Appendix D2: Model Differences for B1, B2, B3, B4, B5 and B6 vs. B0

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Introduction

This document presents results from the comparison of TCSAM2013 models B1, B2 B3, B4, B5 and B6 as differences with model B0. The following plots demonstrate only very small differences between the models for a variety of quantities.

Population processes

Natural mortality

natural mortality

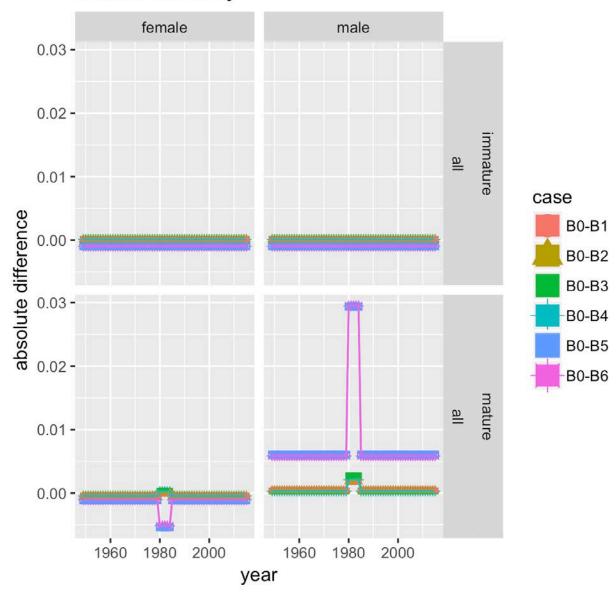


Figure 1. Differences for natural mortality.

Probability of terminal molt

pr(Terminal Molt) 2.0 -1.5 female 1.0 case percent difference B0-B1 0.5 -B0-B2 0.0 --0.5 -B0-B3 B0-B4 2.0 -B0-B5 1.5 male 1.0 -B0-B6 0.5 -0.0 --0.5 -50 100 150

size (mm CW)

Figure 2. Differences for probability of terminal molt.

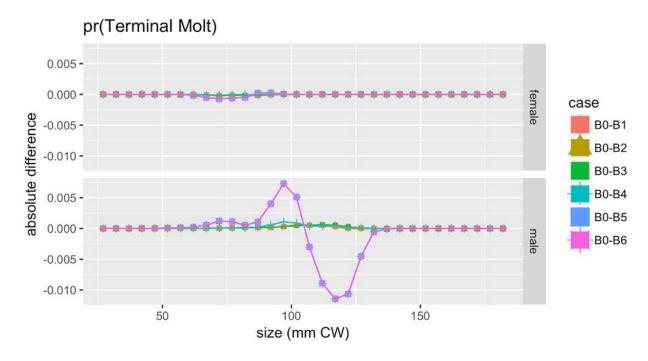


Figure 3. Differences for probability of terminal molt.

Mean growth

mean growth 0.00 female -0.02 case percent difference B0-B1 -0.04 -B0-B2 B0-B3 B0-B4 0.00 B0-B5 male -0.02 -B0-B6 -0.04 -150 100 50 size (mm CW)

Figure 4. Differences for mean growth.

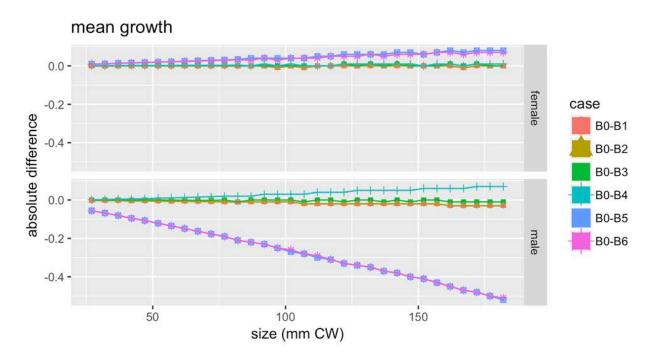
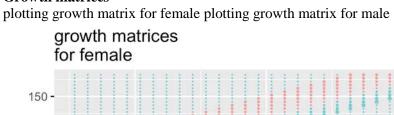


Figure 5. Differences for mean growth.

Growth matrices



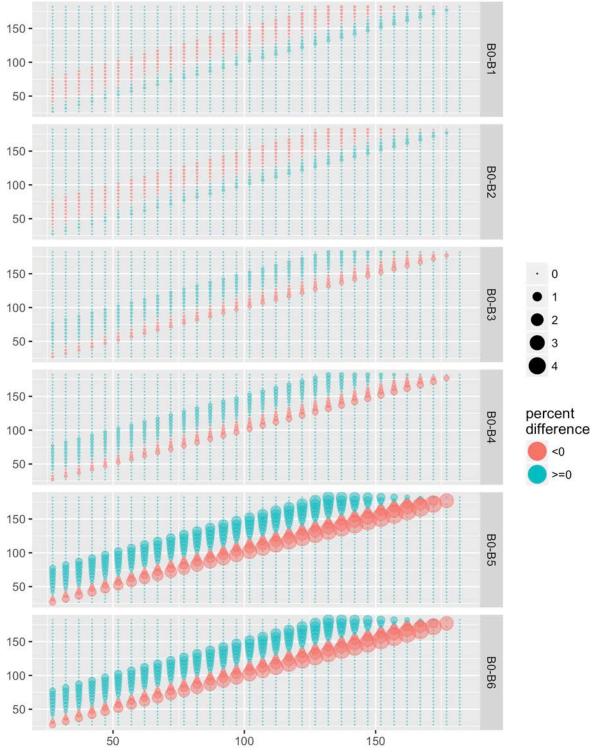


Figure 6. Growth matrix differences for female.

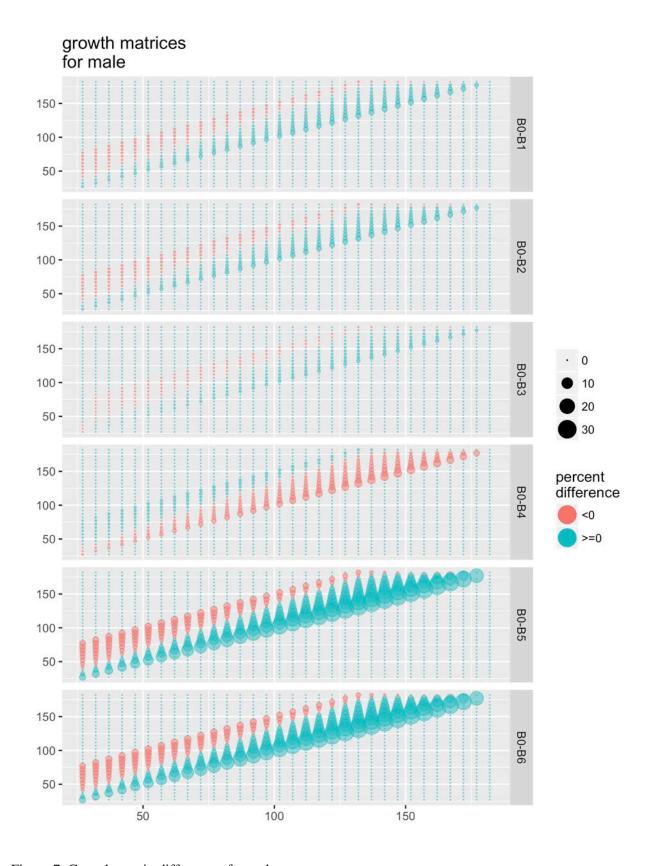


Figure 7. Growth matrix differences for male.

plotting growth matrix for female plotting growth matrix for male

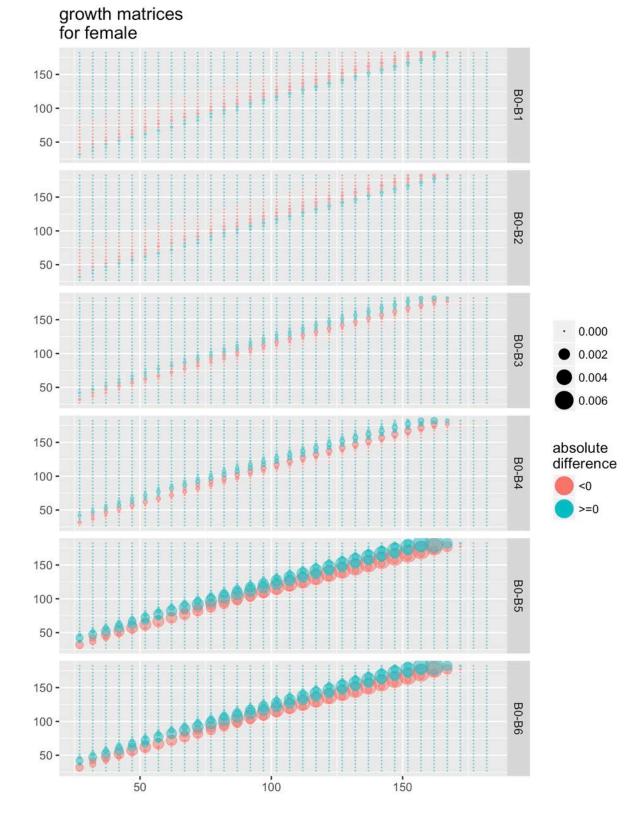


Figure 8. Growth matrix differences for female.

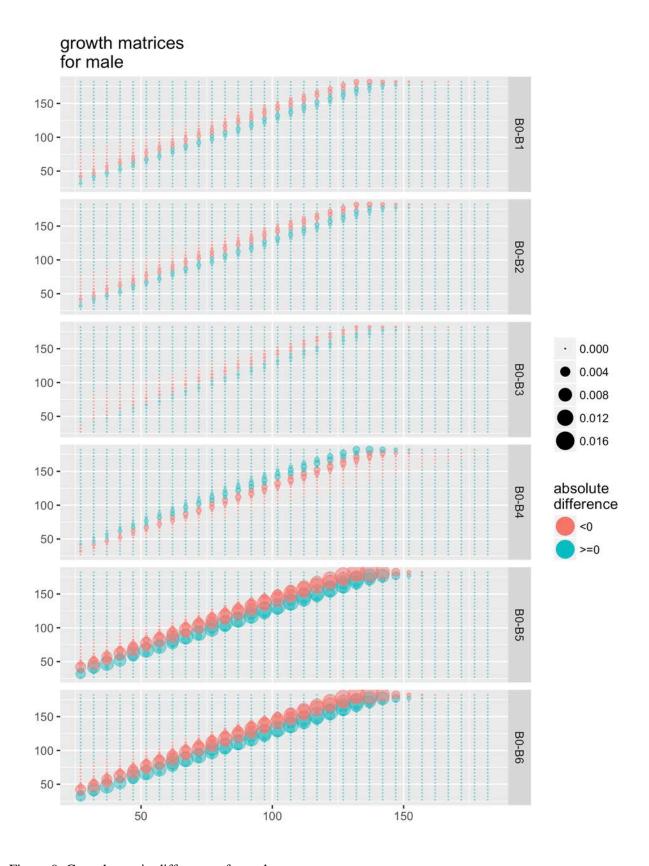


Figure 9. Growth matrix differences for male.

Size distribution for recruits

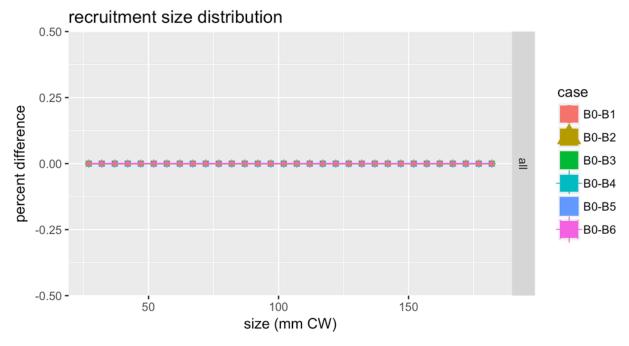


Figure 10. Differences for recruitment size distribution.

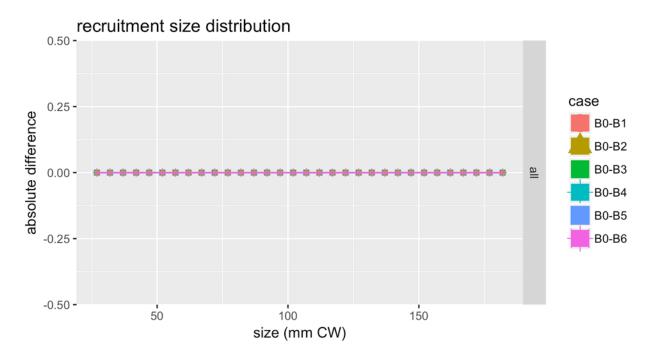


Figure 11. Differences for recruitment size distribution.

Population results

Recruitment

recruitment

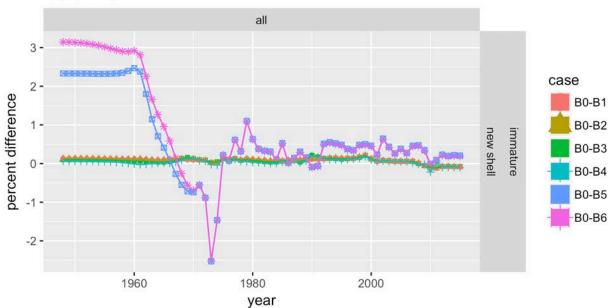


Figure 12. Differences for recruitment.

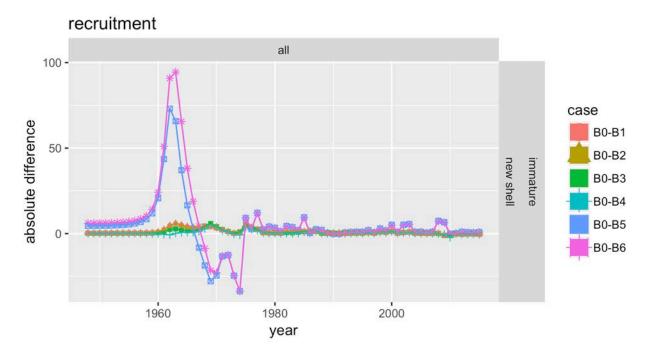


Figure 13. Differences for recruitment.

Population abundance

population abundance

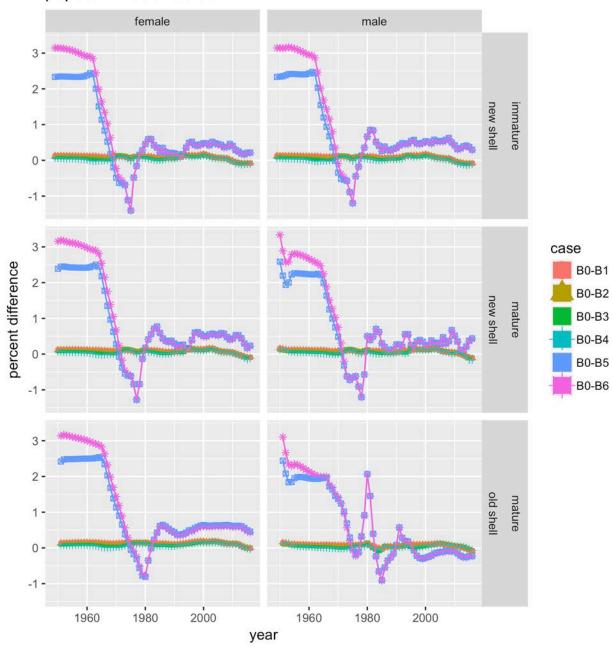


Figure 14. Differences for population abundance.

population abundance female male 80 new shell 40 case absolute difference B0-B1 B0-B2 new shell mature B0-B3 B0-B4 B0-B5 B0-B6 80 old shell 40 -

1960

year

1980

2000

Figure 15. Differences for population abundance.

1980

2000

1960

population abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 16. Differences for population abundance for female immature new shell.

population abundance for female mature new shell 150 -B0-B1 100 -50 -150 -100 -50 -150 -B0-B3 100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 17. Differences for population abundance for female mature new shell.

population abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 18. Differences for population abundance for female mature old shell.

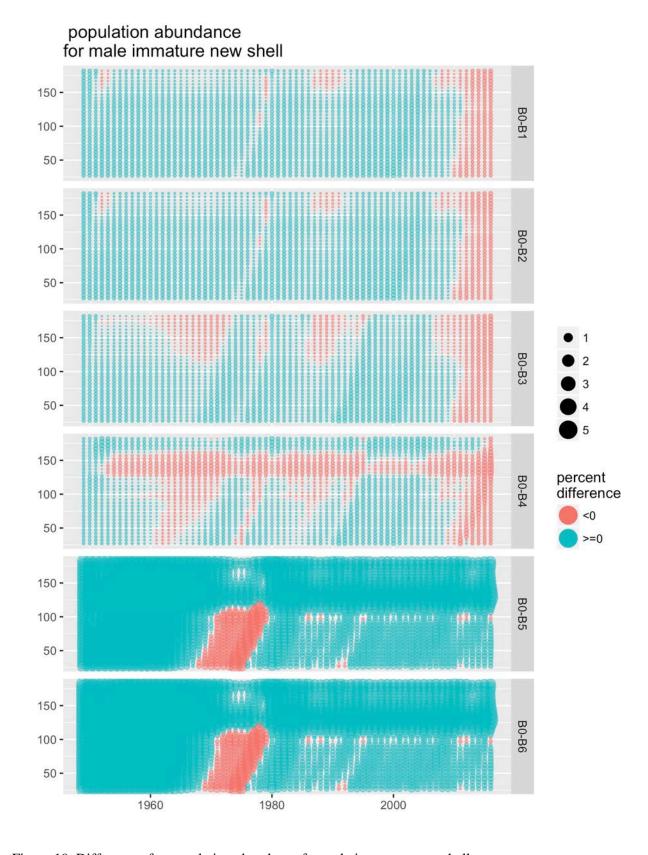


Figure 19. Differences for population abundance for male immature new shell.

population abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 -150 percent difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 20. Differences for population abundance for male mature new shell.

population abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -10 50 percent difference 150 -<0 100 ->=0 50 -150 -B0-B5 100 -50 -150 -100 -50 -1980 2000 1960

Figure 21. Differences for population abundance for male mature old shell.

population abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 -16 150 absolute difference 100 -<0 >=0 50 -150 -100 -50 -150 -100 -50 -1960 2000 1980

Figure 22. Differences for population abundance for female immature new shell.

population abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1960 2000 1980

Figure 23. Differences for population abundance for female mature new shell.

population abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -5 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 24. Differences for population abundance for female mature old shell.

population abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -16 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 2000 1980

Figure 25. Differences for population abundance for male immature new shell.

population abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -0.3 100 -0.6 50 -0.9 absolute difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 26. Differences for population abundance for male mature new shell.

population abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -50 absolute difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 27. Differences for population abundance for male mature old shell.

Biomass

population biomass

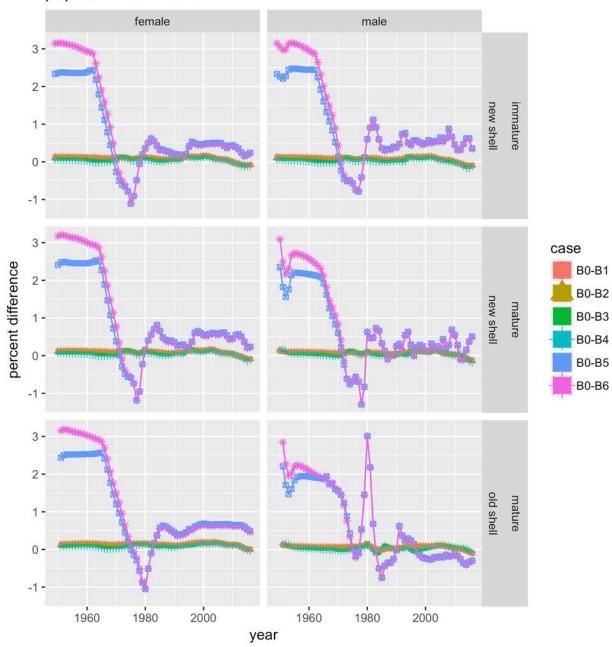


Figure 28. Differences for population biomass.

population biomass

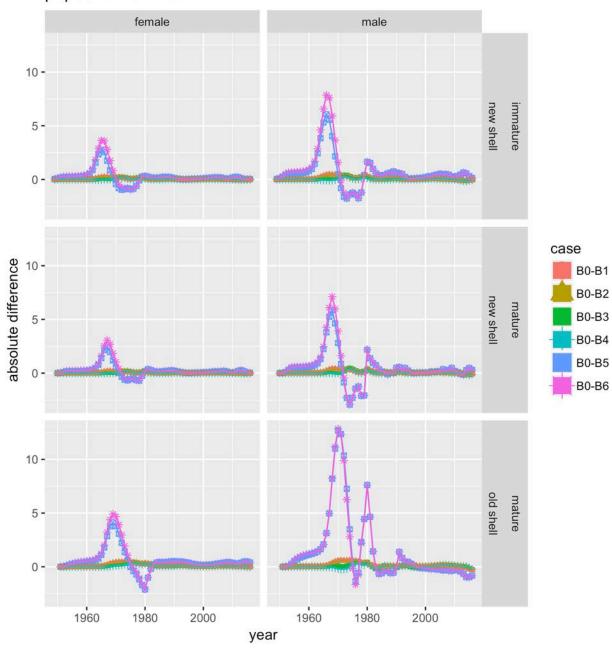


Figure 29. Differences for population biomass.

Surveys

Survey catchability

NMFS trawl survey: survey catchability

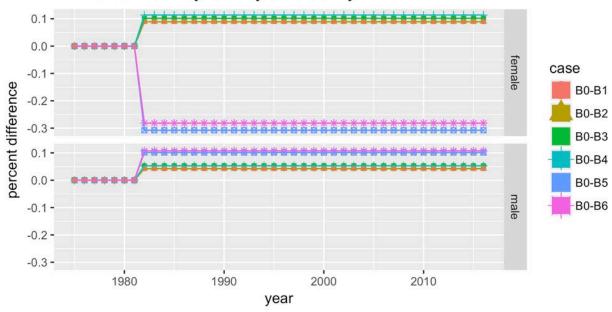


Figure 30. Differences for NMFS trawl survey: survey catchability.

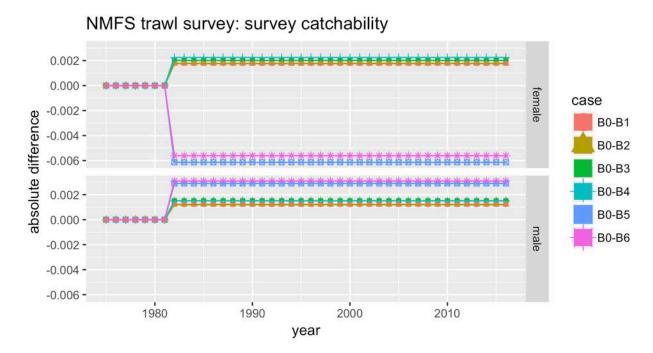


Figure 31. Differences for NMFS trawl survey: survey catchability.

Survey selectivity functions NMFS trawl survey survey selectivity for female all maturity all shell

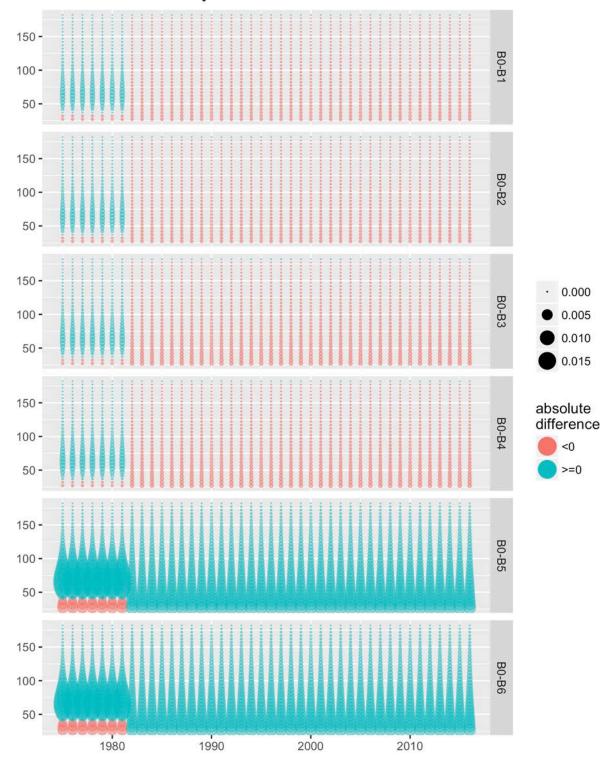


Figure 32. Differences for NMFS trawl survey survey selectivity for female all maturity all shell.

NMFS trawl survey survey selectivity for male all maturity all shell 150 -B0-B1 100 -50 -150 -B0-B2 100 -50 -0.0000 150 -B0-B3 0.0025 100 -0.0050 0.0075 50 -0.0100 150 absolute B0-B4 difference 100 -<0 50 ->=0 150 -B0-B5 100 -50 -

Figure 33. Differences for NMFS trawl survey survey selectivity for male all maturity all shell.

1990

2000

2010

150 -

100 -

50 -

1980

B0-B6

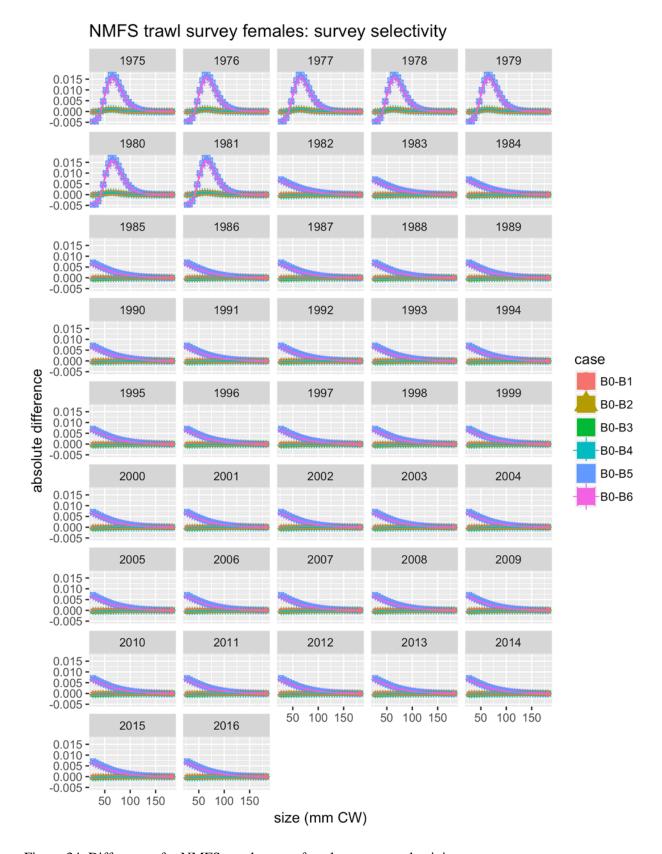


Figure 34. Differences for NMFS trawl survey females: survey selectivity.

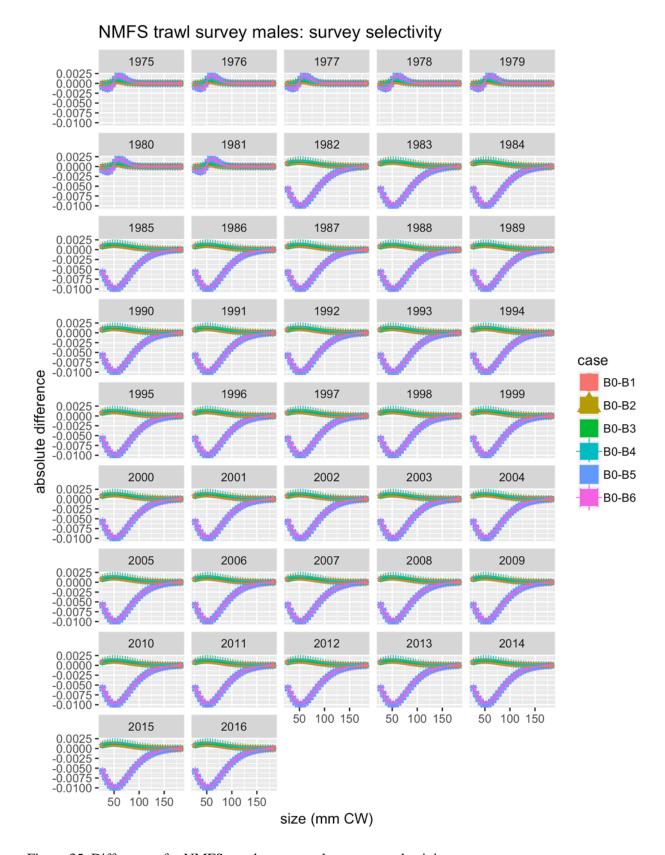


Figure 35. Differences for NMFS trawl survey males: survey selectivity.

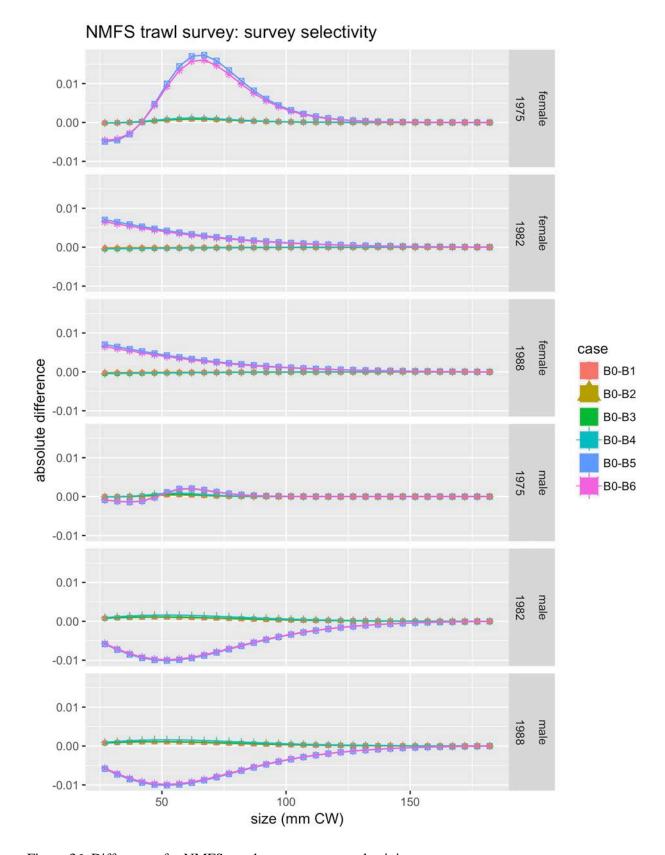


Figure 36. Differences for NMFS trawl survey: survey selectivity.

Survey abundance

NMFS trawl survey: survey abundance

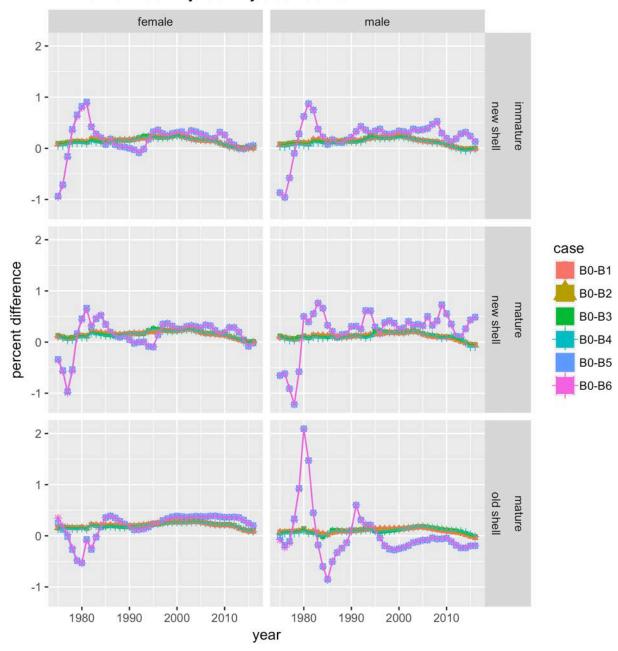


Figure 37. Differences for NMFS trawl survey: survey abundance.

NMFS trawl survey: survey abundance

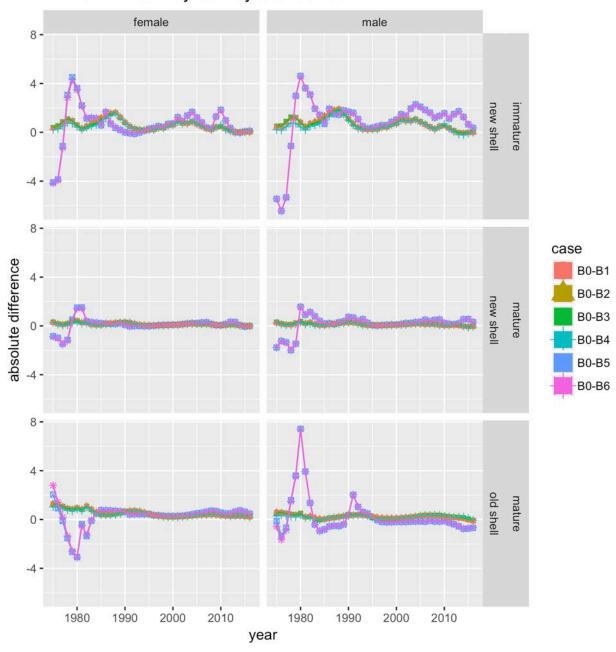


Figure 38. Differences for NMFS trawl survey: survey abundance.



Figure 39. Differences for NMFS trawl survey survey abundance for female immature new shell.

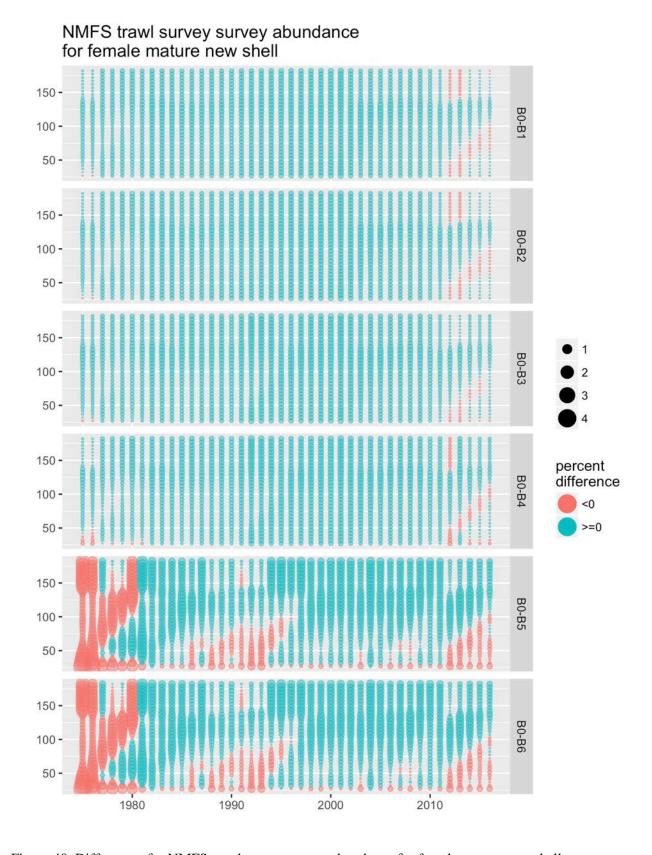


Figure 40. Differences for NMFS trawl survey survey abundance for female mature new shell.

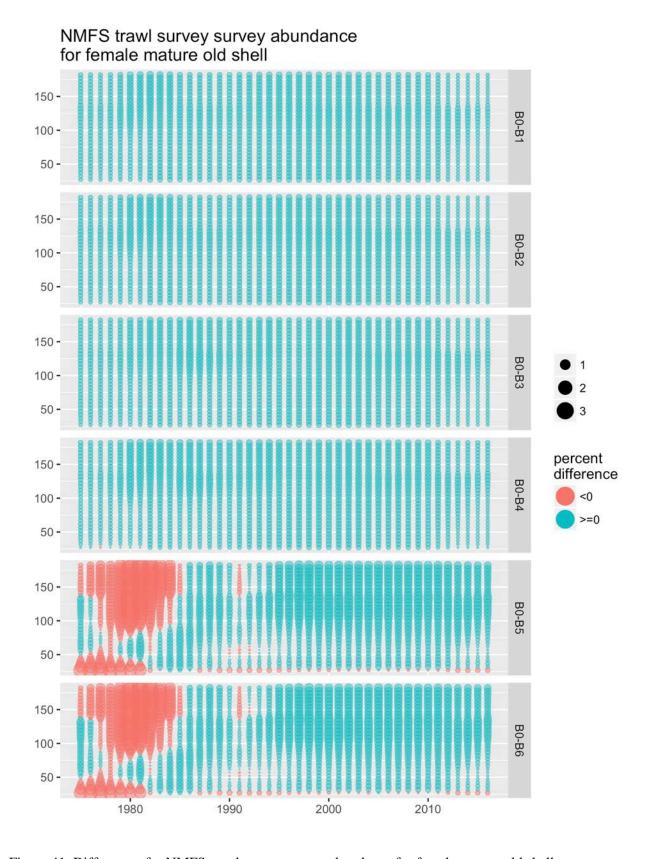


Figure 41. Differences for NMFS trawl survey survey abundance for female mature old shell.

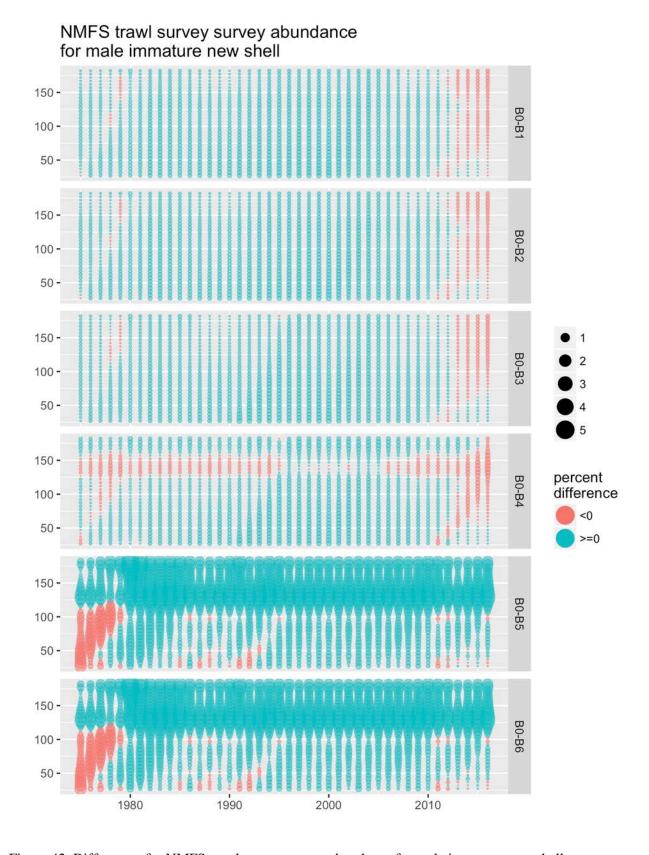


Figure 42. Differences for NMFS trawl survey survey abundance for male immature new shell.

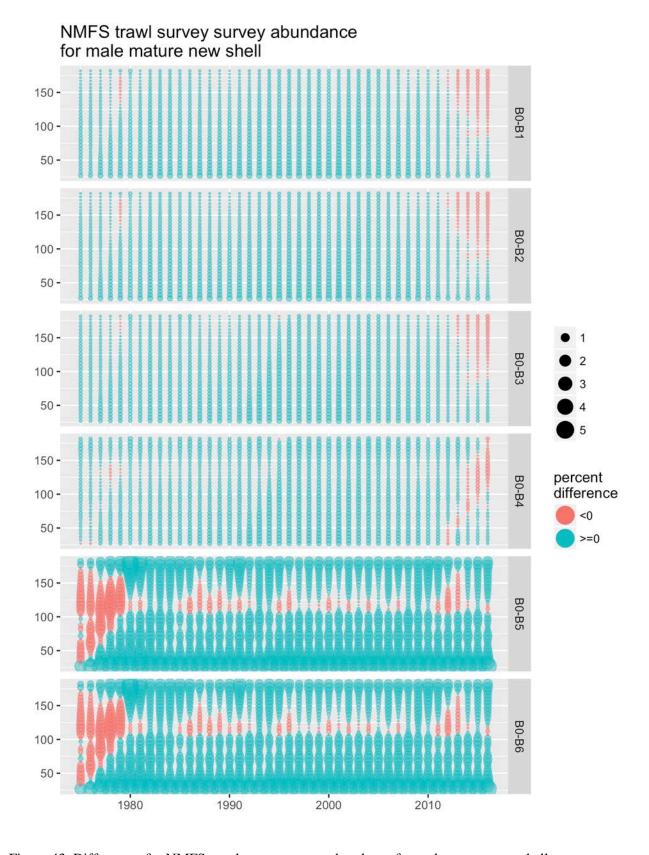


Figure 43. Differences for NMFS trawl survey survey abundance for male mature new shell.

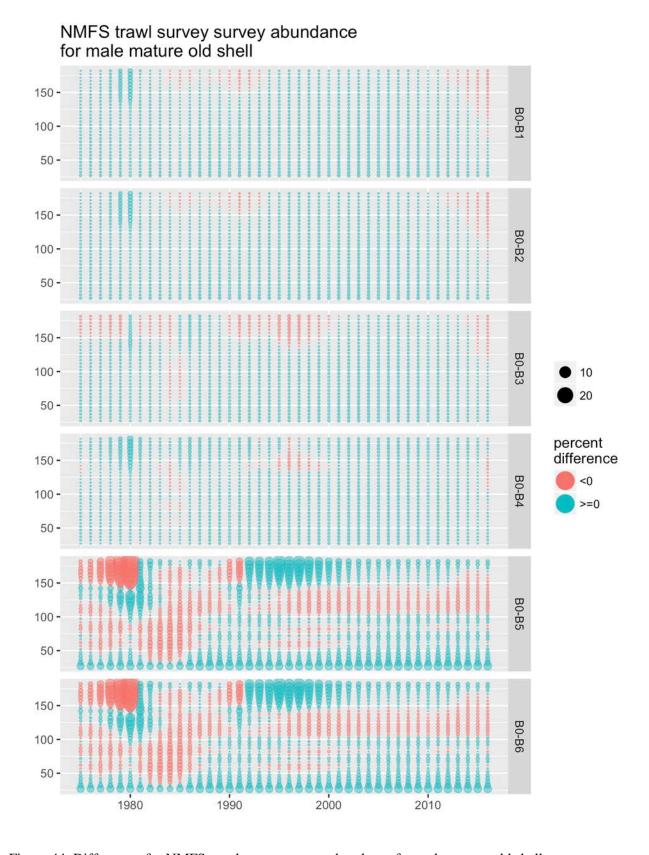


Figure 44. Differences for NMFS trawl survey survey abundance for male mature old shell.

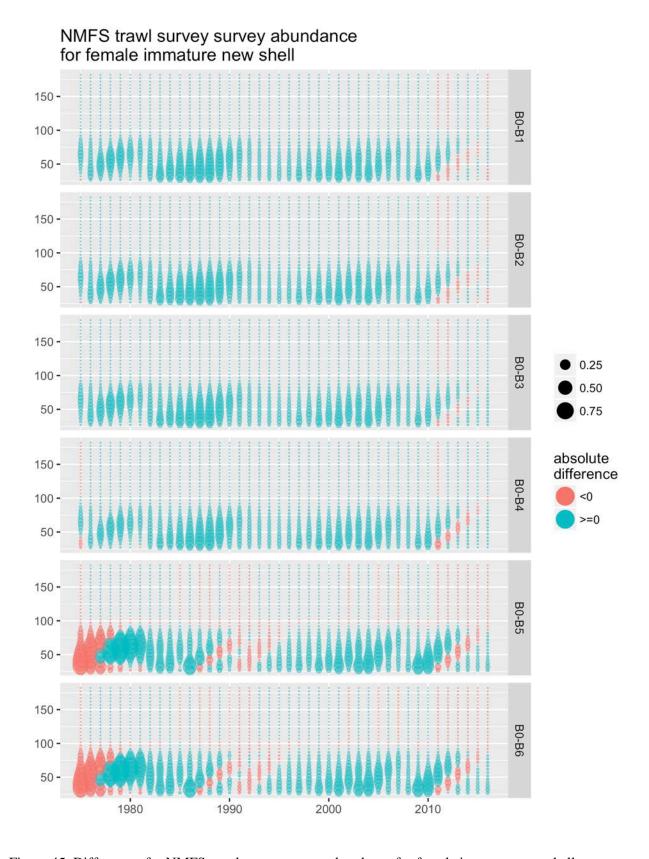


Figure 45. Differences for NMFS trawl survey survey abundance for female immature new shell.

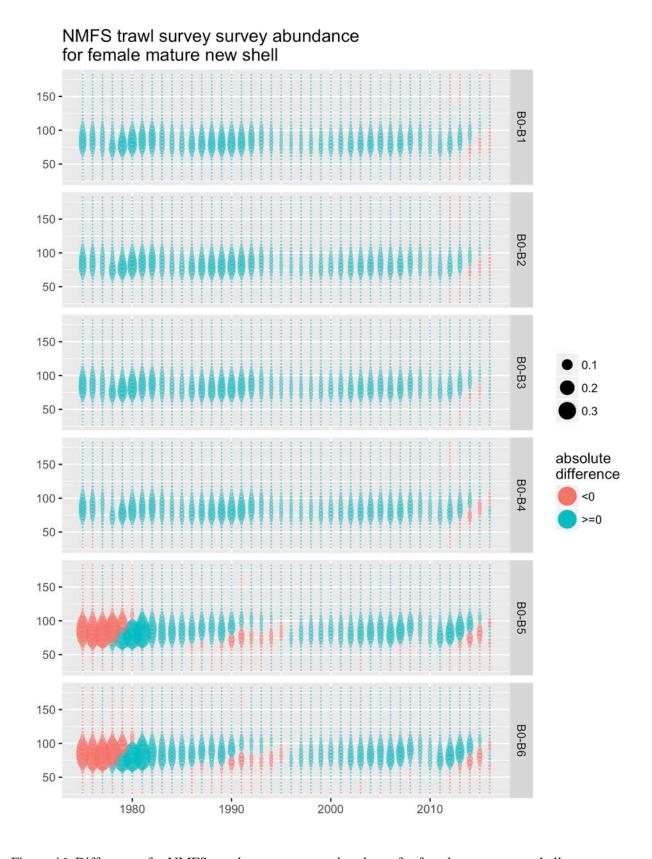


Figure 46. Differences for NMFS trawl survey survey abundance for female mature new shell.

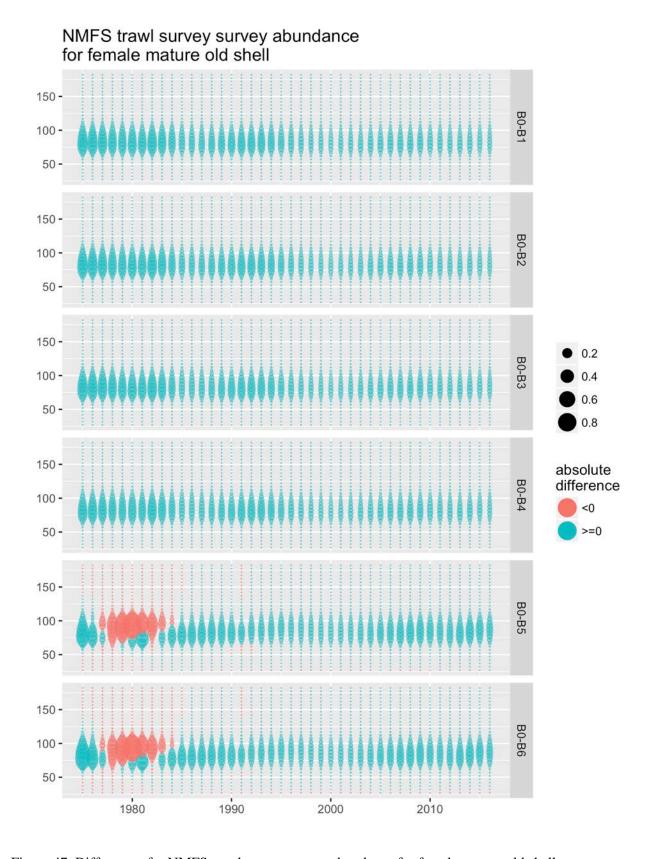


Figure 47. Differences for NMFS trawl survey survey abundance for female mature old shell.

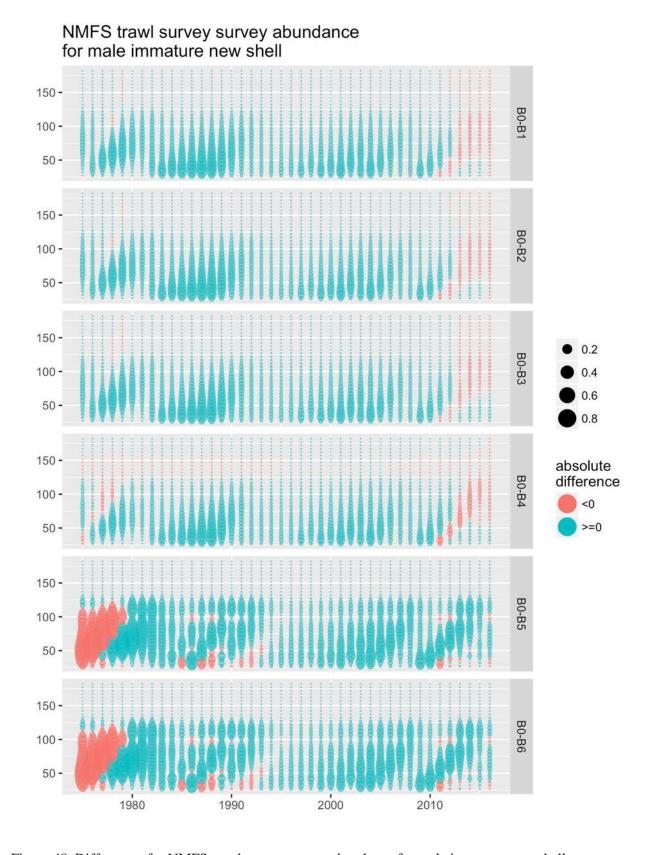


Figure 48. Differences for NMFS trawl survey survey abundance for male immature new shell.

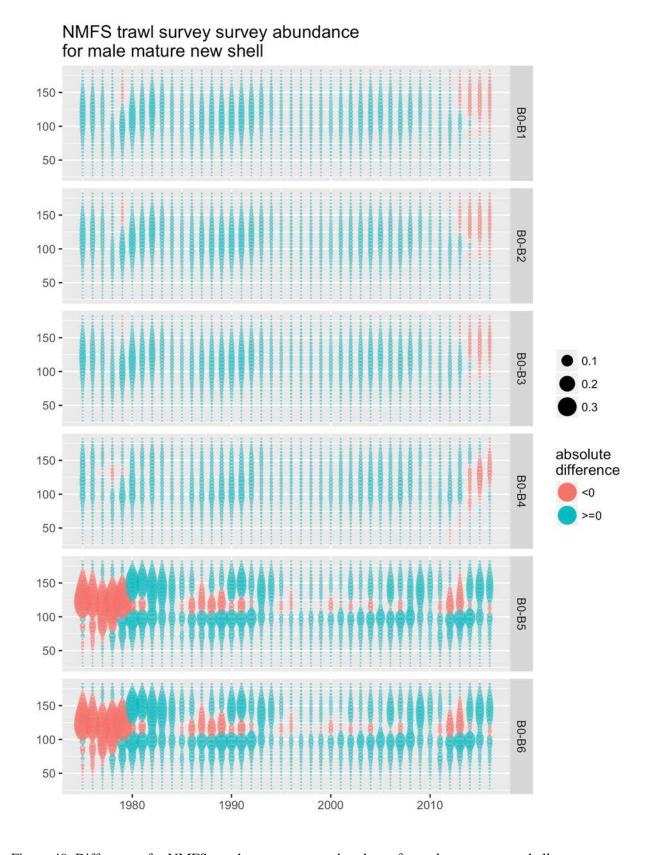


Figure 49. Differences for NMFS trawl survey survey abundance for male mature new shell.

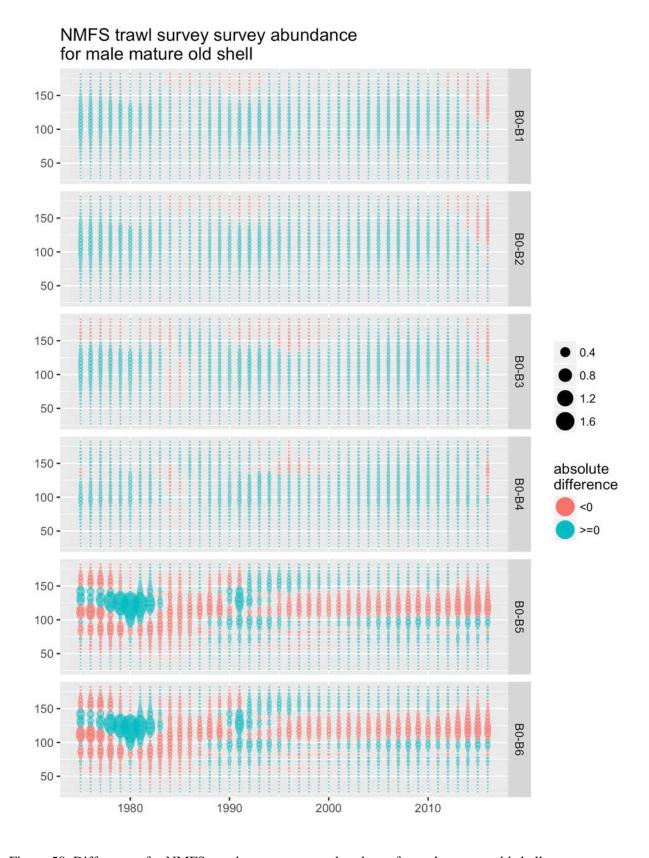


Figure 50. Differences for NMFS trawl survey survey abundance for male mature old shell.

Survey biomass

NMFS trawl survey: survey biomass

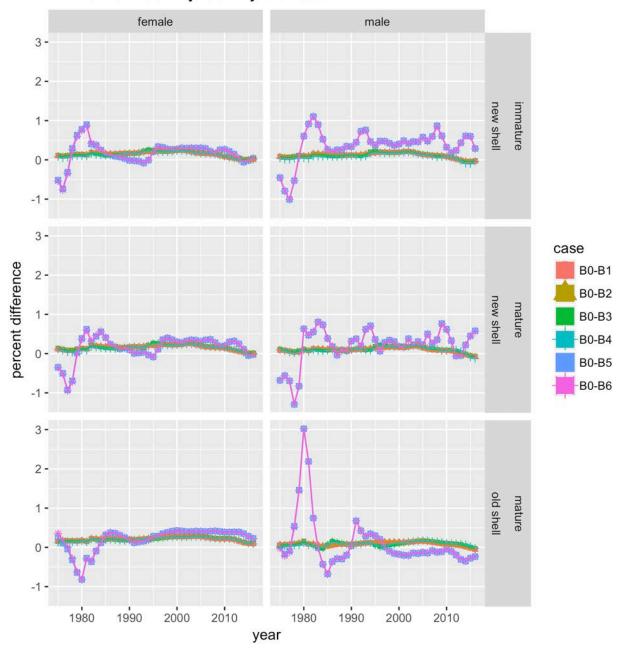


Figure 51. Differences for NMFS trawl survey: survey biomass.

NMFS trawl survey: survey biomass

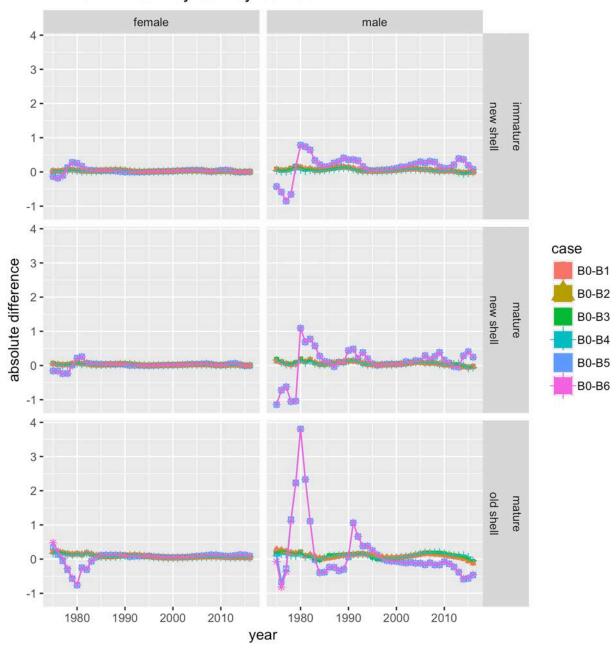


Figure 52. Differences for NMFS trawl survey: survey biomass.

Fisheries

Fishery catchability

TCF: fishery catchability

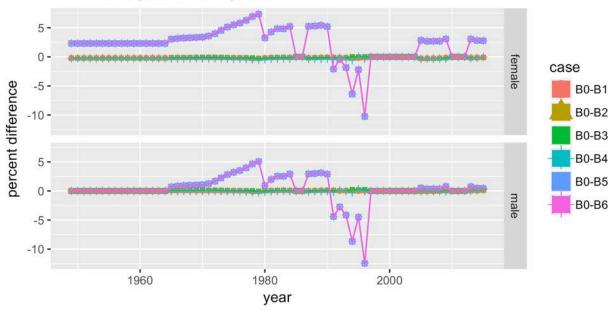
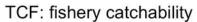


Figure 53. Differences for TCF: fishery catchability.



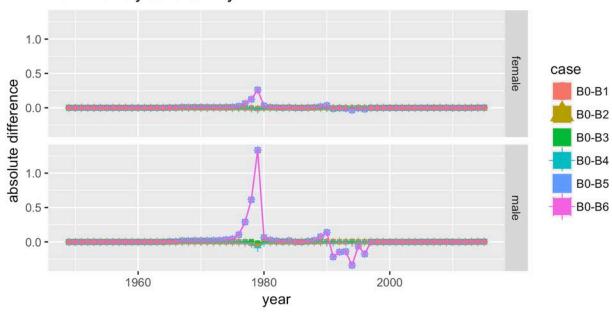


Figure 54. Differences for TCF: fishery catchability.

2000

1980

year

Figure 55. Differences for SCF: fishery catchability.

1960

-0.5 -

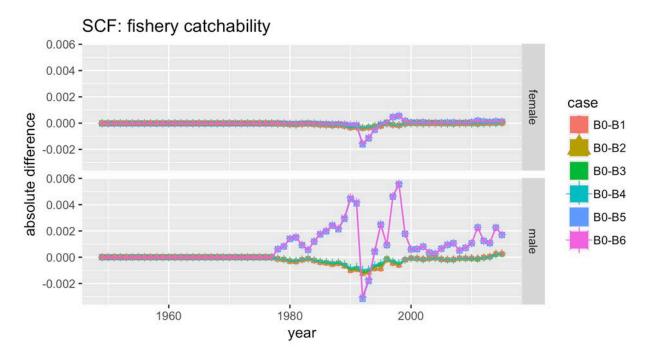


Figure 56. Differences for SCF: fishery catchability.

GTF: fishery catchability 6 female 4 case percent difference B0-B1 B0-B2 0 -B0-B3 B0-B4 B0-B5 male B0-B6 2-0 -

1980 year 2000

Figure 57. Differences for GTF: fishery catchability.

1960

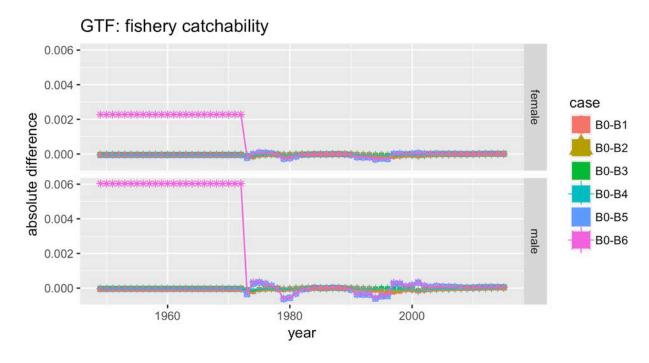


Figure 58. Differences for GTF: fishery catchability.

RKF: fishery catchability 50 -25 female case 0 percent difference B0-B1 -25 -B0-B2 -50 **-**B0-B3 50 -B0-B4 25 -B0-B5 male B0-B6 0 --25 --50 **-**1960 1980 2000 year

Figure 59. Differences for RKF: fishery catchability.

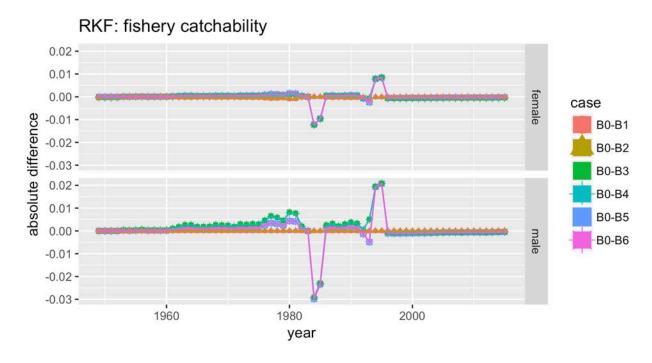


Figure 60. Differences for RKF: fishery catchability.

Total selectivity functions

TCF fishery selectivity for female all maturity all shell

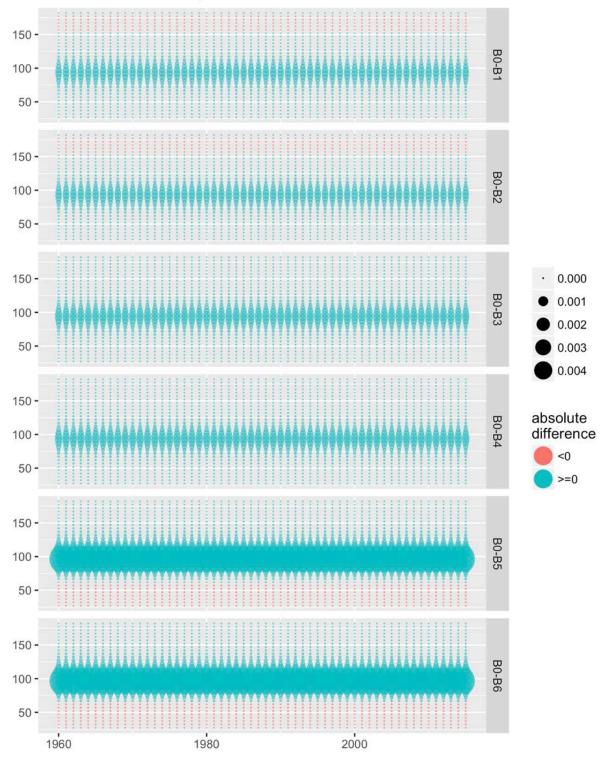


Figure 61. Differences for TCF fishery selectivity for female all maturity all shell.

TCF fishery selectivity for male all maturity all shell

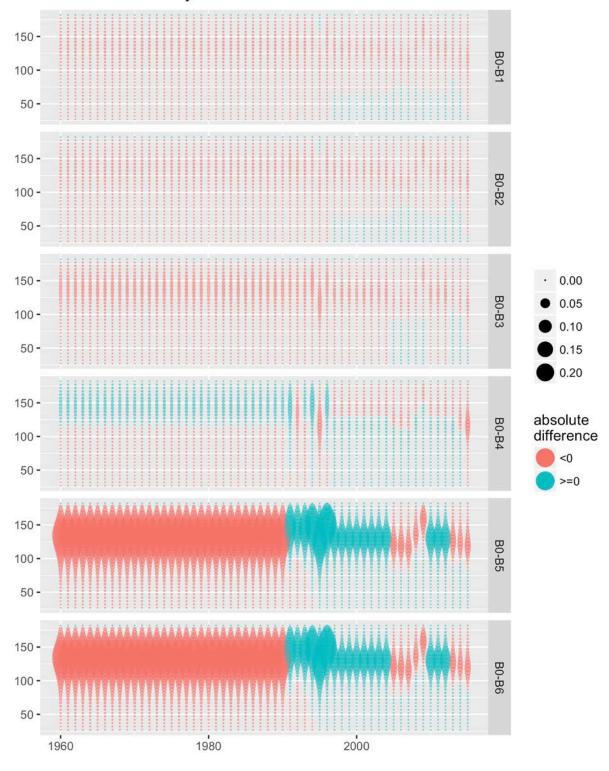


Figure 62. Differences for TCF fishery selectivity for male all maturity all shell.

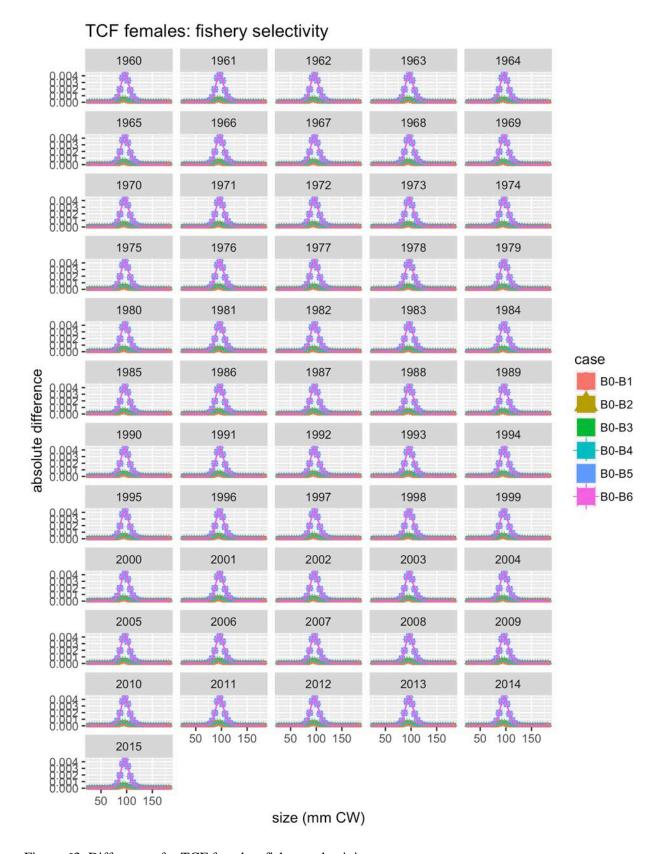


Figure 63. Differences for TCF females: fishery selectivity.

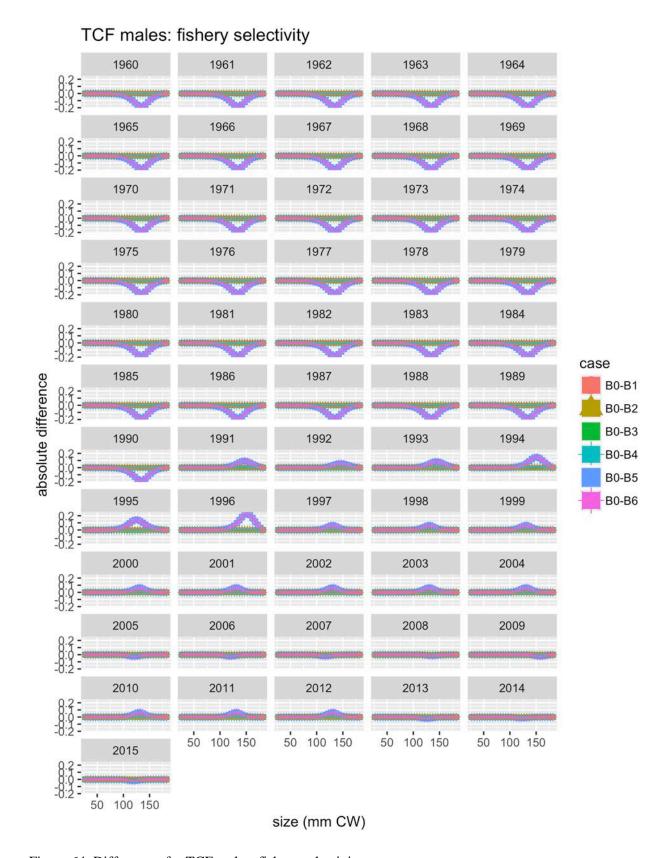


Figure 64. Differences for TCF males: fishery selectivity.

SCF fishery selectivity for female all maturity all shell 150 -B0-B1 100 -50 -150 -100 -50 -0.000 150 -B0-B3 0.002 100 -0.004 50 -0.006 0.008 150 -B0-B4 absolute difference 100 -<0 50 ->=0 150 -B0-B5 100 -50 -150 -100 -50 -1960 2000 1980

Figure 65. Differences for SCF fishery selectivity for female all maturity all shell.

SCF fishery selectivity for male all maturity all shell 150 -100 -50 -150 -B0-B2 100 -50 -150 -B0-B3 0.01 100 -0.02 50 absolute difference 150 -<0 100 ->=0 50 -150 -B0-B5 100 -50 -150 -B0-B6 100 -50 -1980 2000 1960

Figure 66. Differences for SCF fishery selectivity for male all maturity all shell.

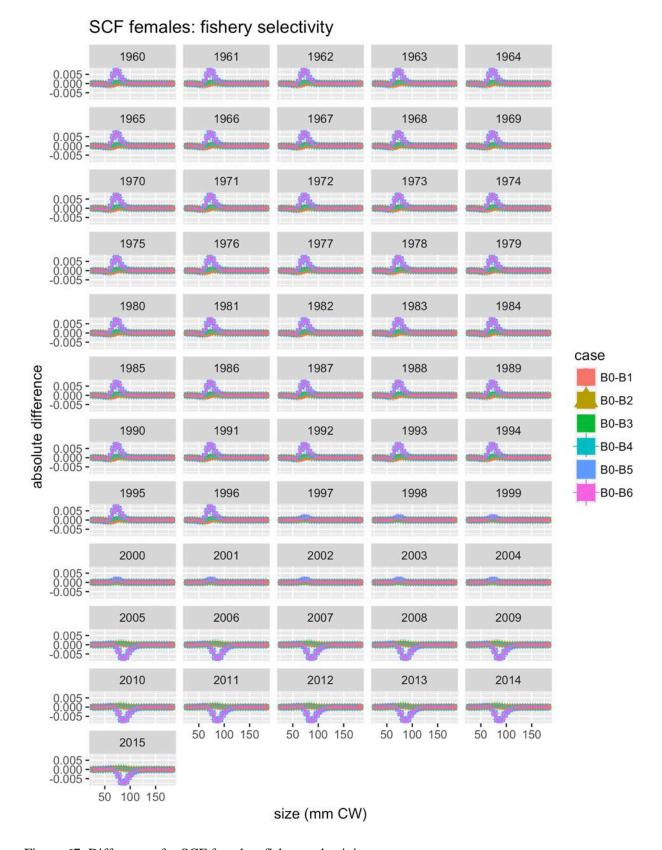


Figure 67. Differences for SCF females: fishery selectivity.



Figure 68. Differences for SCF males: fishery selectivity.

GTF fishery selectivity for female all maturity all shell 150 -100 -50 -150 -B0-B2 100 -50 -0.000 150 -B0-B3 0.004 100 -0.008 0.012 50 -0.016 150 -B0-B4 absolute difference 100 -<0 50 ->=0 150 -B0-B5 100 -50 -150 -B0-B6 100 -

2000

Figure 69. Differences for GTF fishery selectivity for female all maturity all shell.

1980

50 -

1960

GTF fishery selectivity for male all maturity all shell 150 -B0-B1 100 -50 -150 -B0-B2 100 -50 -150 -B0-B3 0.000 100 -0.005 50 -0.010 absolute 150 difference B0-B4 <0 100 ->=0 50 -150 -B0-B5 100 -

Figure 70. Differences for GTF fishery selectivity for male all maturity all shell.

2000

1980

50 -

150 -

100 -

50 -

1960

B0-B6

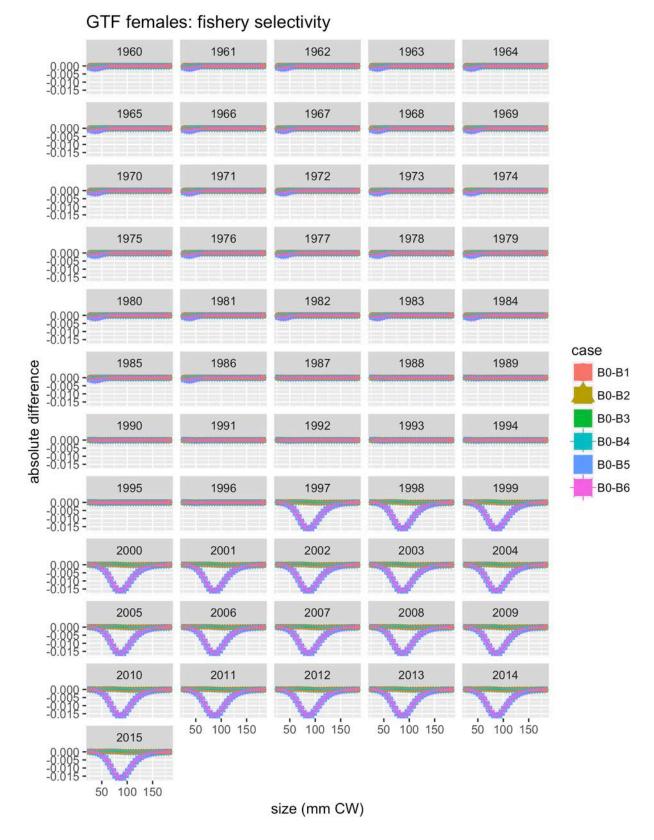


Figure 71. Differences for GTF females: fishery selectivity.

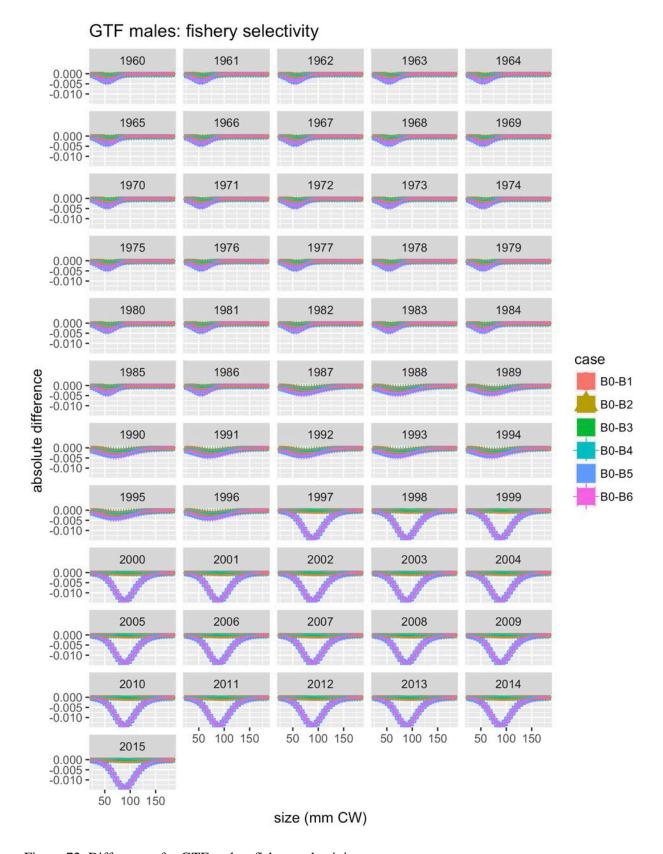


Figure 72. Differences for GTF males: fishery selectivity.

RKF fishery selectivity for female all maturity all shell 150 -B0-B1 100 -50 -150 -B0-B2 100 -50 -0.0000 150 -B0-B3 0.0025 100 -0.0050 50 -0.0075 0.0100 150 absolute B0-B4 difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 73. Differences for RKF fishery selectivity for female all maturity all shell.

RKF fishery selectivity for male all maturity all shell 150 -B0-B1 100 -50 -150 -B0-B2 100 -50 -0.000 150 -0.005 B0-B3 0.010 100 -0.015 50 -0.020 0.025 150 -B0-B4 absolute 100 difference <0 50 ->=0 150 -B0-B5 100 -50 -150 -B0-B6 100 -50 -1960 1980 2000

Figure 74. Differences for RKF fishery selectivity for male all maturity all shell.

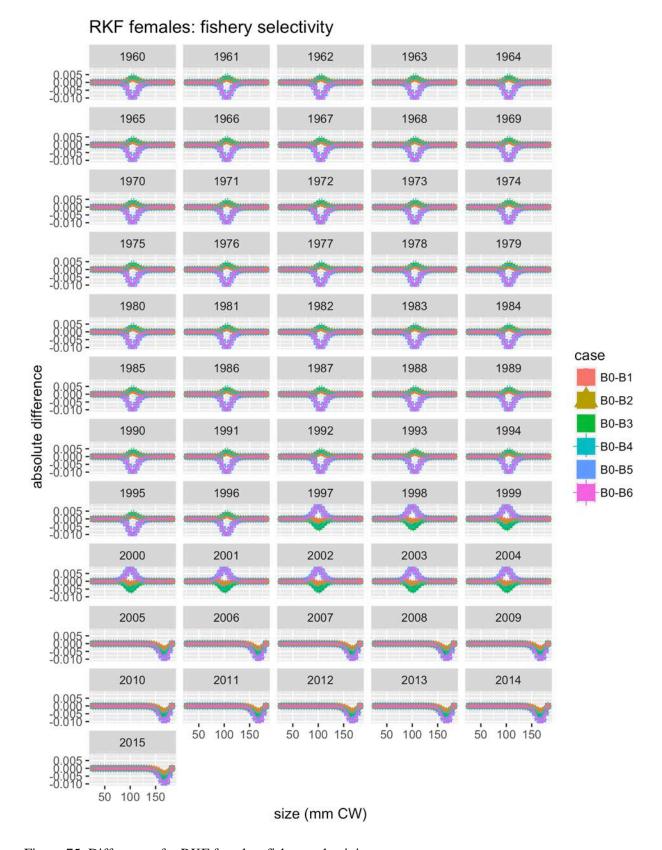


Figure 75. Differences for RKF females: fishery selectivity.

RKF males: fishery selectivity 0.00 **-**-0.01 **-**-0.02 **-**0.00 **-**-0.01 **-**-0.02 **-**0.00 **-**| -0.01 **-**-0.02 **-**0.00 **-**| -0.01 **-**-0.02 **-**0.00 **-**| -0.01 **-**-0.02 case absolute difference B0-B1 0.00 **-**1 -0.01 **-**-0.02 **-**B0-B2 B0-B3 0.00 **-**1 -0.01 **-**-0.02 **-**B0-B4 B0-B5 B0-B6 0.00 **-**-0.01 **-**-0.02 **-**0.00 **-**0.01 **-**0.02 **-**0.00 **-**-0.01 **-**-0.02 **-**0.00 **-**-0.01 **-**-0.02 **-**50 100 150 50 100 150 50 100 150 50 100 150 0.00 **-**-0.01 **-**-0.02 **-**50 100 150 size (mm CW)

Figure 76. Differences for RKF males: fishery selectivity.

Retention functions

TCF fishery retention for male all maturity all shell

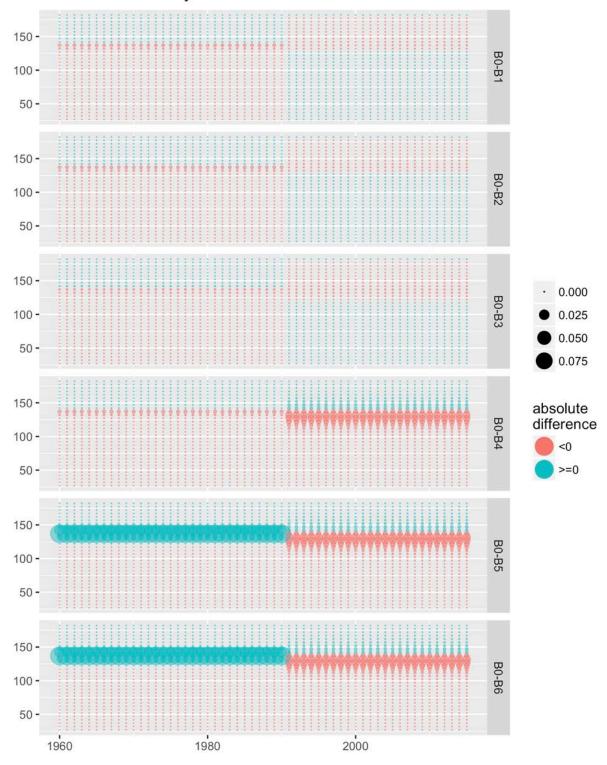


Figure 77. Differences for TCF fishery retention for male all maturity all shell.

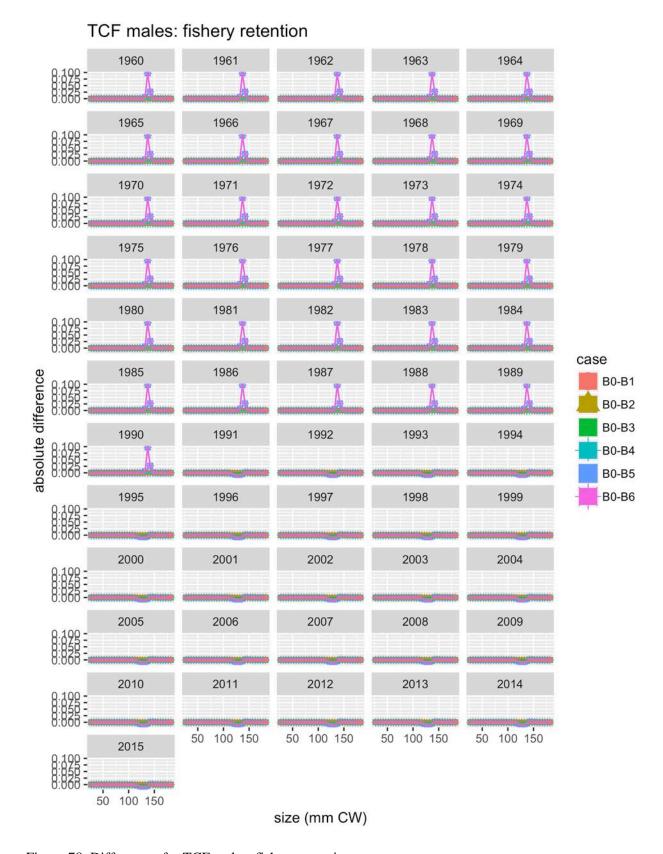


Figure 78. Differences for TCF males: fishery retention.

Total catch abundance

TCF: fishery catch abundance

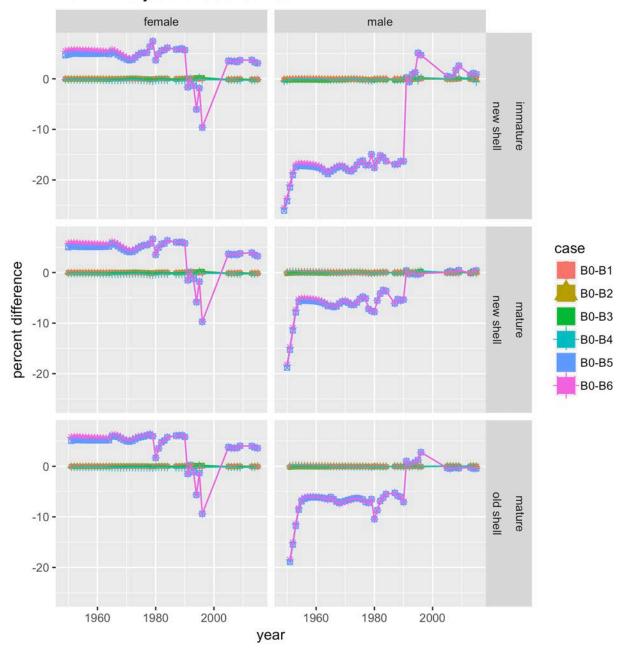


Figure 79. Differences for TCF: fishery catch abundance.

TCF: fishery catch abundance

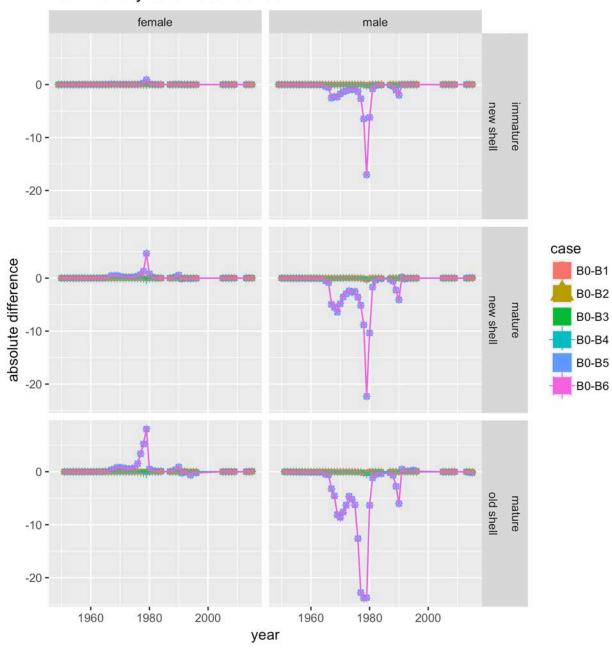


Figure 80. Differences for TCF: fishery catch abundance.

SCF: fishery catch abundance

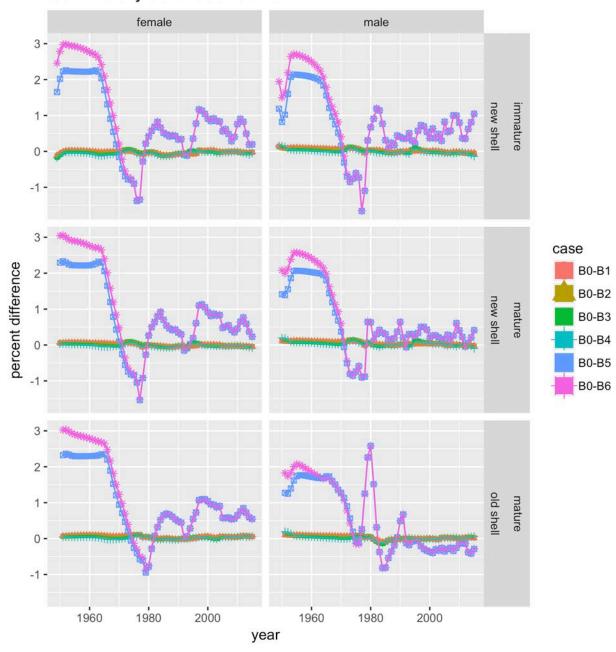


Figure 81. Differences for SCF: fishery catch abundance.

SCF: fishery catch abundance

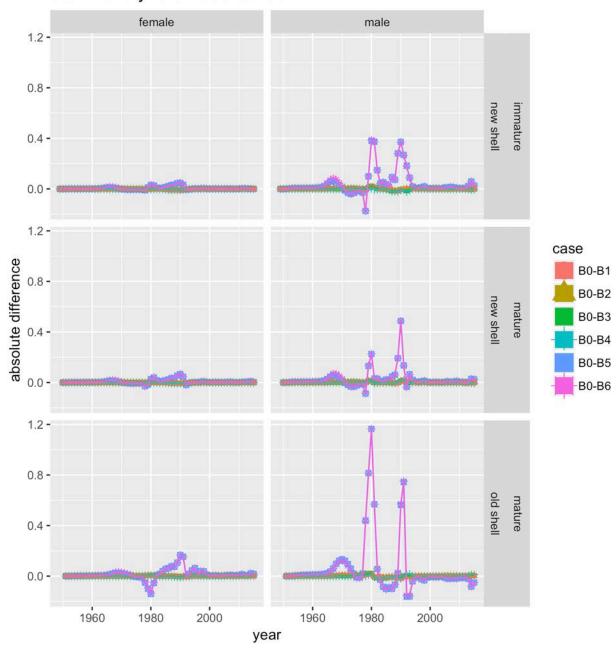


Figure 82. Differences for SCF: fishery catch abundance.

GTF: fishery catch abundance

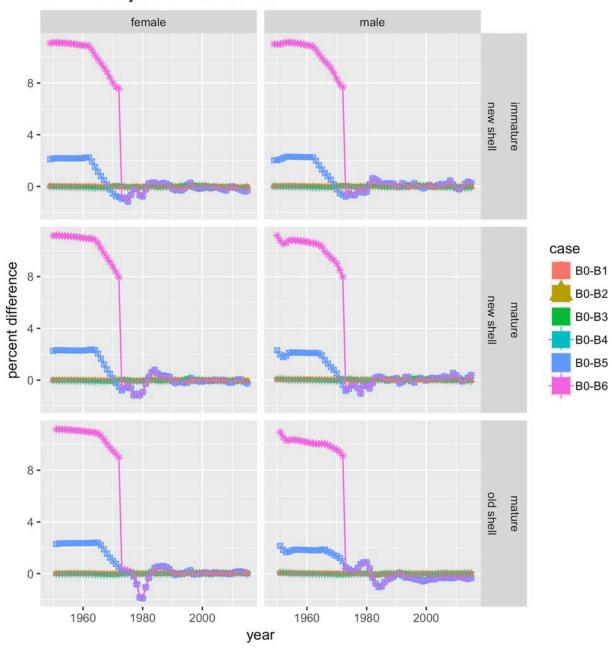


Figure 83. Differences for GTF: fishery catch abundance.

GTF: fishery catch abundance

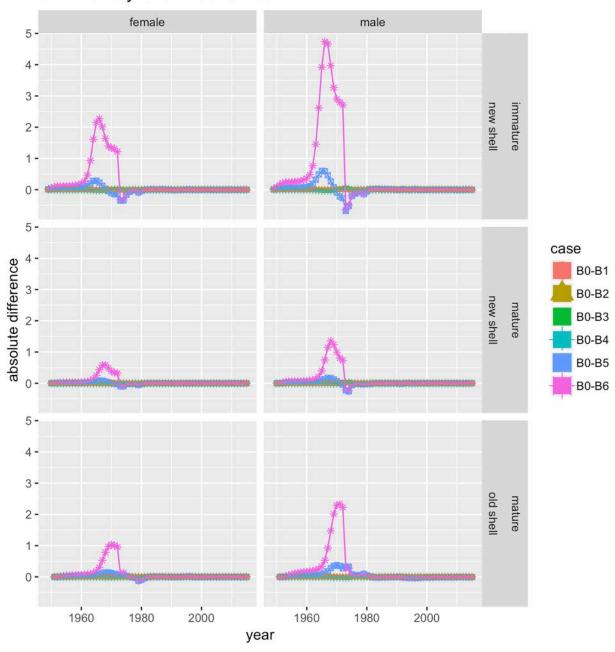


Figure 84. Differences for GTF: fishery catch abundance.

RKF: fishery catch abundance

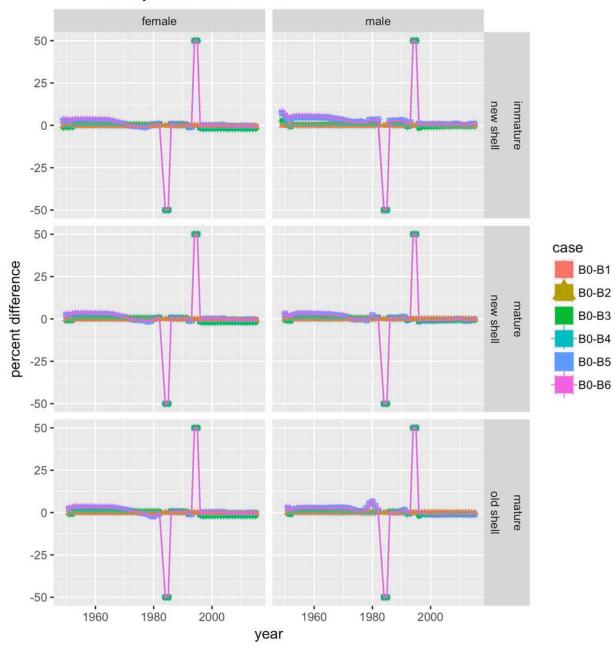


Figure 85. Differences for RKF: fishery catch abundance.

RKF: fishery catch abundance

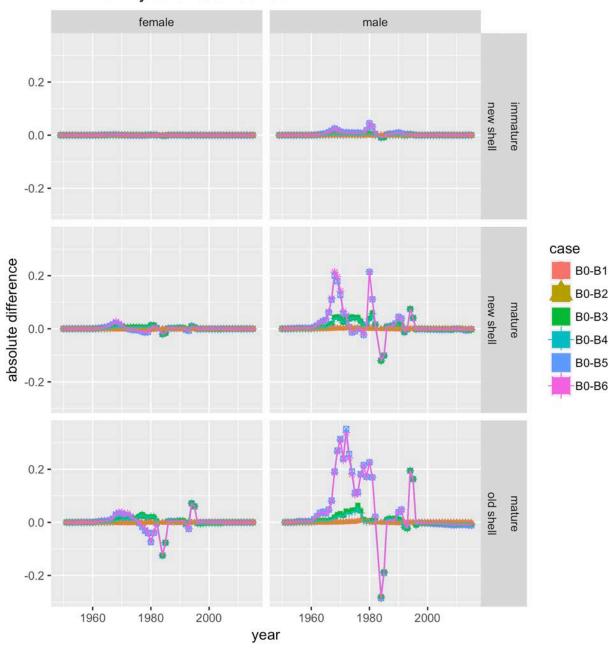


Figure 86. Differences for RKF: fishery catch abundance.

TCF fishery catch abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -2.5 B0-B3 100 -5.0 7.5 50 -10.0 150 percent difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 87. Differences for TCF fishery catch abundance for female immature new shell.

TCF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -2.5 B0-B3 100 -5.0 7.5 50 -10.0 150 percent difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 88. Differences for TCF fishery catch abundance for female mature new shell.

TCF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -2.5 100 -5.0 7.5 50 -10.0 150 percent difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 89. Differences for TCF fishery catch abundance for female mature old shell.

TCF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -10 20 50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 90. Differences for TCF fishery catch abundance for male immature new shell.

TCF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -100 -15 50 -20 25 150 percent difference 100 -<0 50 ->=0 ••• 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 91. Differences for TCF fishery catch abundance for male mature new shell.

TCF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -10 50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 92. Differences for TCF fishery catch abundance for male mature old shell.

TCF fishery catch abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -0.1 0.2 50 absolute difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 93. Differences for TCF fishery catch abundance for female immature new shell.

TCF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -0.3 100 -0.6 50 -0.9 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 94. Differences for TCF fishery catch abundance for female mature new shell.

TCF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -0.5 100 -1.0 50 -1.5 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1980 1960

Figure 95. Differences for TCF fishery catch abundance for female mature old shell.

TCF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -0.5 1.0 100 -1.5 50 -2.0 2.5 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 96. Differences for TCF fishery catch abundance for male immature new shell.

TCF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 2000 1980

Figure 97. Differences for TCF fishery catch abundance for male mature new shell.

TCF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 98. Differences for TCF fishery catch abundance for male mature old shell.

SCF fishery catch abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -150 percent difference 100 -<0 50 ->=0 150 -B0-B5 100 -50 -150 -100 -50 -1960 1980 2000

Figure 99. Differences for SCF fishery catch abundance for female immature new shell.

SCF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -150 percent difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 100. Differences for SCF fishery catch abundance for female mature new shell.

SCF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 101. Differences for SCF fishery catch abundance for female mature old shell.

SCF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -150 percent difference 100 -<0 50 ->=0 150 -B0-B5 100 -50 -150 -100 -50 -1960 1980 2000

Figure 102. Differences for SCF fishery catch abundance for male immature new shell.

SCF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -2.5 B0-B3 5.0 100 -7.5 50 -10.0 12.5 150 percent difference 100 -<0 50 ->=0 150 -B0-B5 100 -50 -150 -100 -50 -1980 1960 2000

Figure 103. Differences for SCF fishery catch abundance for male mature new shell.

SCF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -10 50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 104. Differences for SCF fishery catch abundance for male mature old shell.

SCF fishery catch abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -0.005 0.010 50 absolute difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1960 2000 1980

Figure 105. Differences for SCF fishery catch abundance for female immature new shell.

SCF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -0.003 100 -0.006 0.009 50 -0.012 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 106. Differences for SCF fishery catch abundance for female mature new shell.

SCF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -0.01 100 -0.02 50 -0.03 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 107. Differences for SCF fishery catch abundance for female mature old shell.

SCF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -0.03 100 -0.06 50 -0.09 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 108. Differences for SCF fishery catch abundance for male immature new shell.

SCF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -0.02 100 -0.04 50 -0.06 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 109. Differences for SCF fishery catch abundance for male mature new shell.

SCF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -0.1 50 absolute difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1980 1960

Figure 110. Differences for SCF fishery catch abundance for male mature old shell.

GTF fishery catch abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 111. Differences for GTF fishery catch abundance for female immature new shell.

GTF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 112. Differences for GTF fishery catch abundance for female mature new shell.

GTF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -50 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1980 1960

Figure 113. Differences for GTF fishery catch abundance for female mature old shell.

GTF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -2.5 B0-B3 5.0 100 -7.5 50 -10.0 12.5 150 percent difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 114. Differences for GTF fishery catch abundance for male immature new shell.

GTF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -100 -50 -12 percent difference 150 -<0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 115. Differences for GTF fishery catch abundance for male mature new shell.

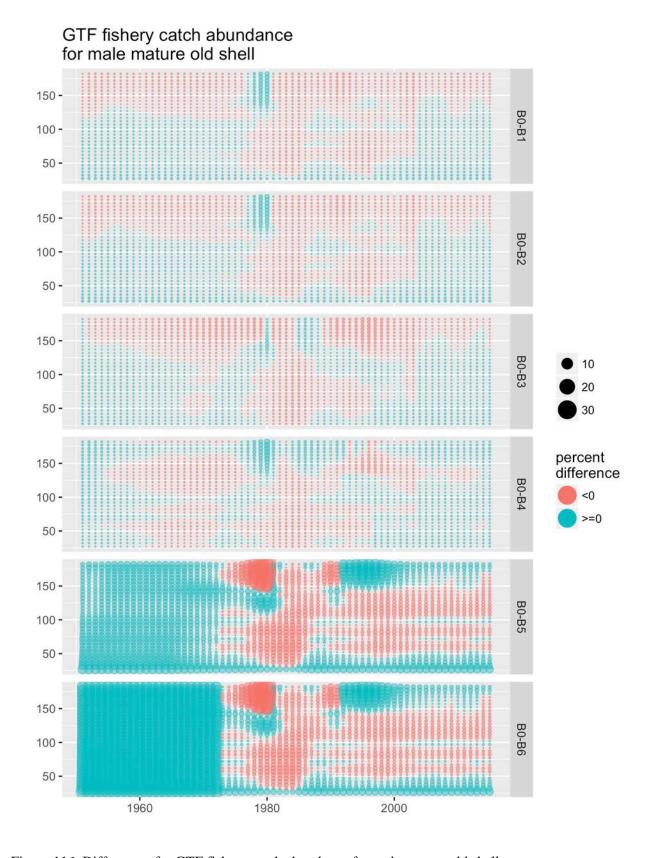


Figure 116. Differences for GTF fishery catch abundance for male mature old shell.

GTF fishery catch abundance for female immature new shell 150 -100 -50 -150 -100 -50 -150 -B0-B3 0.1 100 -0.2 50 -0.3 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 117. Differences for GTF fishery catch abundance for female immature new shell.

GTF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -0.03 100 -0.06 50 -0.09 absolute 150 difference <0 100 ->=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 118. Differences for GTF fishery catch abundance for female mature new shell.

GTF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -0.05 100 -0.10 0.15 50 -0.20 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 119. Differences for GTF fishery catch abundance for female mature old shell.

GTF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -0.1 100 -0.2 0.3 50 -0.4 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 120. Differences for GTF fishery catch abundance for male immature new shell.

GTF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -0.025 0.050 100 -0.075 50 -0.100 0.125 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 121. Differences for GTF fishery catch abundance for male mature new shell.

GTF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -0.05 100 -0.10 0.15 50 -0.20 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 122. Differences for GTF fishery catch abundance for male mature old shell.

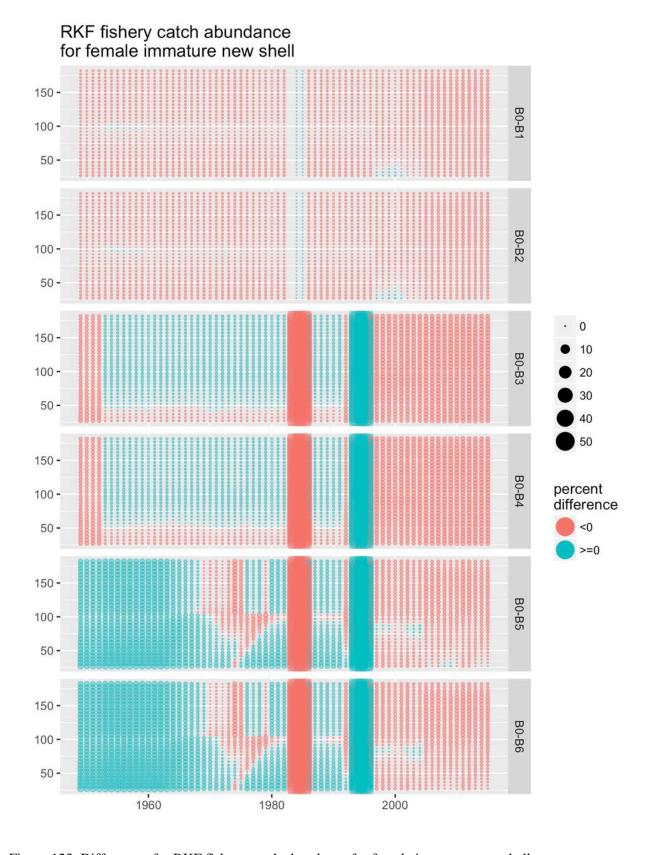


Figure 123. Differences for RKF fishery catch abundance for female immature new shell.

RKF fishery catch abundance for female mature new shell 150 -100 -50 -150 -100 -50 -150 -10 B0-B3 100 -20 30 50 -40 50 150 percent 100 difference 50 -<0 >=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 124. Differences for RKF fishery catch abundance for female mature new shell.

RKF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -10 B0-B3 100 -20 30 50 -40 50 150 percent difference 100 -50 -<0 >=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 125. Differences for RKF fishery catch abundance for female mature old shell.

RKF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -100 -20 30 50 -40 50 150 percent 100 difference 50 -<0 >=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 126. Differences for RKF fishery catch abundance for male immature new shell.

RKF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -100 -30 50 -40 50 150 percent 100 difference 50 -<0 >=0 150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 127. Differences for RKF fishery catch abundance for male mature new shell.

RKF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -100 -20 30 50 -40 50 150 percent 100 difference 50 -<0 >=0 150 -100 -50 -150 -100 -50 -2000 1980 1960

Figure 128. Differences for RKF fishery catch abundance for male mature old shell.

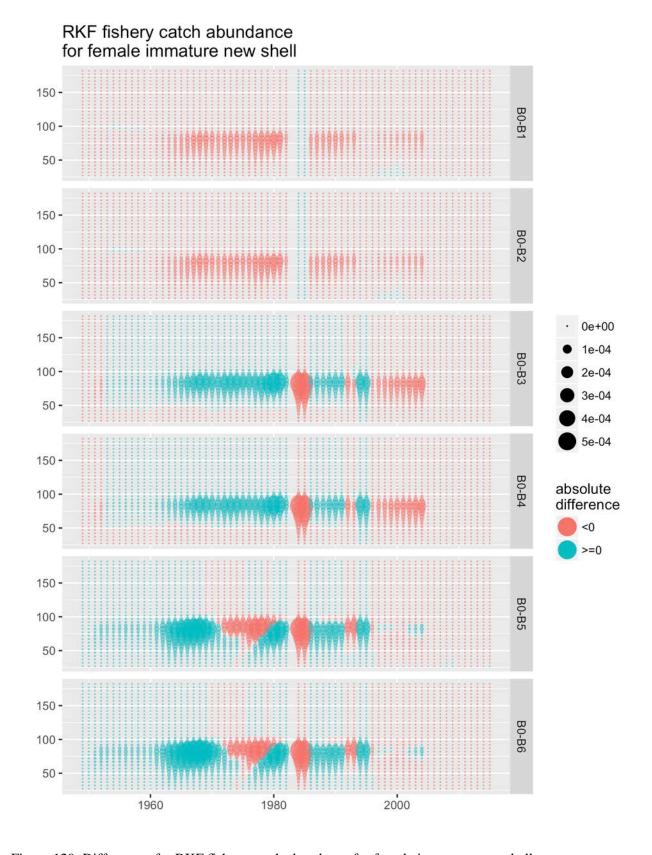


Figure 129. Differences for RKF fishery catch abundance for female immature new shell.

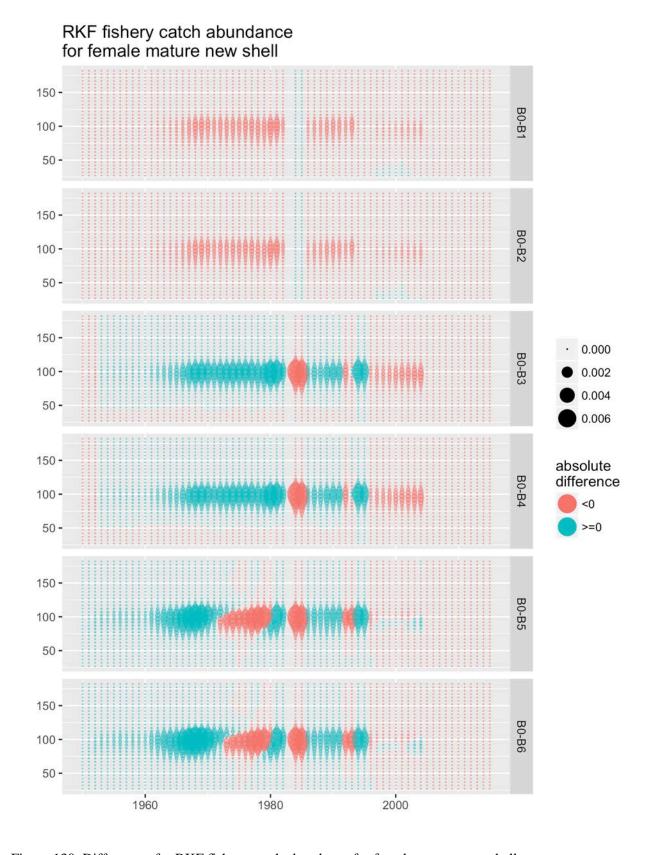


Figure 130. Differences for RKF fishery catch abundance for female mature new shell.

RKF fishery catch abundance for female mature old shell 150 -100 -50 -150 -100 -50 -150 -0.00 100 -0.01 0.02 50 -0.03 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 131. Differences for RKF fishery catch abundance for female mature old shell.

RKF fishery catch abundance for male immature new shell 150 -100 -50 -150 -100 -50 -150 -0.0000 100 -0.0025 0.0050 50 -0.0075 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1960 1980 2000

Figure 132. Differences for RKF fishery catch abundance for male immature new shell.

RKF fishery catch abundance for male mature new shell 150 -100 -50 -150 -100 -50 -150 -0.00 B0-B3 100 -0.01 0.02 50 -0.03 150 absolute difference 100 -<0 >=0 50 -150 -100 -50 -150 -100 -50 -2000 1960 1980

Figure 133. Differences for RKF fishery catch abundance for male mature new shell.

RKF fishery catch abundance for male mature old shell 150 -100 -50 -150 -100 -50 -150 -0.00 B0-B3 100 -0.02 0.04 50 -0.06 150 absolute difference 100 -<0 50 ->=0 150 -100 -50 -150 -100 -50 -1980 2000 1960

Figure 134. Differences for RKF fishery catch abundance for male mature old shell.

Total catch biomass

TCF: fishery total biomass

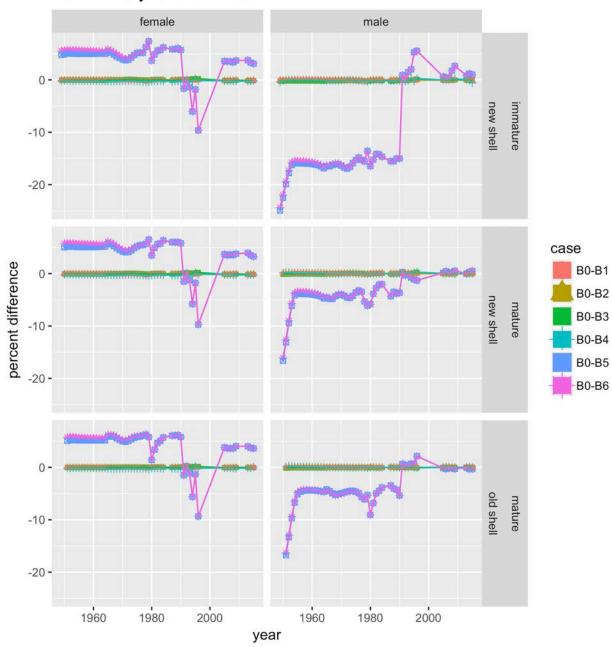


Figure 135. Differences for TCF: fishery total biomass.

TCF: fishery total biomass

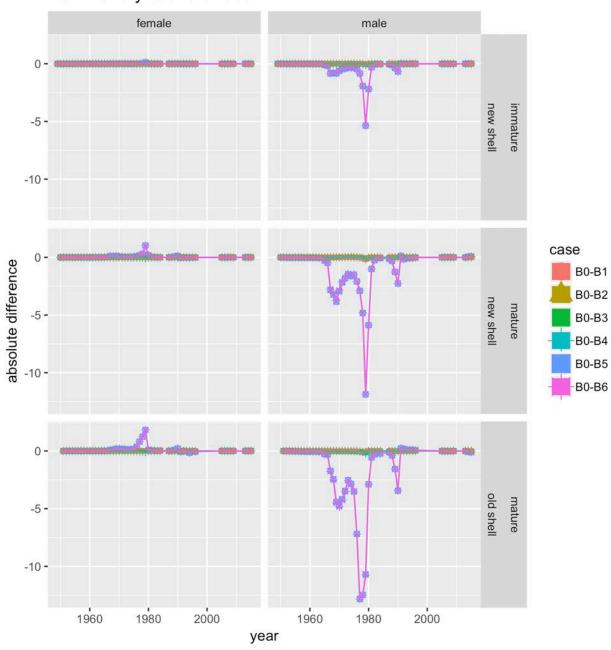


Figure 136. Differences for TCF: fishery total biomass.

SCF: fishery total biomass

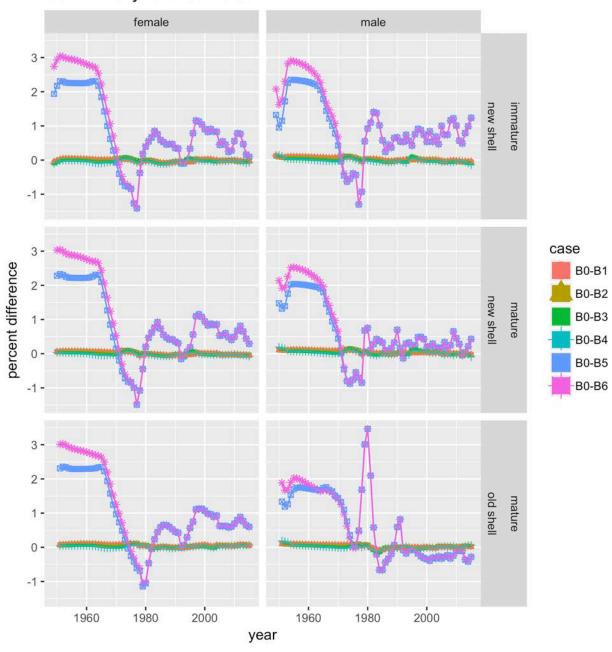


Figure 137. Differences for SCF: fishery total biomass.

SCF: fishery total biomass

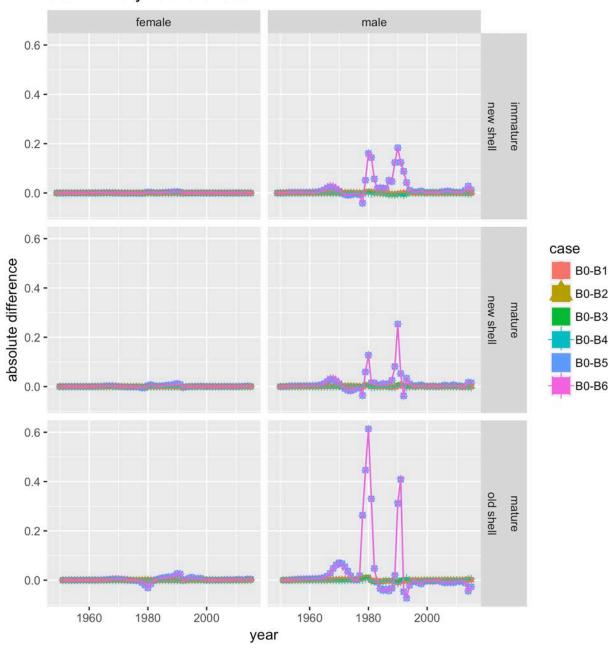


Figure 138. Differences for SCF: fishery total biomass.

GTF: fishery total biomass

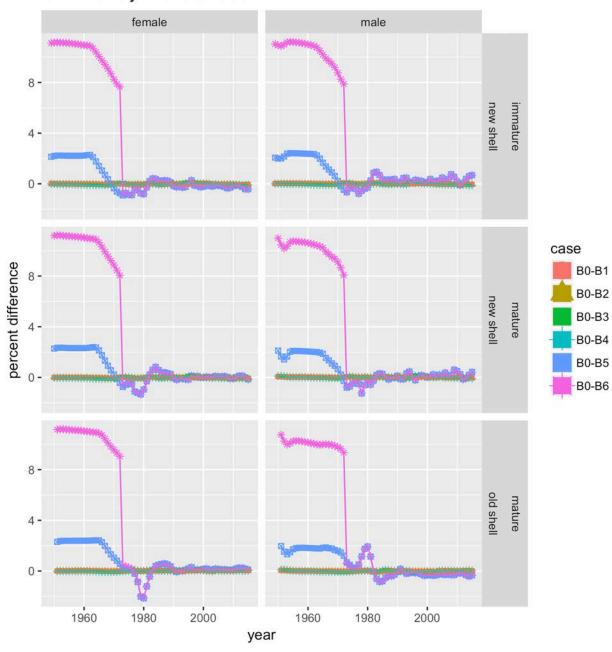


Figure 139. Differences for GTF: fishery total biomass.

GTF: fishery total biomass

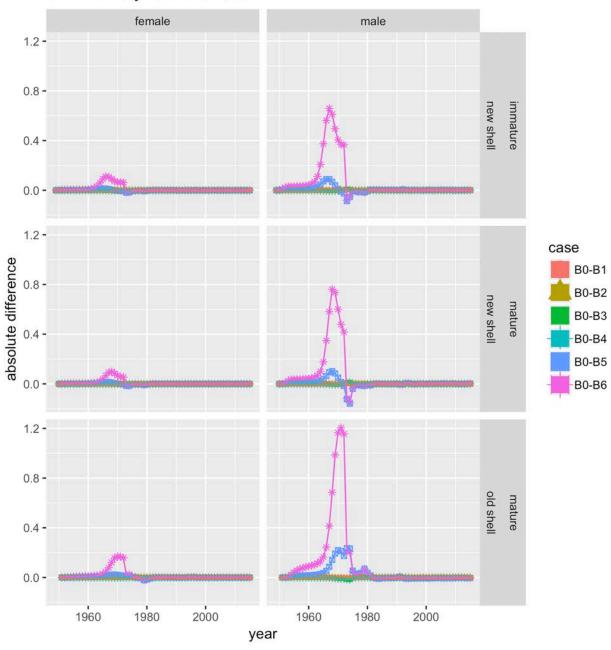


Figure 140. Differences for GTF: fishery total biomass.

RKF: fishery total biomass female male 50 -25 new shell 0 --25 **-**-50 **-**50 case percent difference B0-B1 25 -B0-B2 new shell B0-B3 B0-B4 -25 **-**B0-B5 B0-B6 -50 **-**50 -25 old shell 0 --25 **-**

1980

1960

year

2000

Figure 141. Differences for RKF: fishery total biomass.

1980

1960

2000

-50 **-**

RKF: fishery total biomass

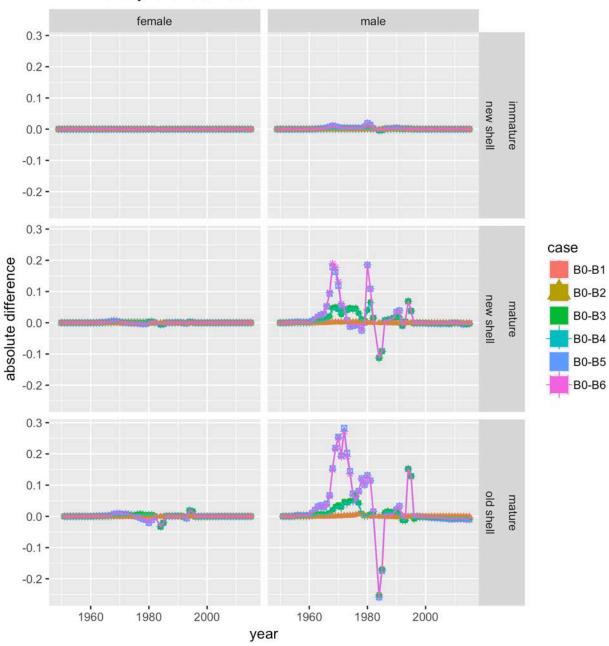


Figure 142. Differences for RKF: fishery total biomass.

Retained catch abundance

TCF: retained catch abundance

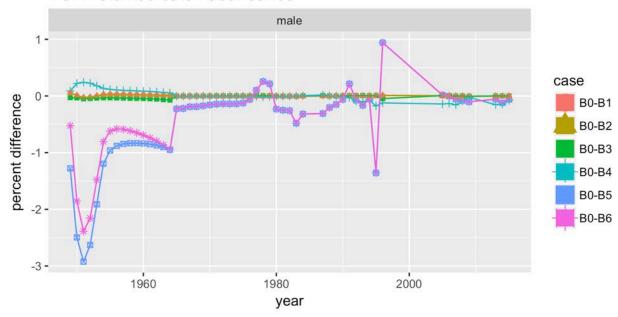


Figure 143. Differences for TCF: retained catch abundance.

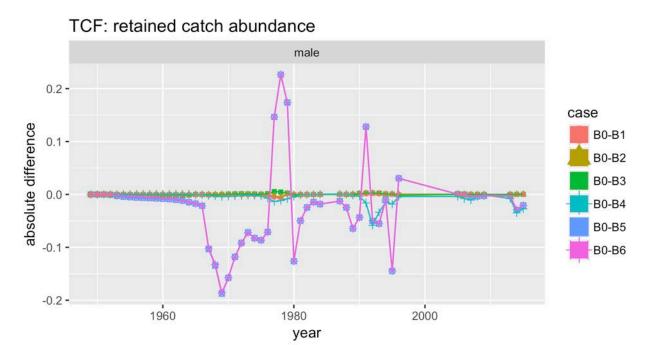


Figure 144. Differences for TCF: retained catch abundance.

TCF retained catch abundance for male all maturity all shell

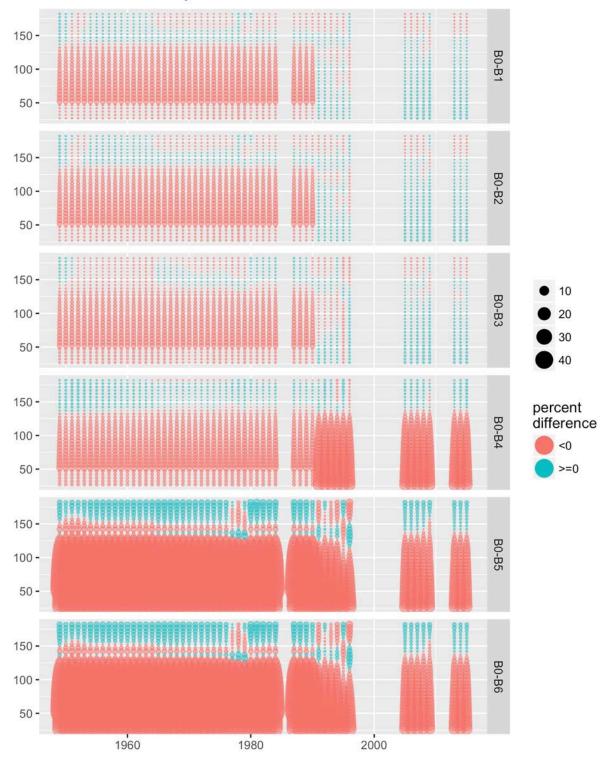


Figure 145. Differences for TCF retained catch abundance for male all maturity all shell.

TCF retained catch abundance for male all maturity all shell

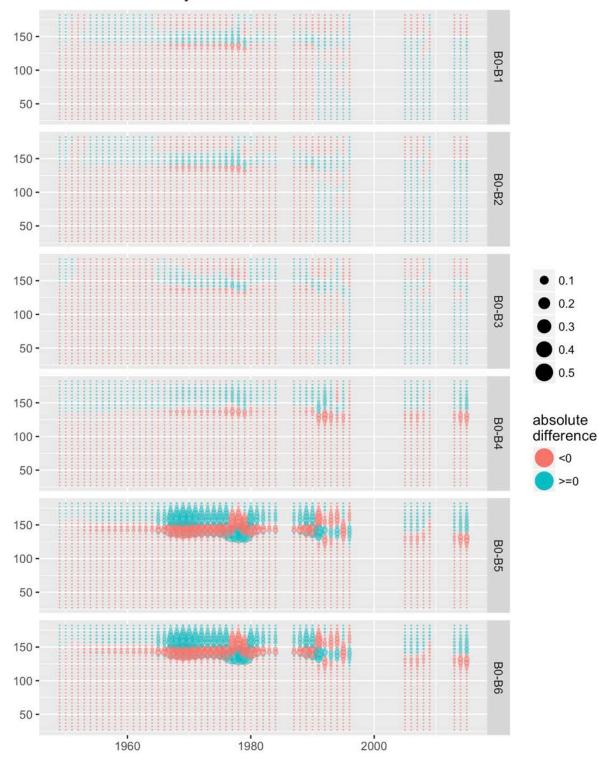


Figure 146. Differences for TCF retained catch abundance for male all maturity all shell.

Retained catch biomass

TCF: retained catch biomass

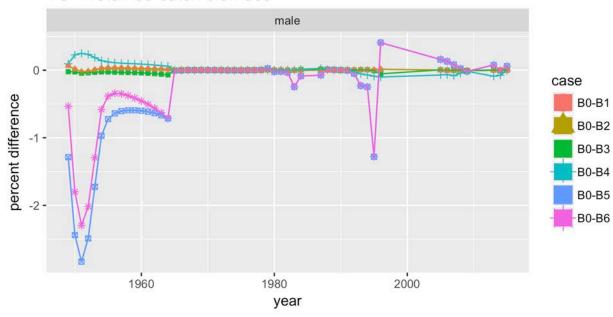


Figure 147. Differences for TCF: retained catch biomass.

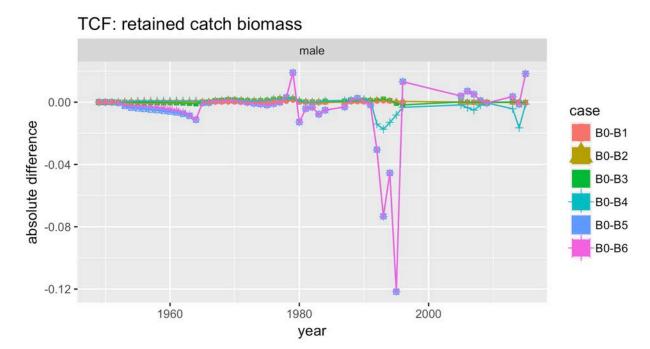


Figure 148. Differences for TCF: retained catch biomass.