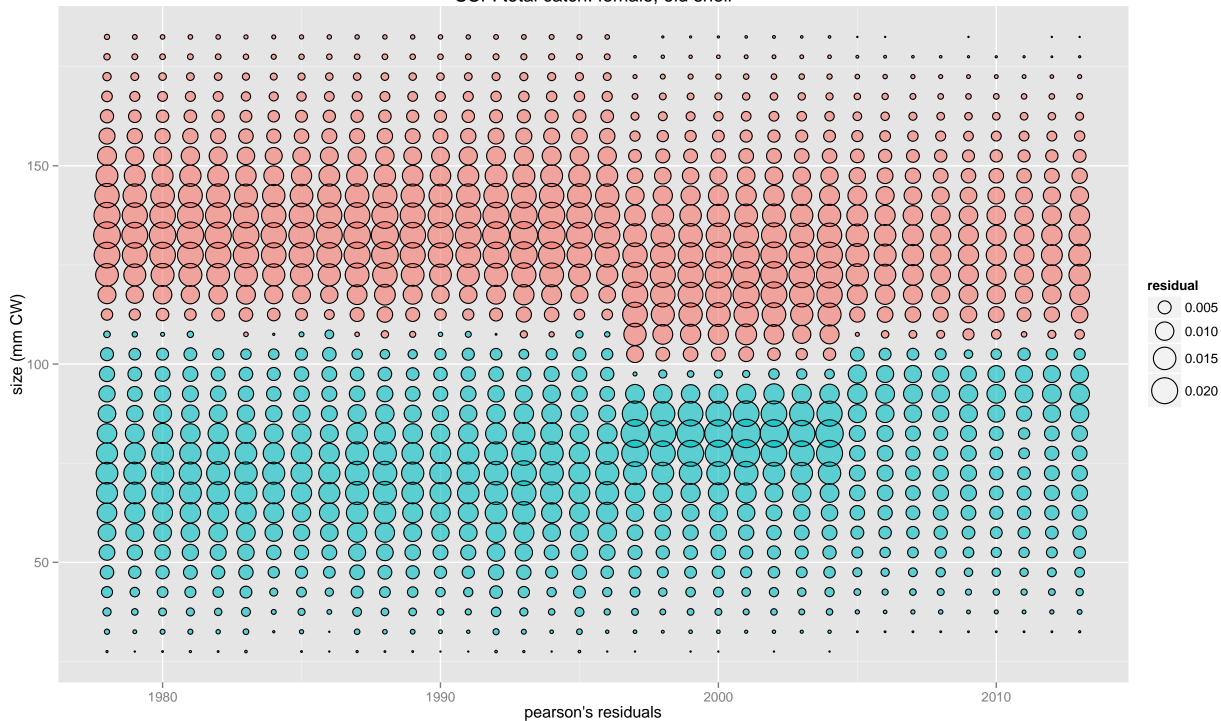
SCF: total catch: male, old shell



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SCF: total catch: female, new shell

150 150 150 150 150 150 150 150				residualtype $\bigcirc$ $0.01$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $0.02$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $0.03$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $0.04$ $\bigcirc$ $0.05$
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type

0.010

0.015

0.020

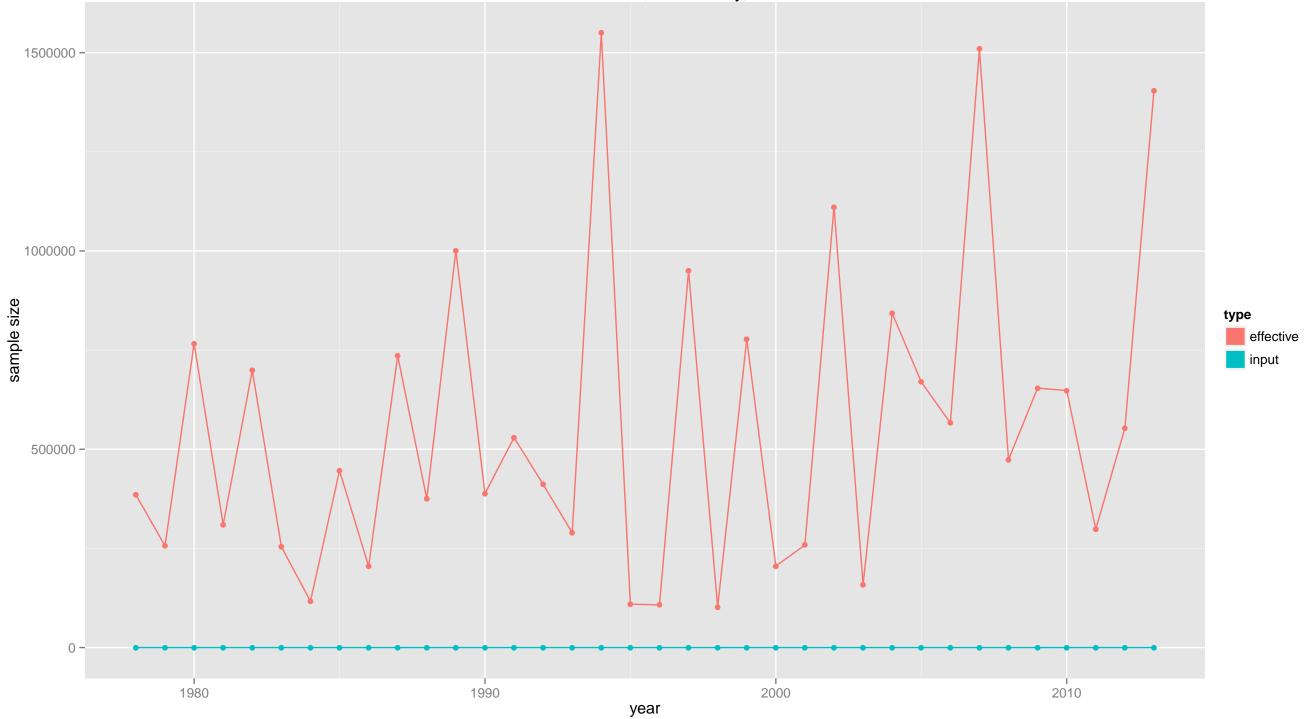
🔵 0 < M

O > M

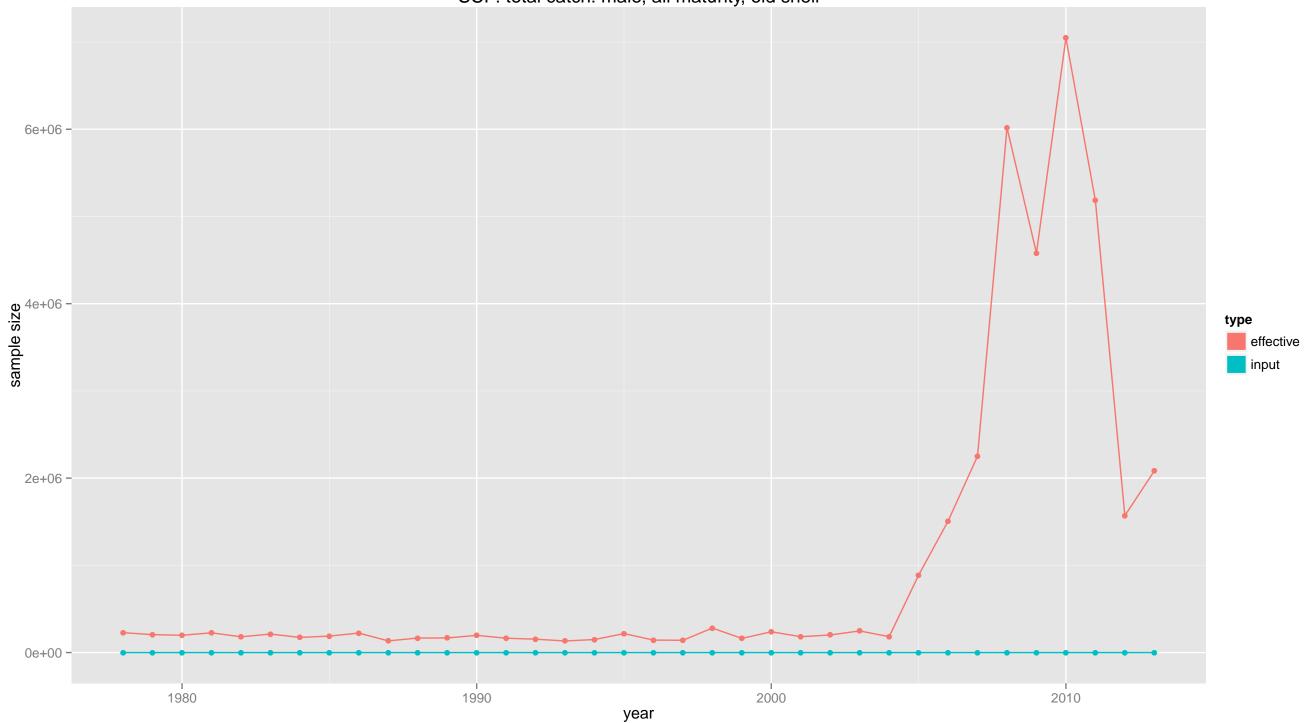
SCF: total catch: female, old shell



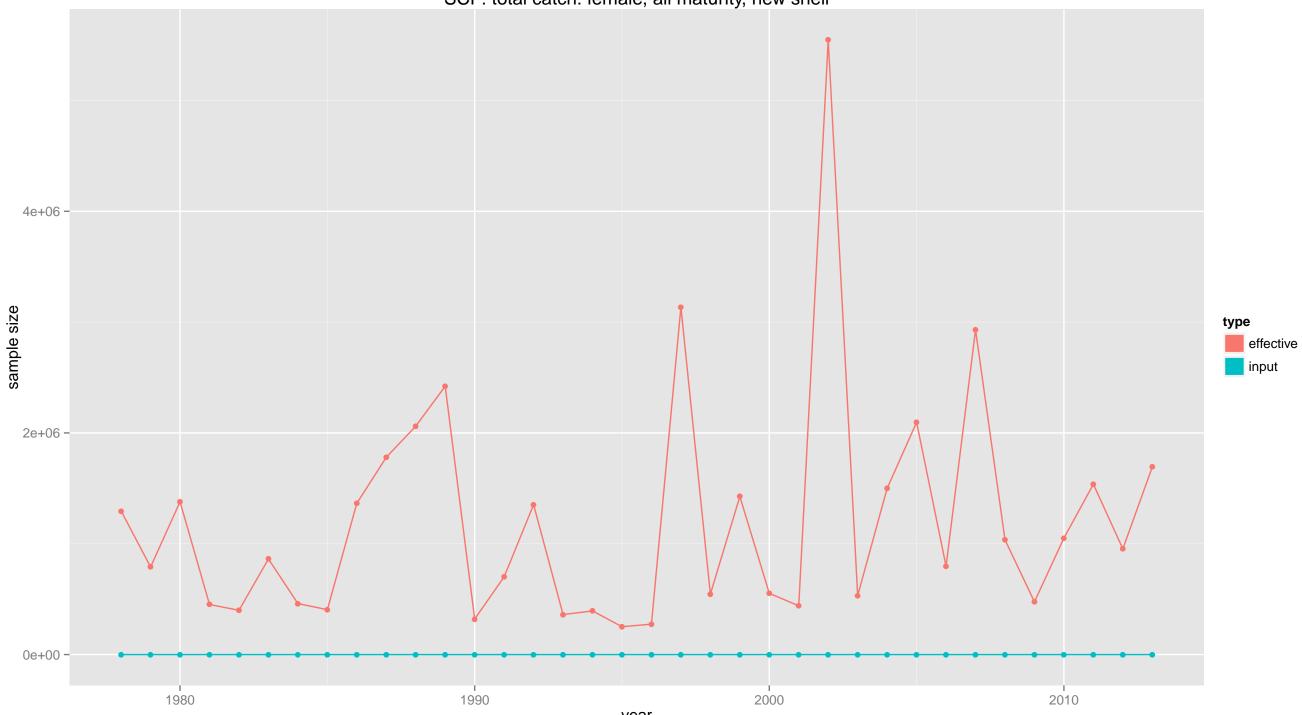
SCF: total catch: male, all maturity, new shell



SCF: total catch: male, all maturity, old shell

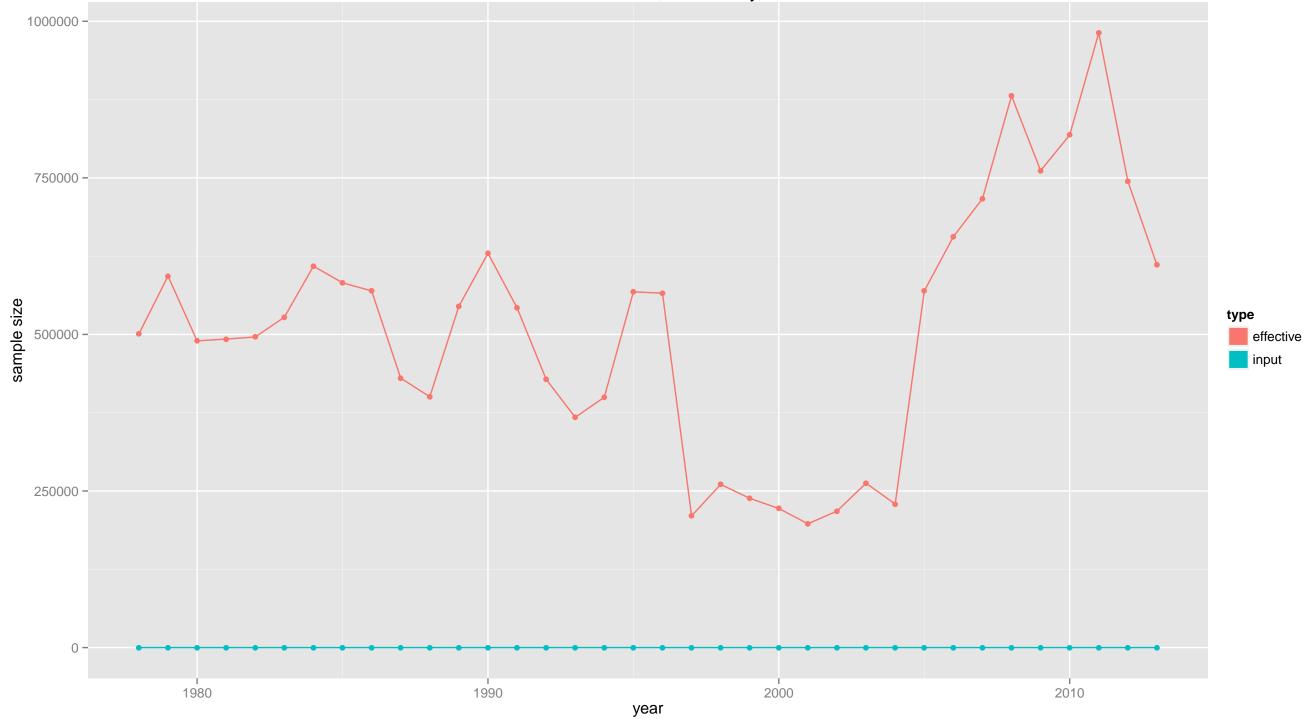


SCF: total catch: female, all maturity, new shell

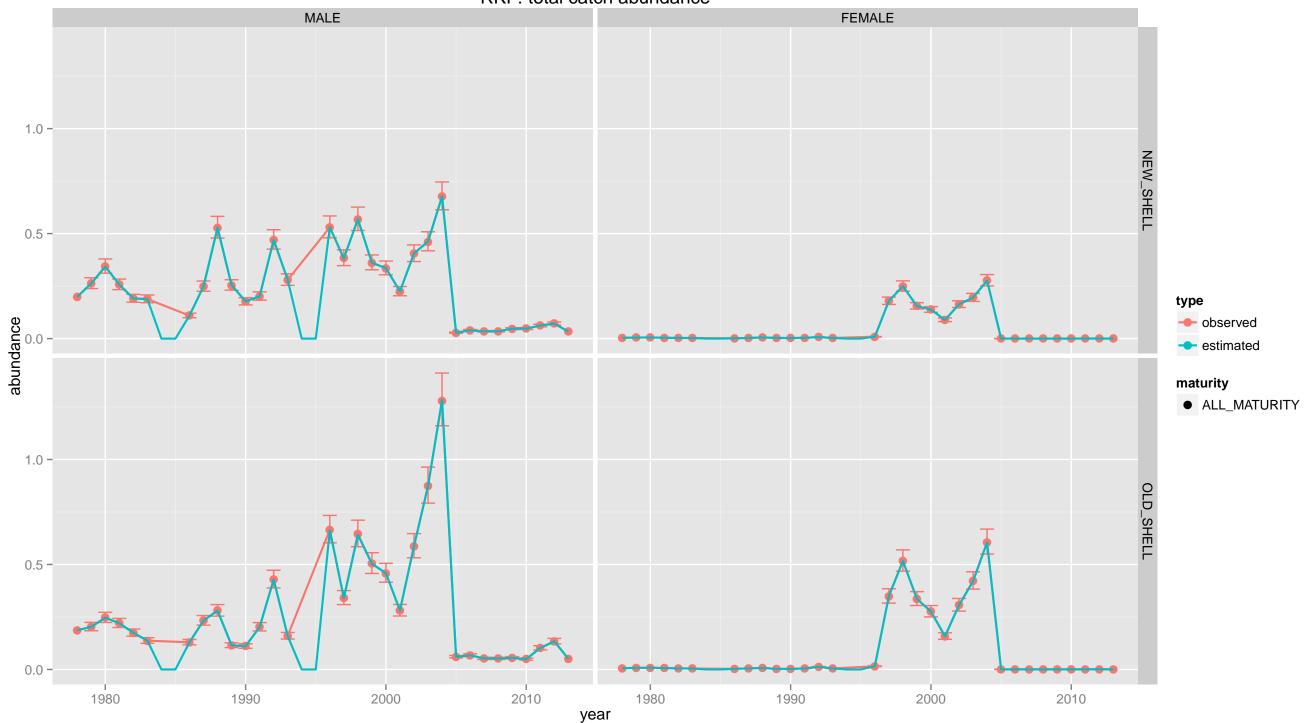


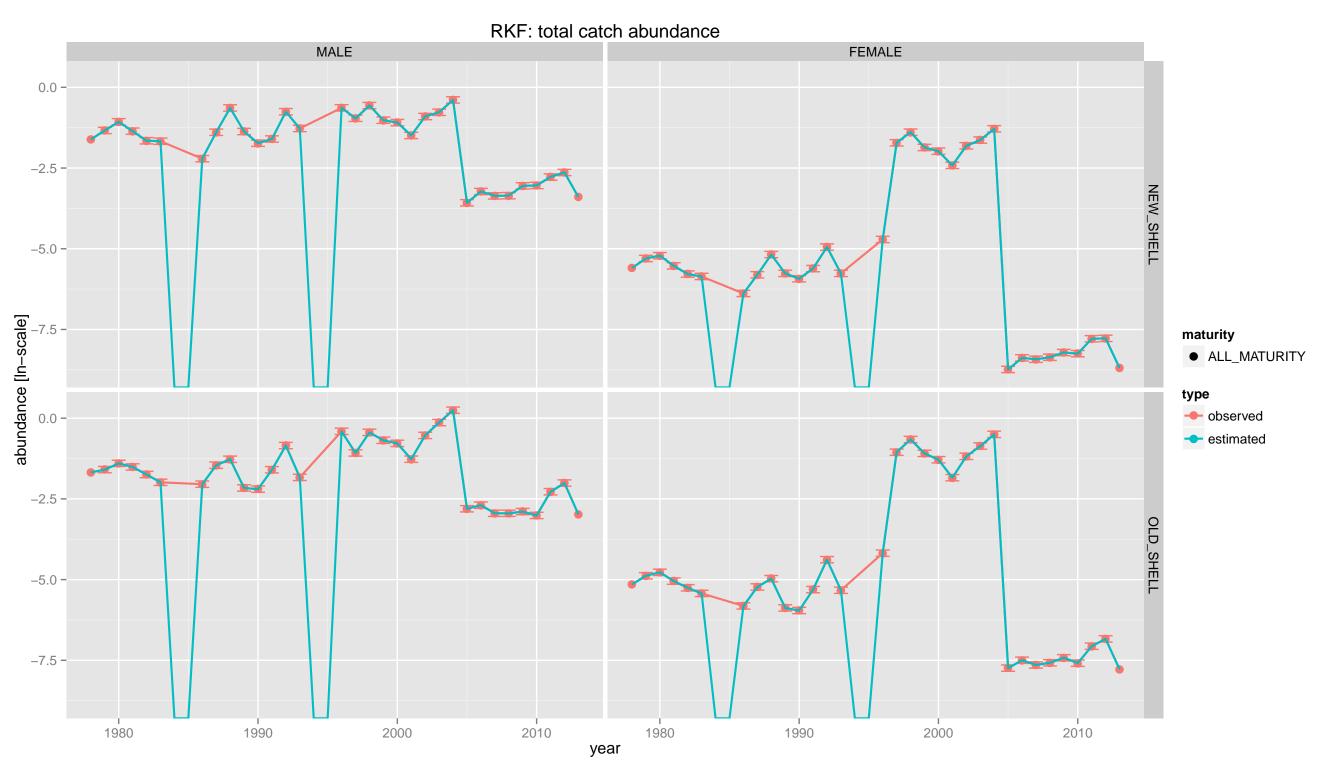
year

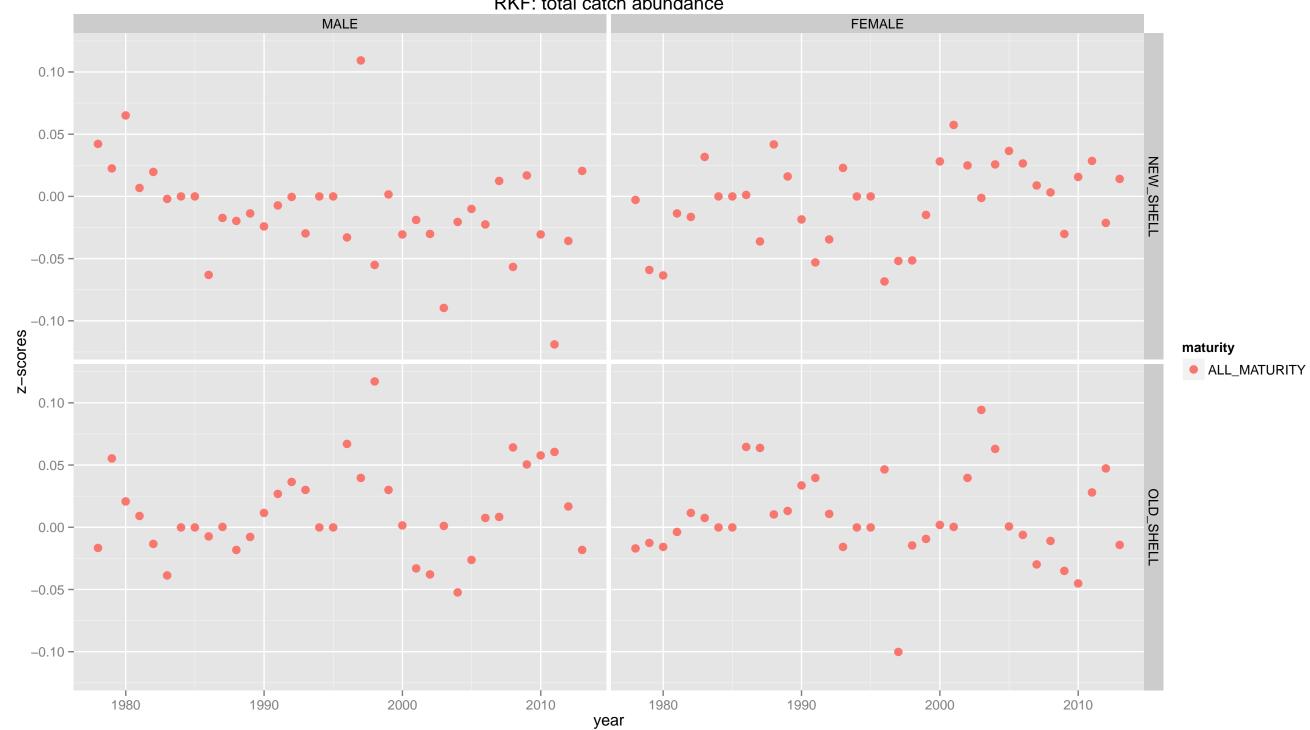
SCF: total catch: female, all maturity, old shell



RKF: total catch abundance

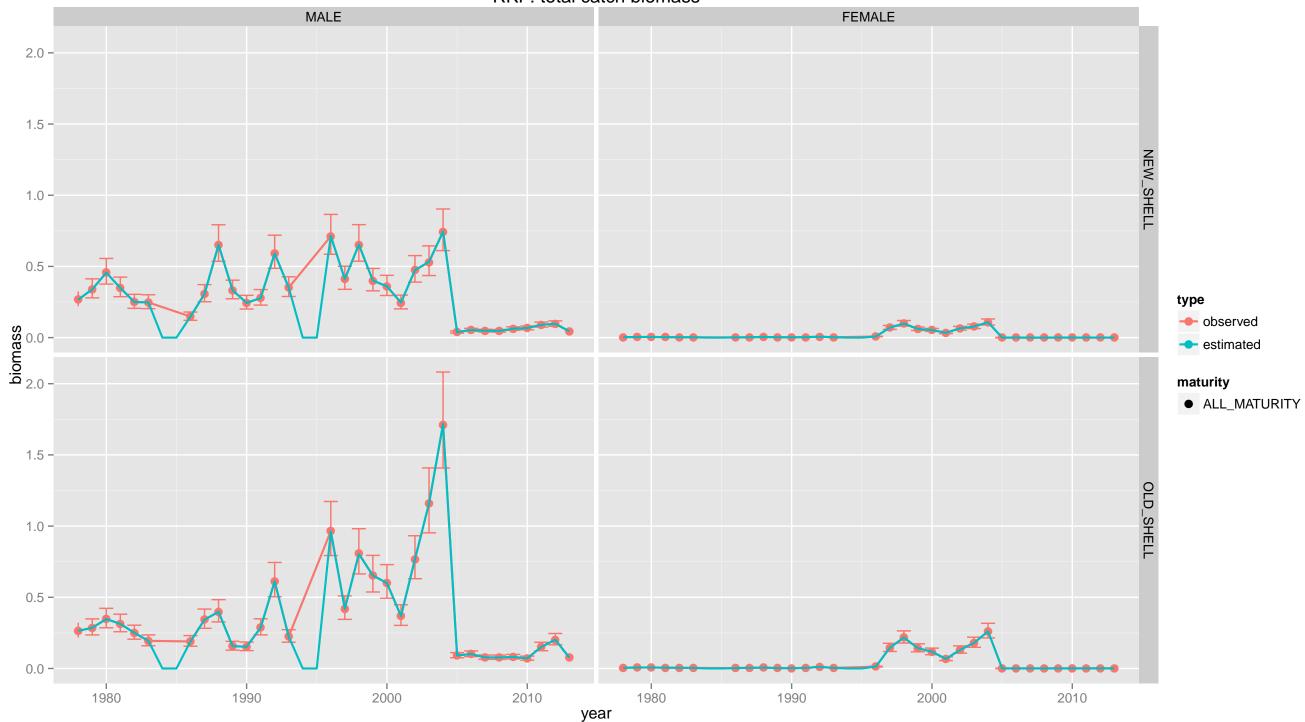


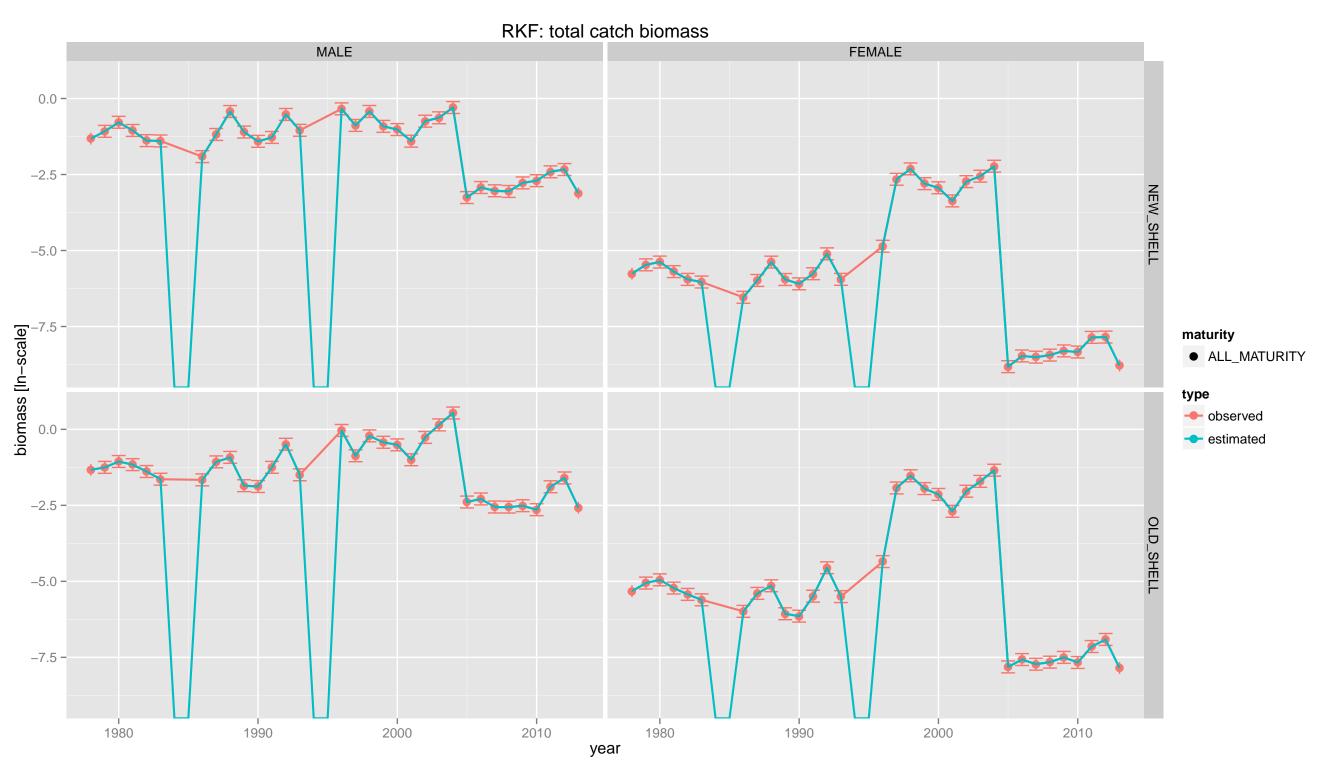


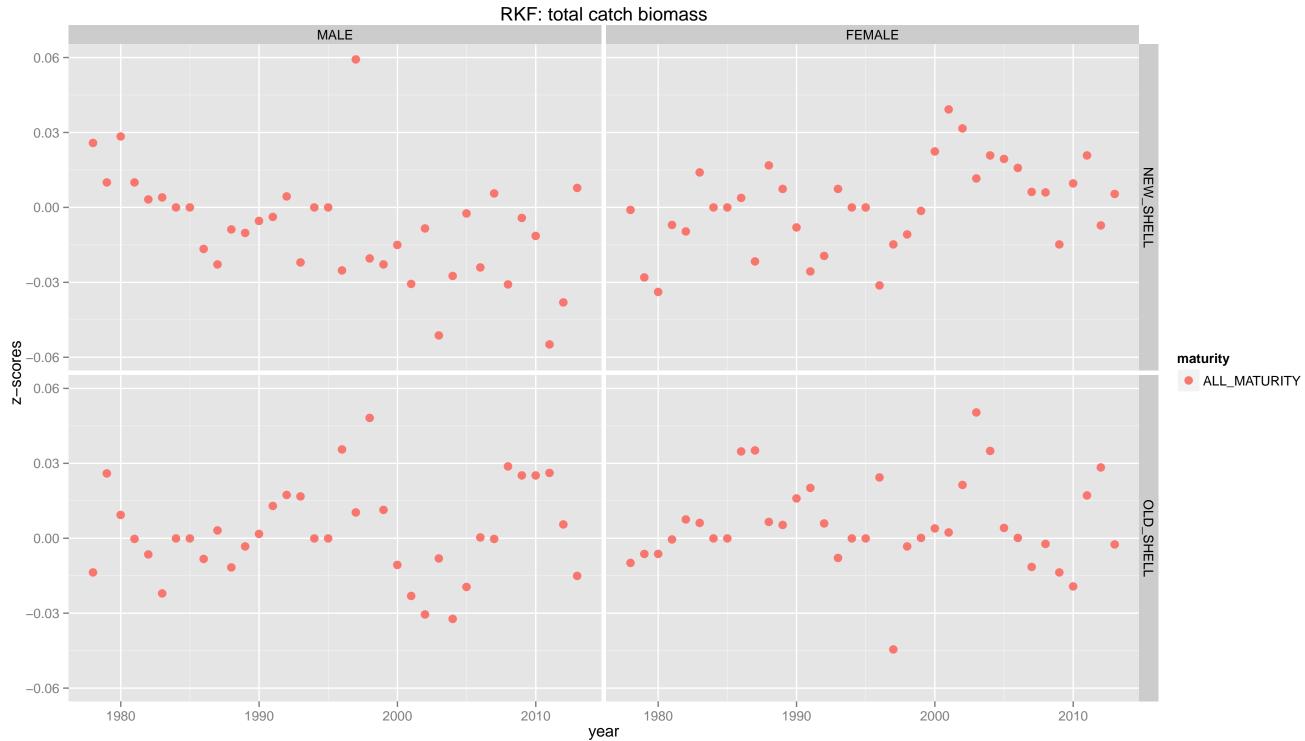


RKF: total catch abundance

RKF: total catch biomass







pearson's residuals	150 ( <b>mm CM</b> )													0 0 0 0 0 0								) •						0									residua         0.	00 01 02 03	<b>type</b> ● 0 < ● 0 >	
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RKF: total catch: male, new shell

size (mm CW)

Image: constraint of the constraint
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	RKF: total catch: male, old shell	
100 100 100 100 100 100 100 100	<ul> <li>Market State</li> <li>Marke</li></ul>	residual ype 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

RKF: total catch: male, old shell

150 - 100 - 100 - 50 -		$\bigcirc \heartsuit ($					$\bigcirc$									residual         0.00         0	type ● O < M ● O > M
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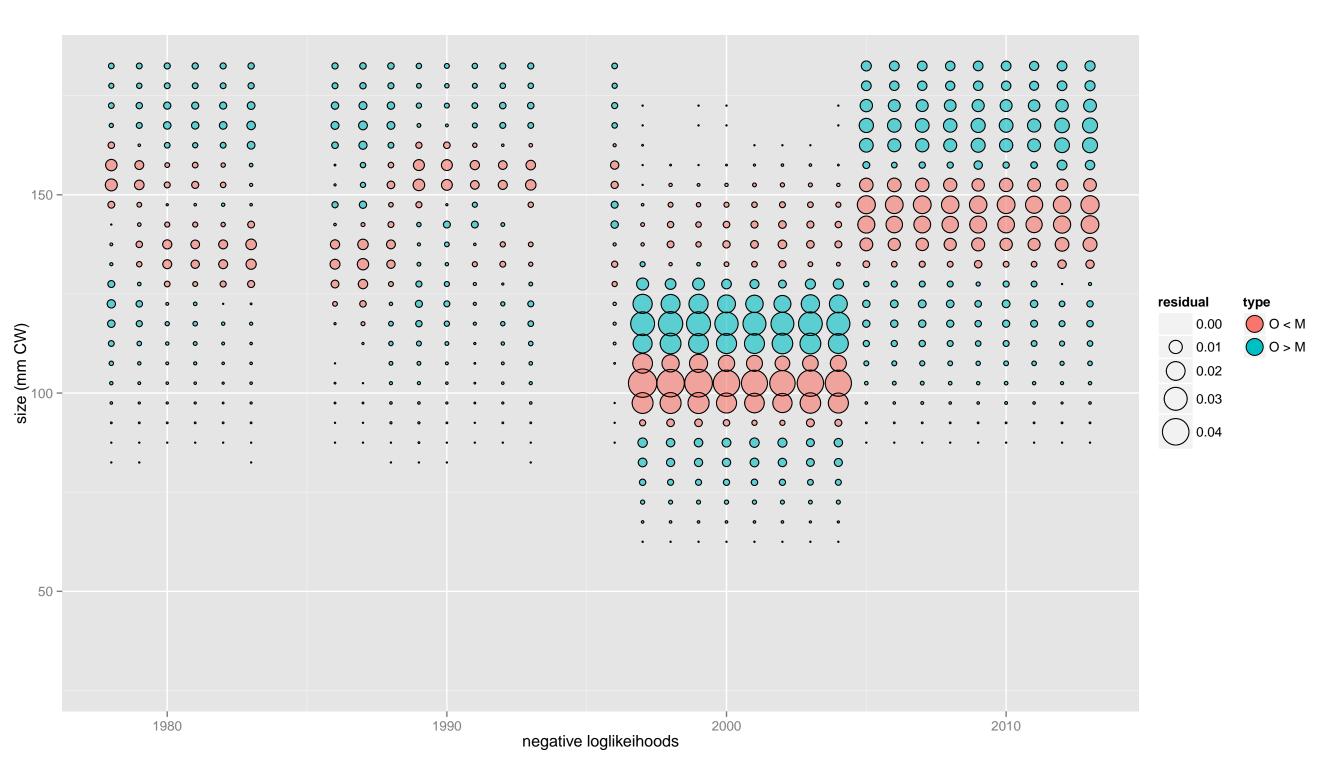
_			RNF. IUla	ii calch. Iemaie, new shell		
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						residual type 0.000 O < M
size (mm CW) - 001						<ul> <li>○ 0.005</li> <li>○ 0 &gt; M</li> <li>○ 0.010</li> <li>○ 0.015</li> </ul>
- <sup>001</sup> Size	0 0 0 • 0 0 • 0 0	• 0 • • 0 • • 0 •				0.020
	• • • • • • •					
	• • •	0 0 0 0 0 0 0 0 0	0 0			
50 -		• •		· 0 0 0 0 0 0 0		
					•	
	1980	)	1990	2000 pearson's residuals	2010	

RKF: total catch: female, new shell

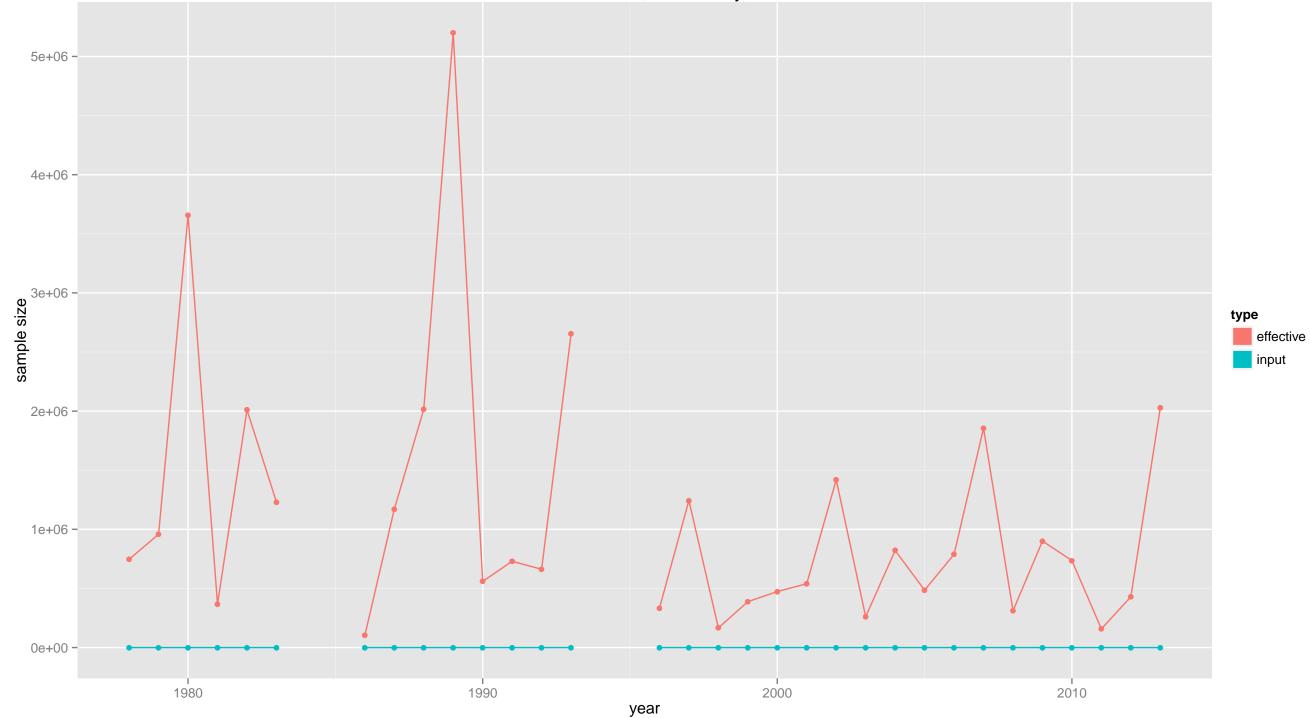


150 - size (um CM) 50 -					residual       type         0.000       ●       ○       M         0.005       ●       ○       M         0.010       0.015       ○       N
	1980	1990 pearsor	2000 n's residuals	2010	

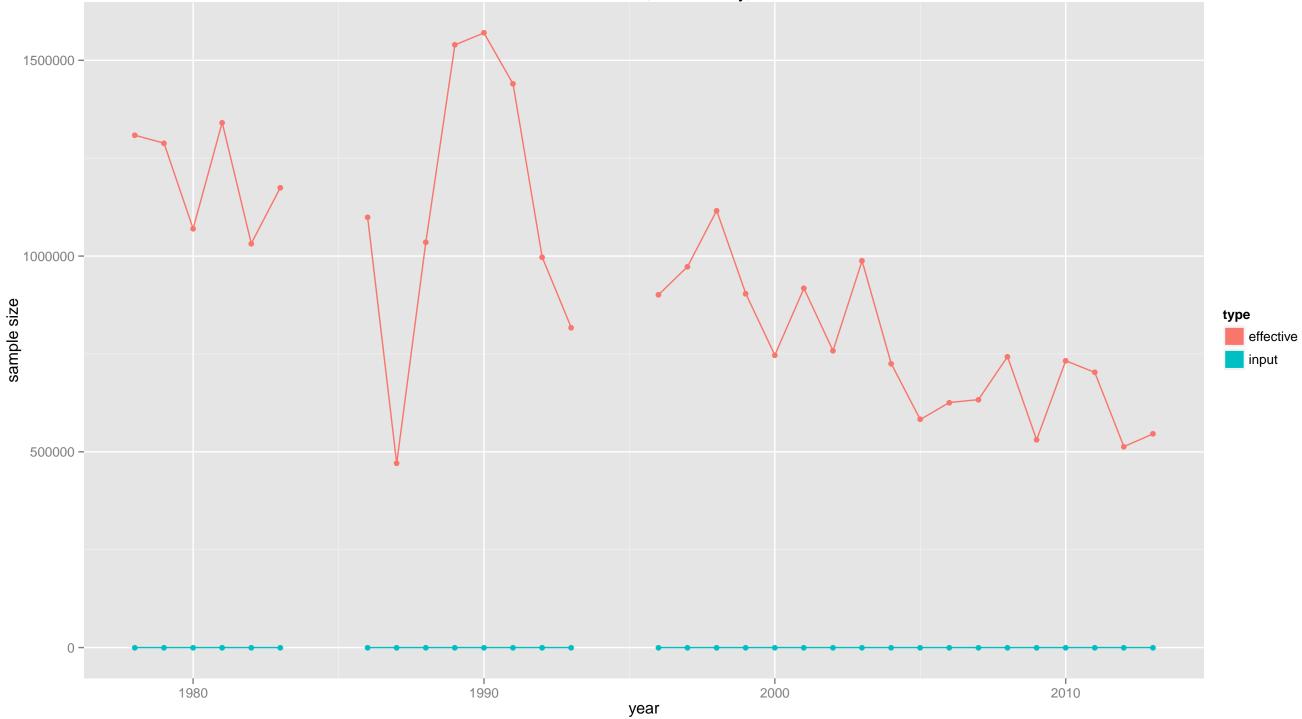
RKF: total catch: female, old shell



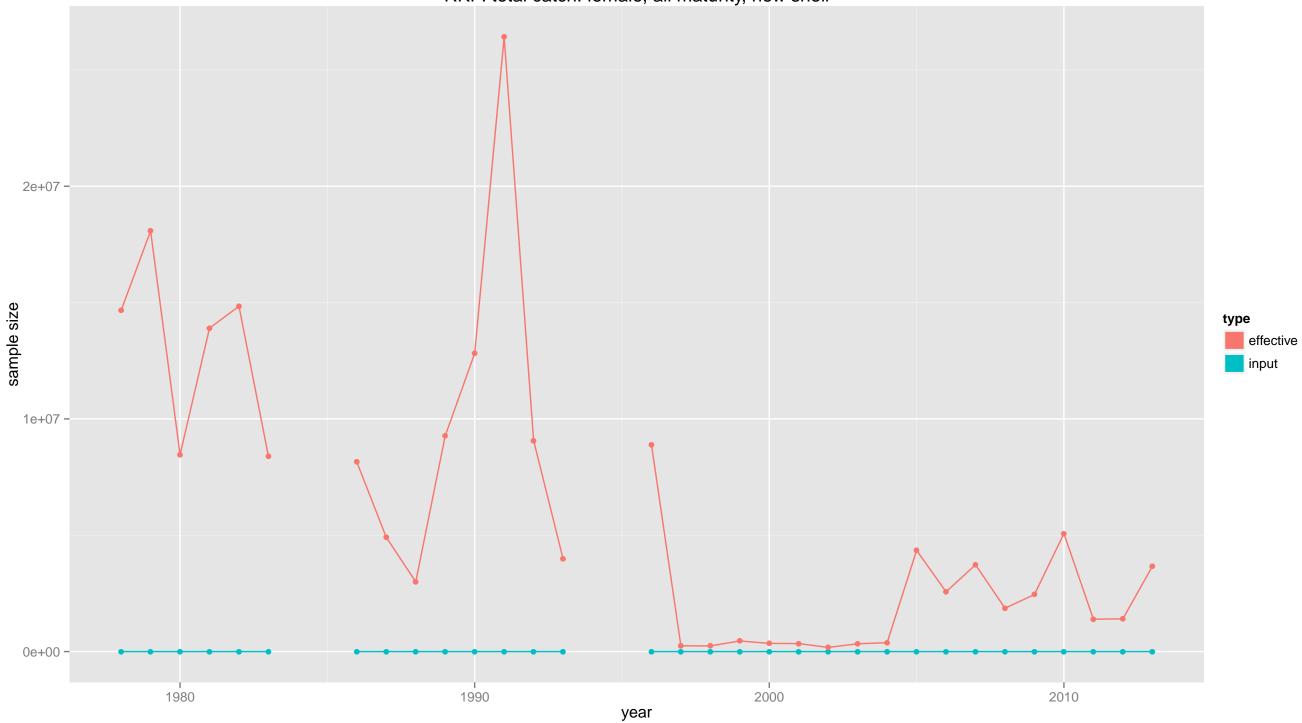
RKF: total catch: male, all maturity, new shell



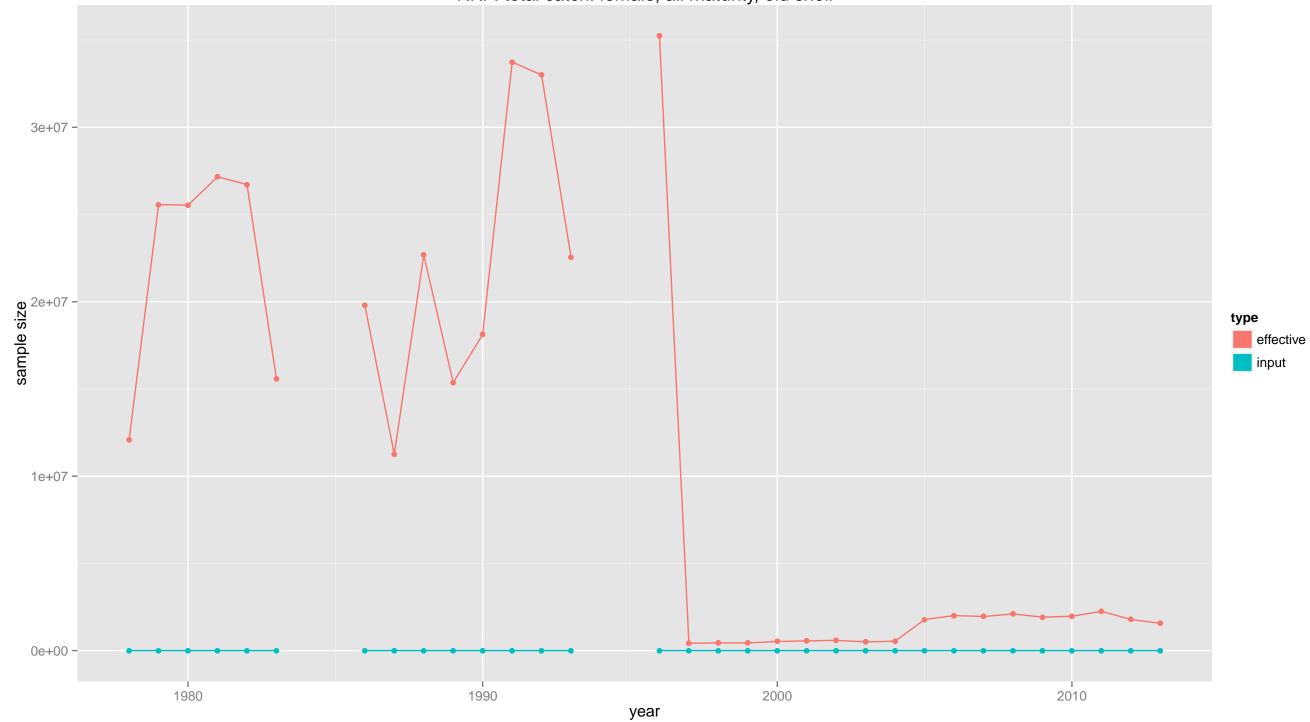
RKF: total catch: male, all maturity, old shell



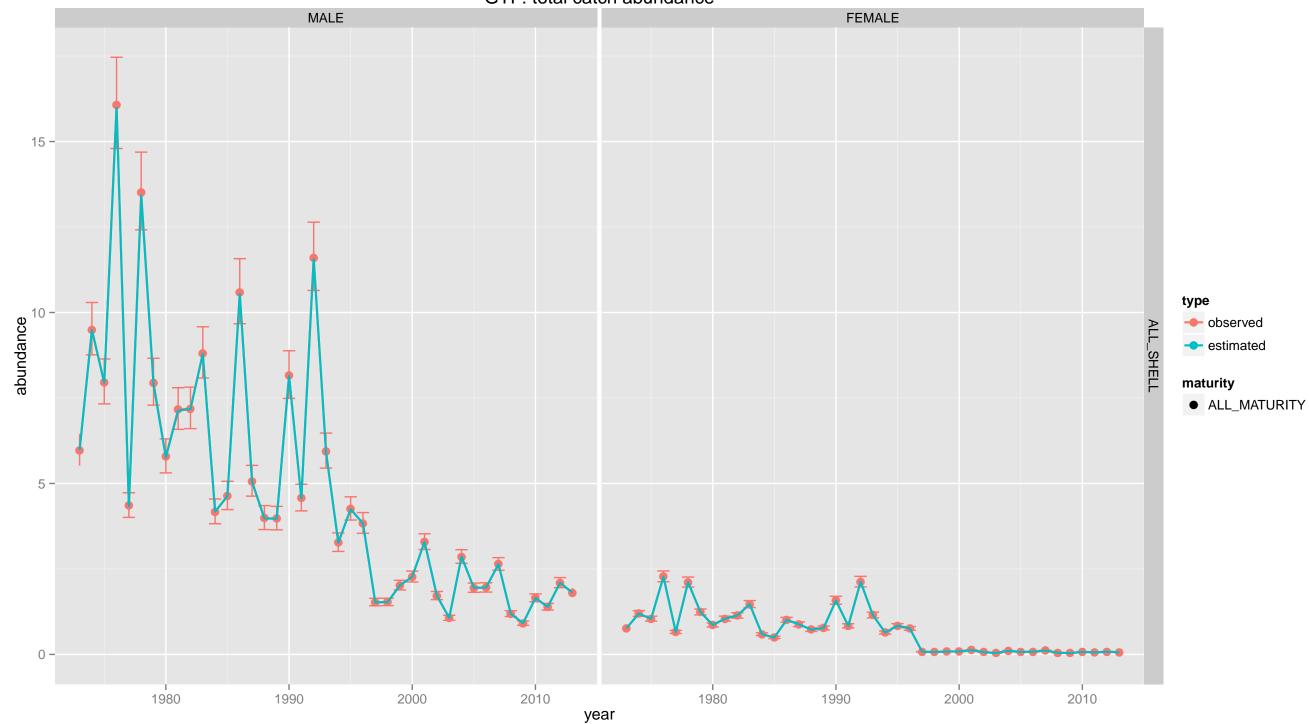
RKF: total catch: female, all maturity, new shell

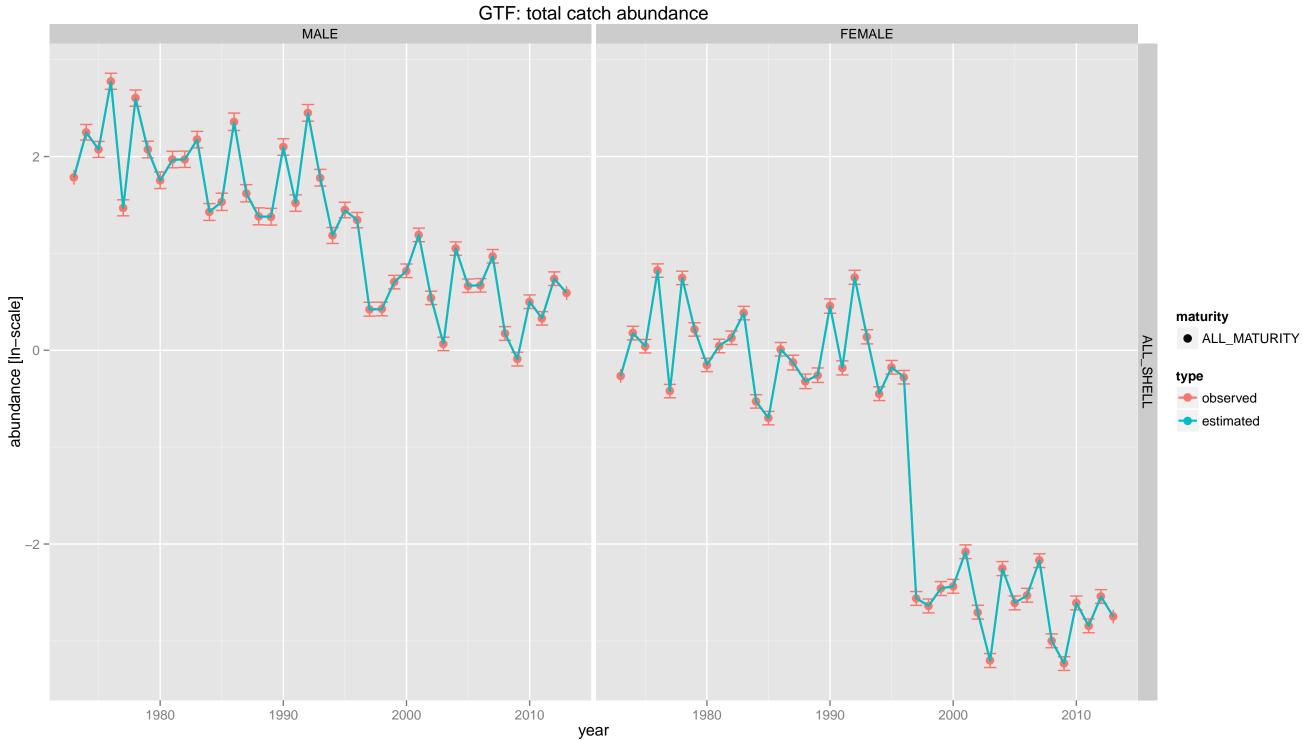


RKF: total catch: female, all maturity, old shell

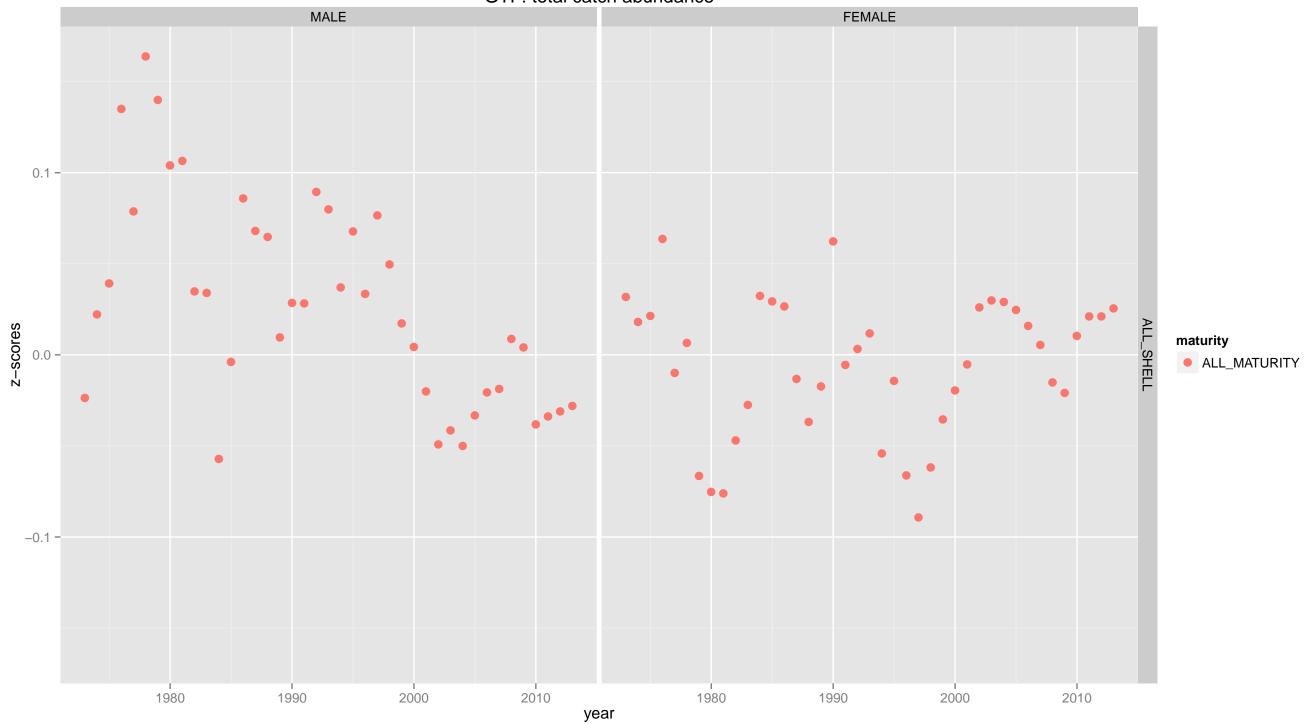


GTF: total catch abundance

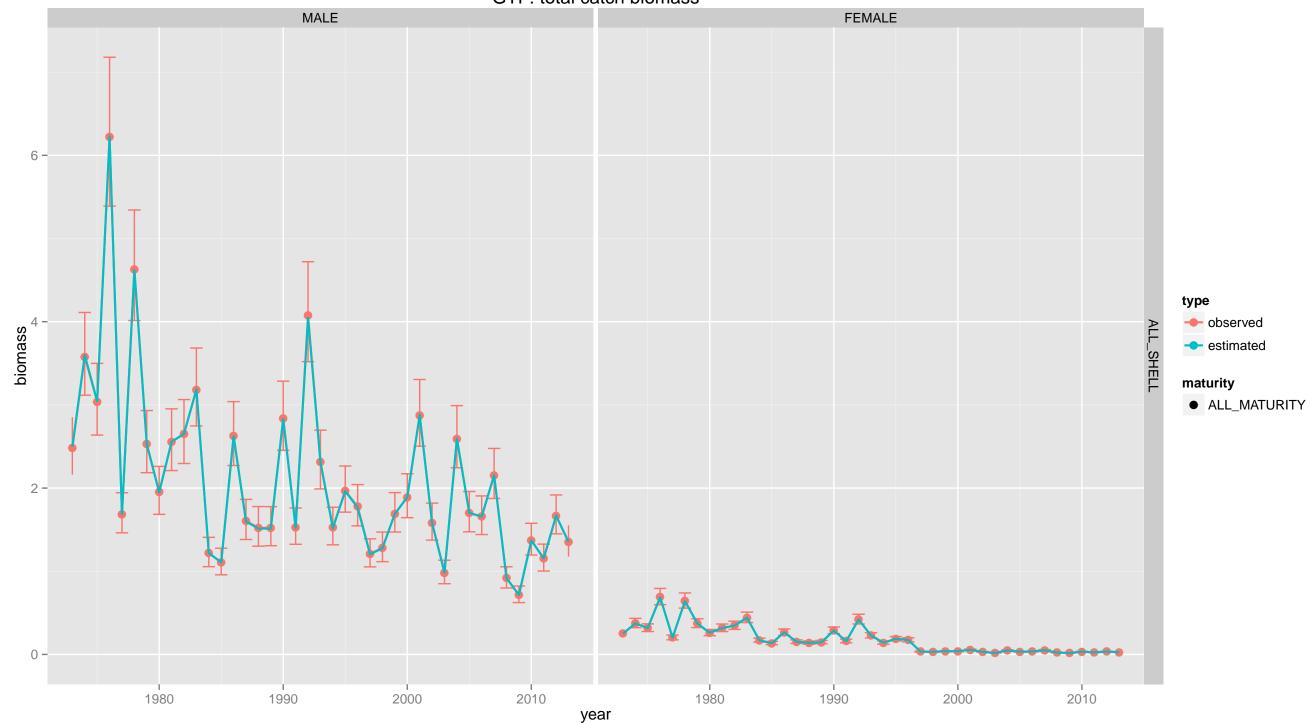




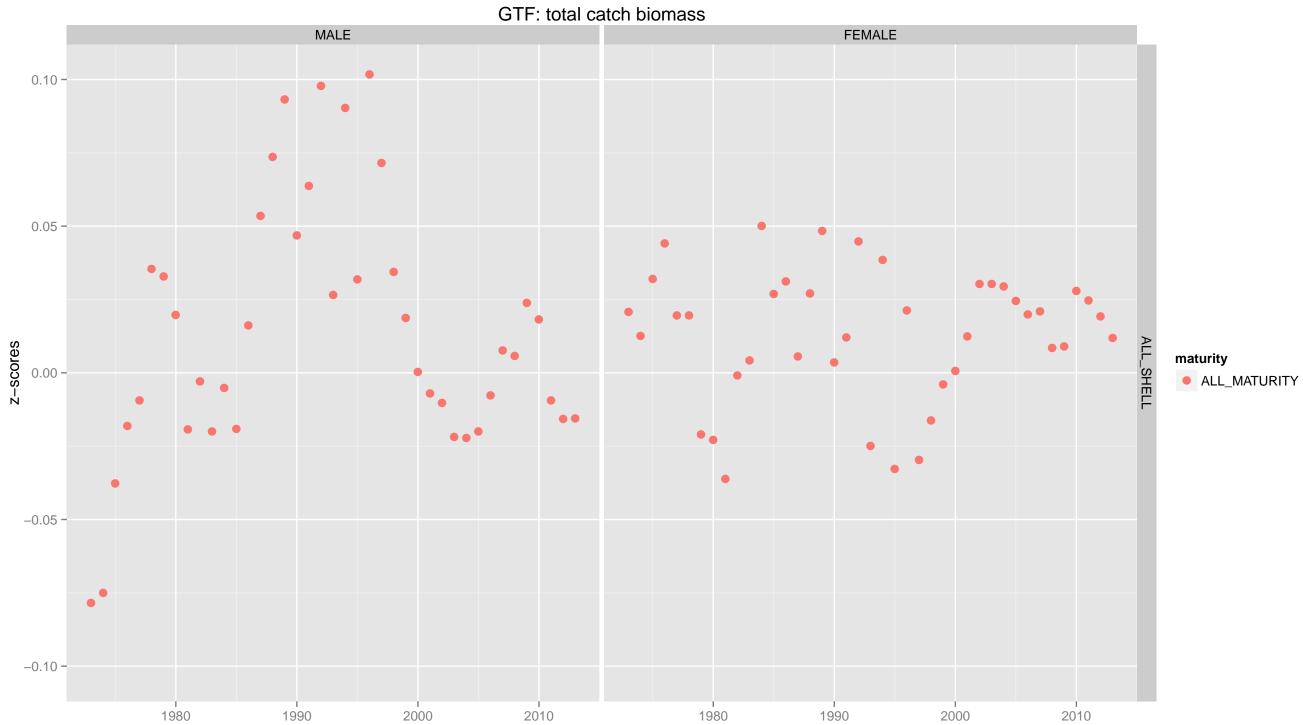
GTF: total catch abundance



GTF: total catch biomass







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0	0	0	0	0	0	0	•	0	0	0	0	•	0	•	•	0	•	0	0	•	0	•	0	۰	۰	0	0	0	•	0	0	0	0	0	0	•	•	•	0
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0	0	0	0	0	0	0	•	0	0	0	0	•	0	۰	•	0	•	•	•	0	0	•	•	•	o	0	•	0	o	0	0	0	0	•	0	•	•	•	0
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size (mm CW)

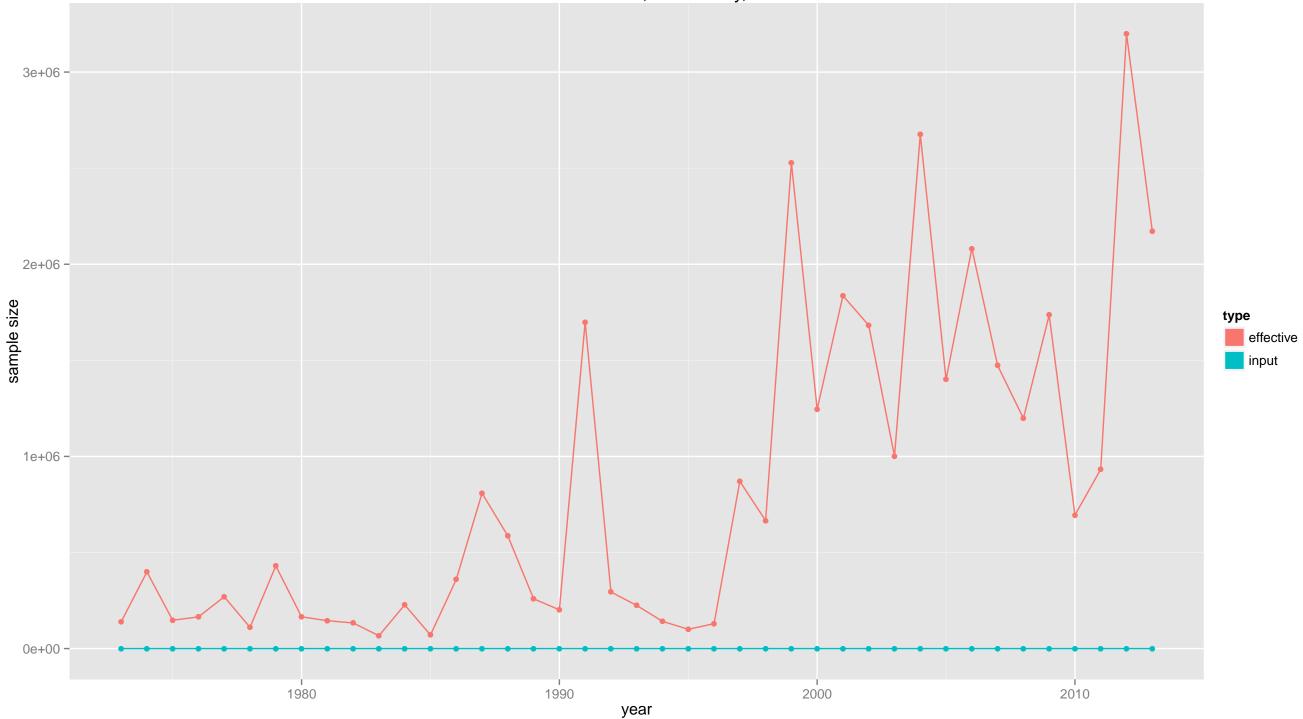
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GTE: total catch: female

size (mm CW)

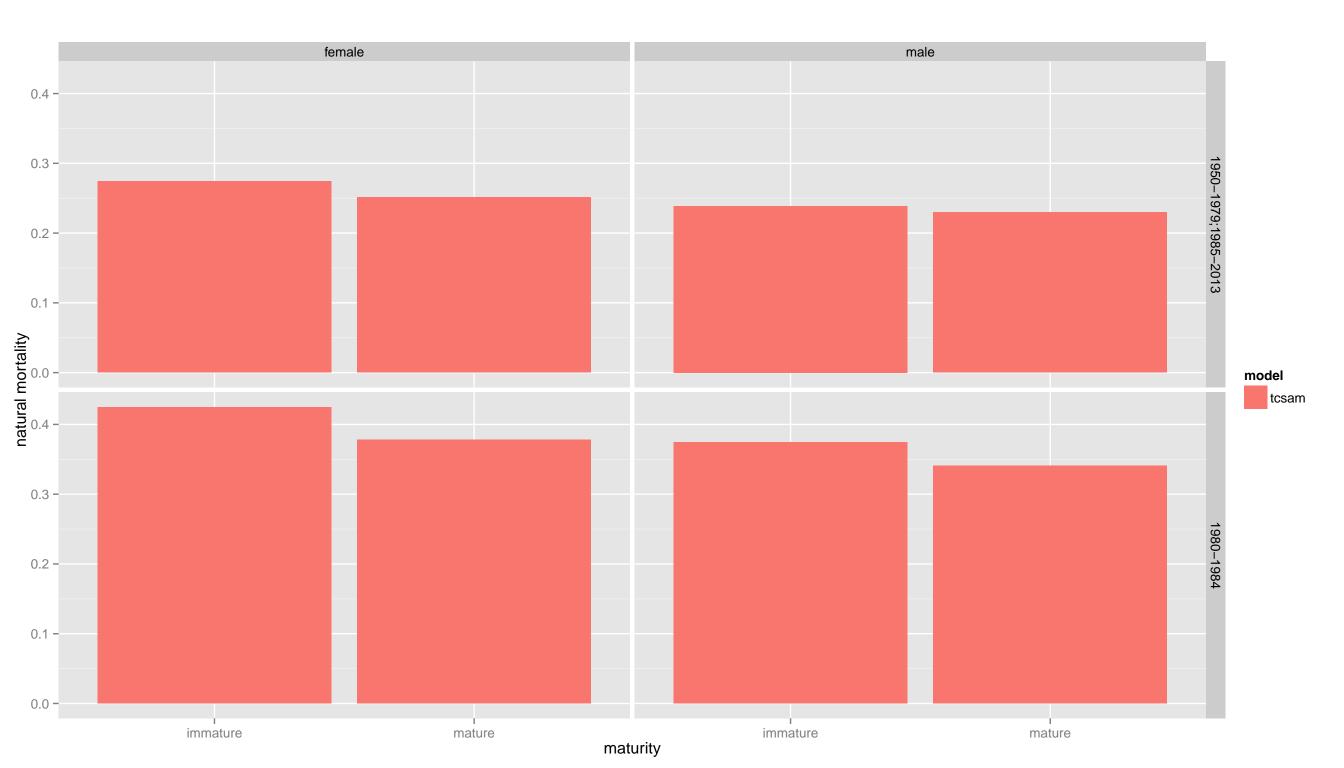
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GTF: total catch: male, all maturity, all shell

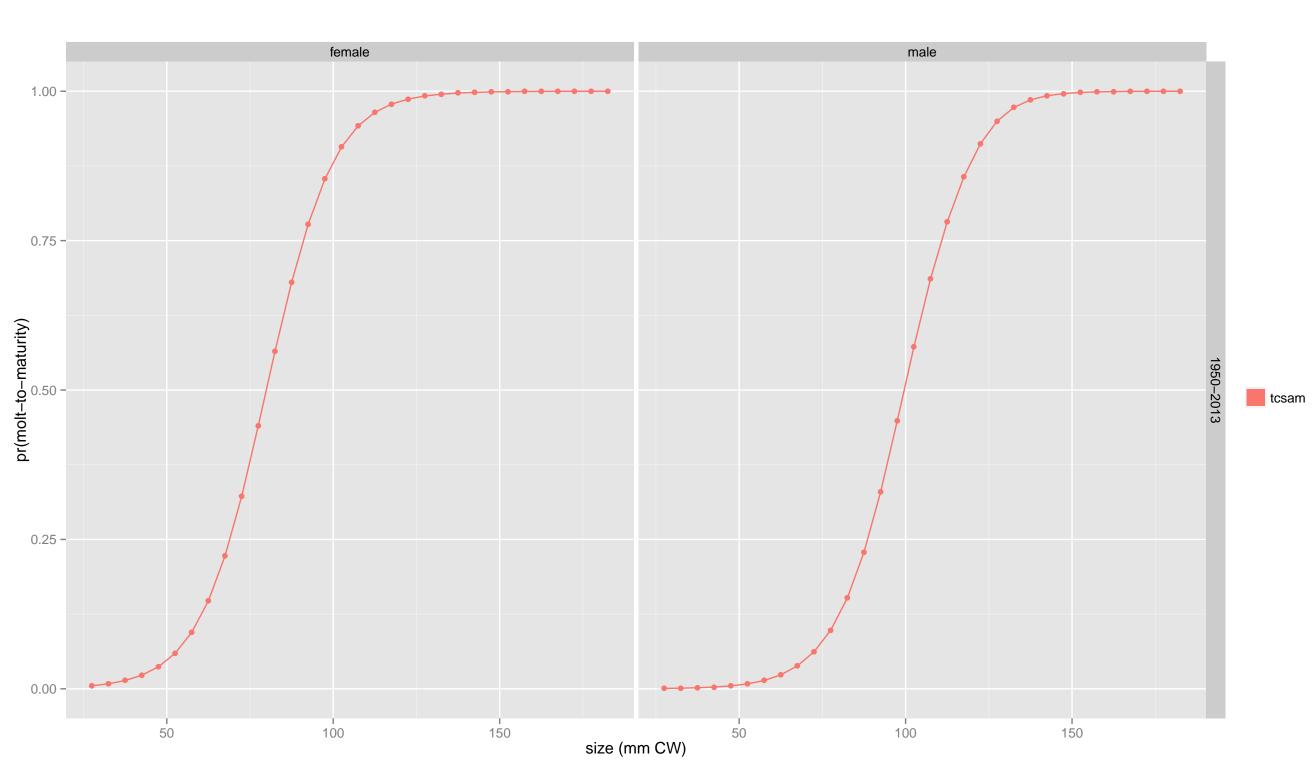


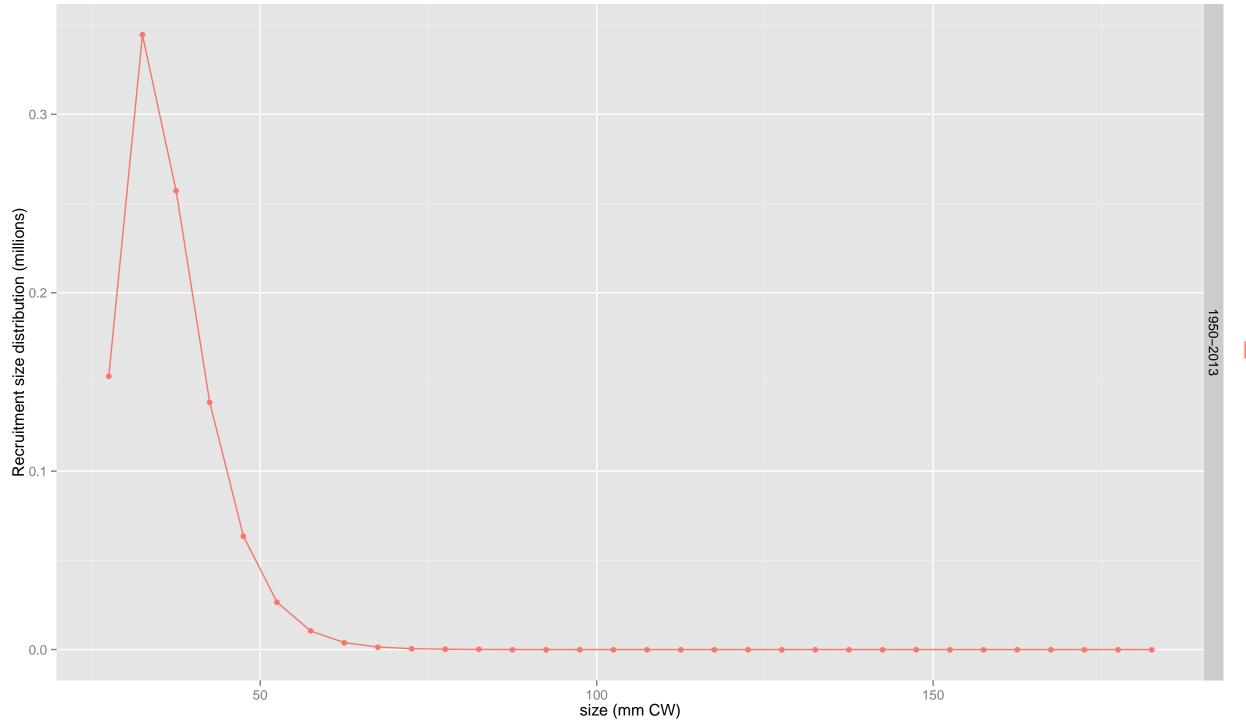
GTF: total catch: female, all maturity, all shell



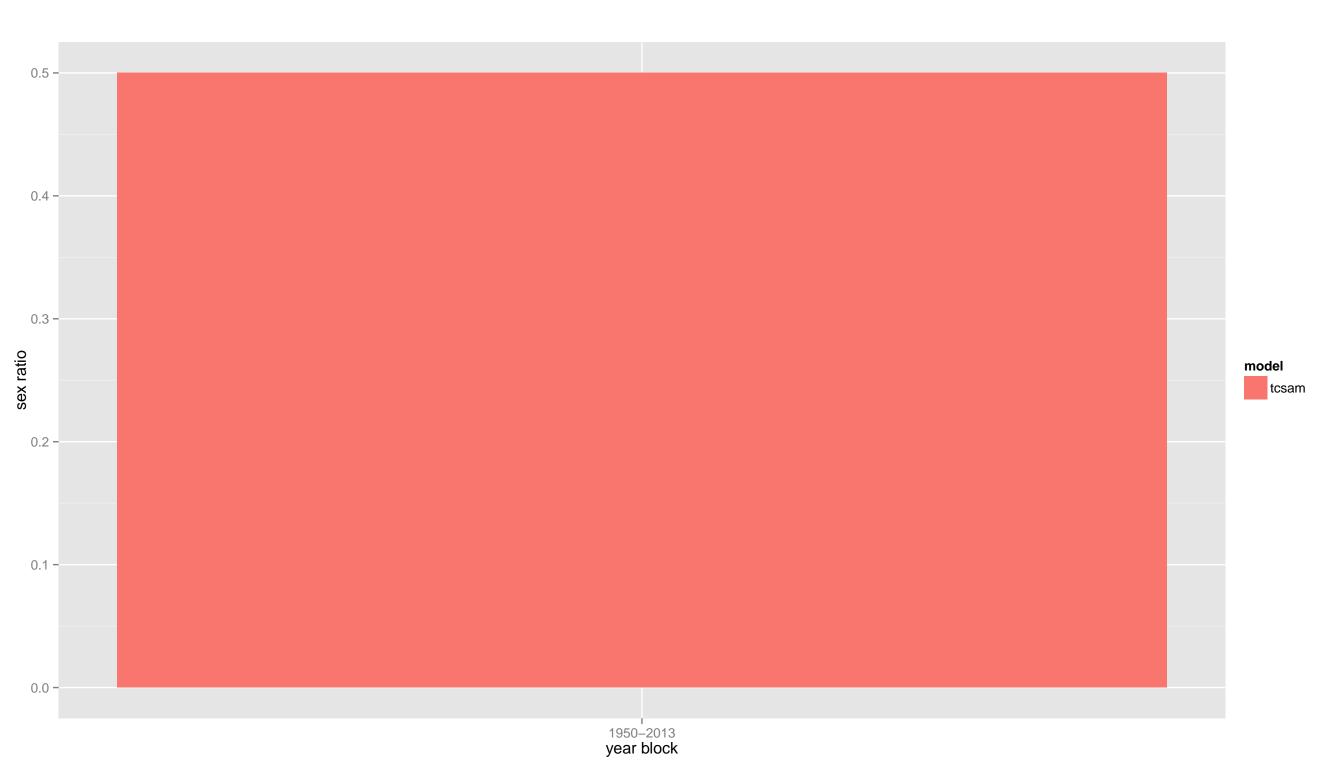


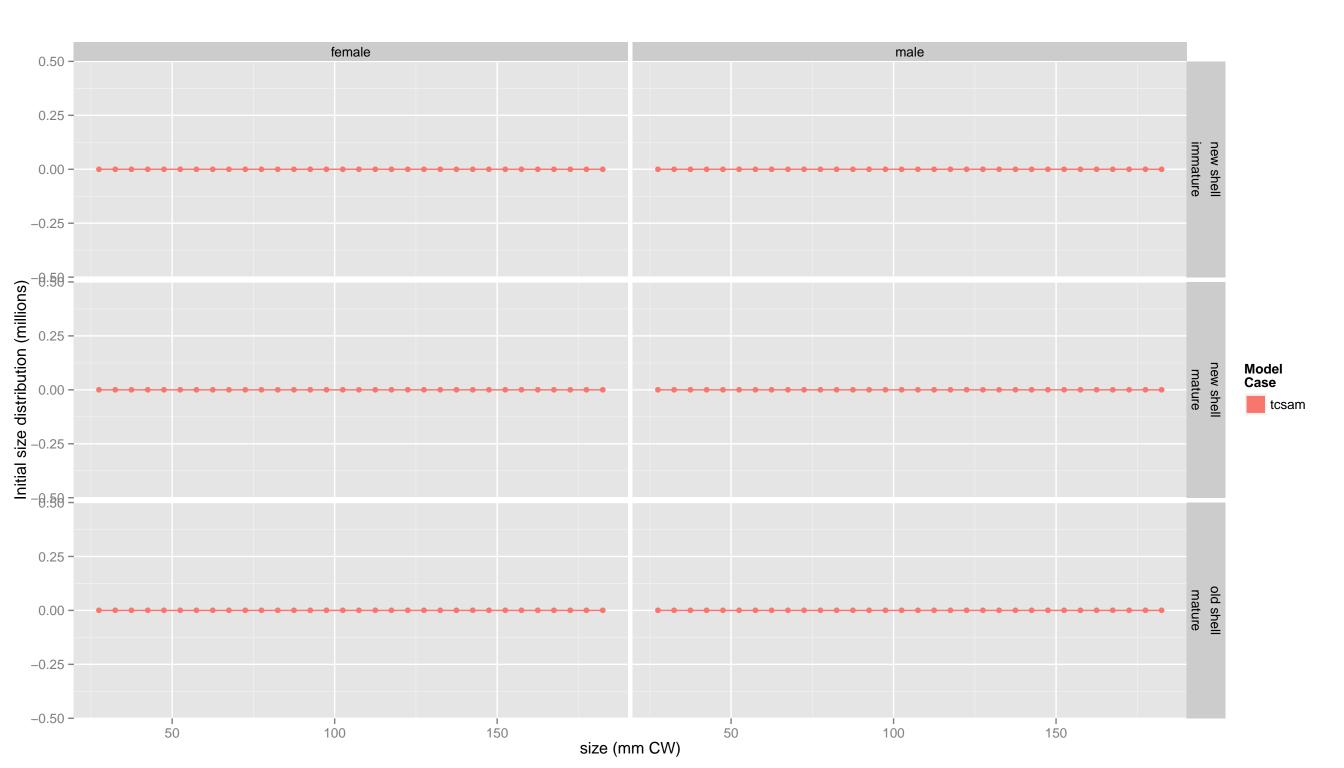
	female	male
post-molt size (mm CW)		0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.75 0.00 0.25 0.50 0.25 0.50 0.25 0.50 0.25 0.50 0.25 0.50 0.75 0.00 0.25 0.50 0.25 0.00 0.25 0.50 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.50 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.05 0.00 0.25 0.00 0.05
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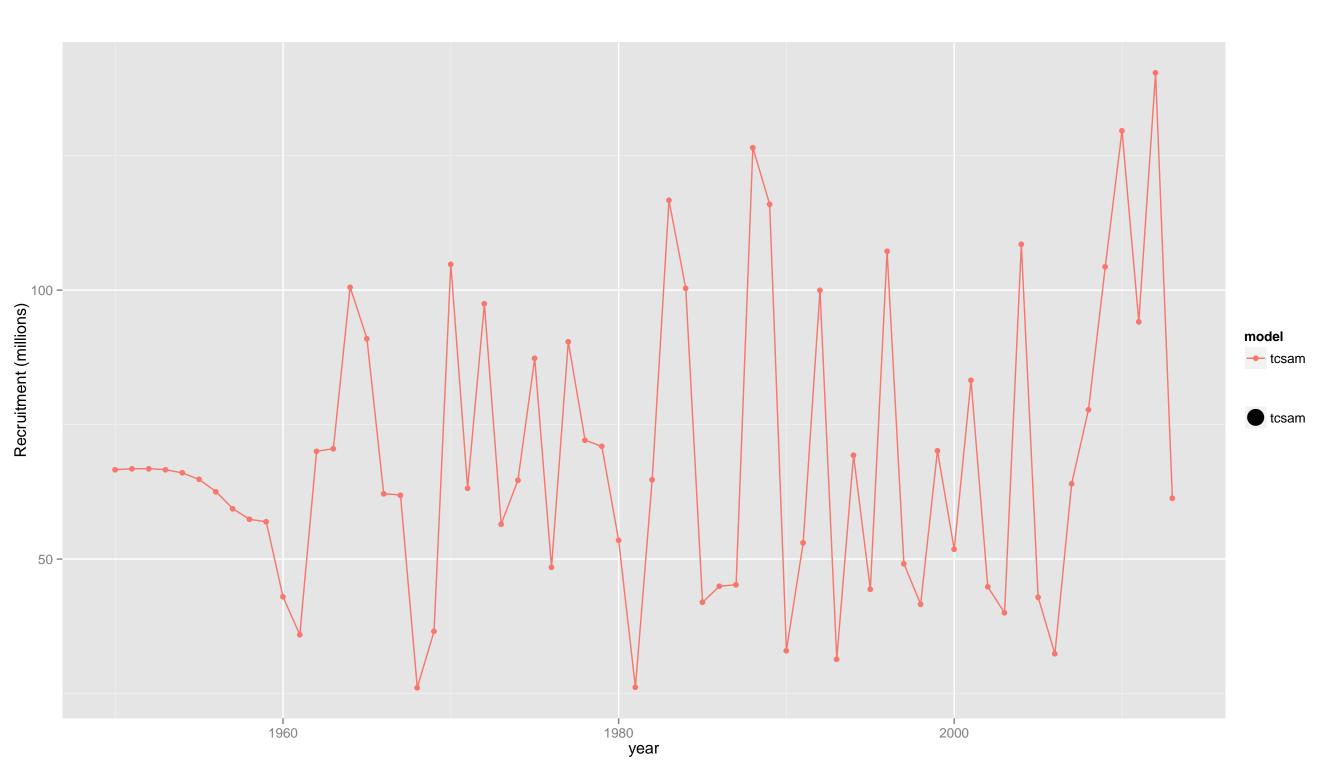


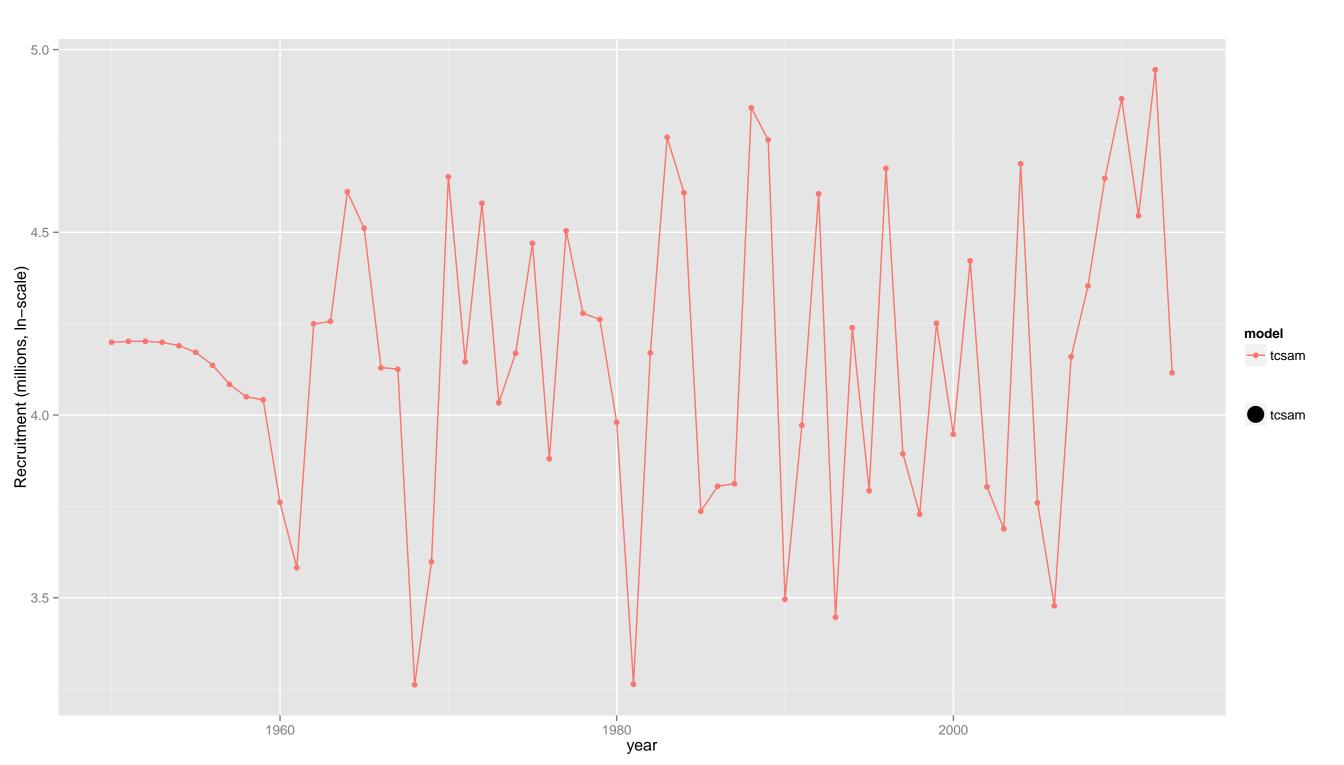


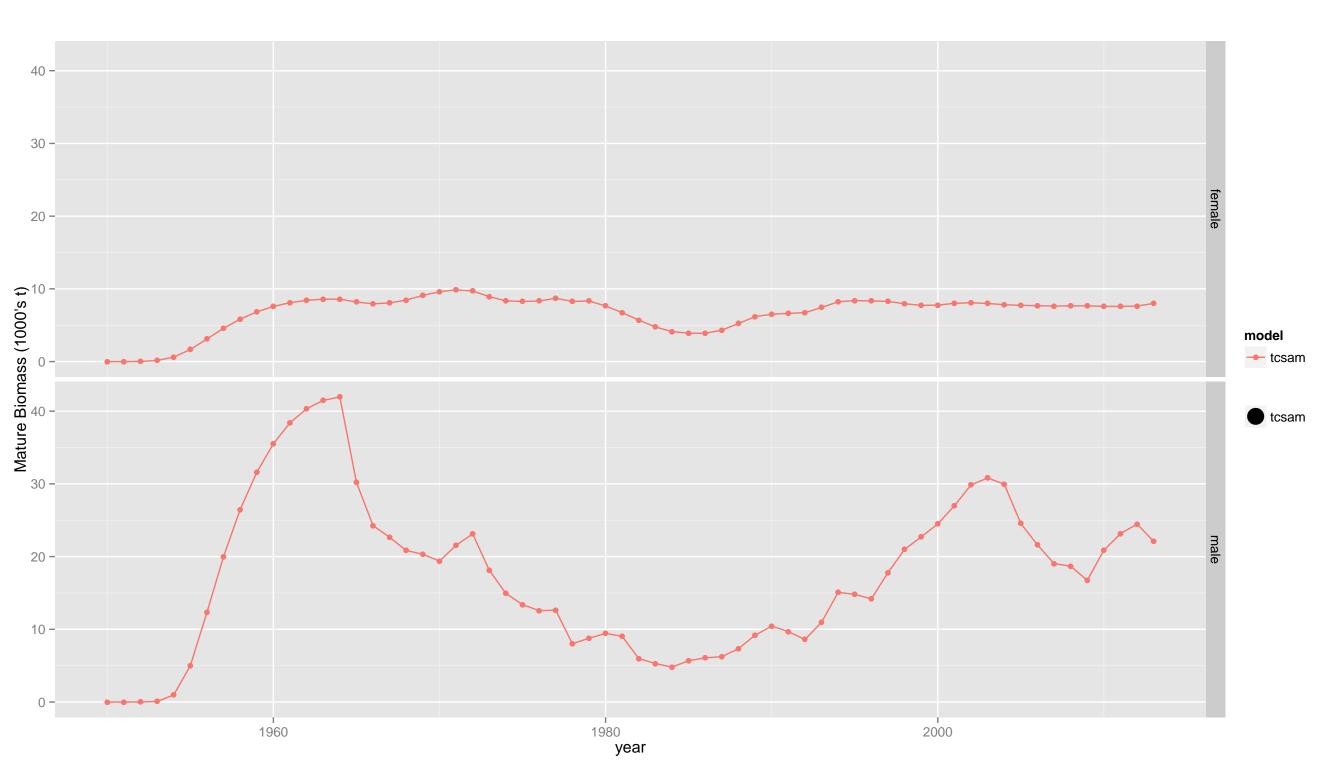
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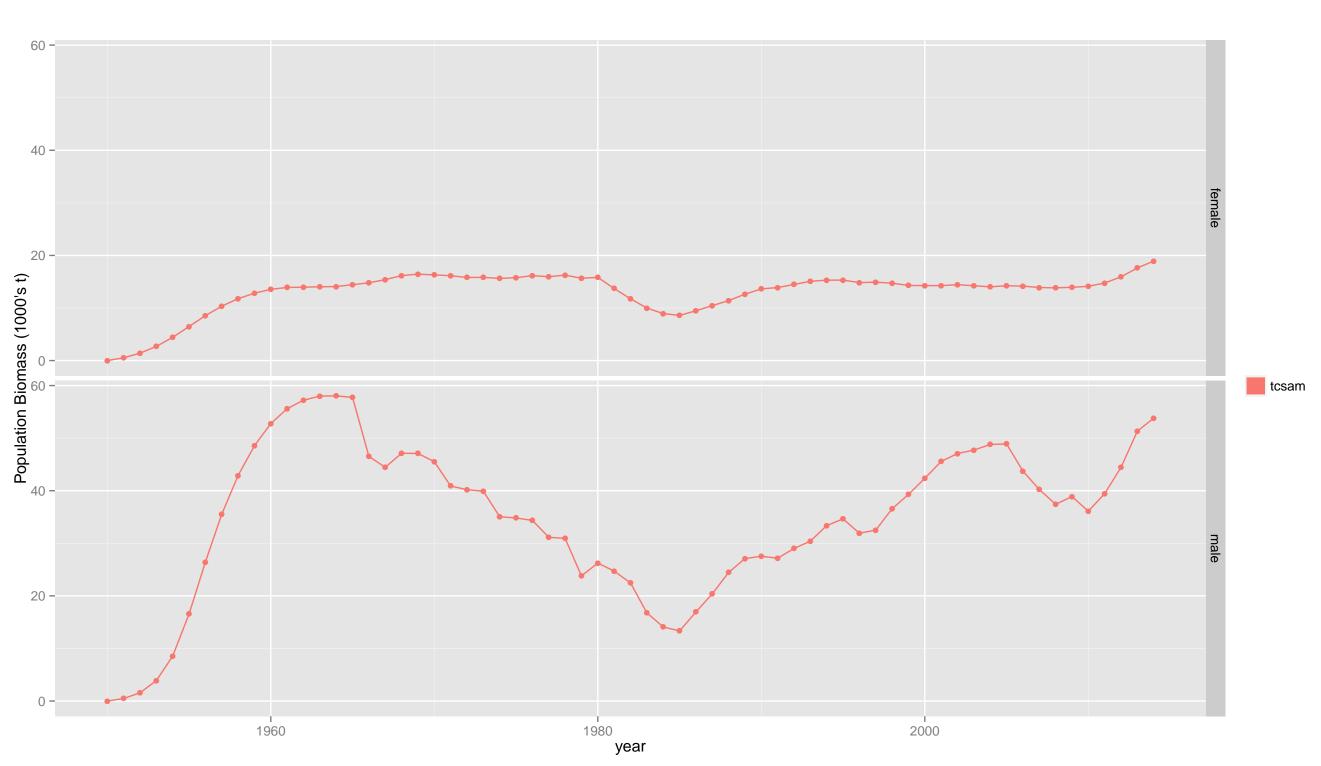


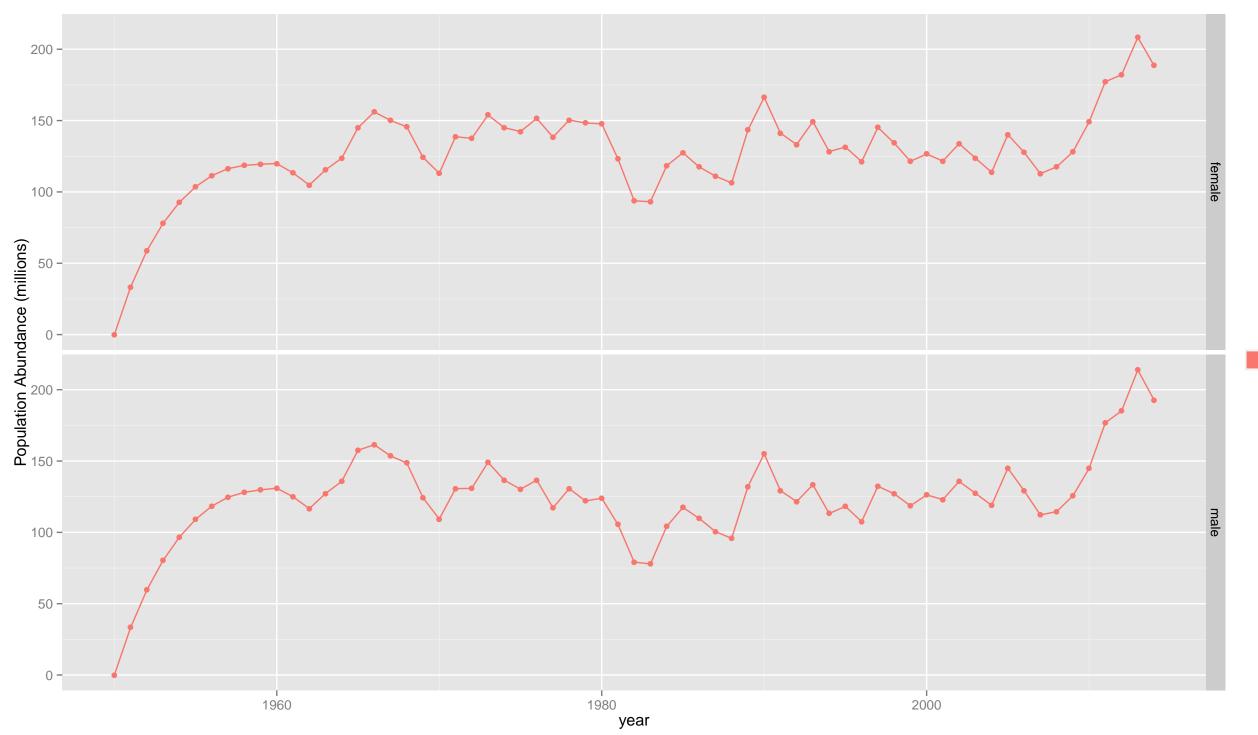






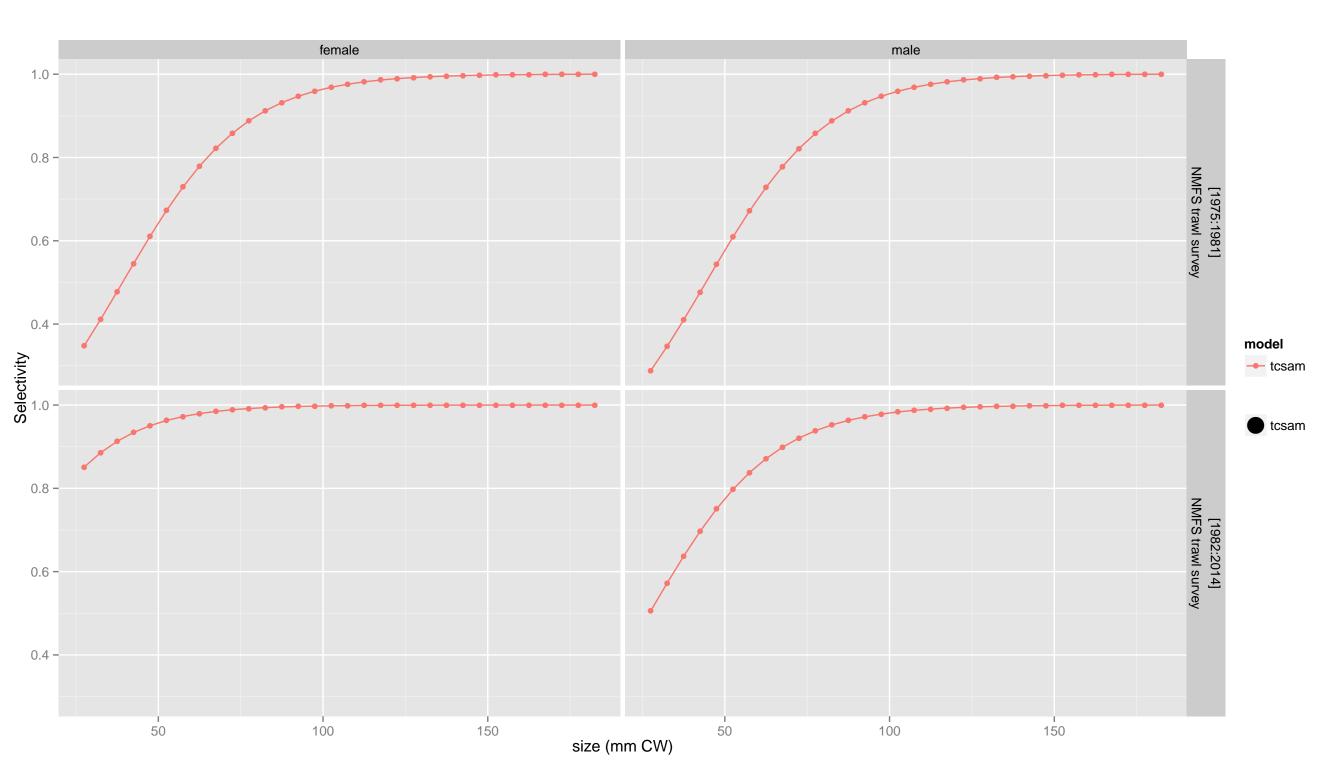


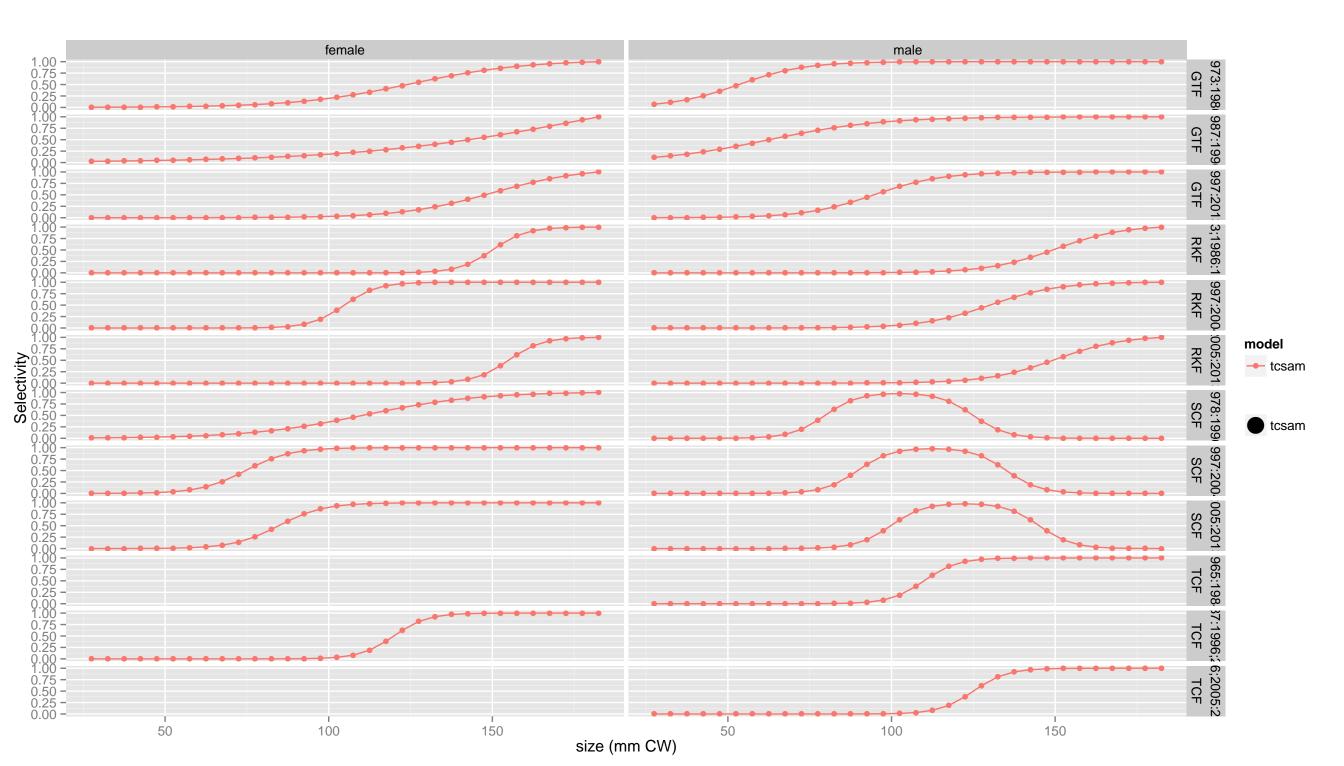


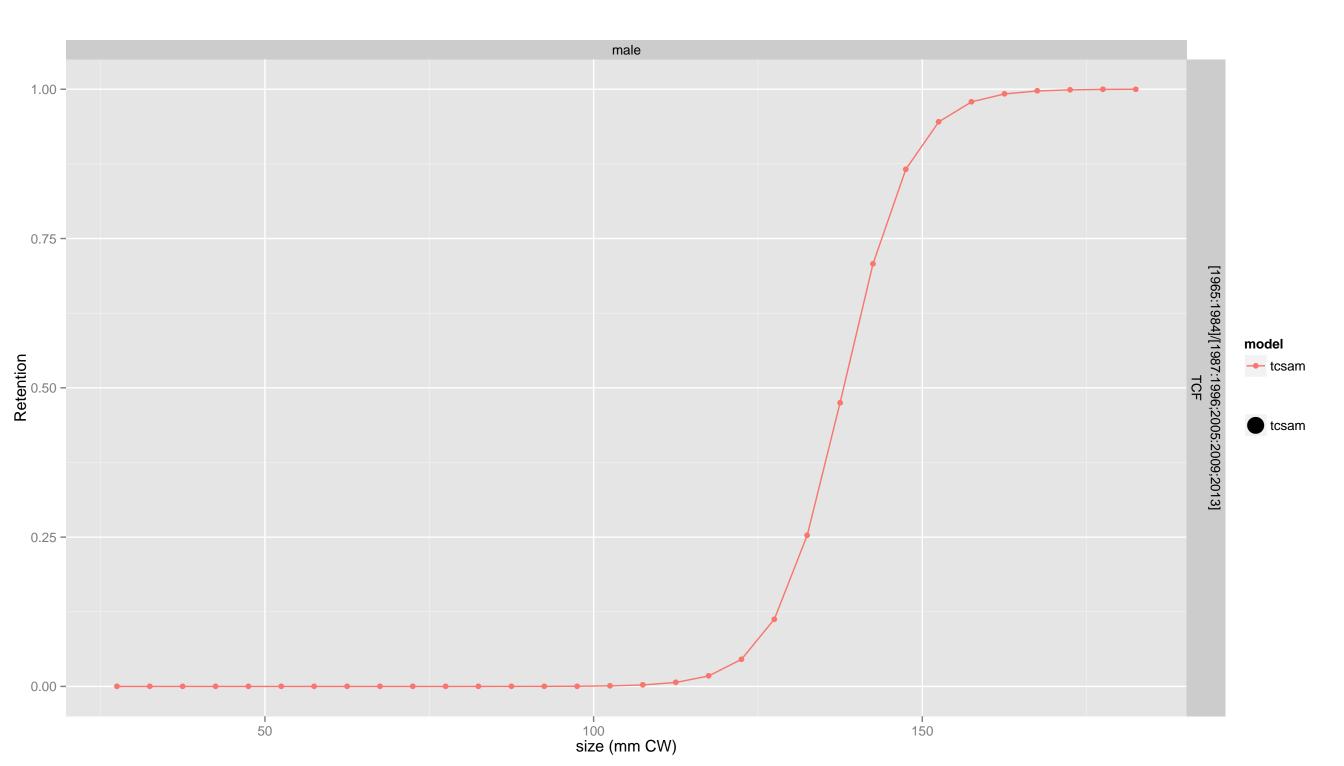


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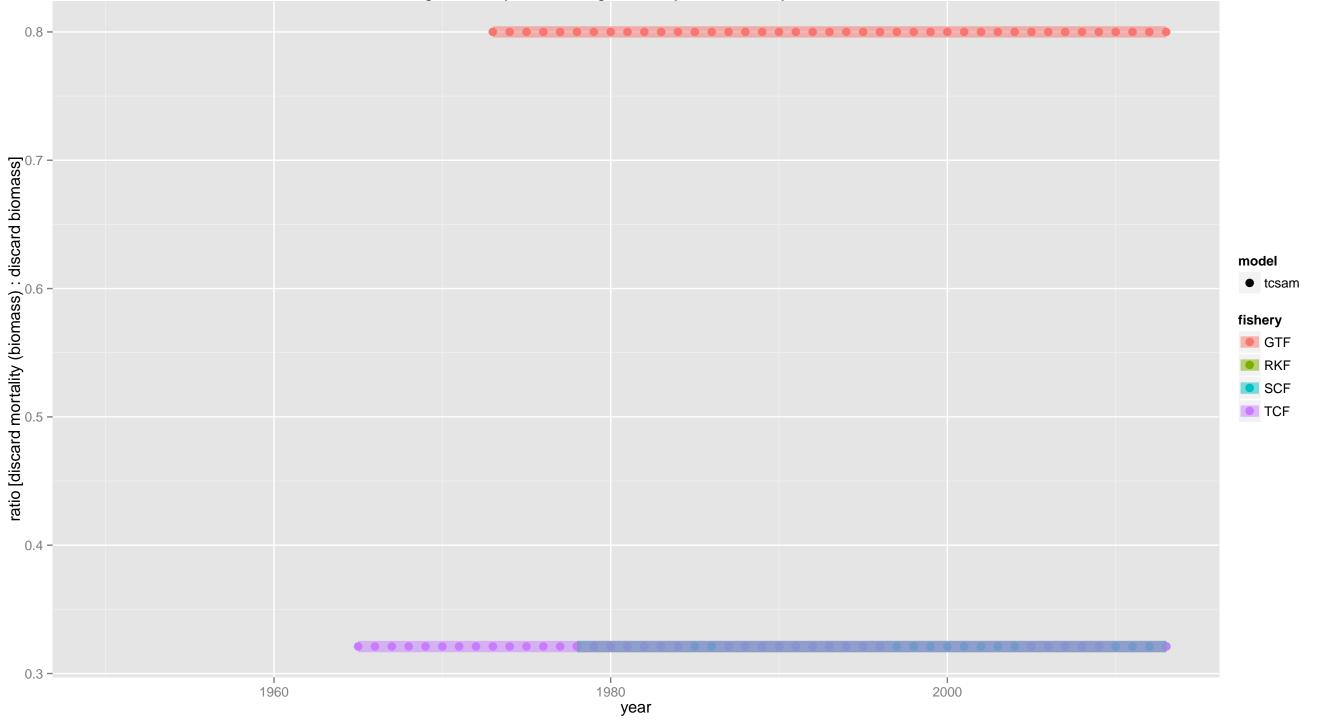
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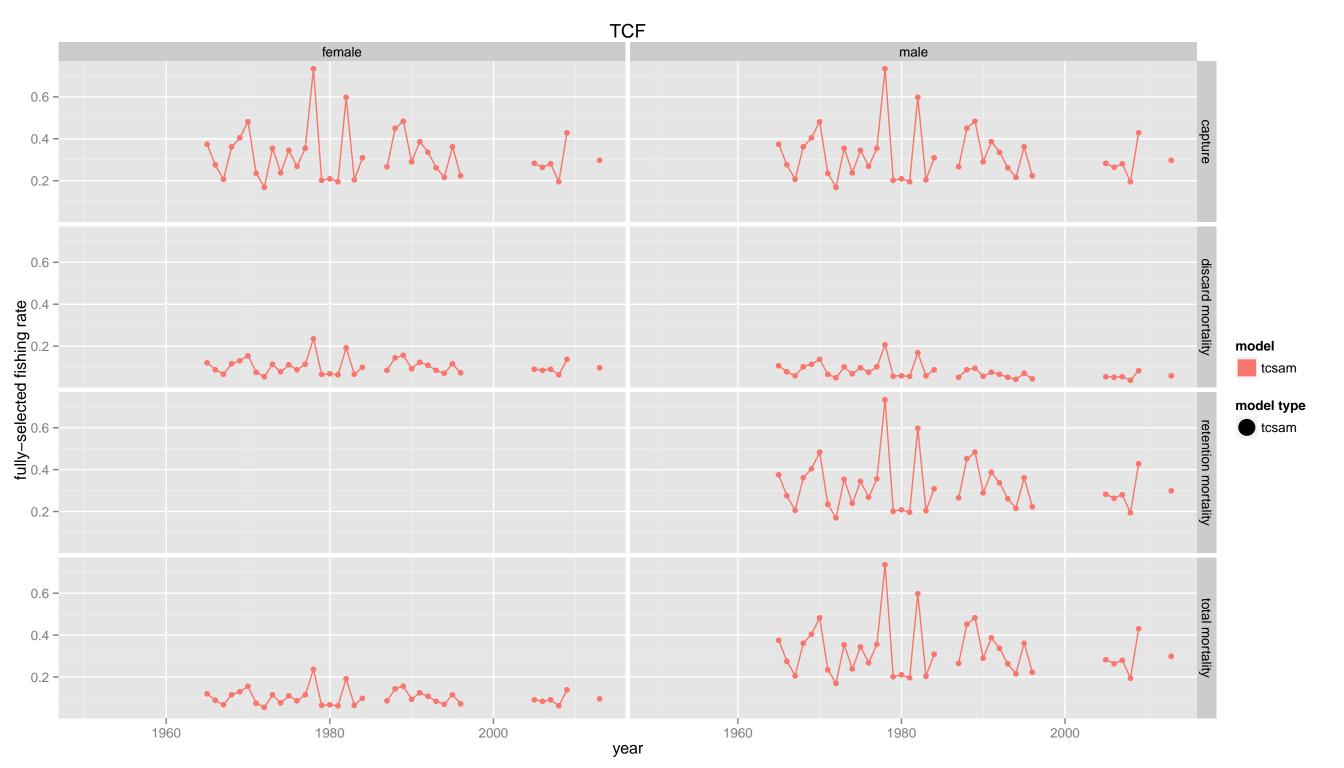


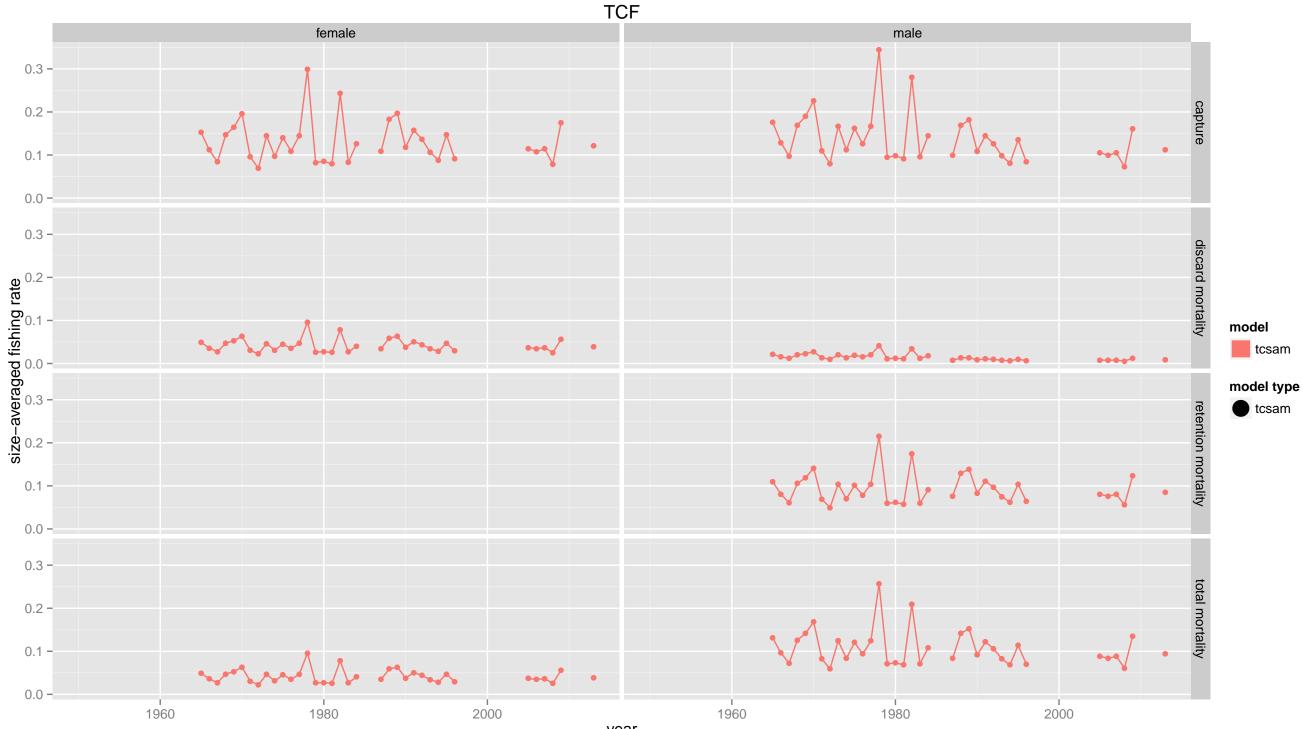


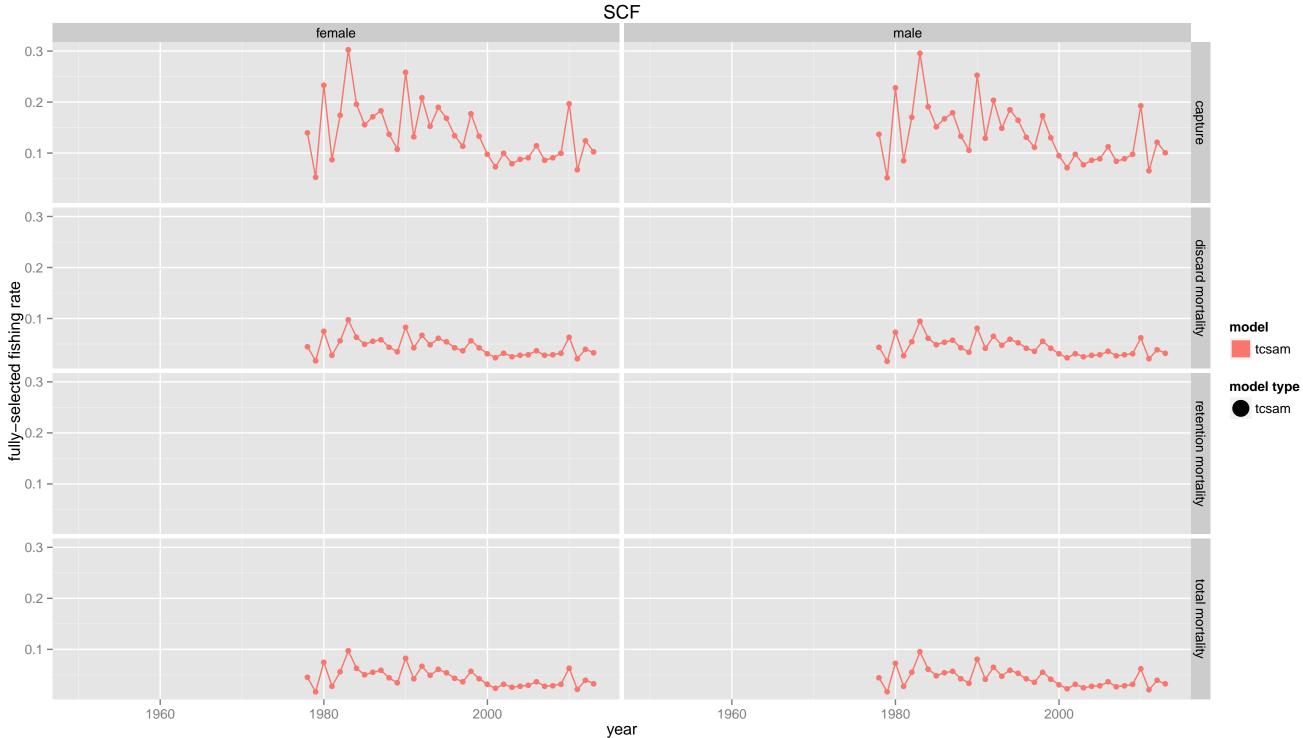


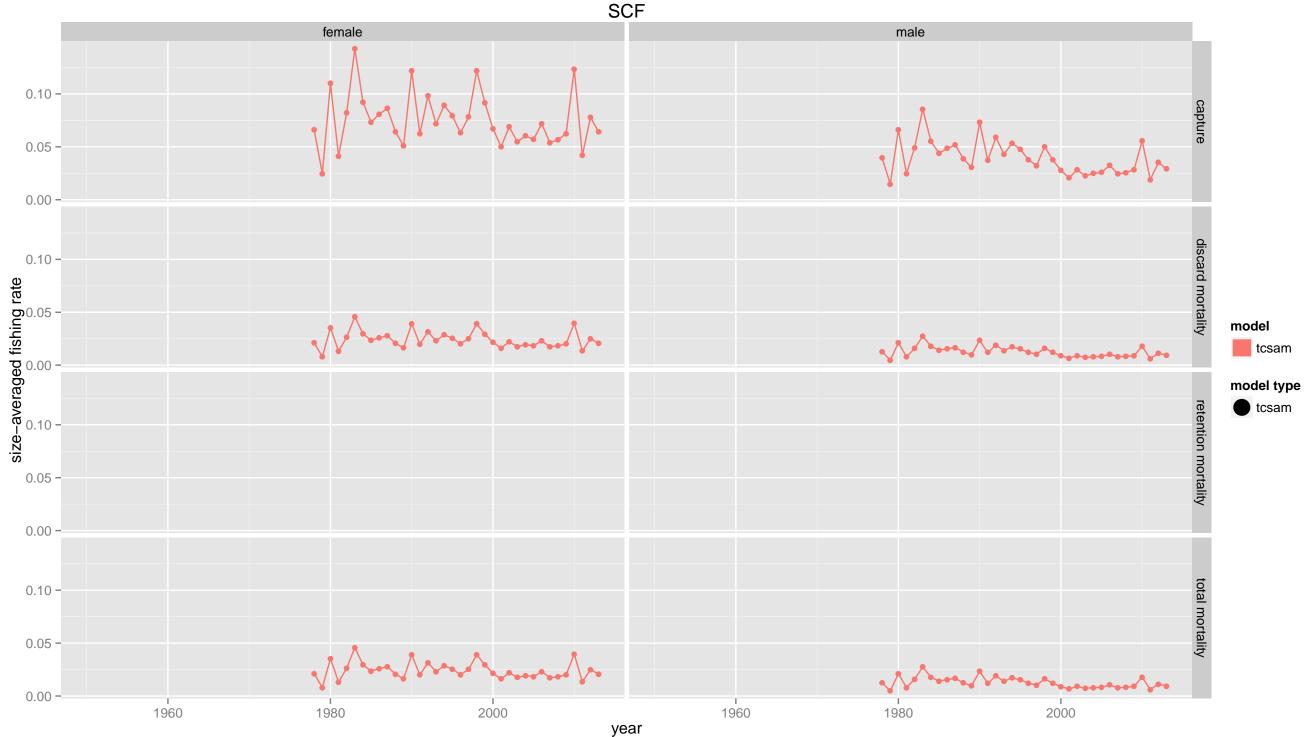
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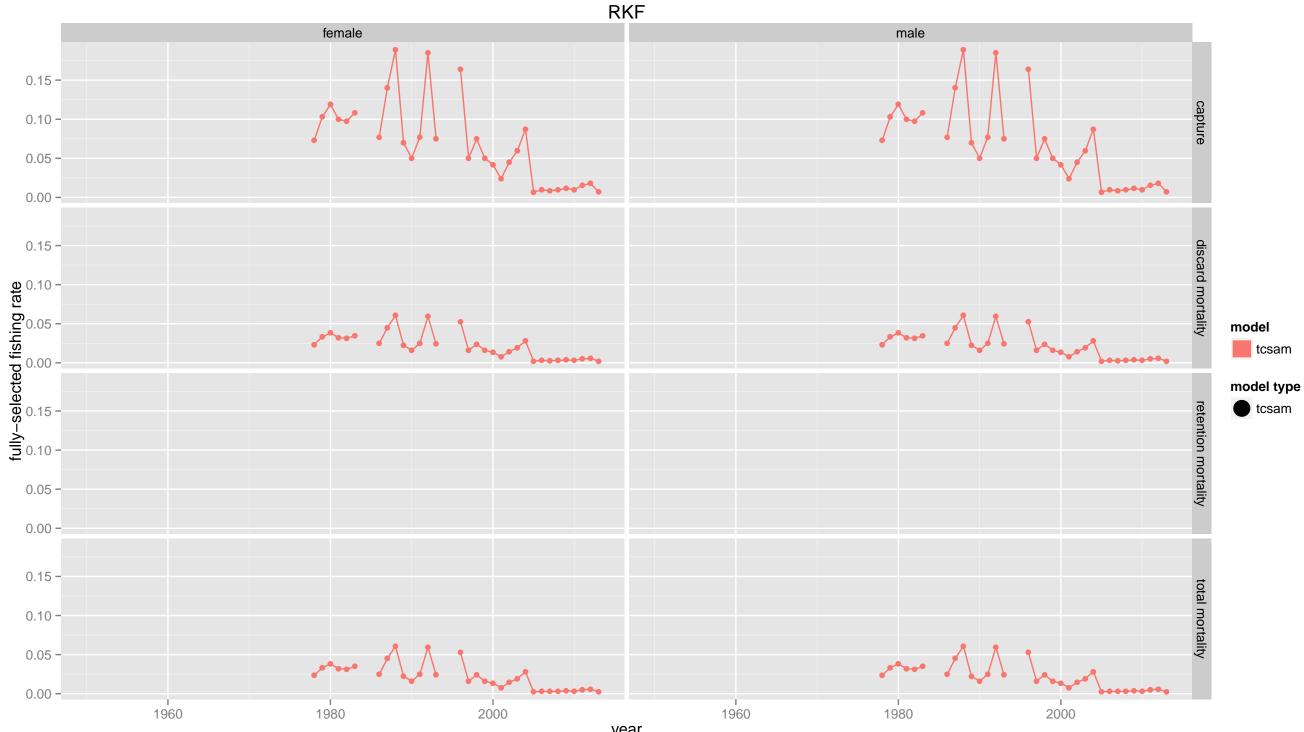


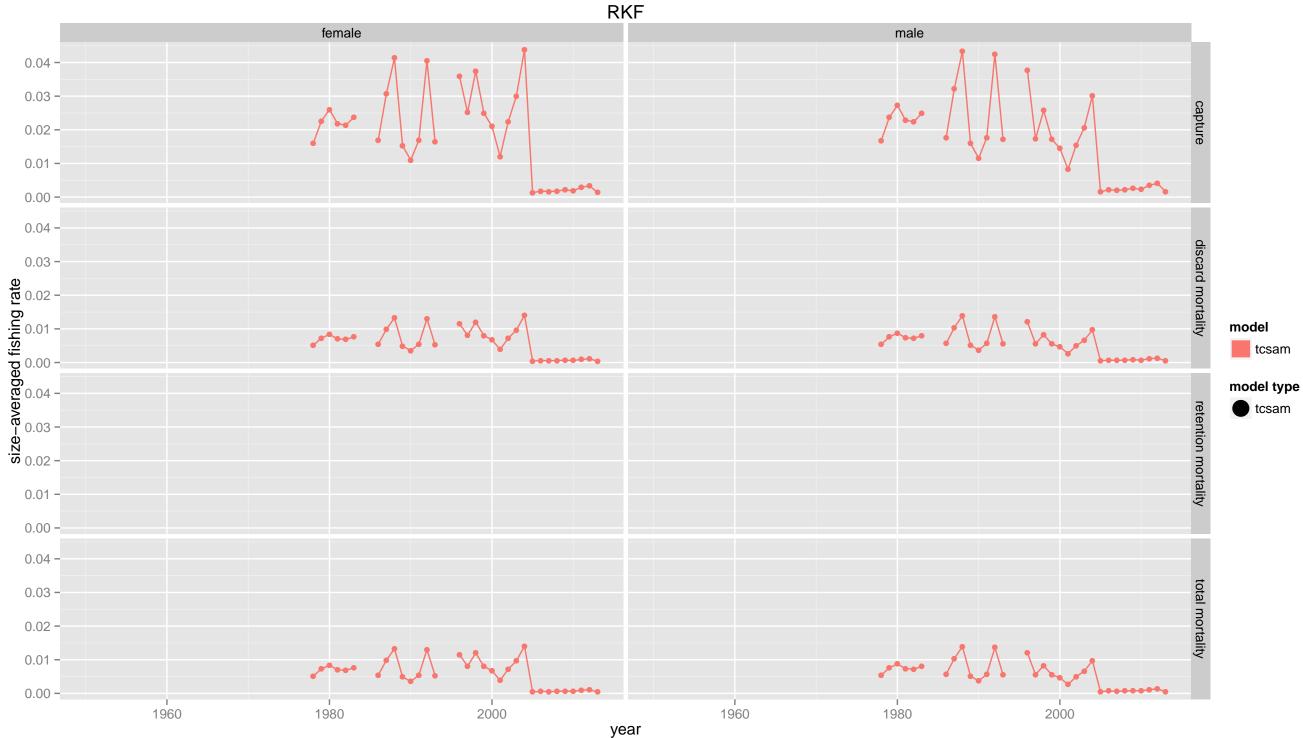


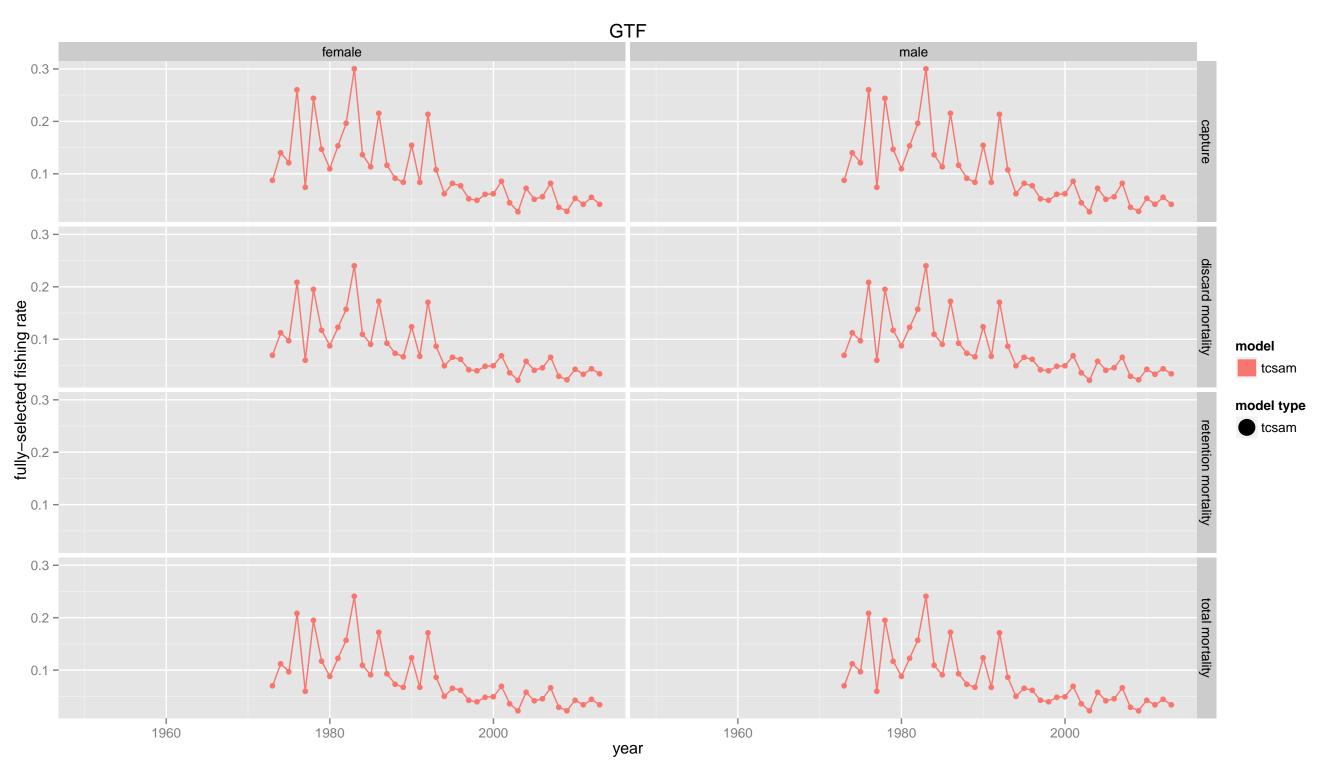


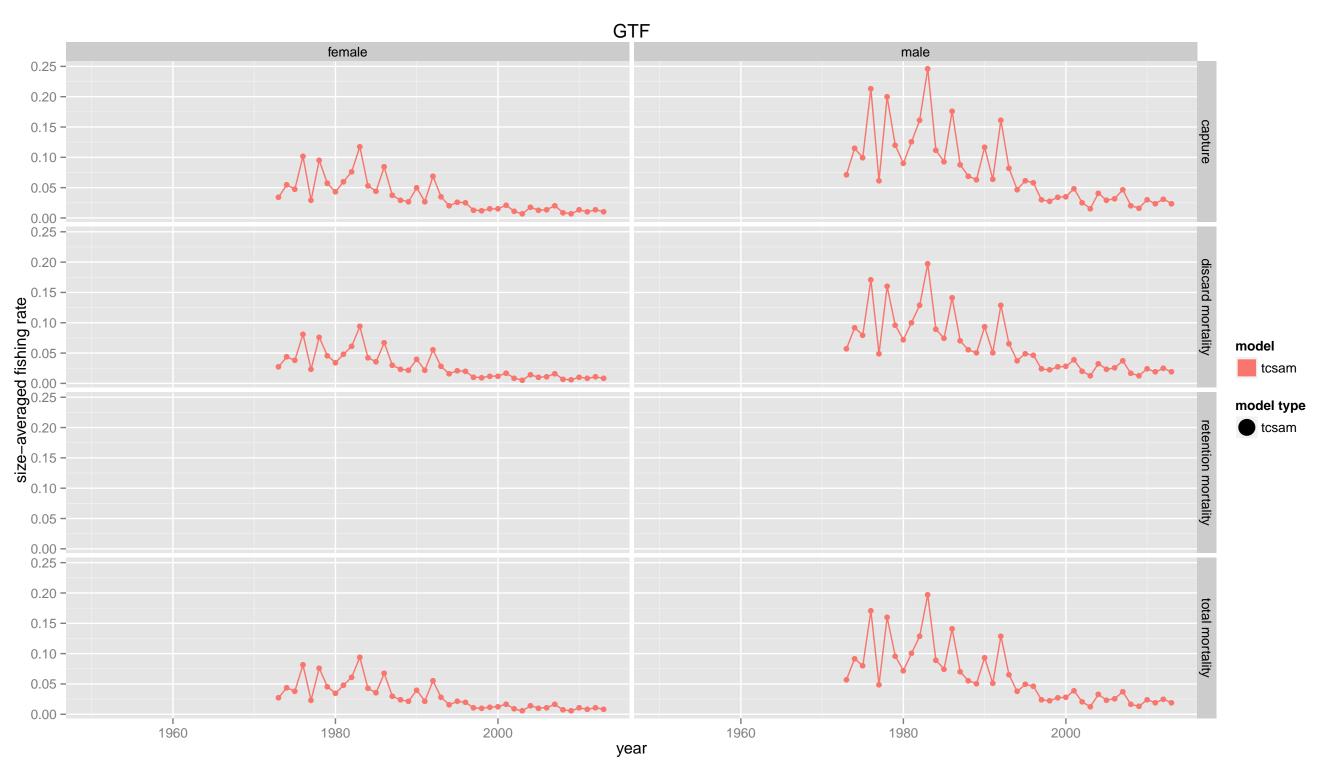


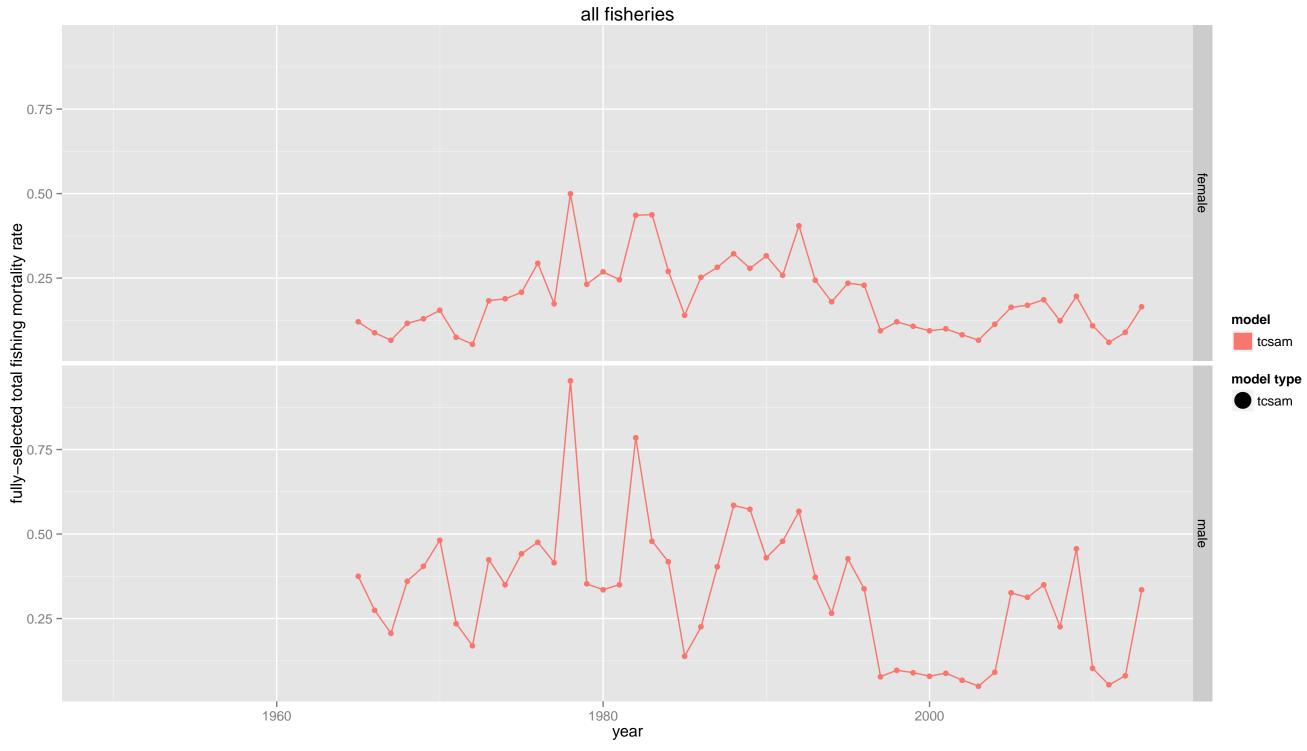


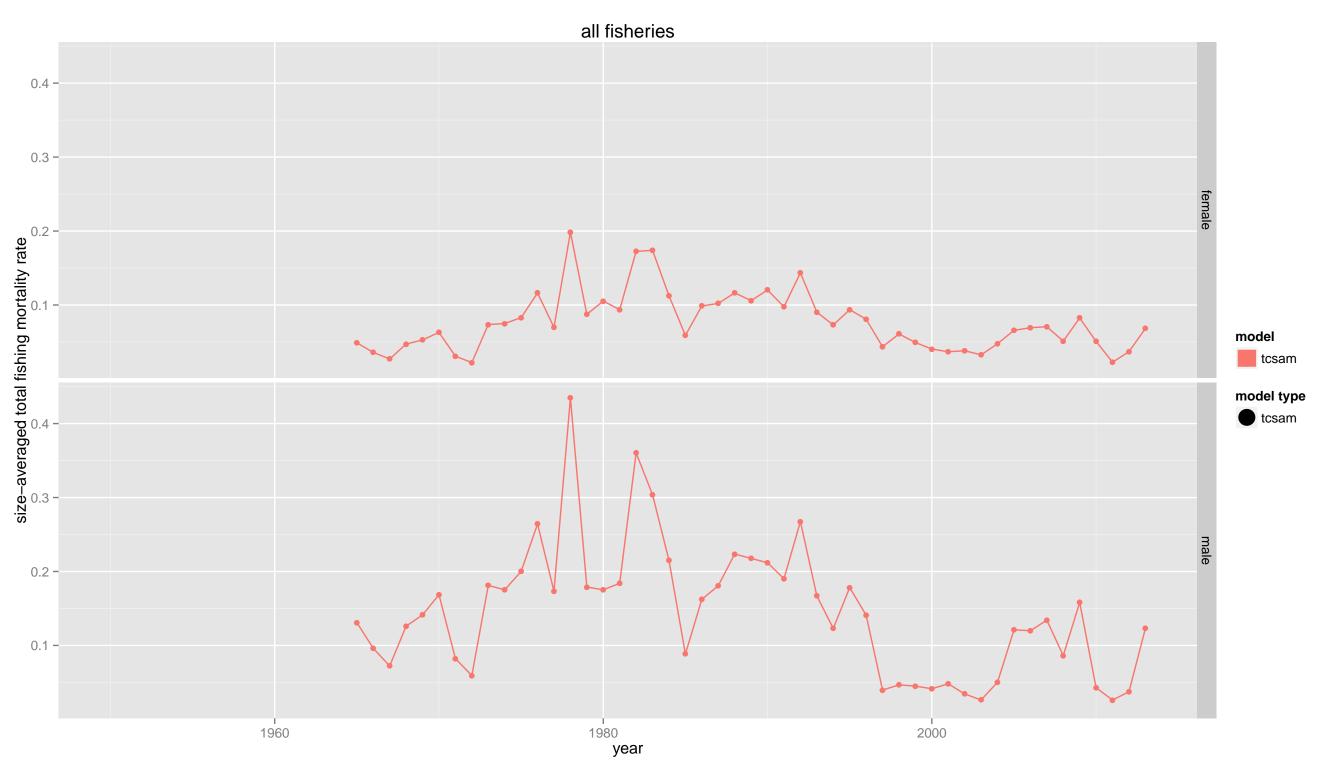


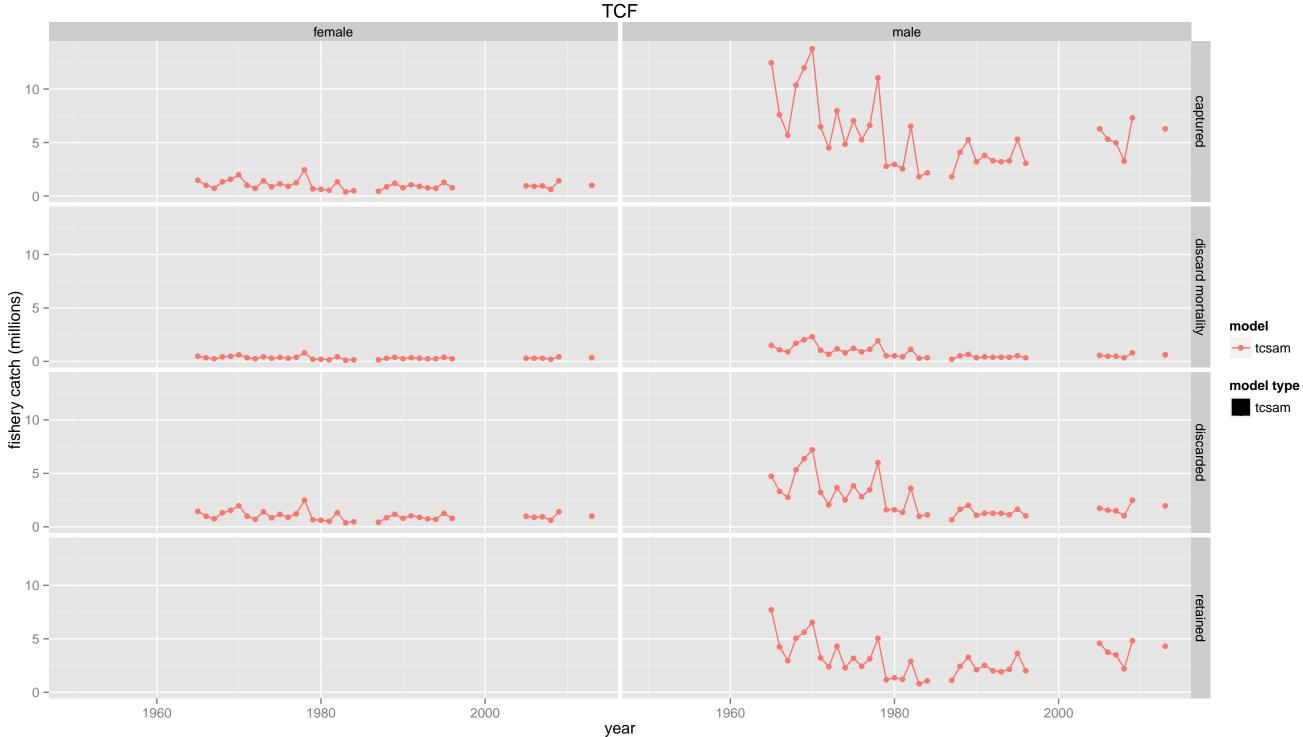


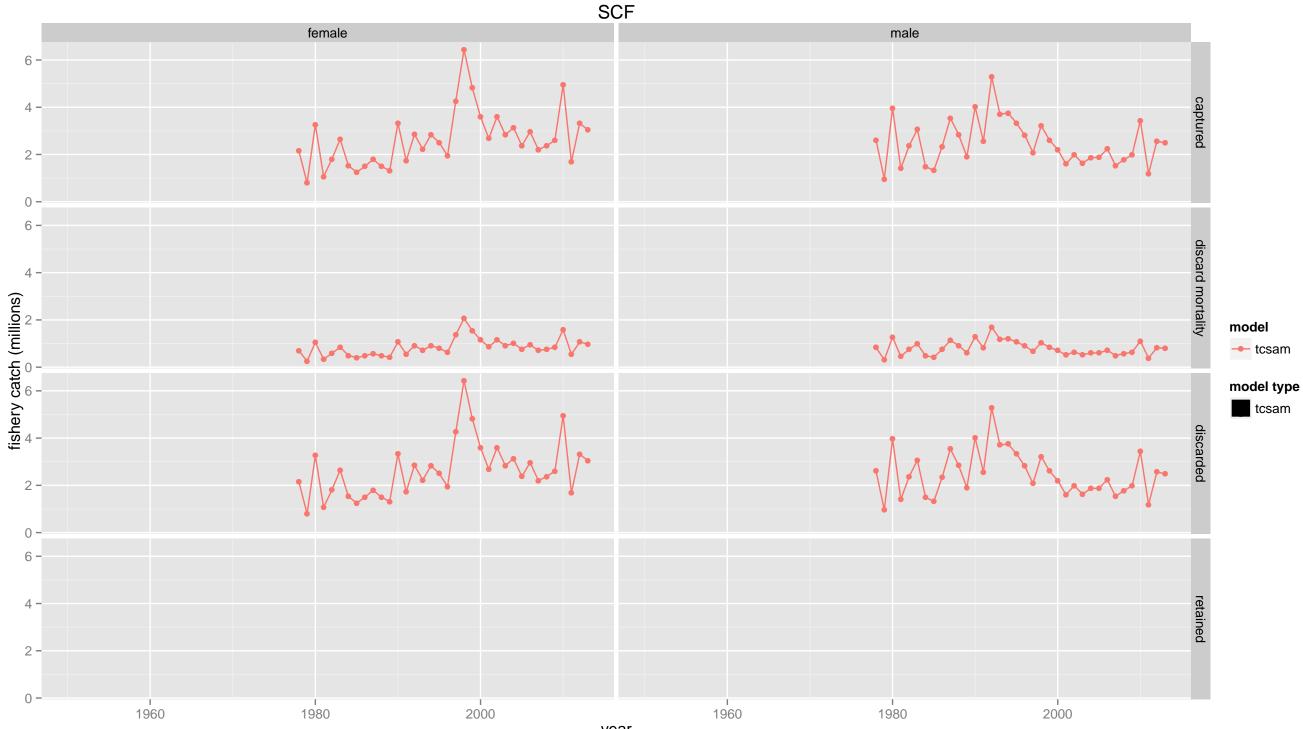


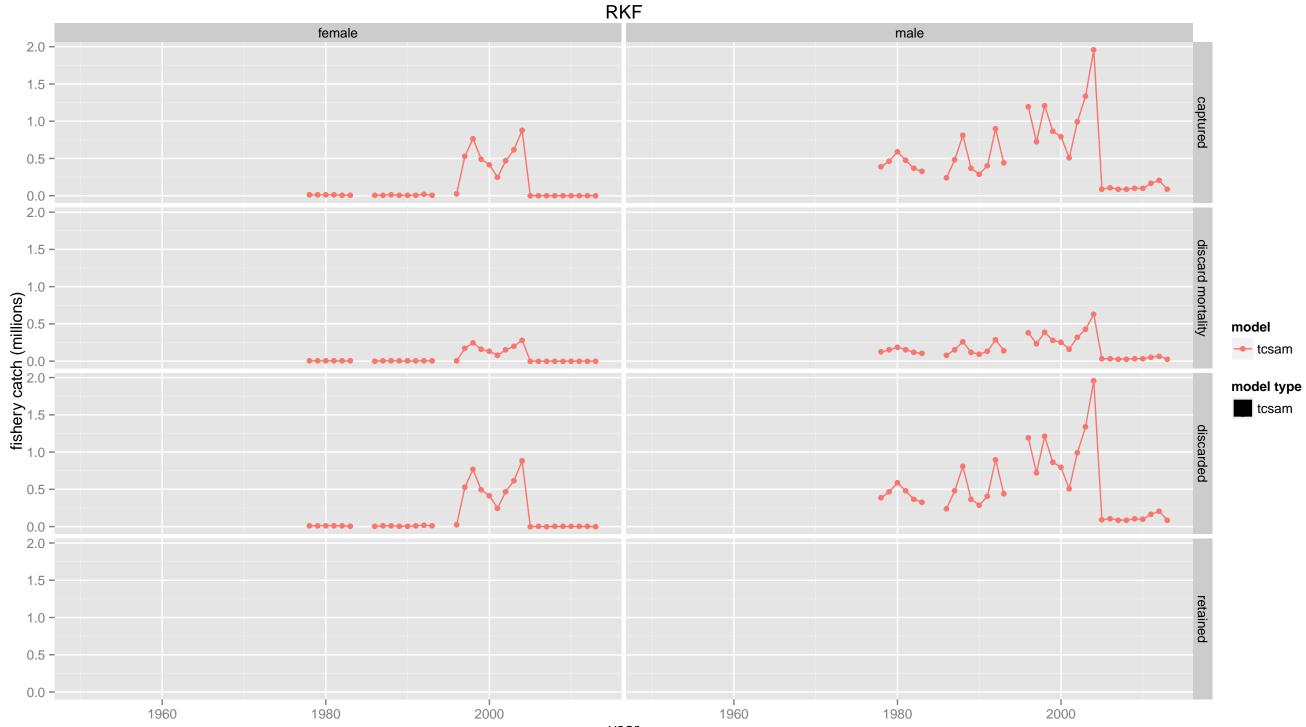


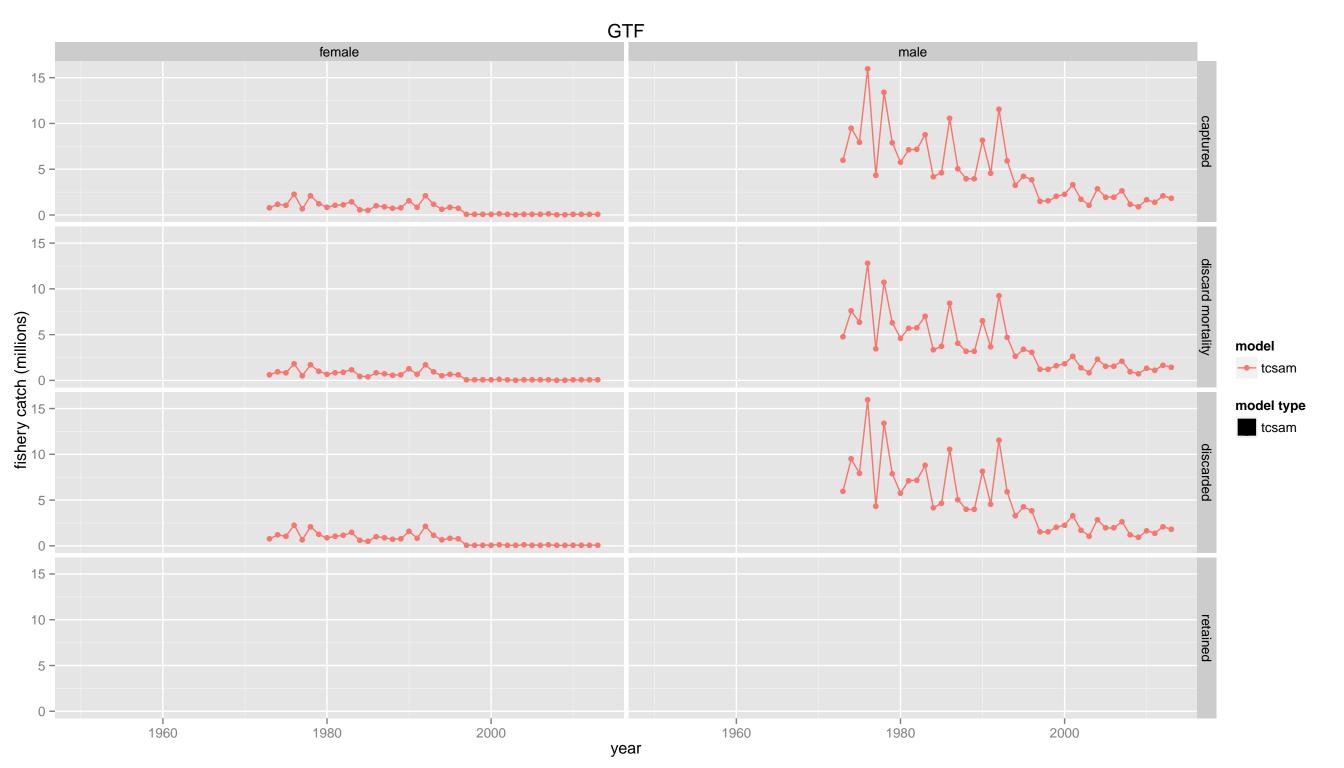


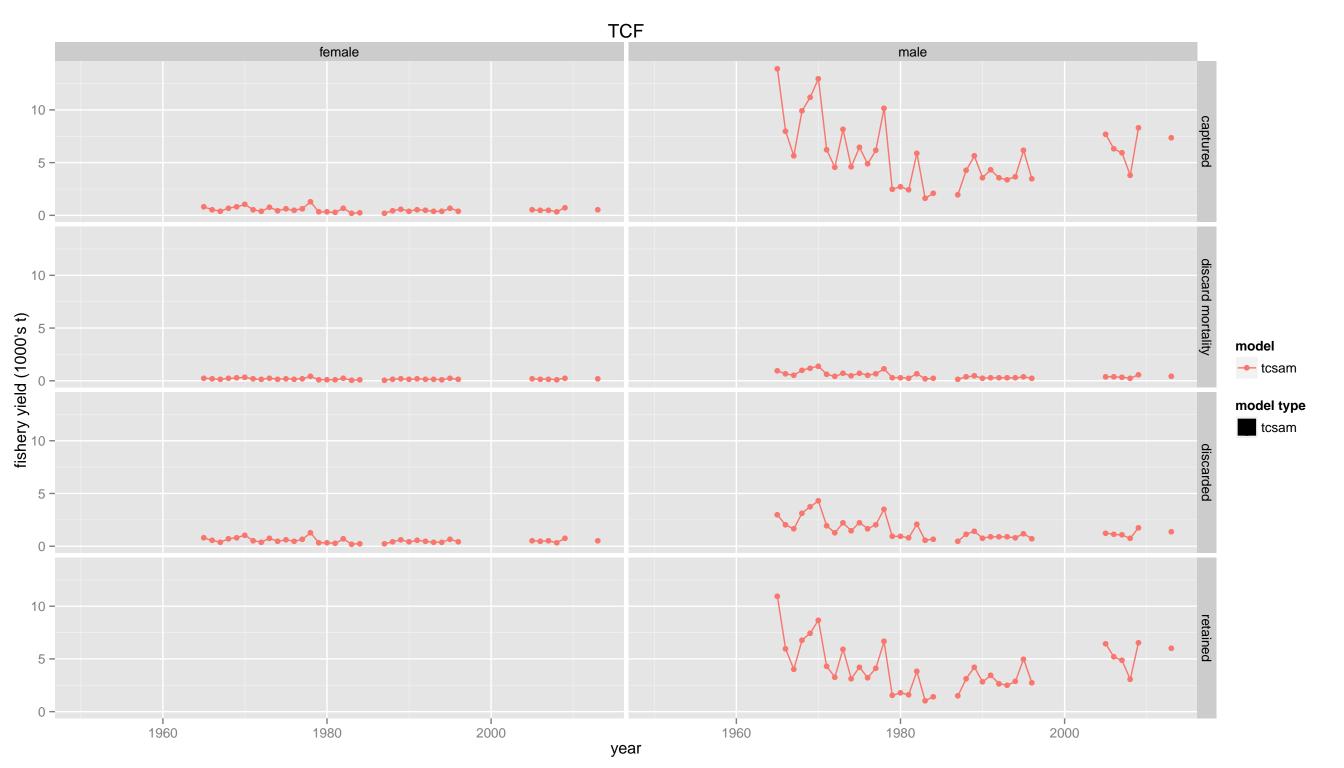




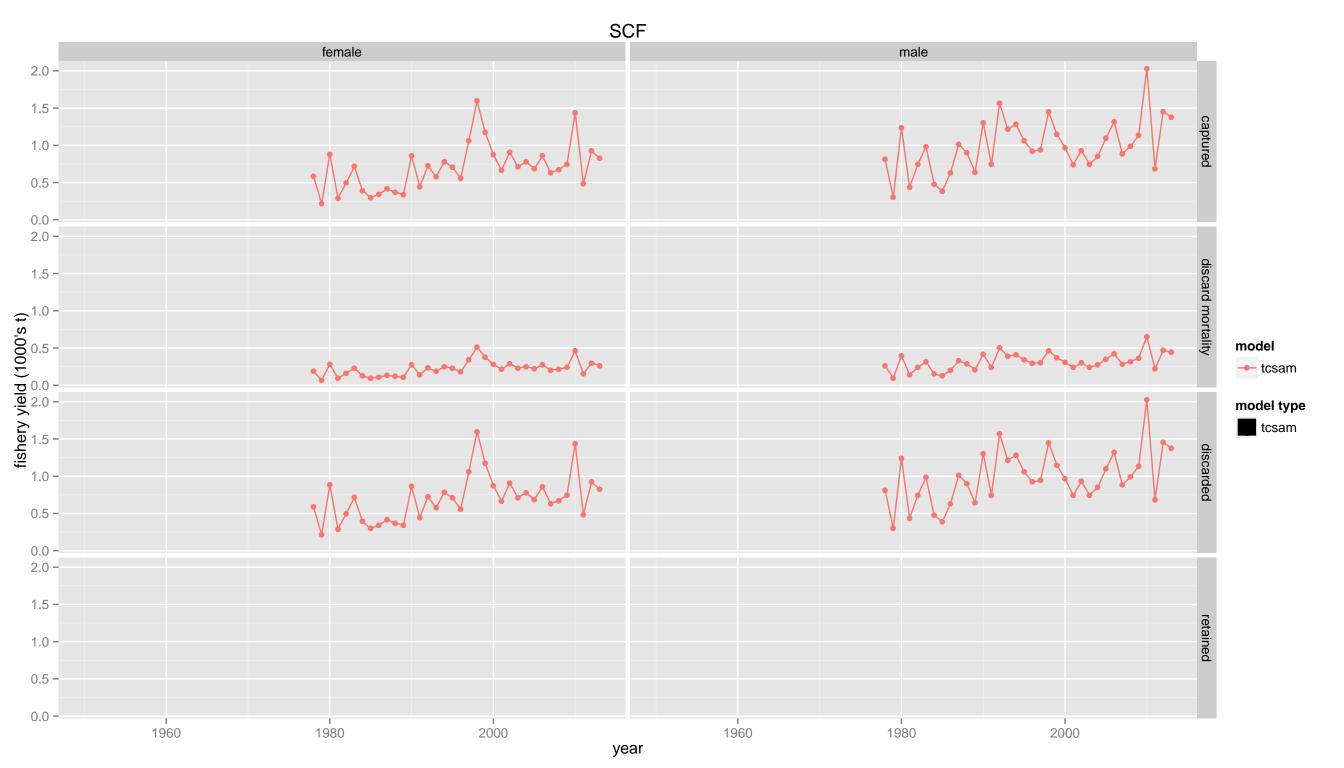


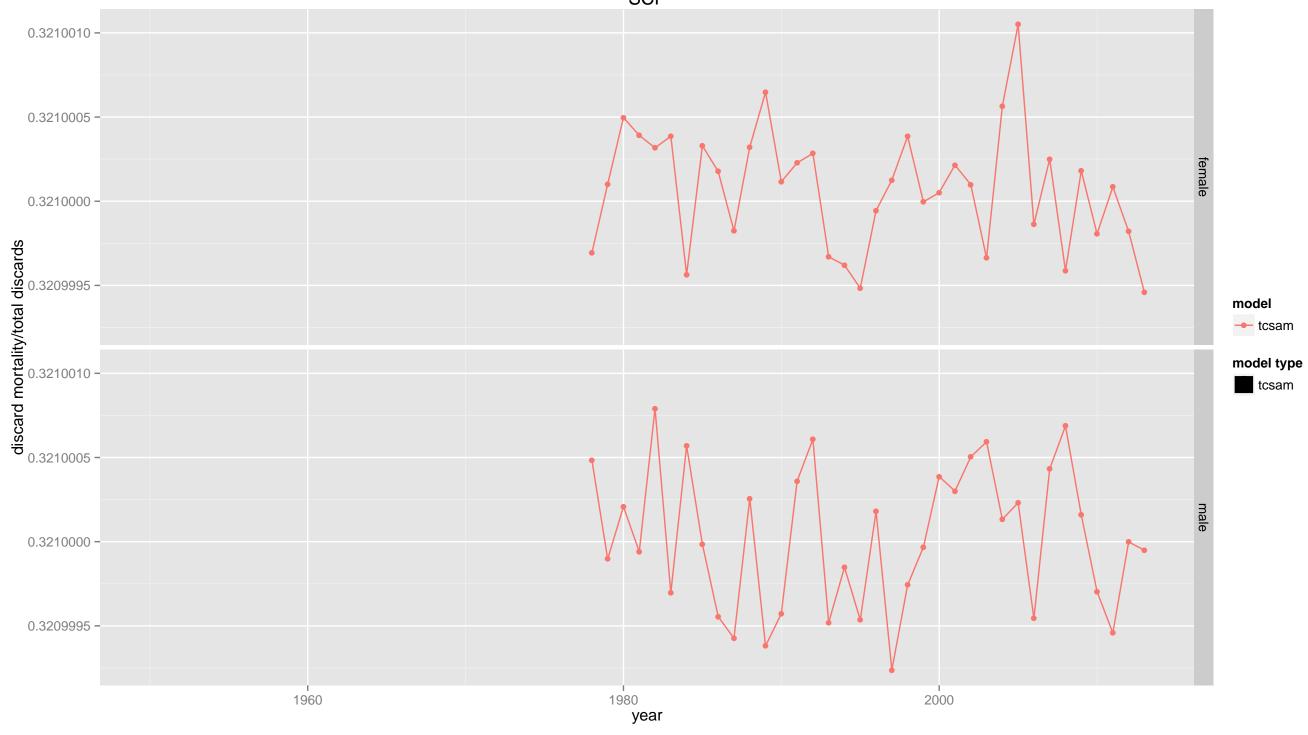




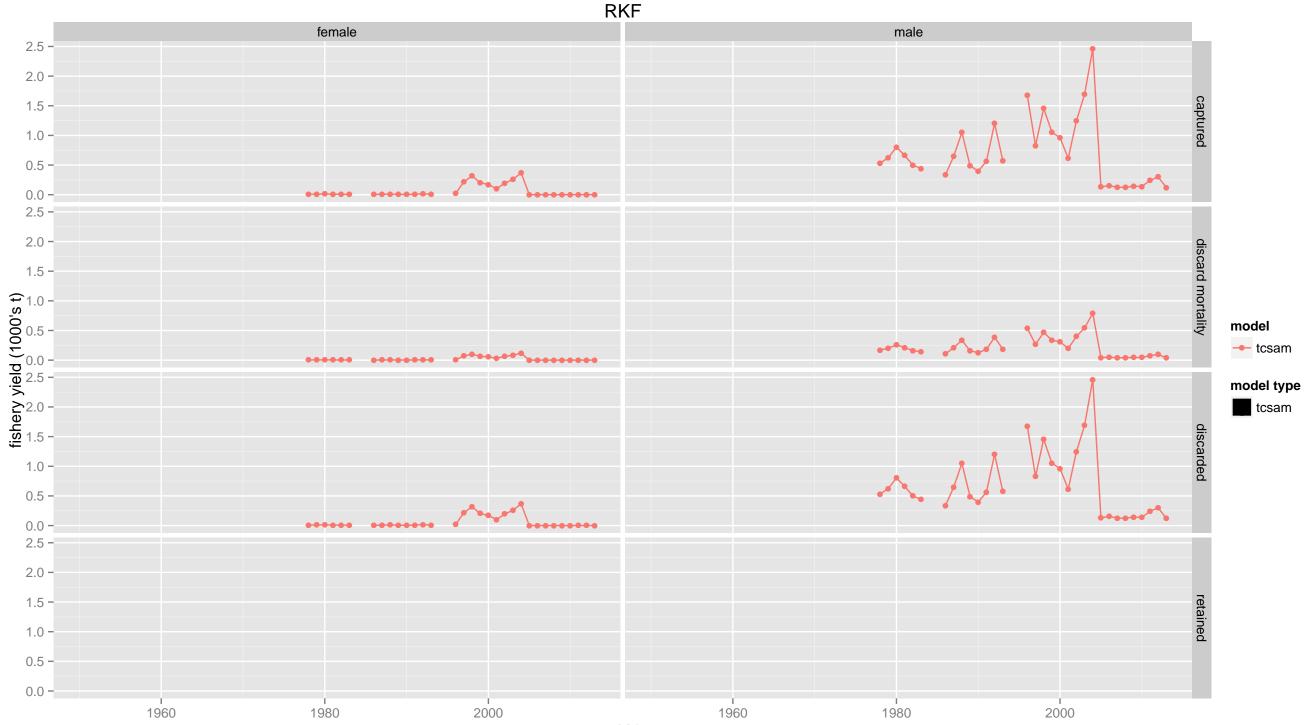




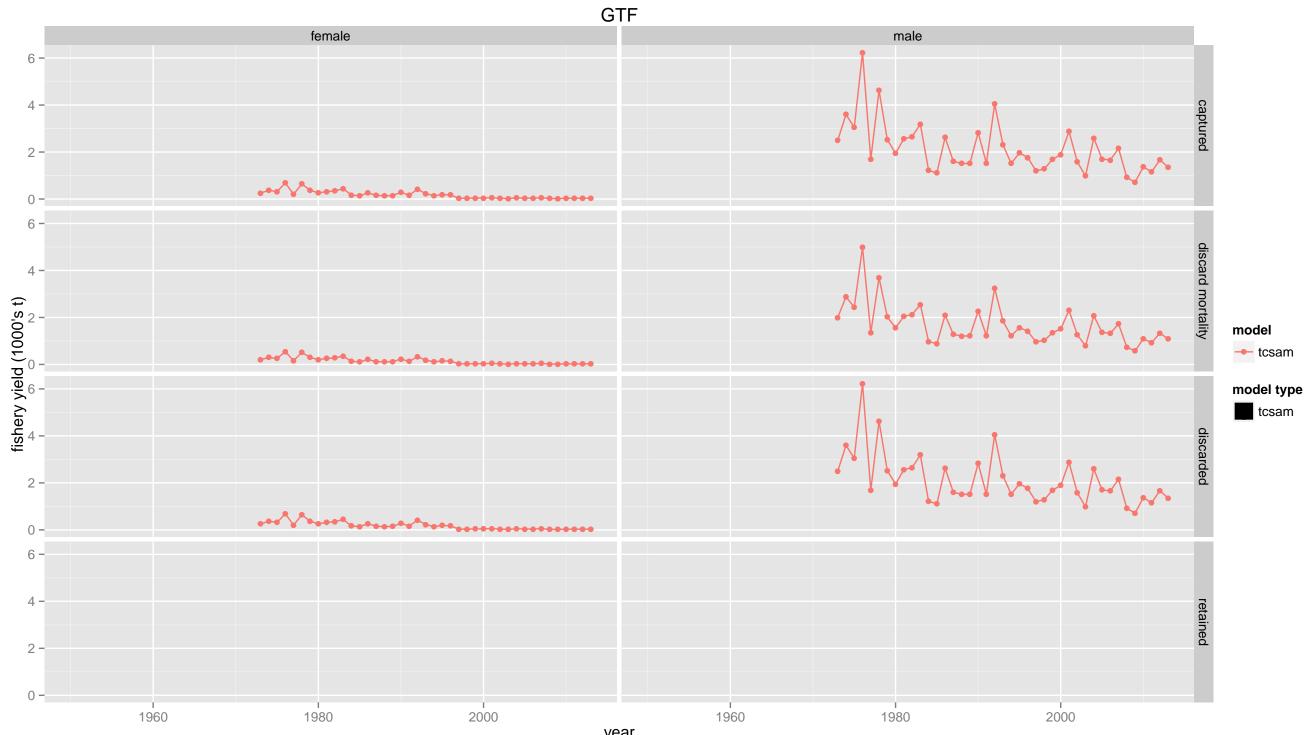


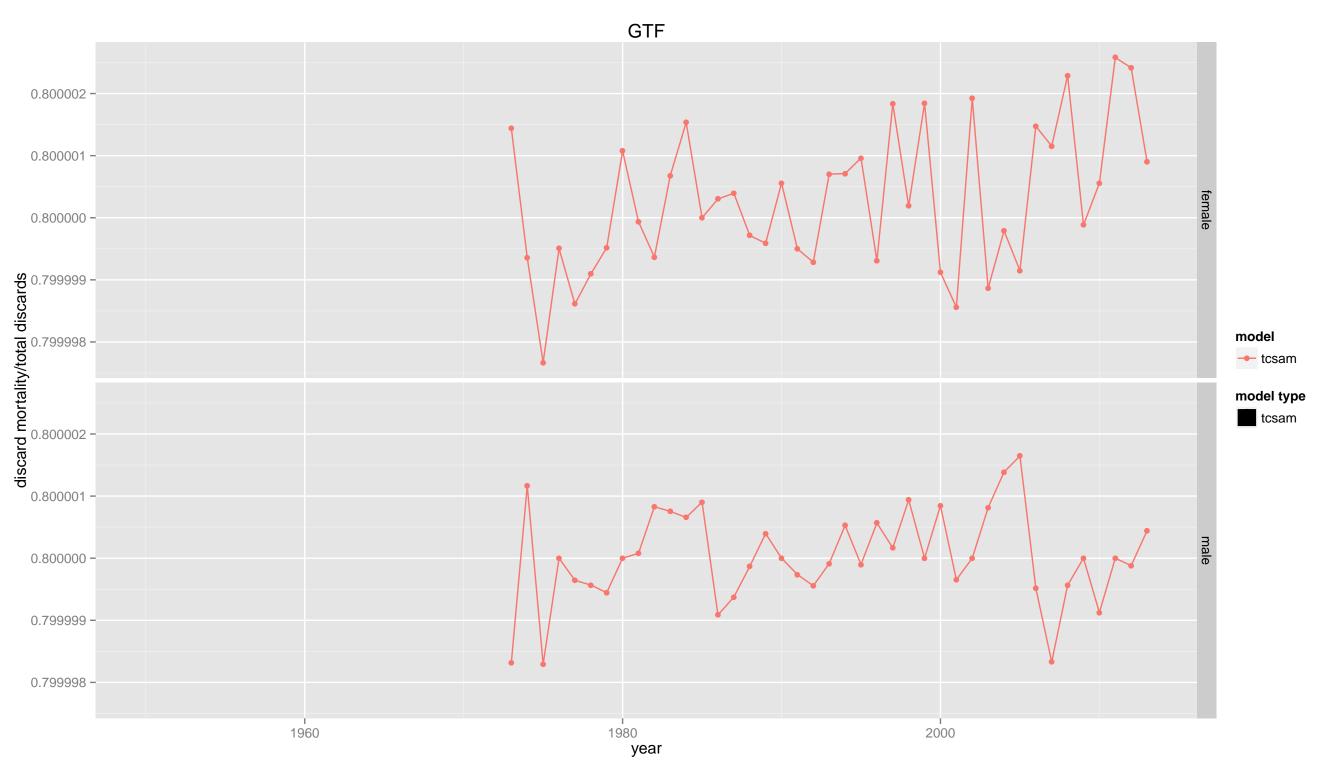


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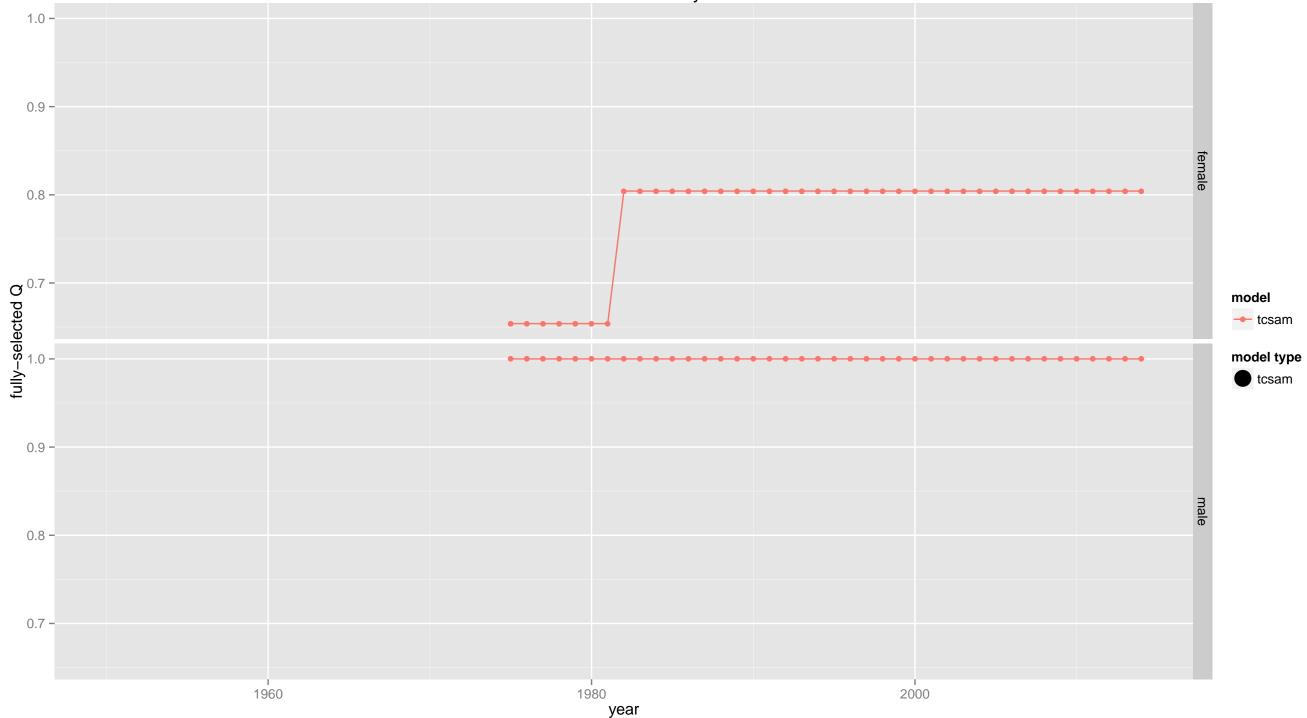




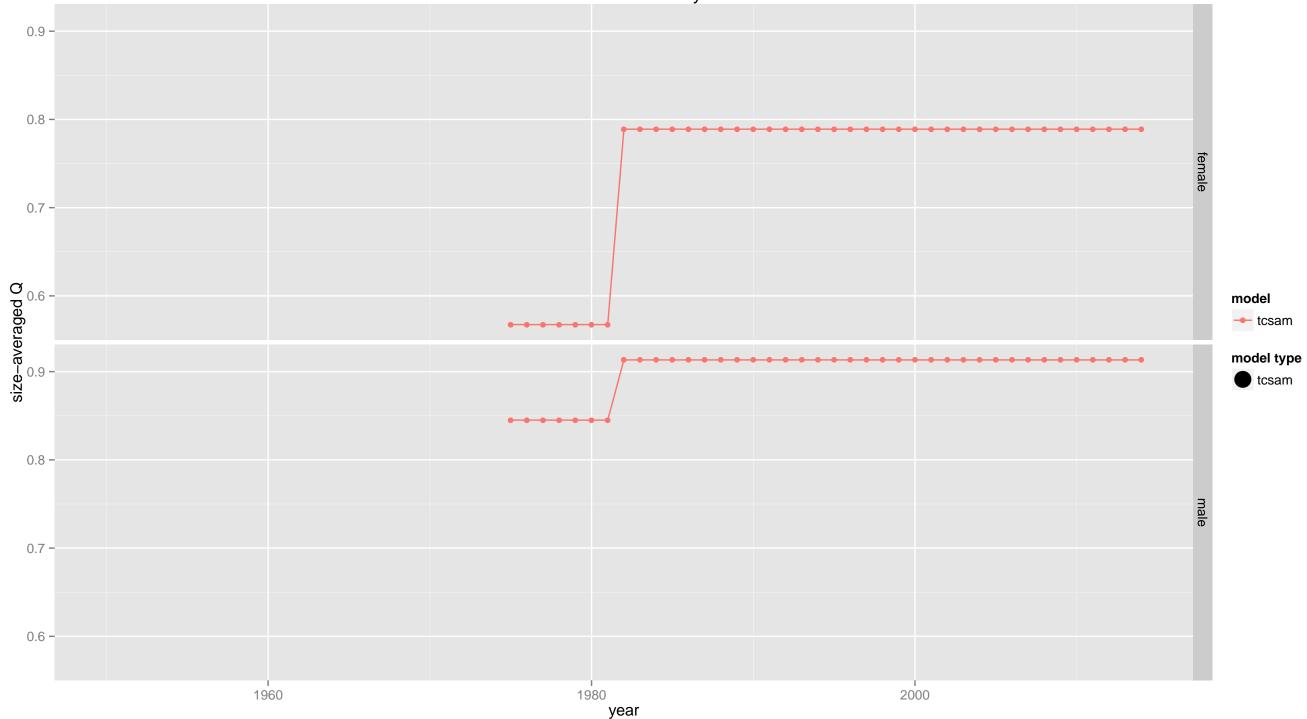


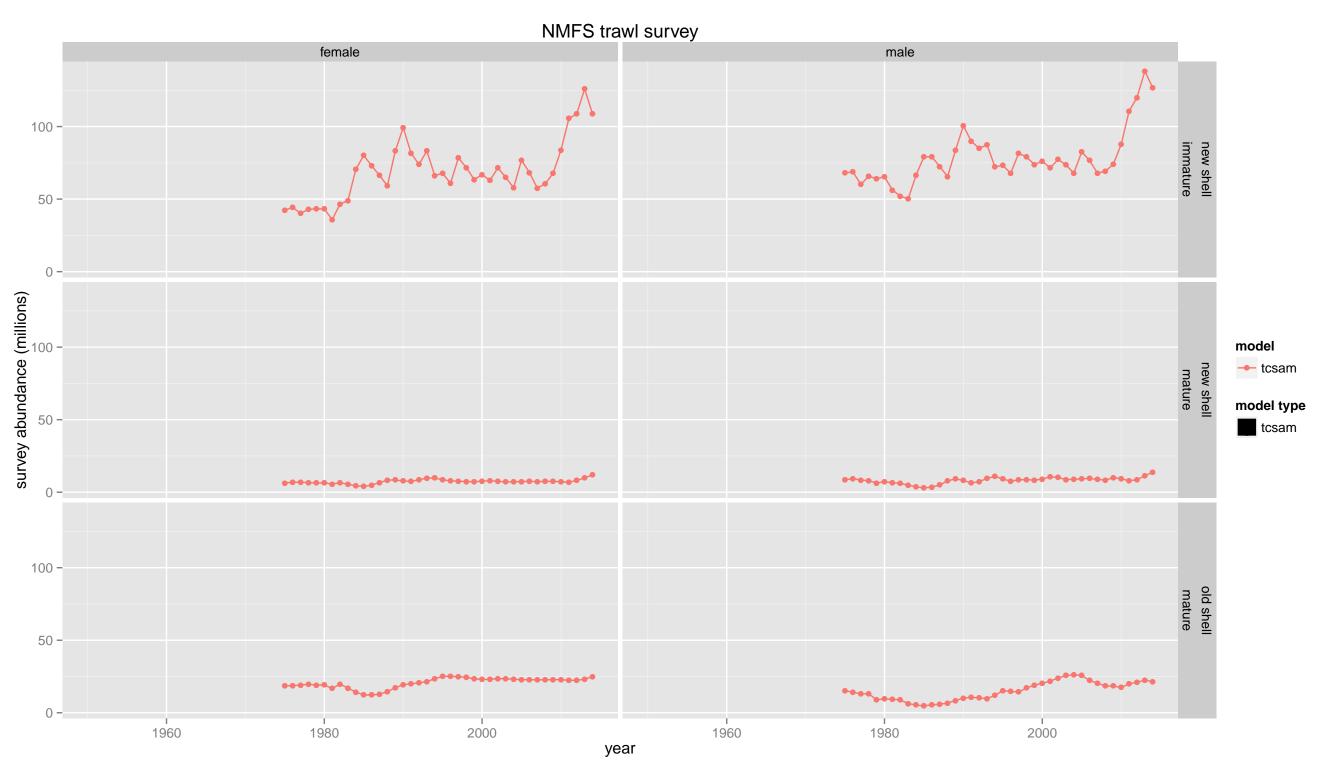


NMFS trawl survey



NMFS trawl survey





NMFS trawl survey

