

# Appendix I4: Fits to Survey and Fishery Size Composition Data from the "18" Scenarios

*William Stockhausen*

*31 August, 2018*

## Contents

<b>Model fits to size compositions, by year</b>	<b>1</b>
<b>Survey size compositions</b>	<b>2</b>
<b>Fishery retained catch size compositions</b>	<b>62</b>
<b>Fishery total catch size compositions</b>	<b>66</b>

## Model fits to size compositions, by year

Fits to the size composition data available to the model(s) are presented in this section as line plots by year. Not all of the fits presented are necessarily included in the parameter optimization for each model; some fits to datasets for a particular model may be included for comparison purposes with other models which include those data in their optimization. The reader should consult the main assessment document to determine which fits are included in the optimization for any particular model.

# Survey size compositions

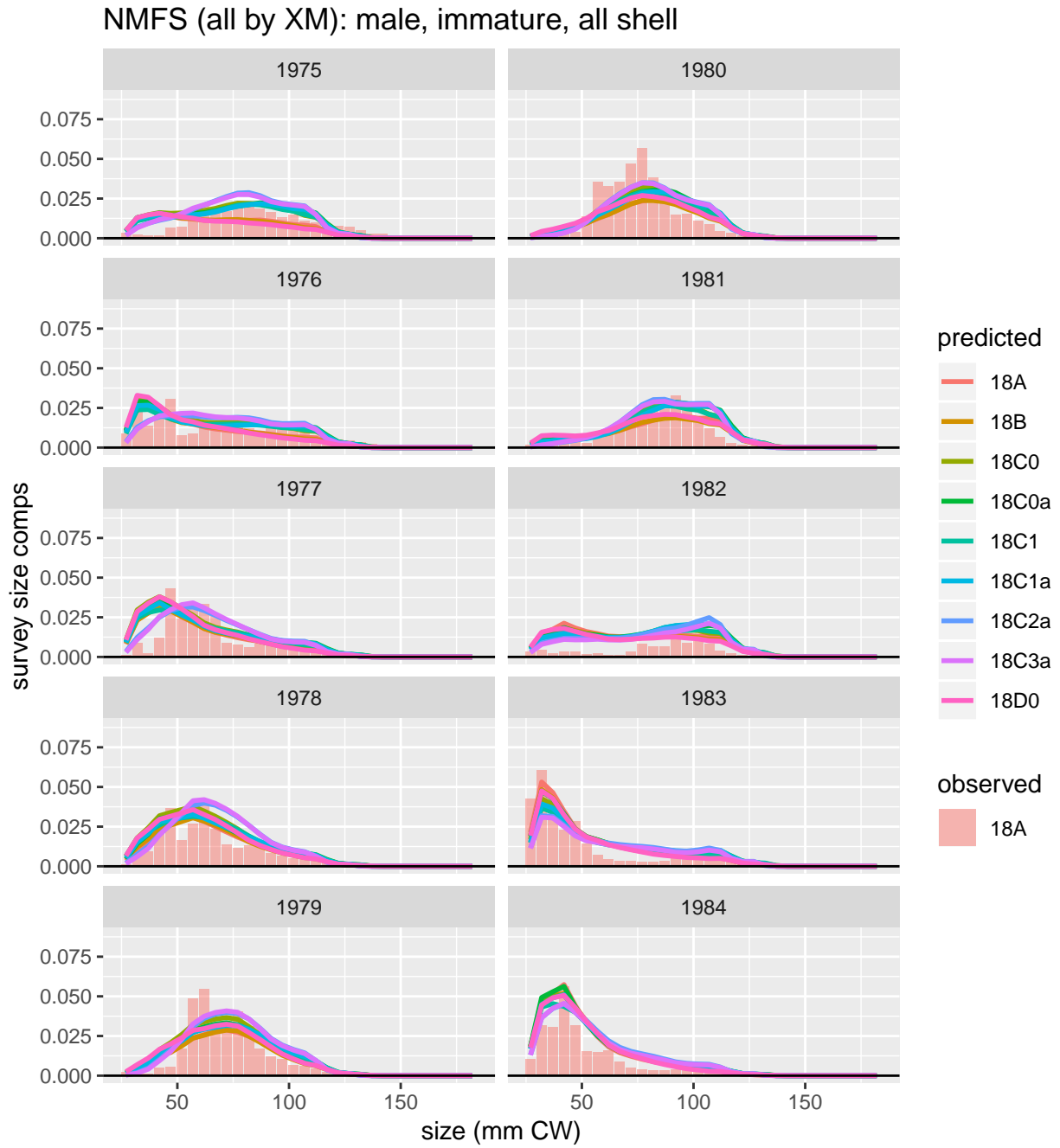


Figure 1: Comparison of observed and predicted male, immature, all shell survey size comps for NMFS (all by XM). Page 1 of 5.

### NMFS (all by XM): male, immature, all shell

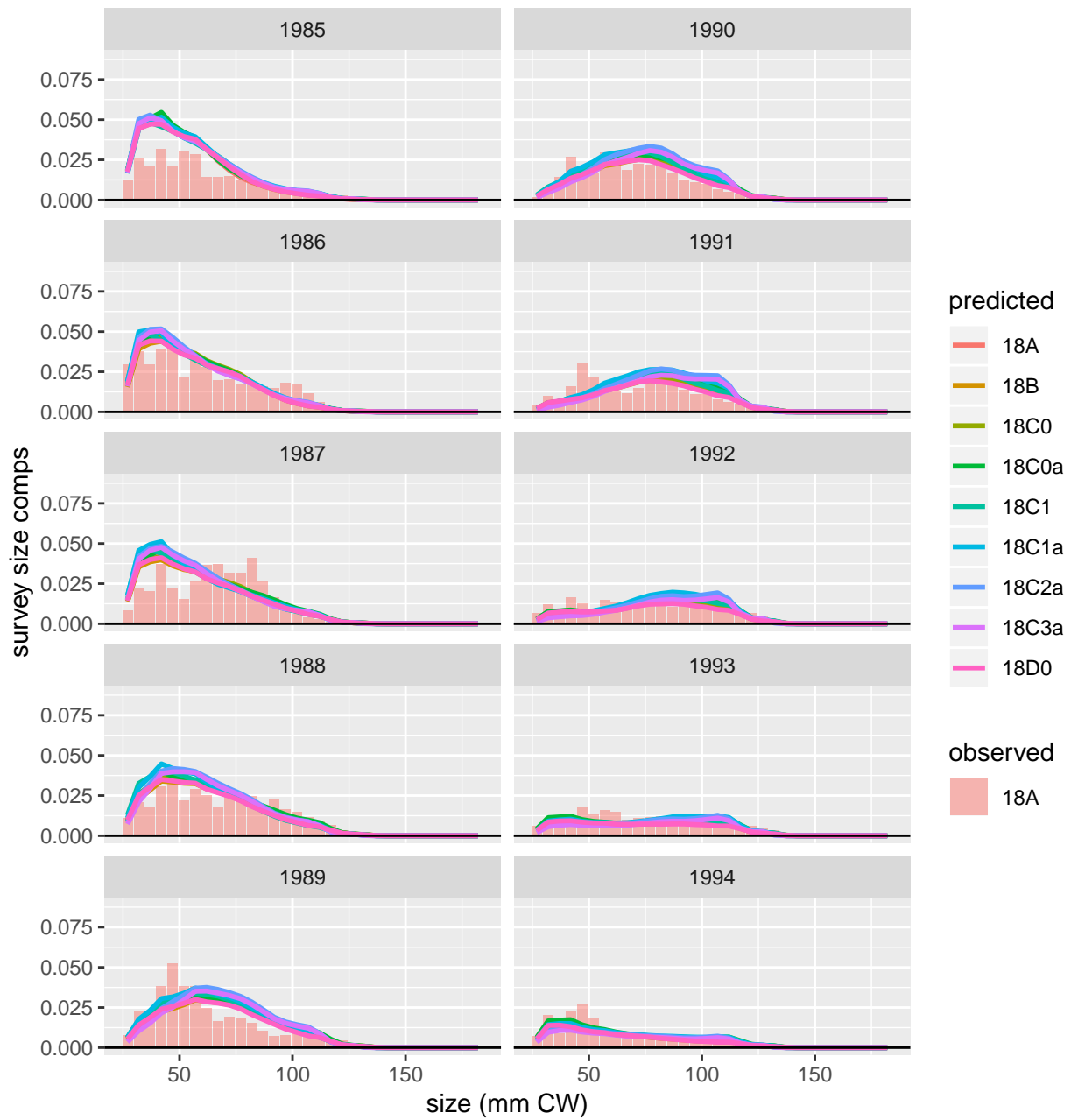


Figure 2: Comparison of observed and predicted male, immature, all shell survey size comps for NMFS (all by XM). Page 2 of 5.

### NMFS (all by XM): male, immature, all shell

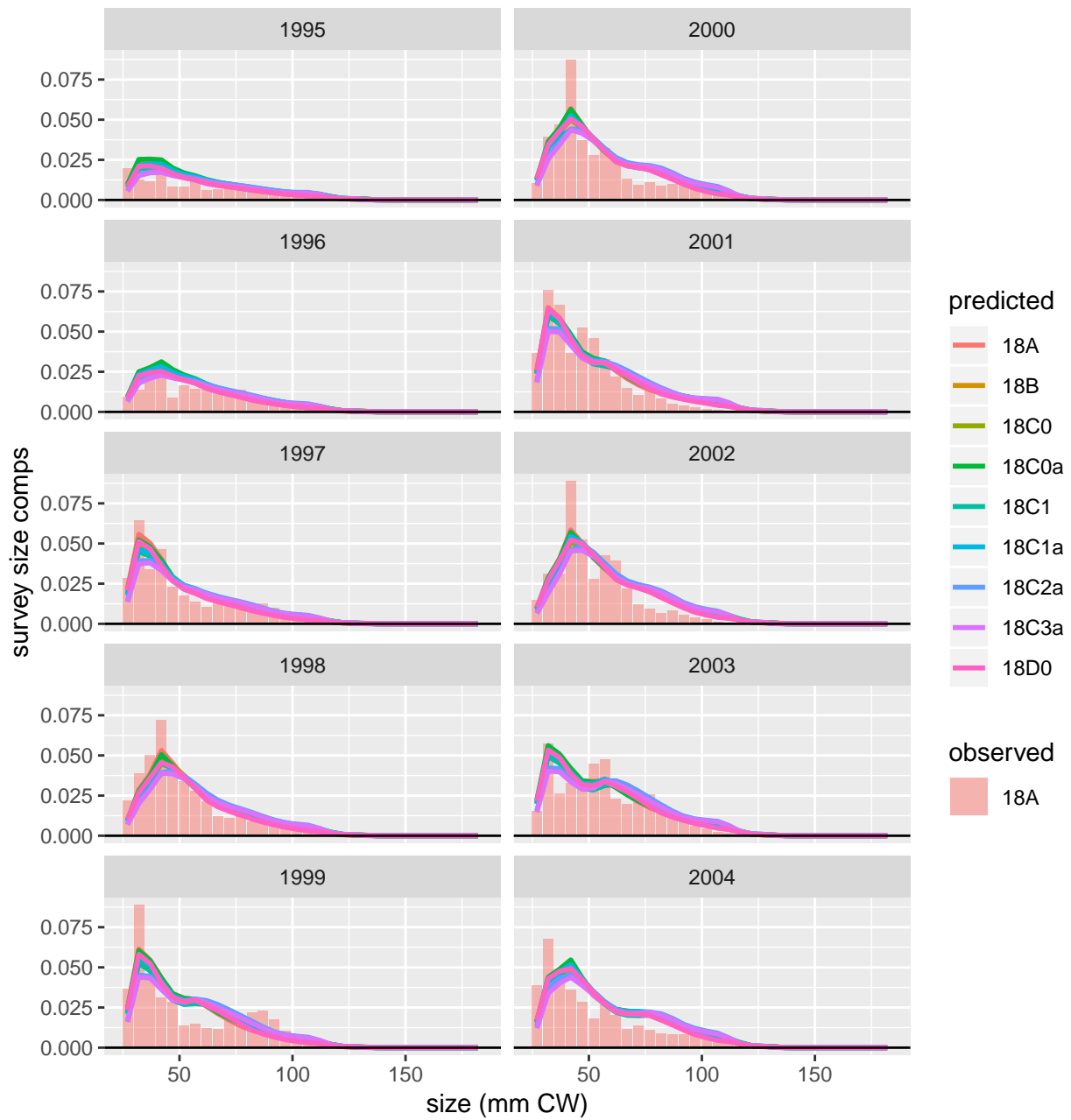


Figure 3: Comparison of observed and predicted male, immature, all shell survey size comps for NMFS (all by XM). Page 3 of 5.

### NMFS (all by XM): male, immature, all shell

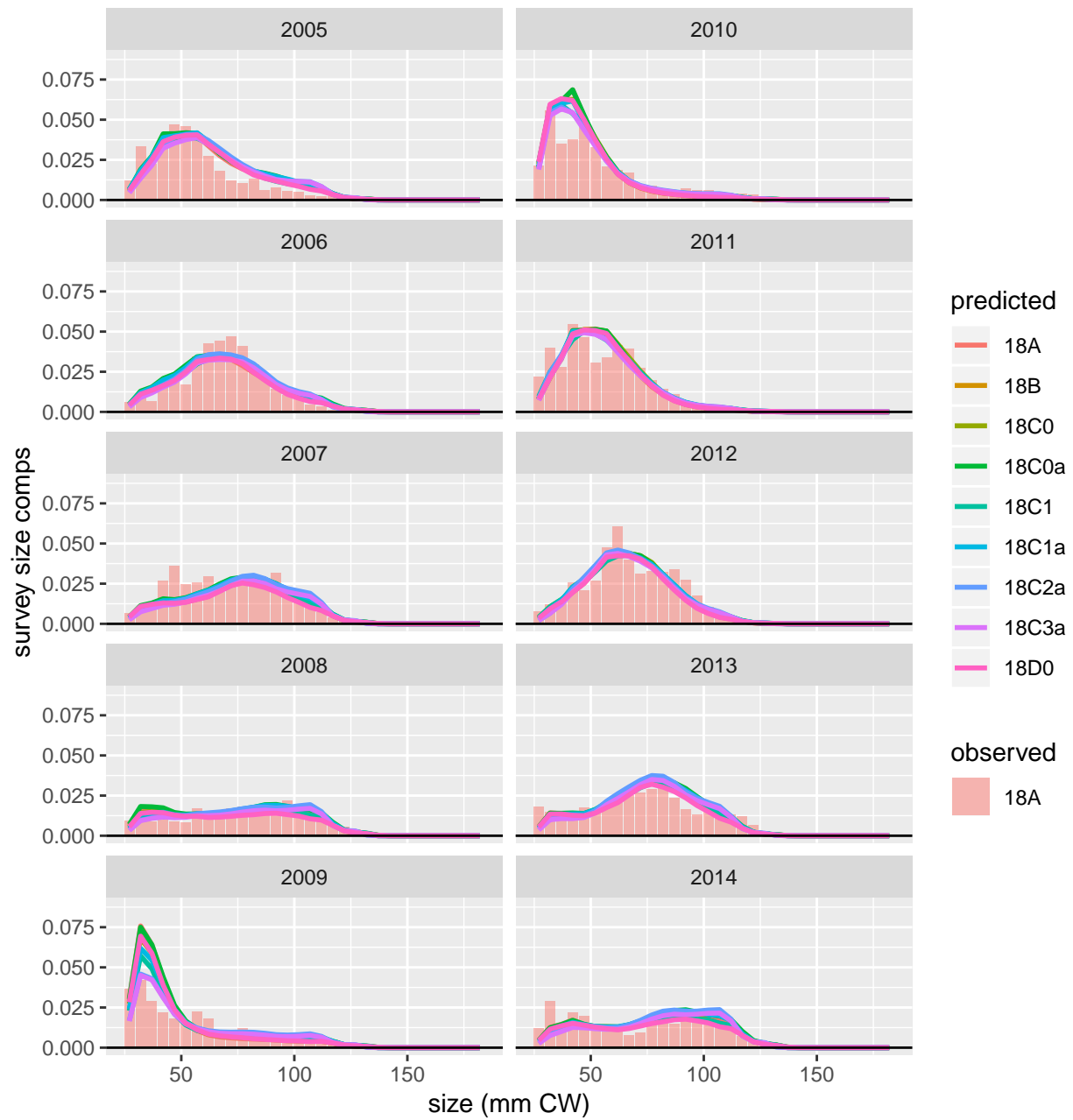


Figure 4: Comparison of observed and predicted male, immature, all shell survey size comps for NMFS (all by XM). Page 4 of 5.

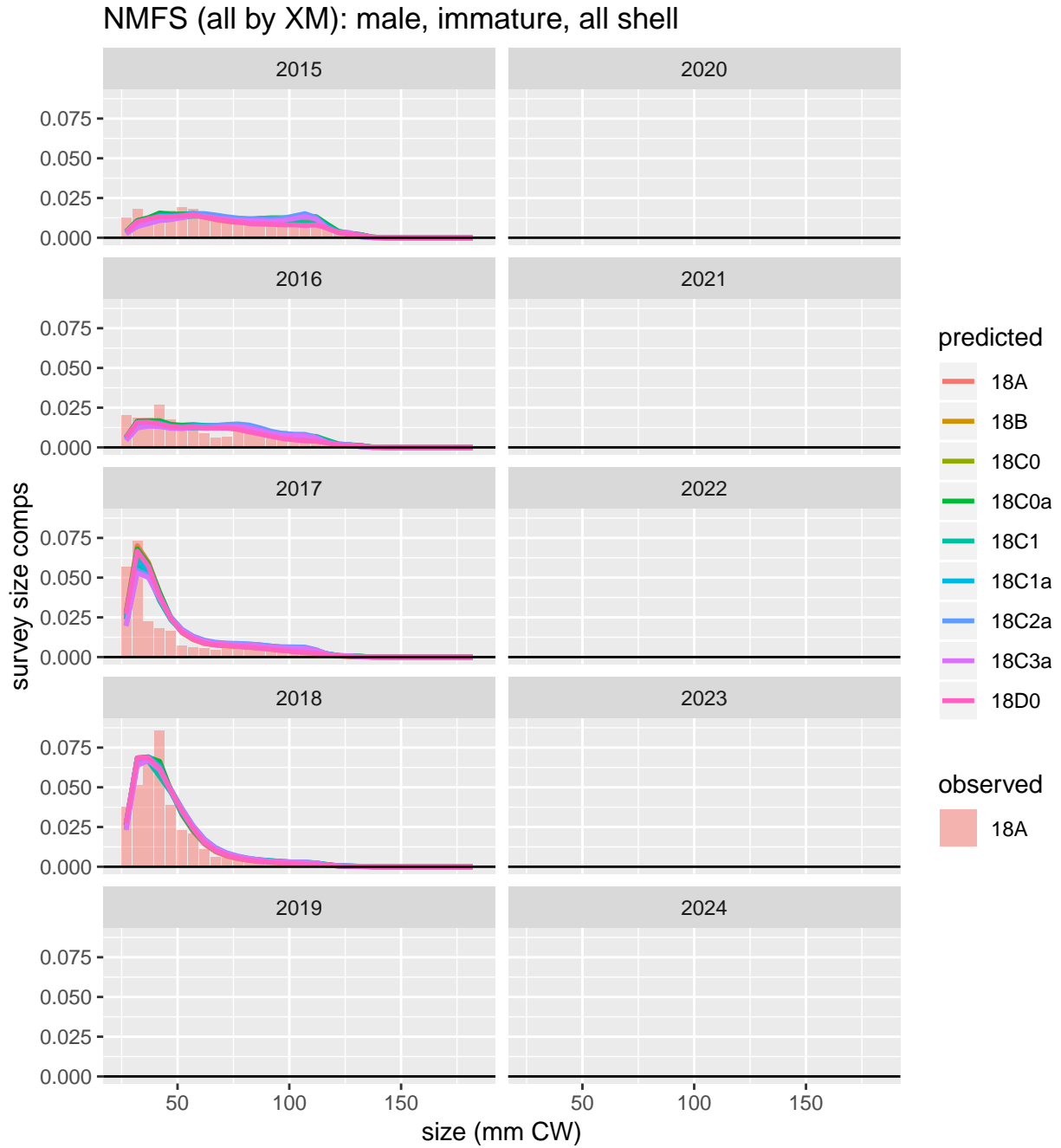


Figure 5: Comparison of observed and predicted male, immature, all shell survey size comps for NMFS (all by XM). Page 5 of 5.

### NMFS (all by XM): male, mature, all shell

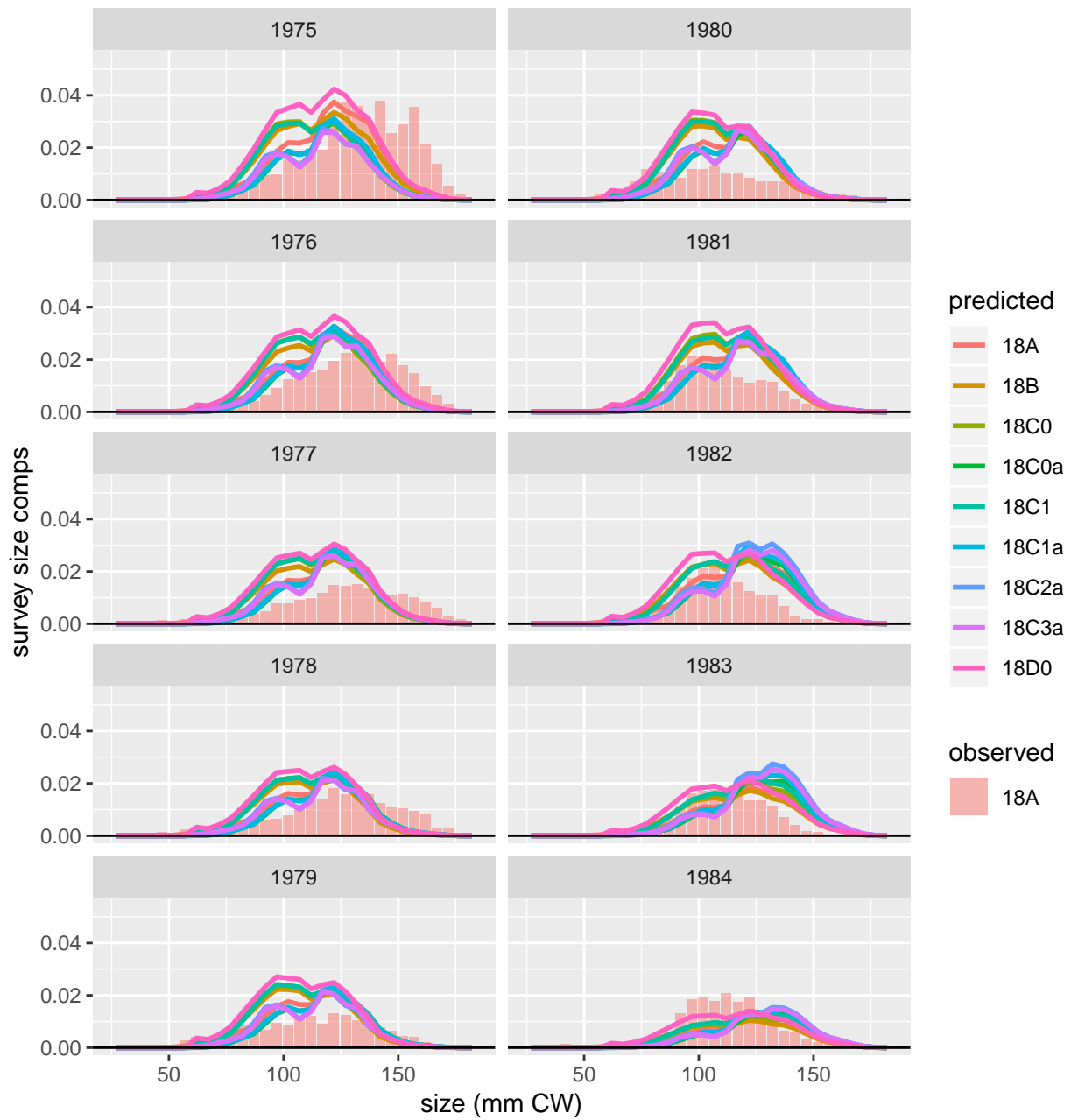


Figure 6: Comparison of observed and predicted male, mature, all shell survey size comps for NMFS (all by XM). Page 1 of 5.

NMFS (all by XM): male, mature, all shell

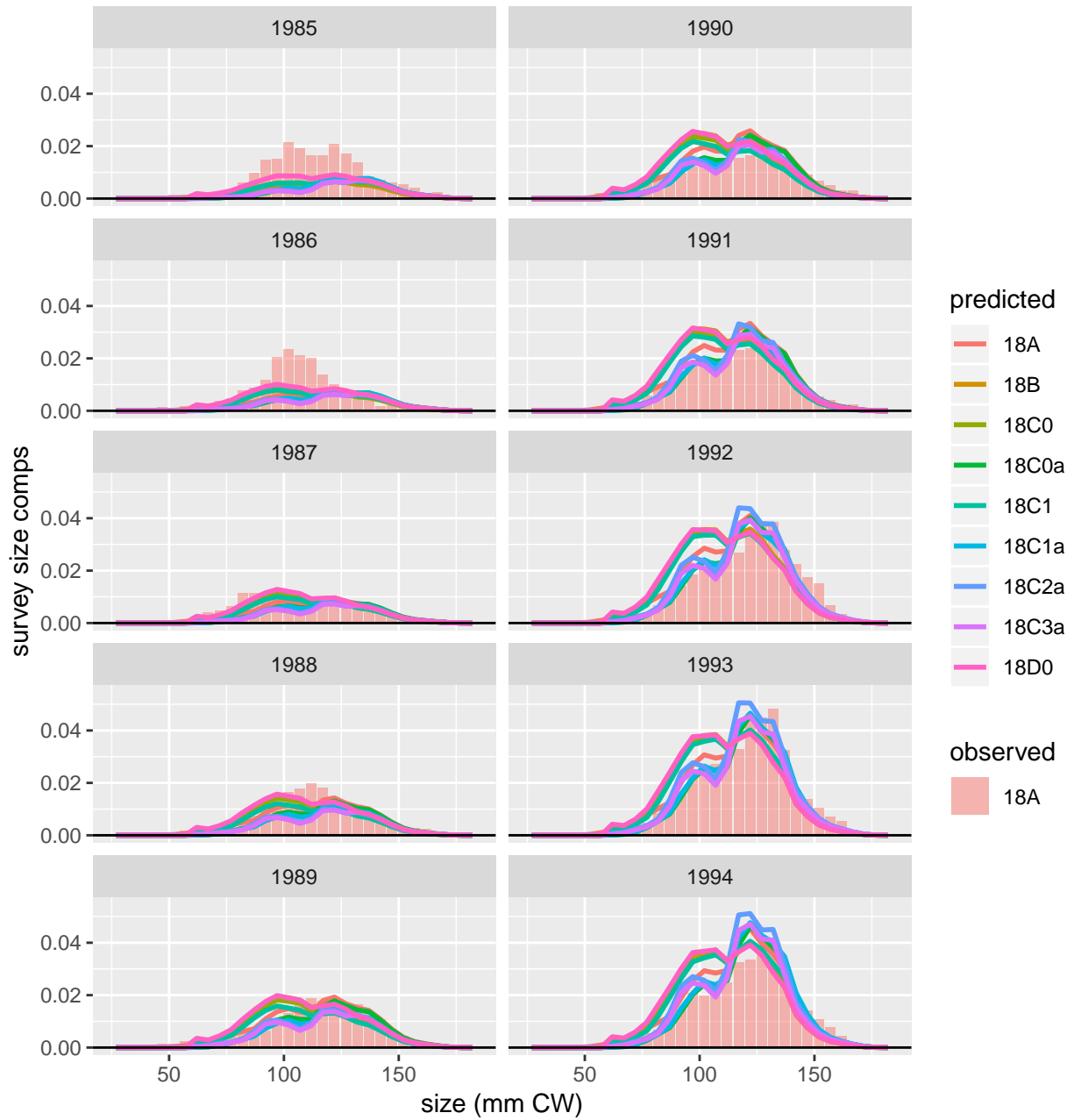


Figure 7: Comparison of observed and predicted male, mature, all shell survey size comps for NMFS (all by XM). Page 2 of 5.



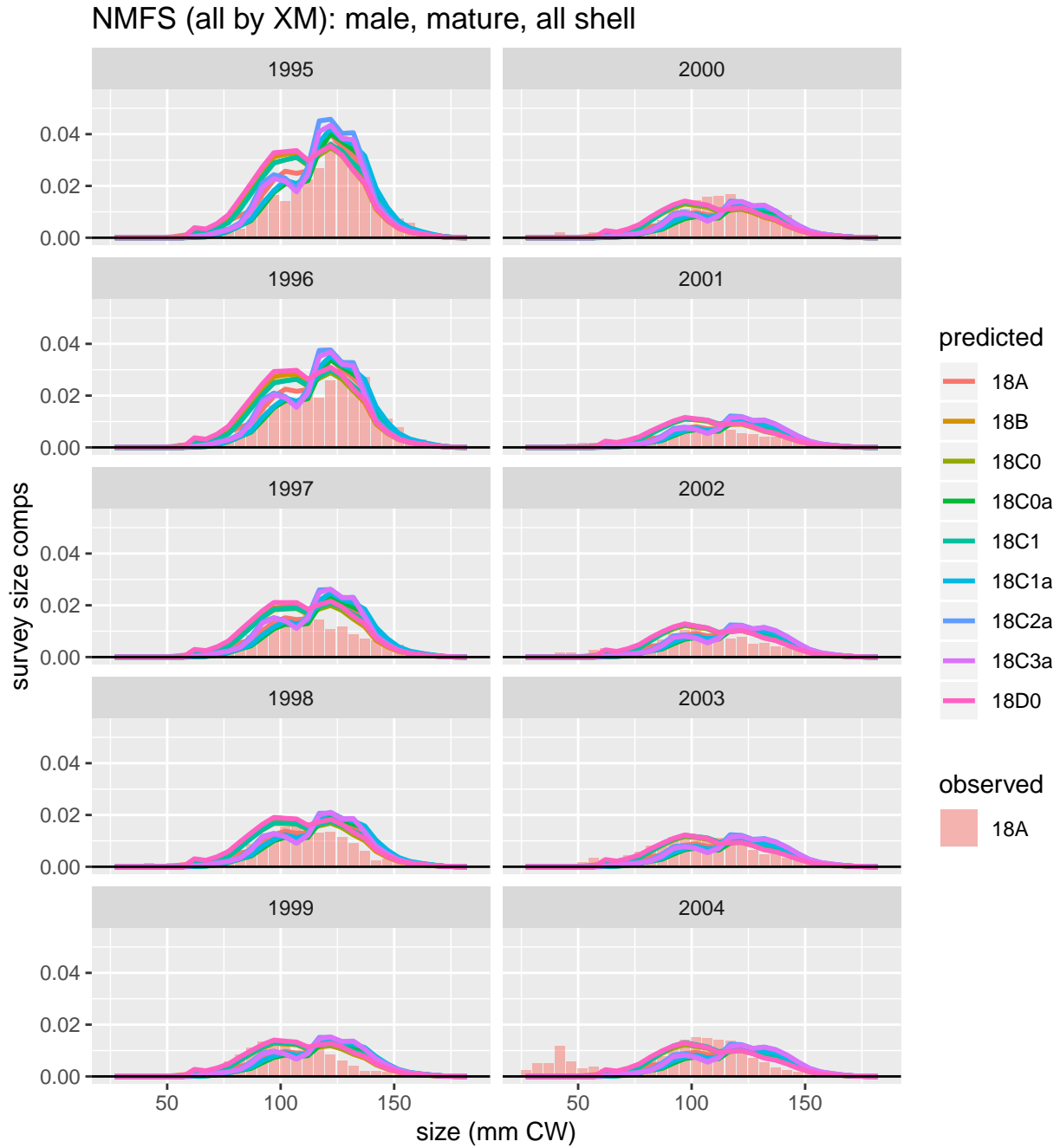


Figure 8: Comparison of observed and predicted male, mature, all shell survey size comps for NMFS (all by XM). Page 3 of 5.

### NMFS (all by XM): male, mature, all shell

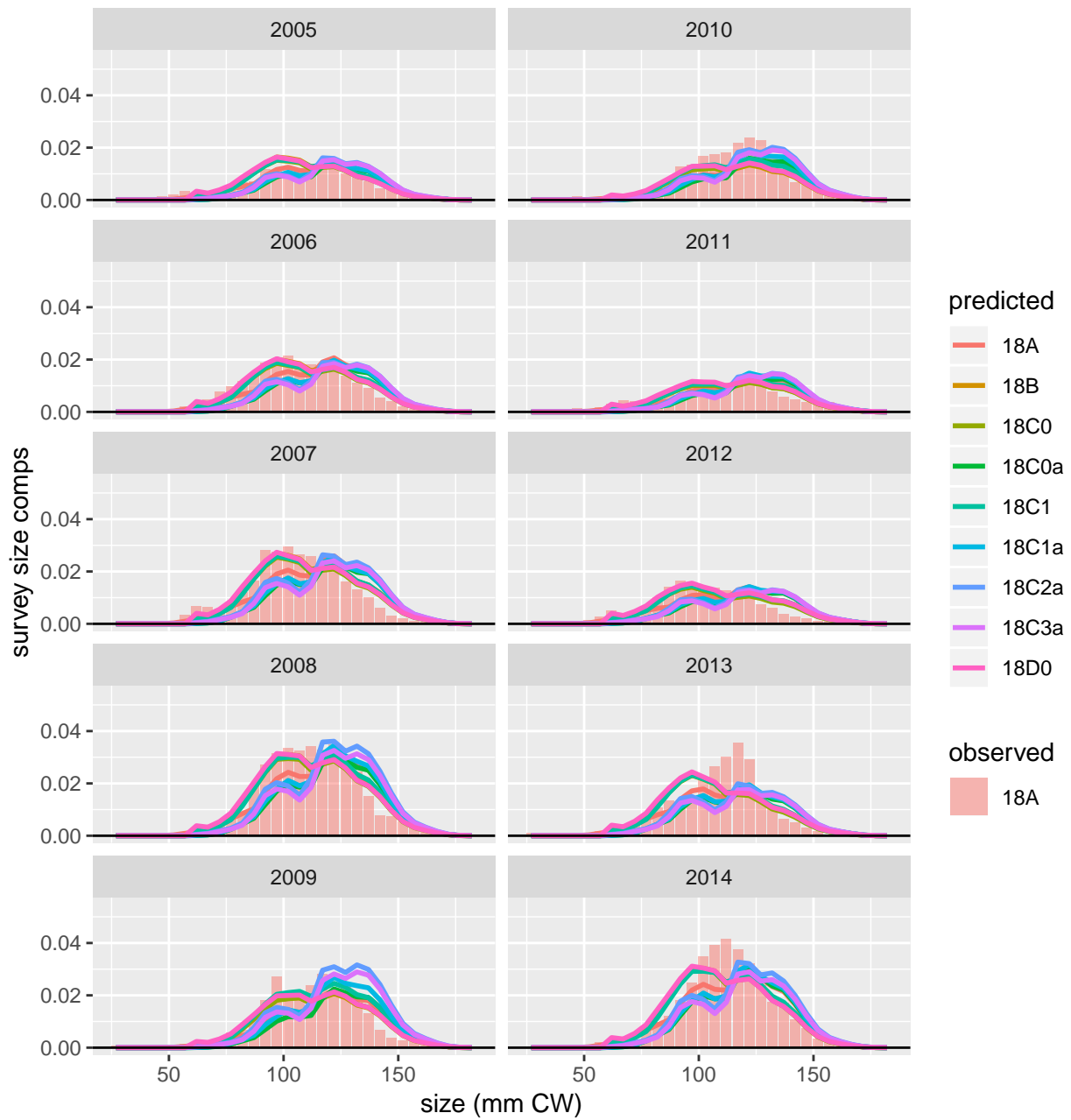


Figure 9: Comparison of observed and predicted male, mature, all shell survey size comps for NMFS (all by XM). Page 4 of 5.

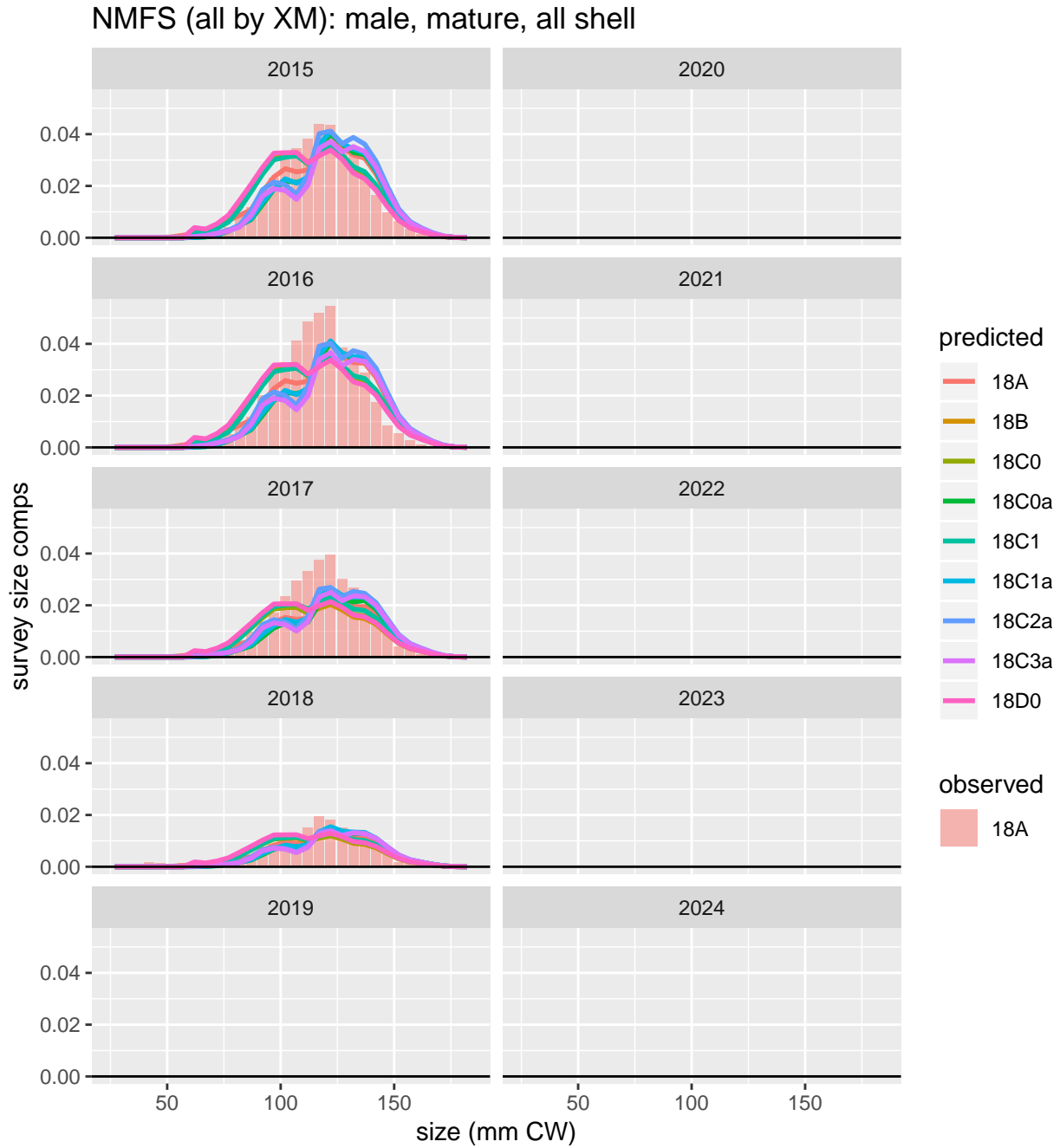


Figure 10: Comparison of observed and predicted male, mature, all shell survey size comps for NMFS (all by XM). Page 5 of 5.

NMFS (all by XM): female, immature, all shell

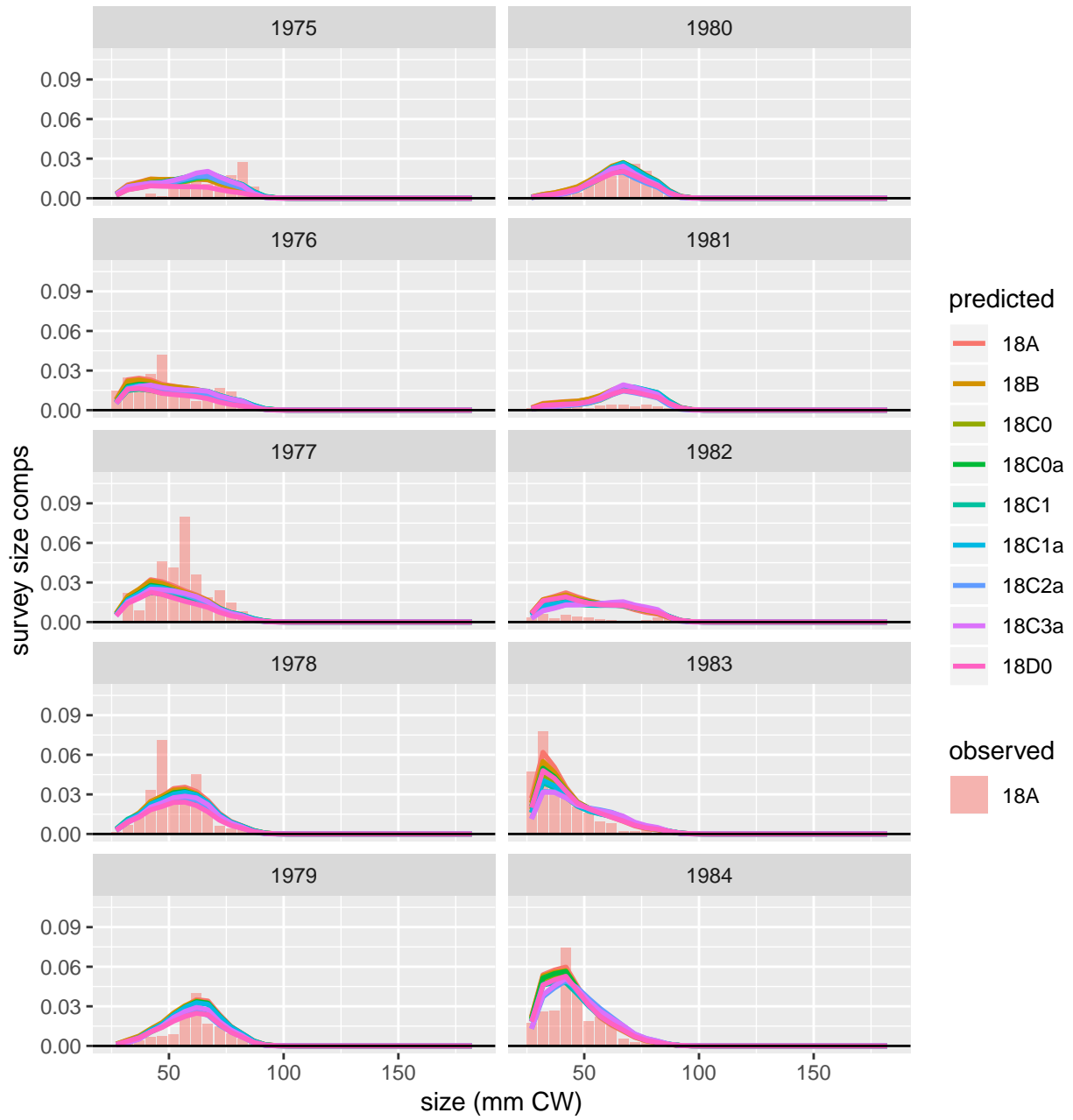


Figure 11: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (all by XM). Page 1 of 5.

NMFS (all by XM): female, immature, all shell

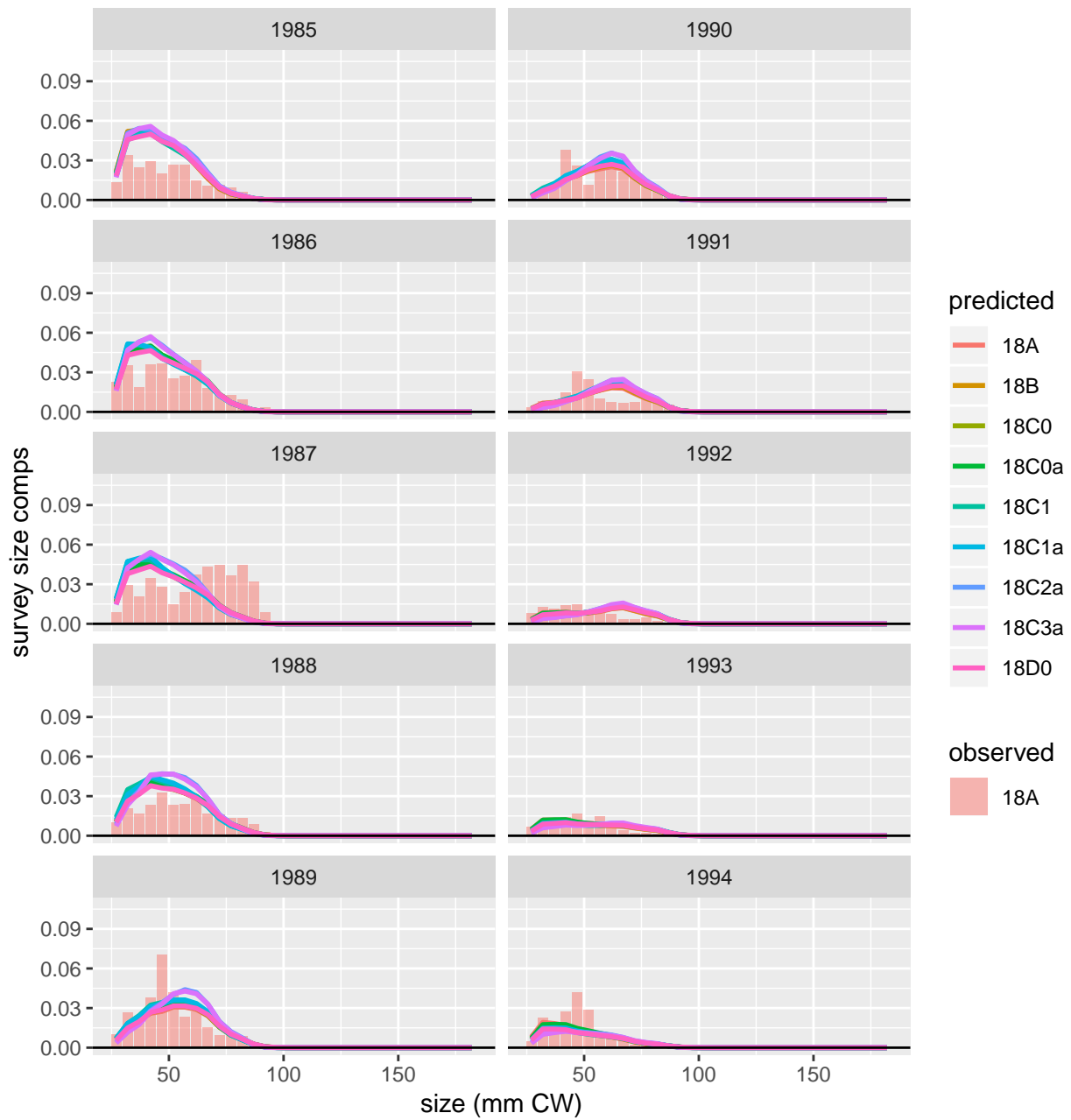


Figure 12: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (all by XM). Page 2 of 5.

NMFS (all by XM): female, immature, all shell

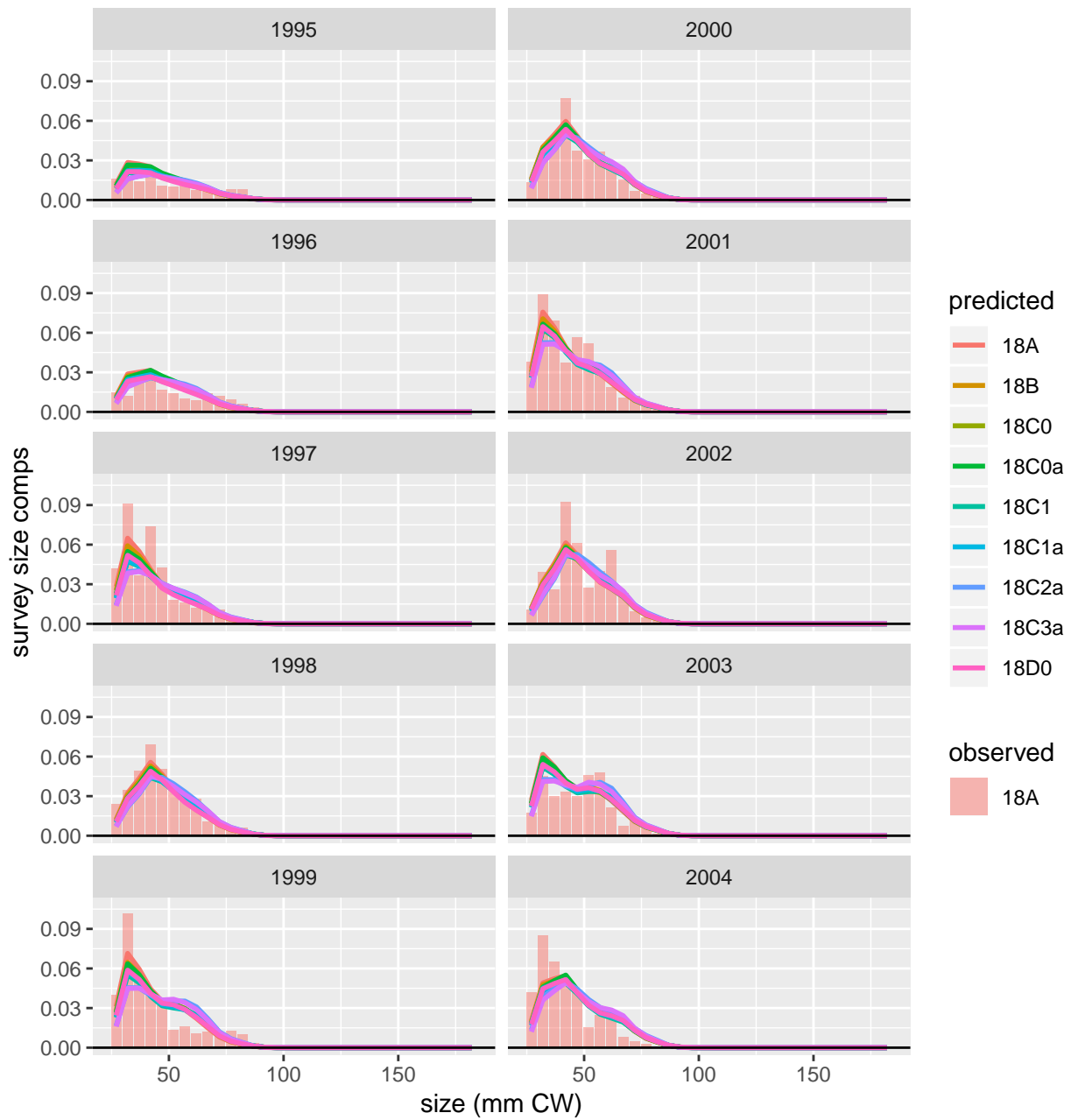


Figure 13: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (all by XM). Page 3 of 5.

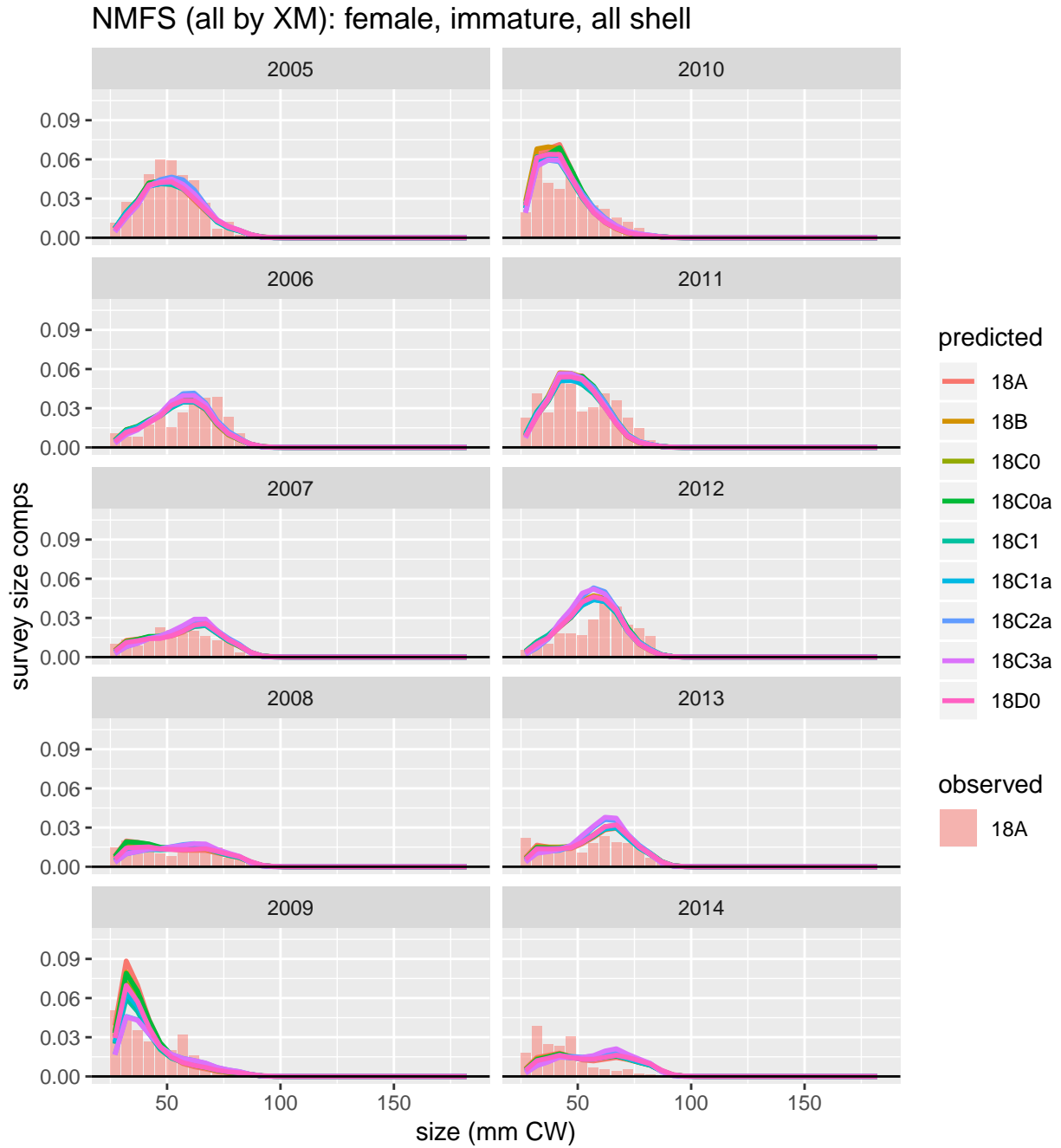


Figure 14: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (all by XM). Page 4 of 5.

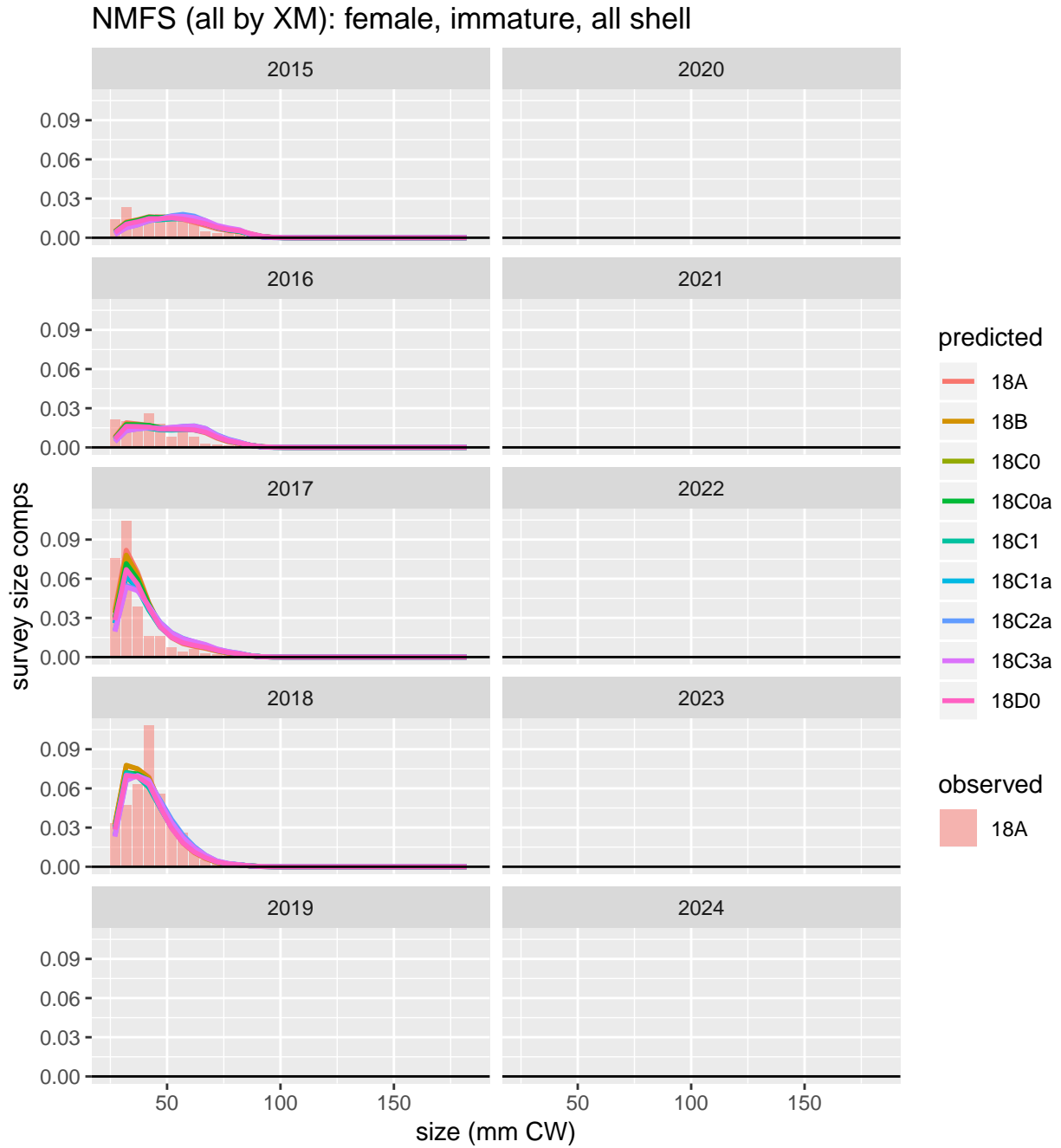


Figure 15: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (all by XM). Page 5 of 5.



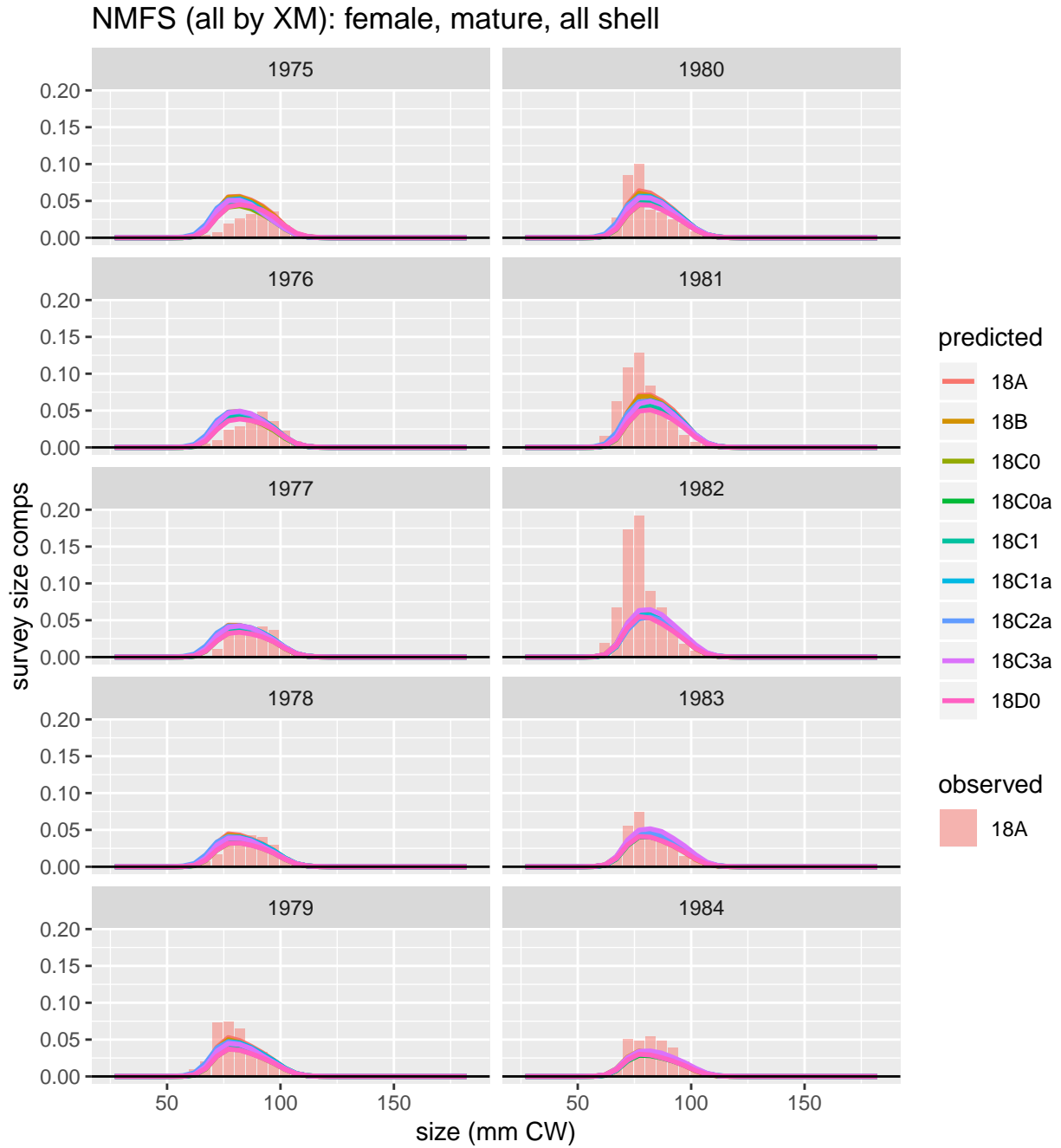


Figure 16: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (all by XM). Page 1 of 5.

NMFS (all by XM): female, mature, all shell

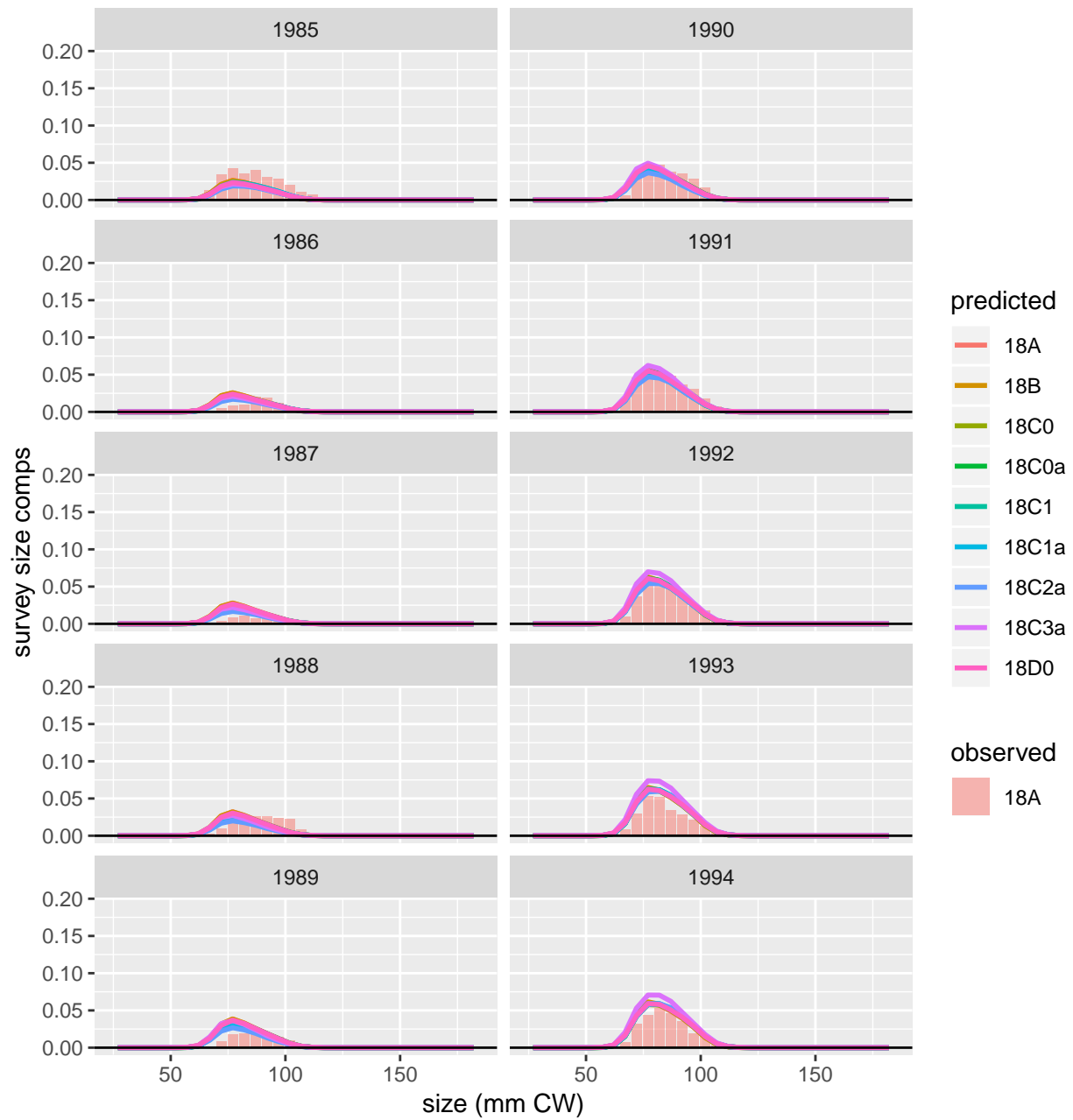


Figure 17: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (all by XM). Page 2 of 5.

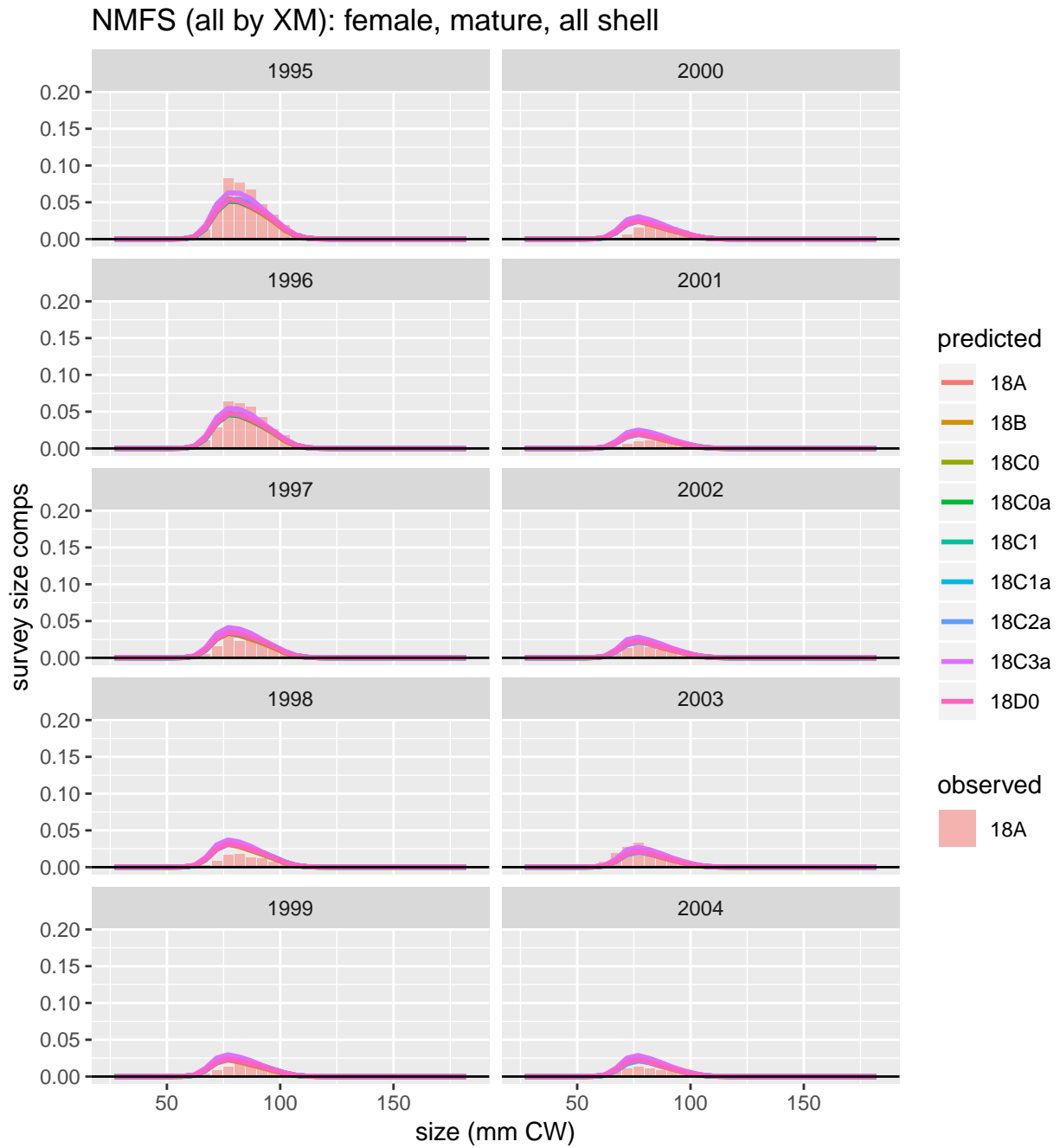


Figure 18: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (all by XM). Page 3 of 5.

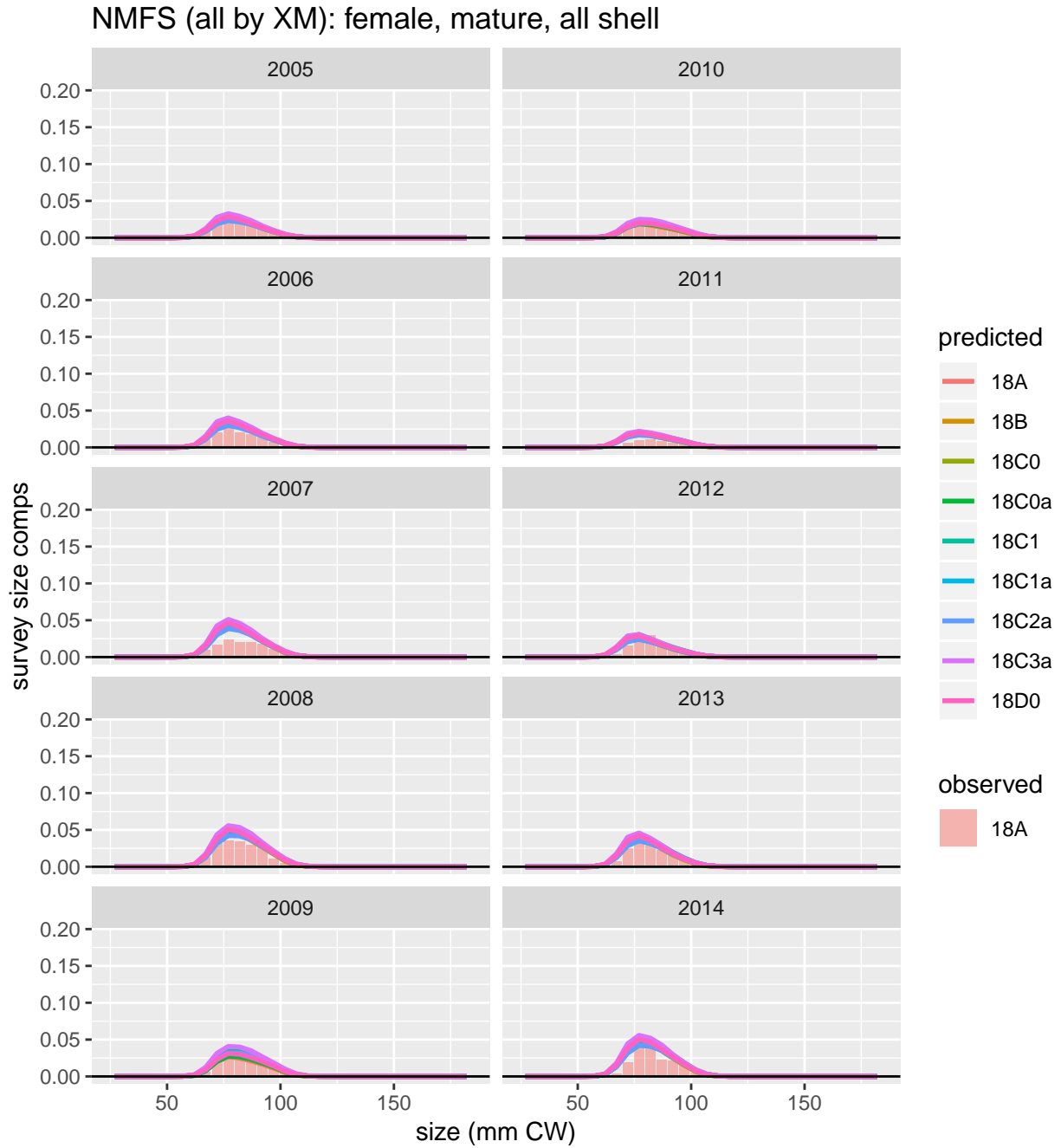


Figure 19: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (all by XM). Page 4 of 5.

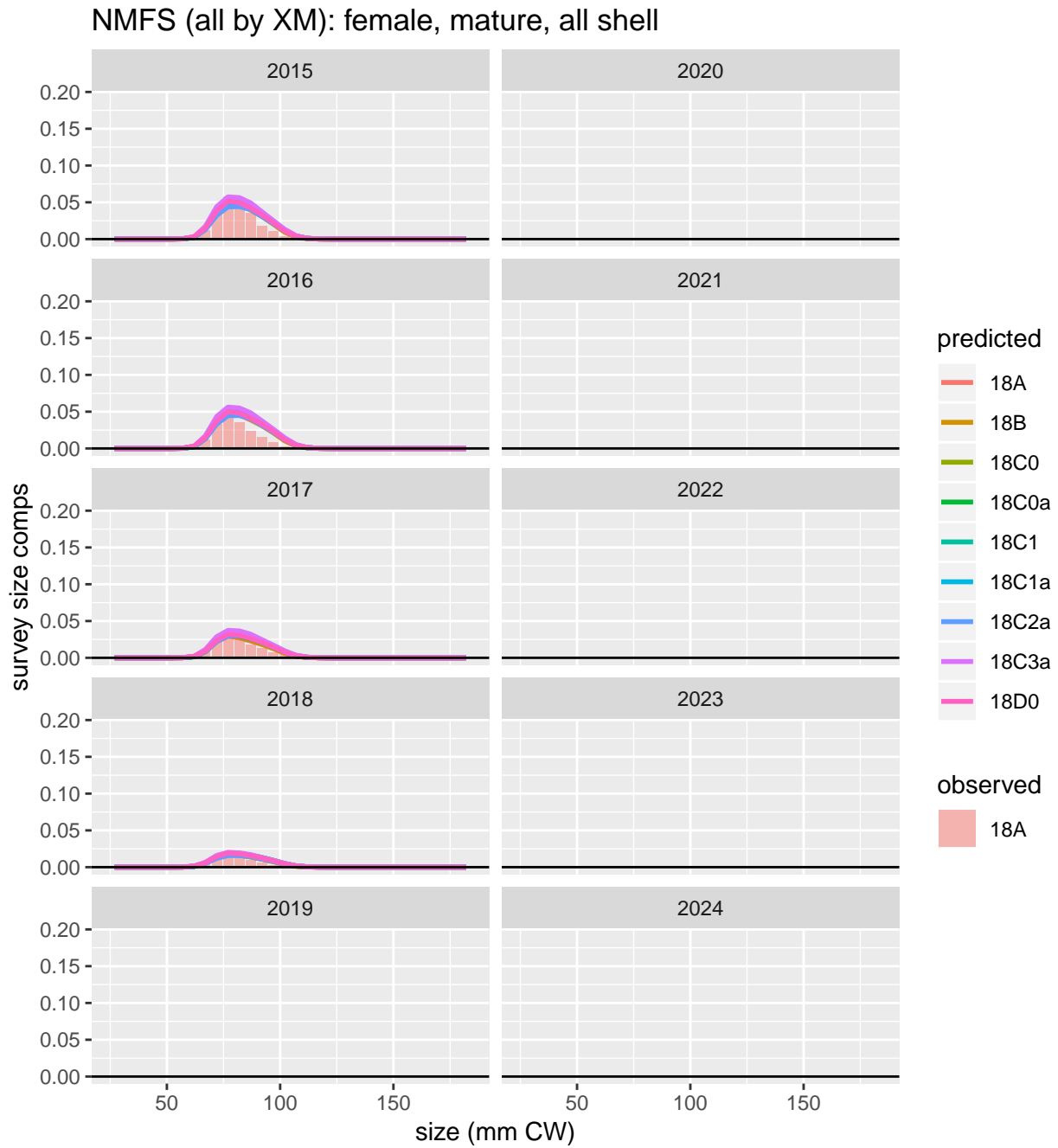


Figure 20: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (all by XM). Page 5 of 5.

### NMFS (males by XS): male, all maturity, new shell

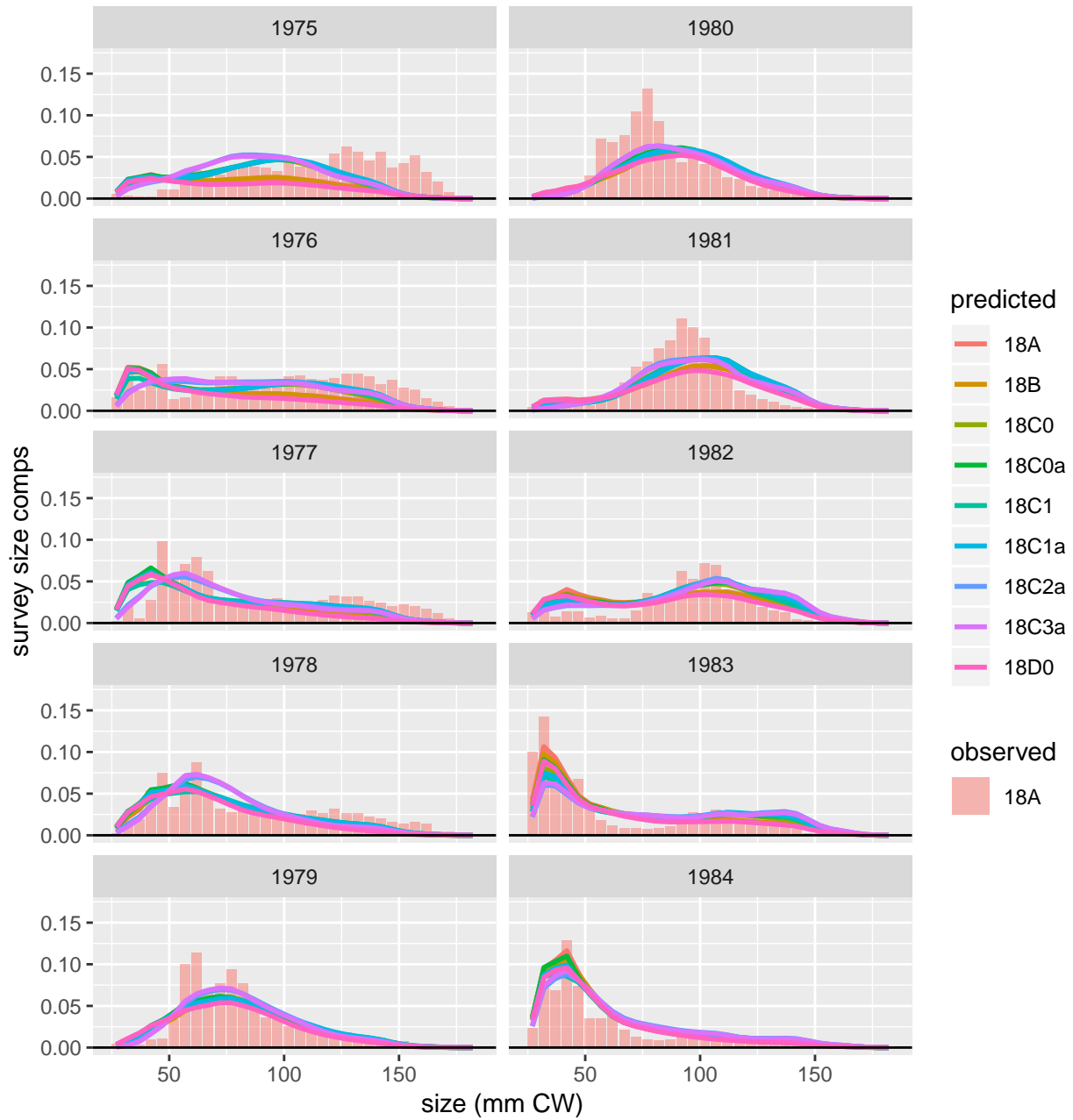


Figure 21: Comparison of observed and predicted male, all maturity, new shell survey size comps for NMFS (males by XS). Page 1 of 5.

### NMFS (males by XS): male, all maturity, new shell

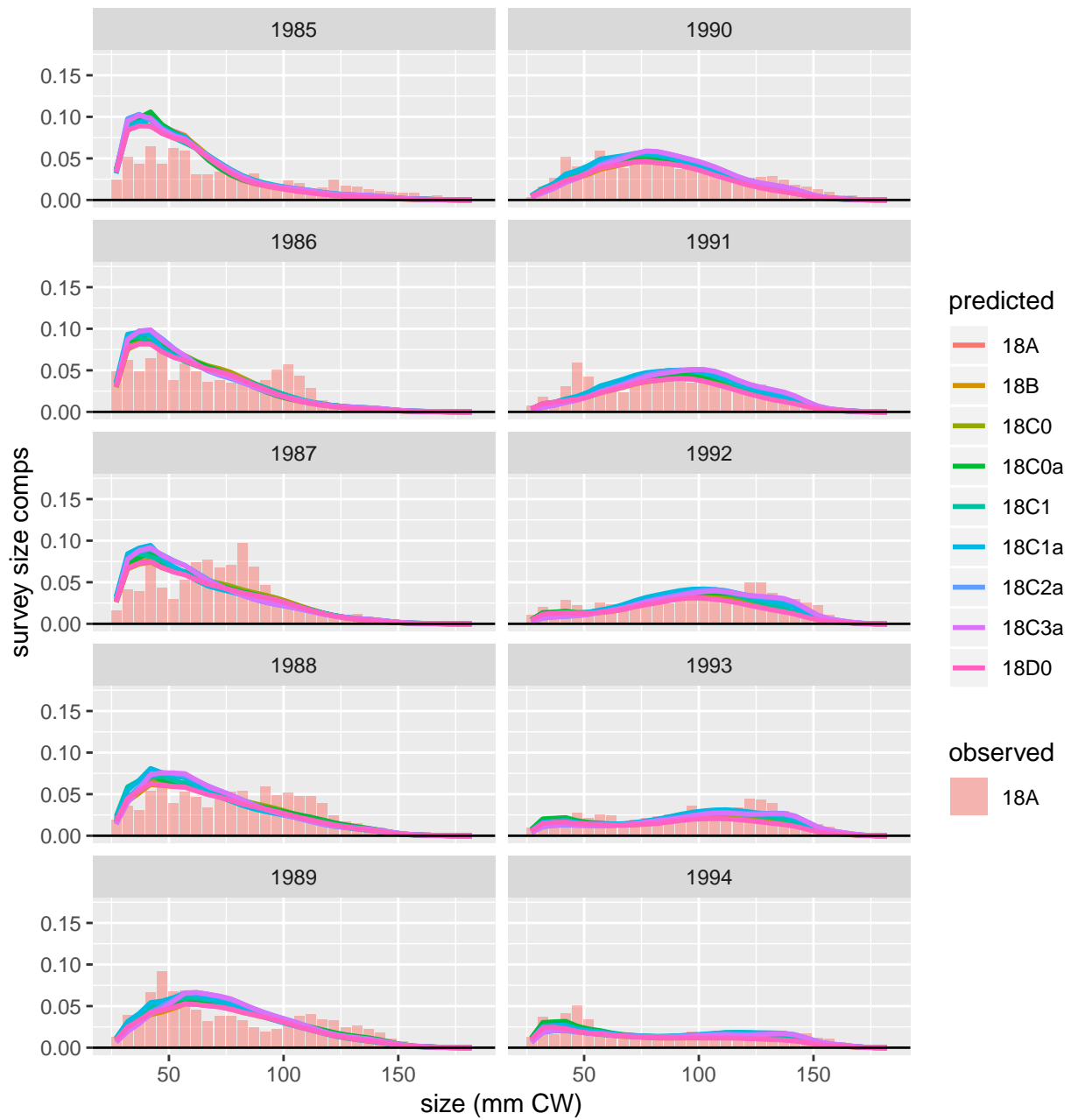


Figure 22: Comparison of observed and predicted male, all maturity, new shell survey size comps for NMFS (males by XS). Page 2 of 5.

### NMFS (males by XS): male, all maturity, new shell

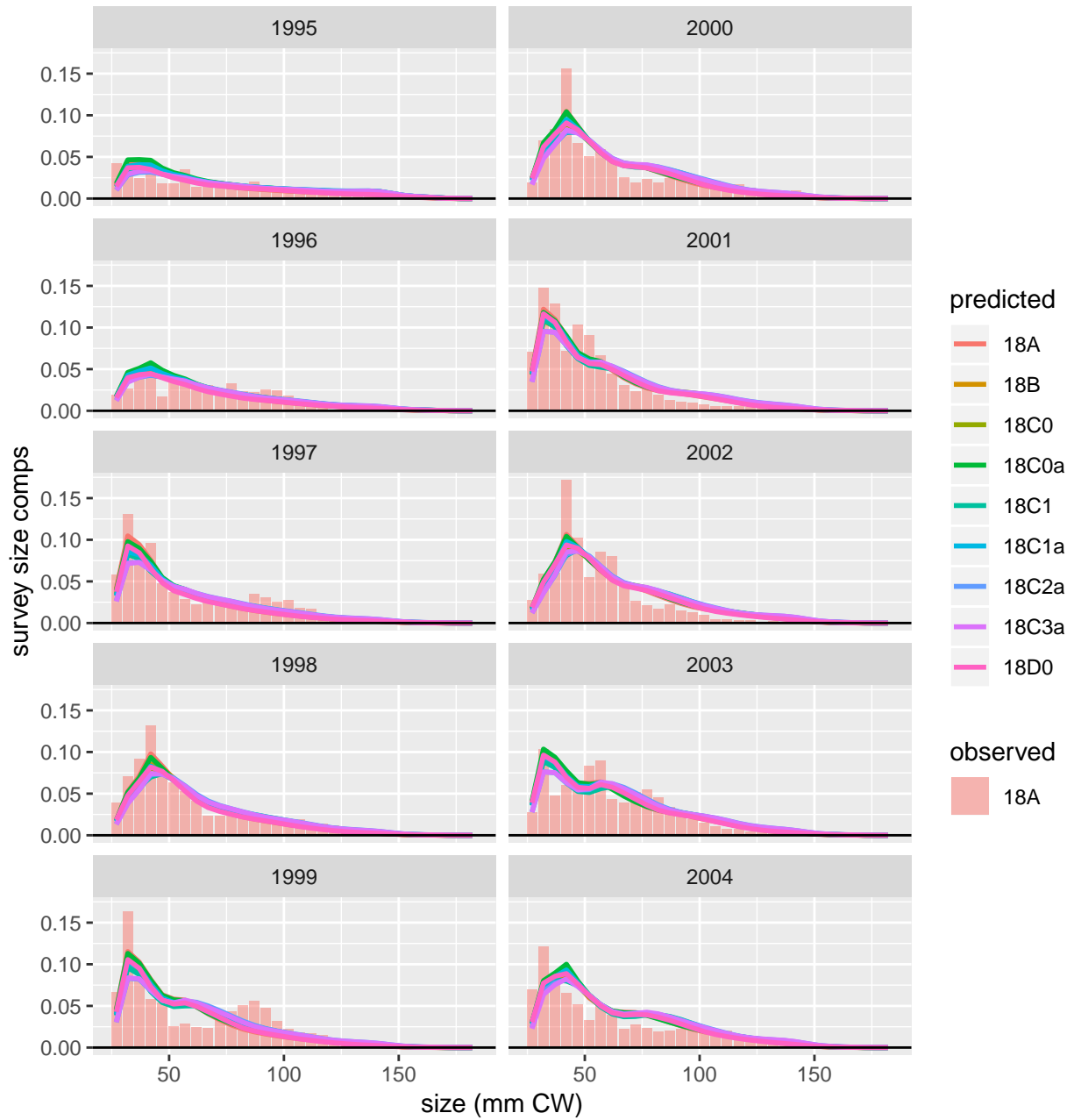


Figure 23: Comparison of observed and predicted male, all maturity, new shell survey size comps for NMFS (males by XS). Page 3 of 5.



NMFS (males by XS): male, all maturity, new shell

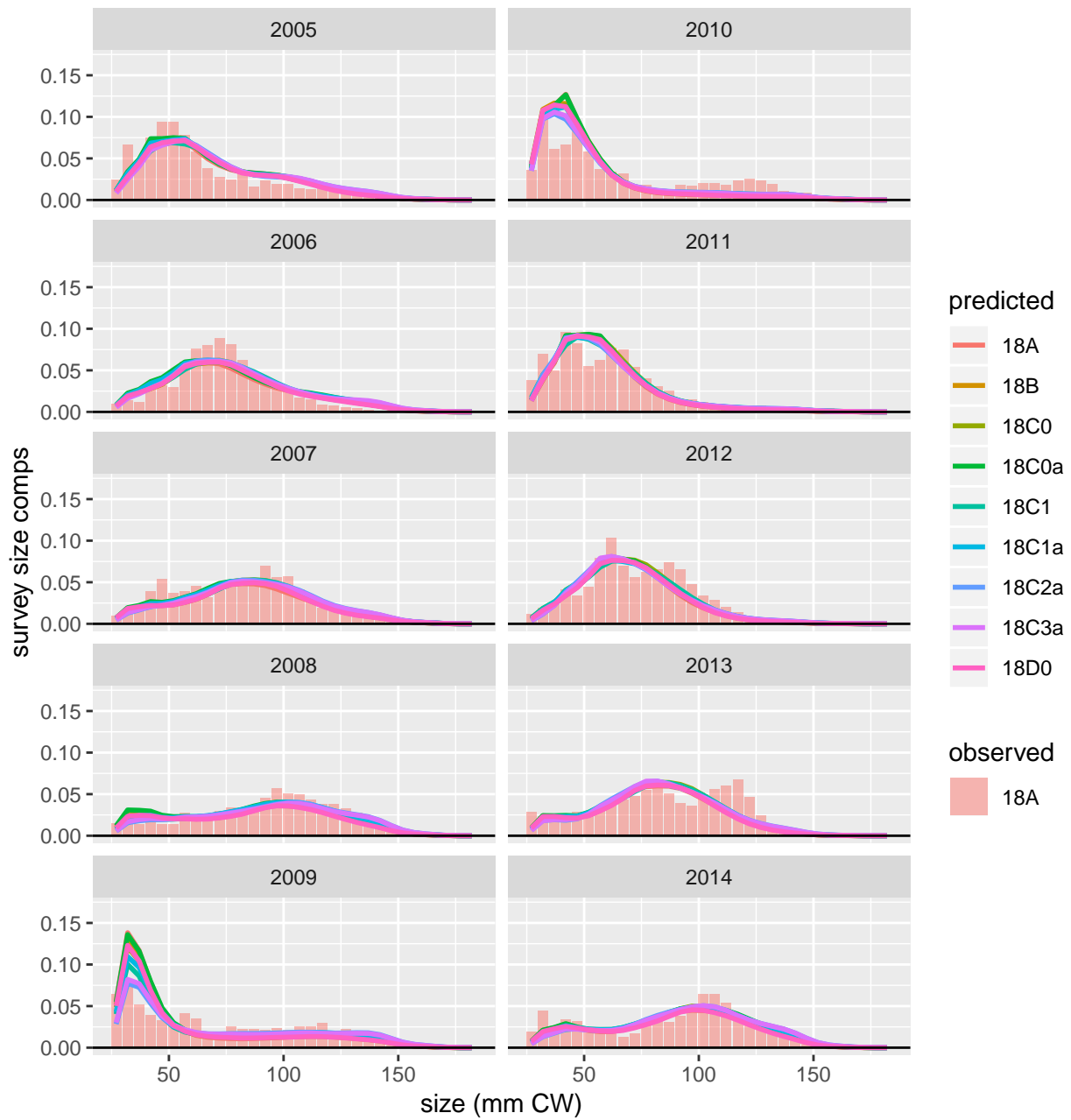


Figure 24: Comparison of observed and predicted male, all maturity, new shell survey size comps for NMFS (males by XS). Page 4 of 5.

NMFS (males by XS): male, all maturity, new shell

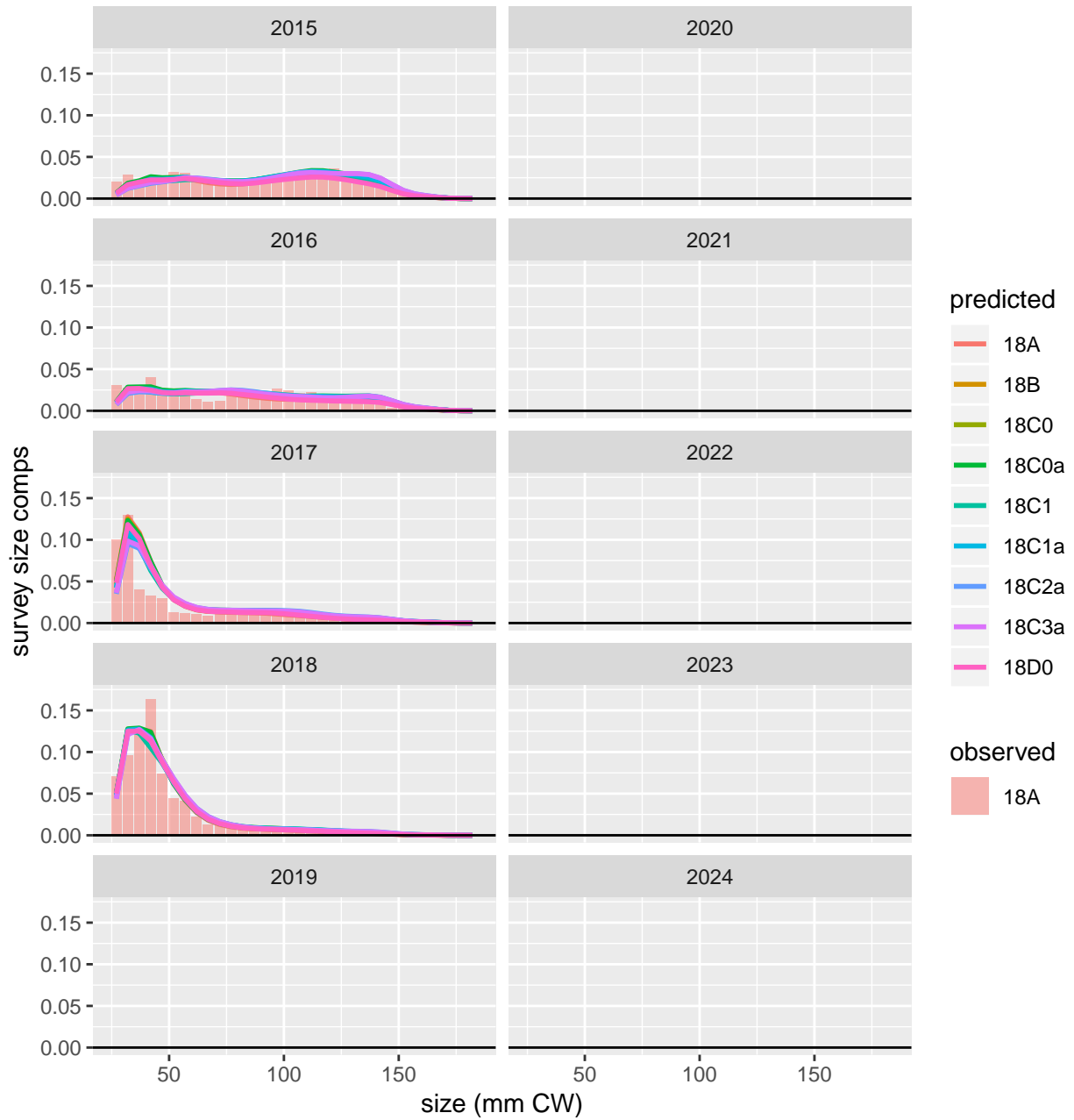


Figure 25: Comparison of observed and predicted male, all maturity, new shell survey size comps for NMFS (males by XS). Page 5 of 5.

NMFS (males by XS): male, all maturity, old shell

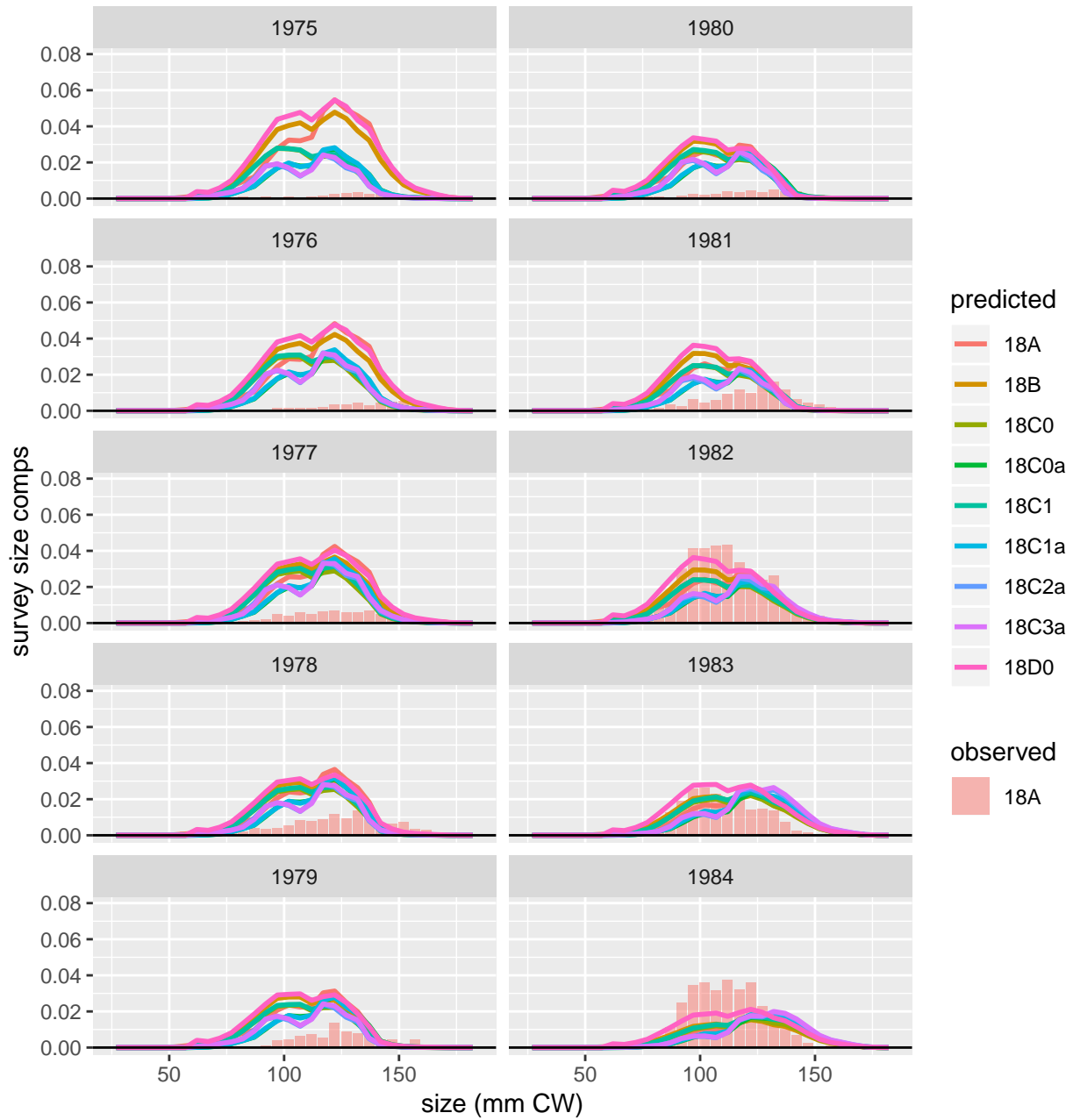


Figure 26: Comparison of observed and predicted male, all maturity, old shell survey size comps for NMFS (males by XS). Page 1 of 5.

### NMFS (males by XS): male, all maturity, old shell

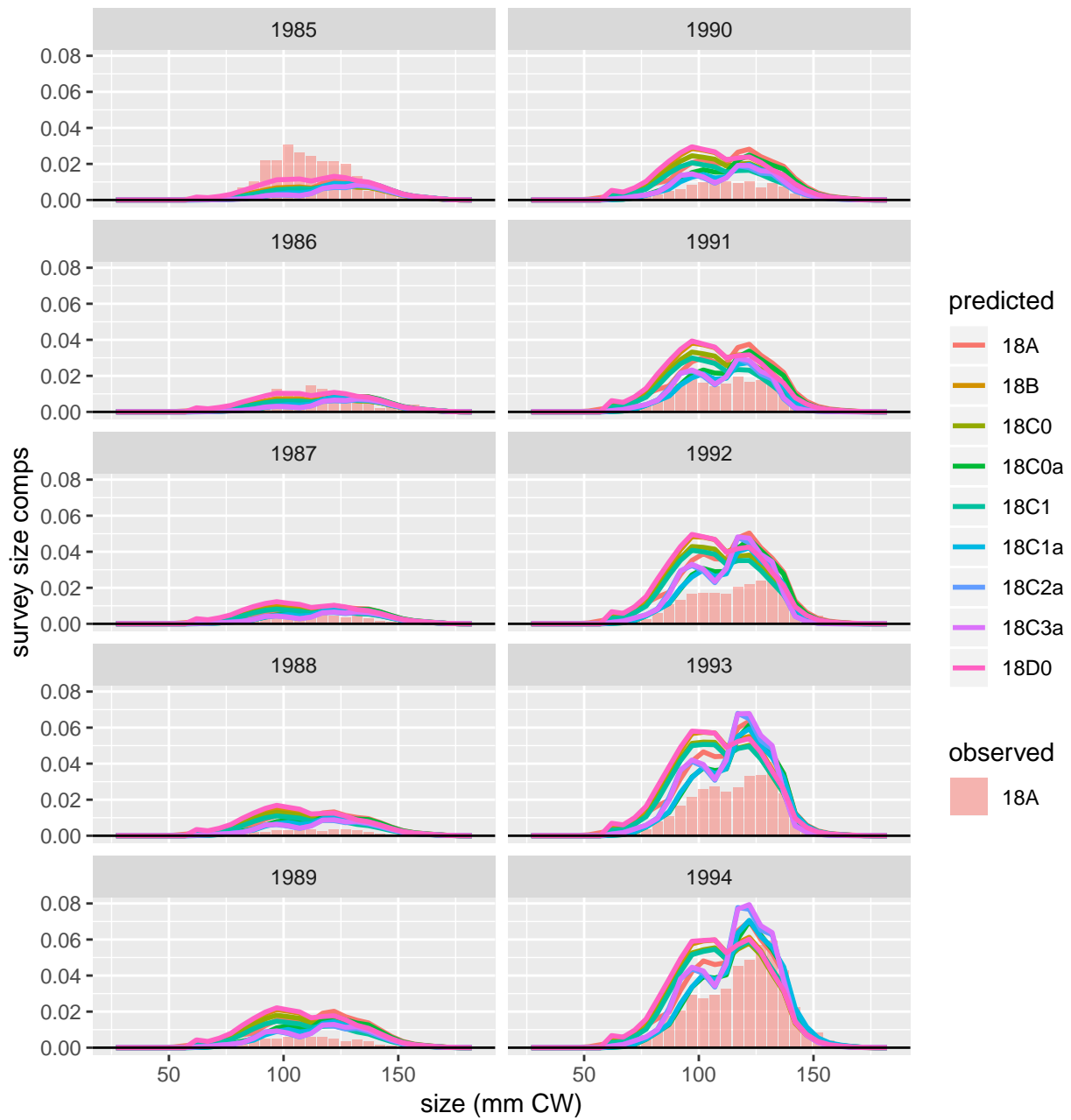


Figure 27: Comparison of observed and predicted male, all maturity, old shell survey size comps for NMFS (males by XS). Page 2 of 5.

NMFS (males by XS): male, all maturity, old shell

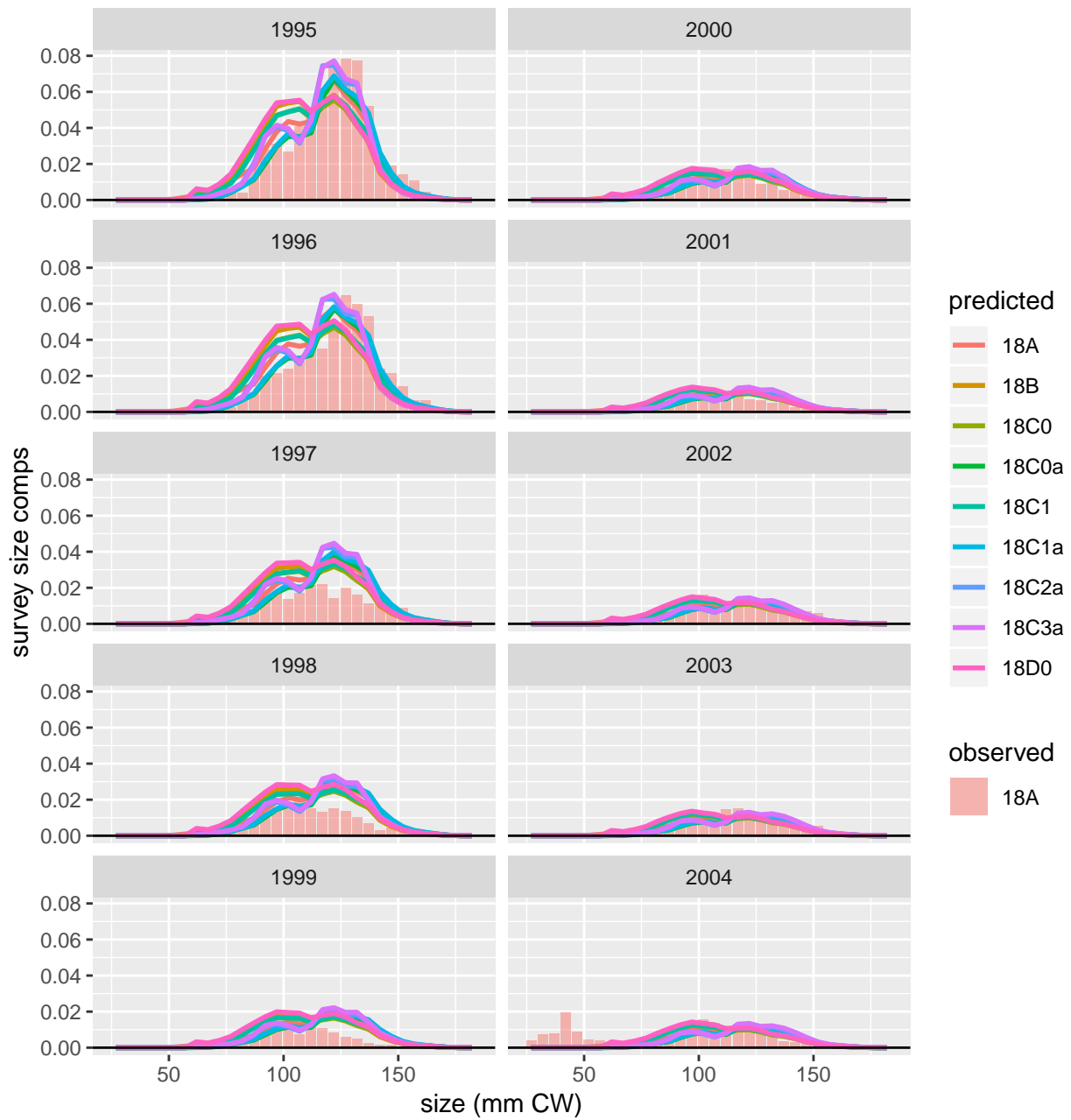


Figure 28: Comparison of observed and predicted male, all maturity, old shell survey size comps for NMFS (males by XS). Page 3 of 5.

### NMFS (males by XS): male, all maturity, old shell

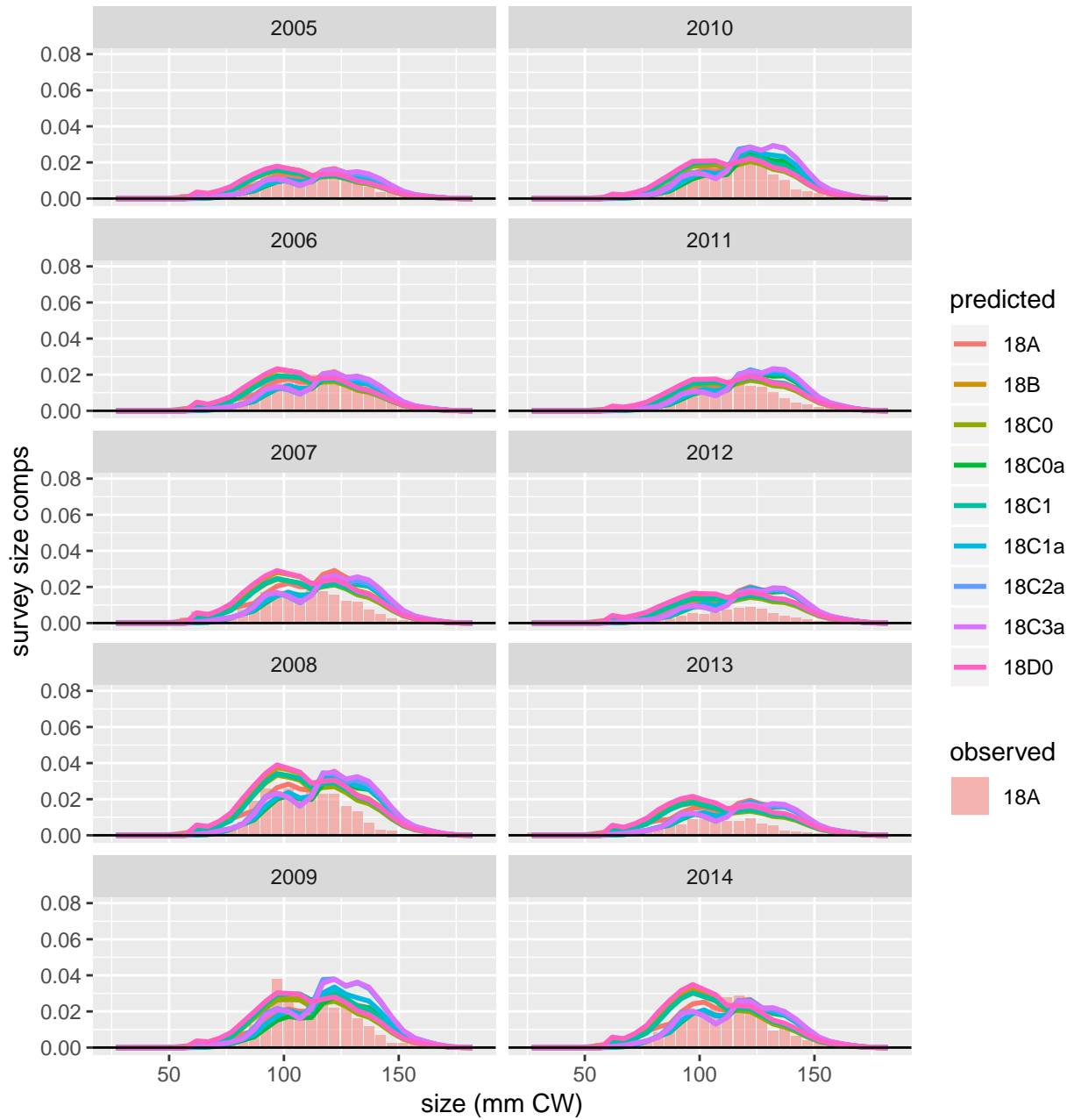


Figure 29: Comparison of observed and predicted male, all maturity, old shell survey size comps for NMFS (males by XS). Page 4 of 5.

### NMFS (males by XS): male, all maturity, old shell

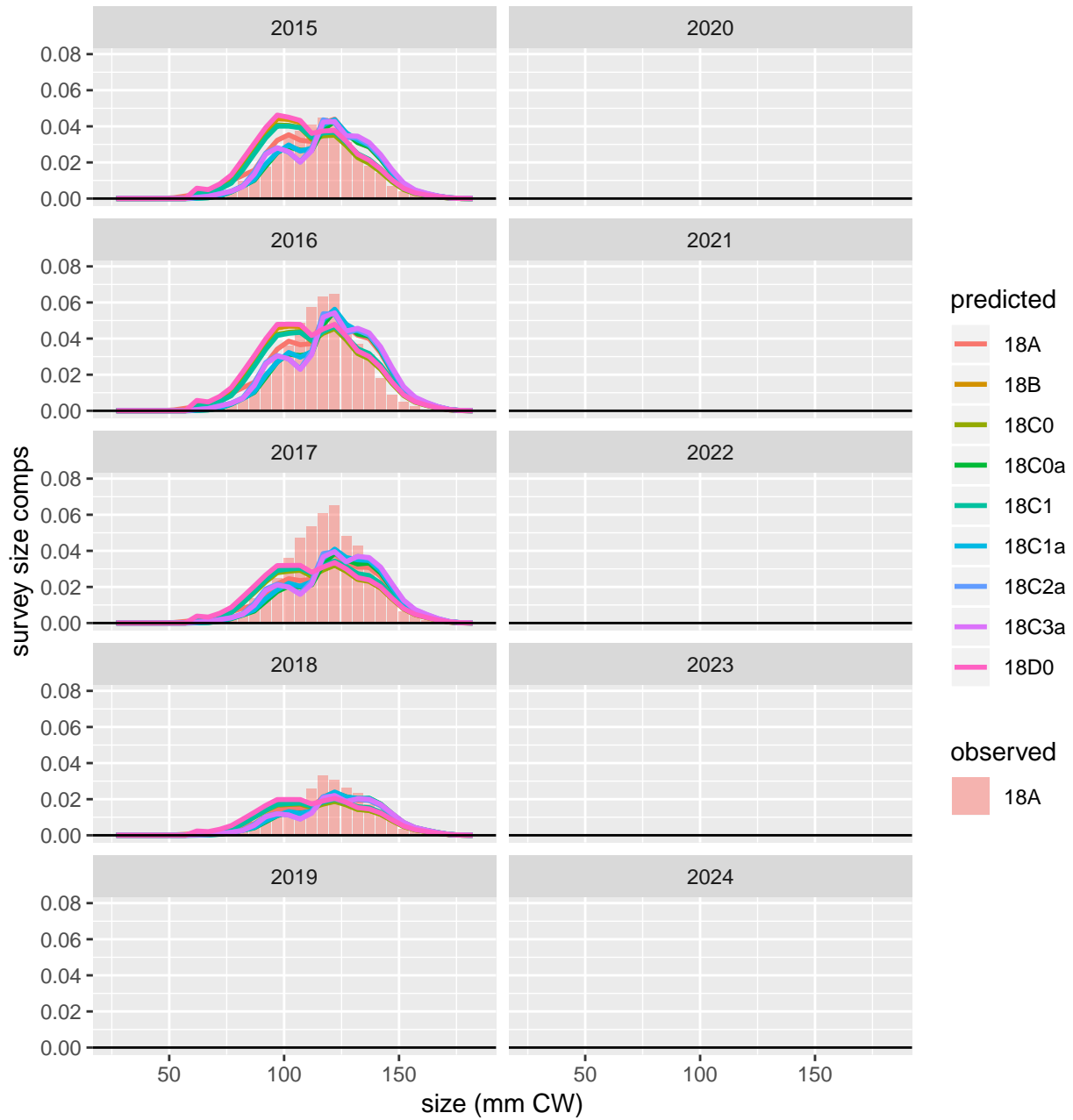


Figure 30: Comparison of observed and predicted male, all maturity, old shell survey size comps for NMFS (males by XS). Page 5 of 5.

NMFS (females by XMS): female, immature, new shell

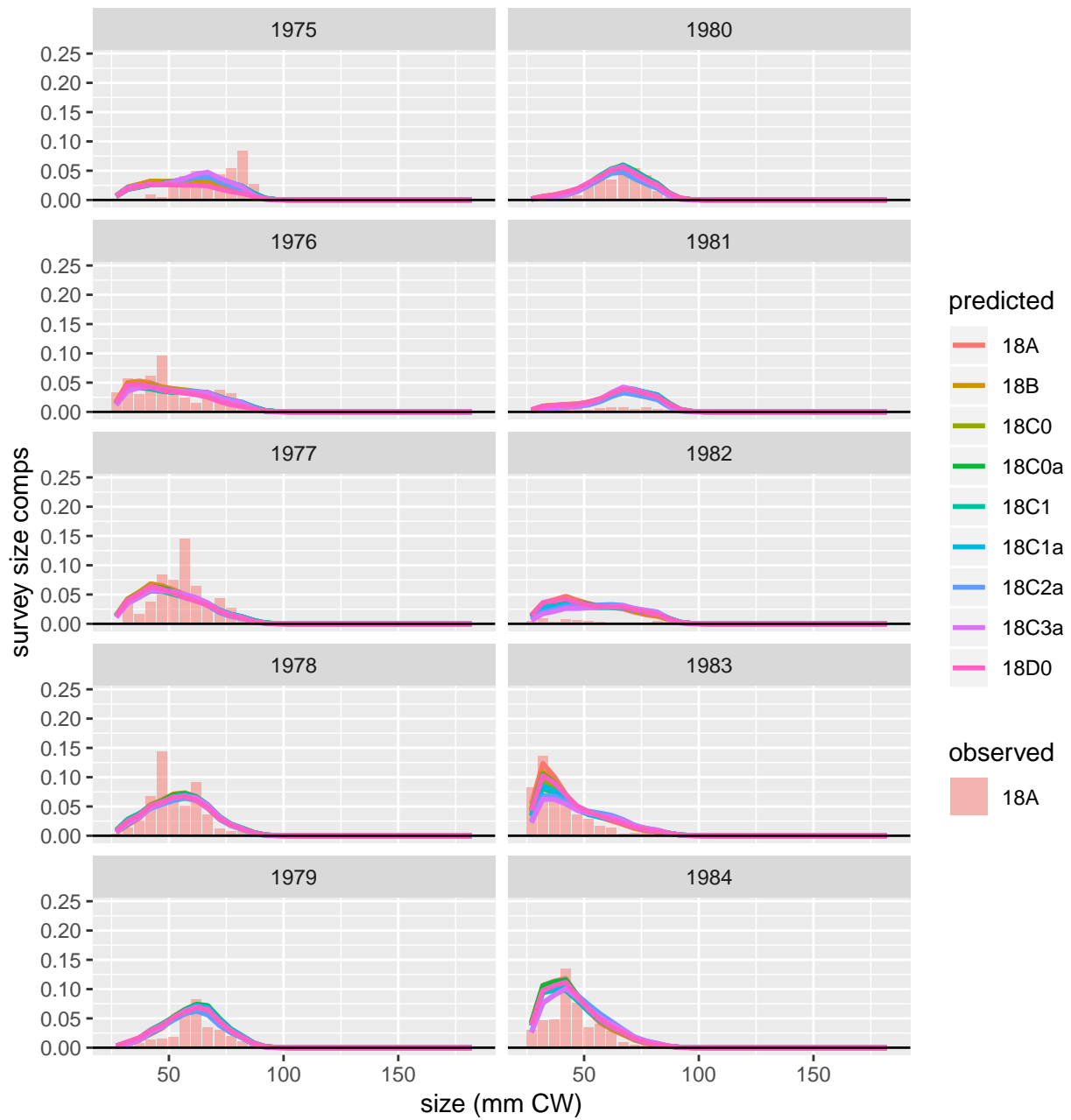


Figure 31: Comparison of observed and predicted female, immature, new shell survey size comps for NMFS (females by XMS). Page 1 of 5.



NMFS (females by XMS): female, immature, new shell

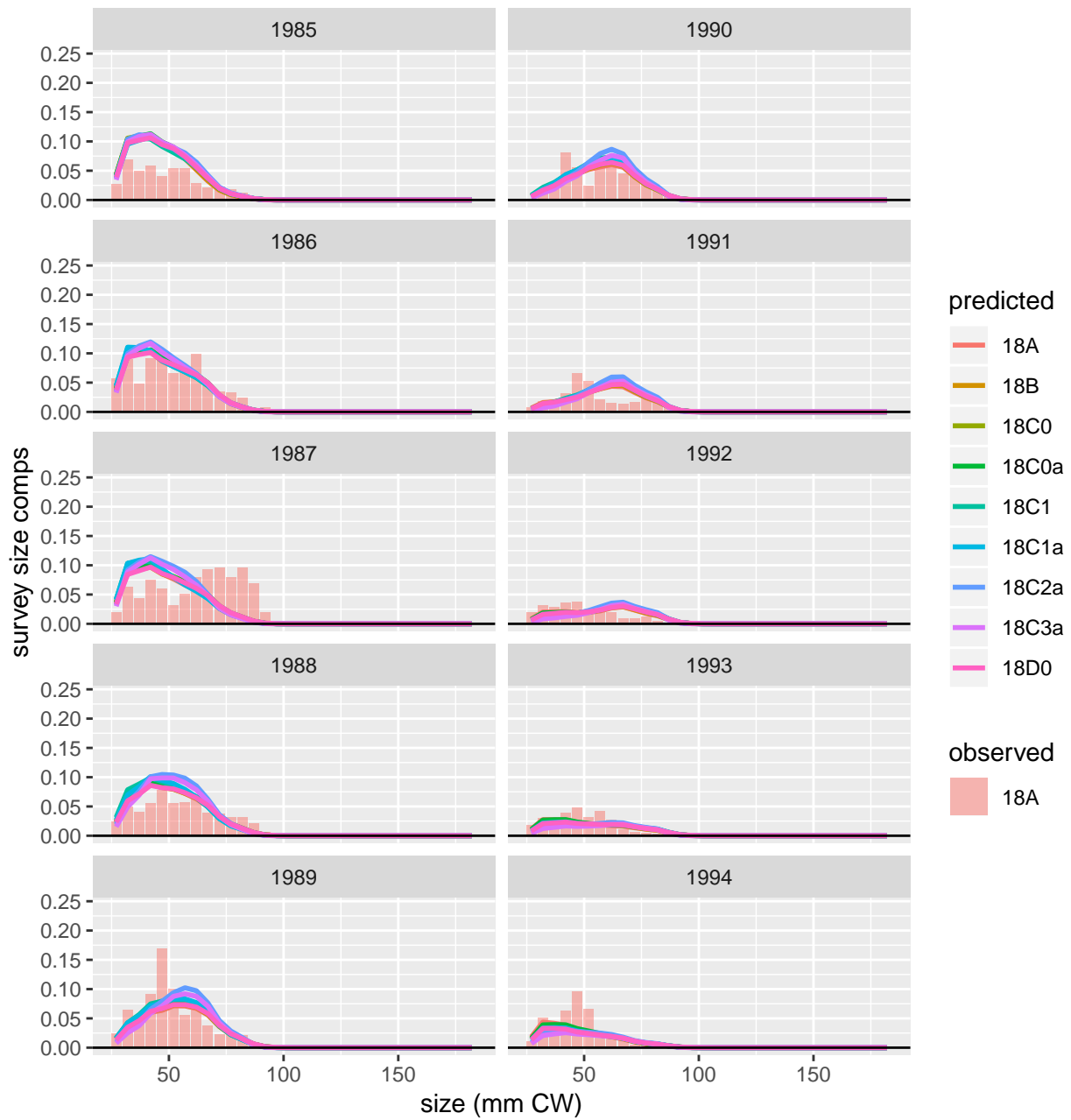


Figure 32: Comparison of observed and predicted female, immature, new shell survey size comps for NMFS (females by XMS). Page 2 of 5.

NMFS (females by XMS): female, immature, new shell

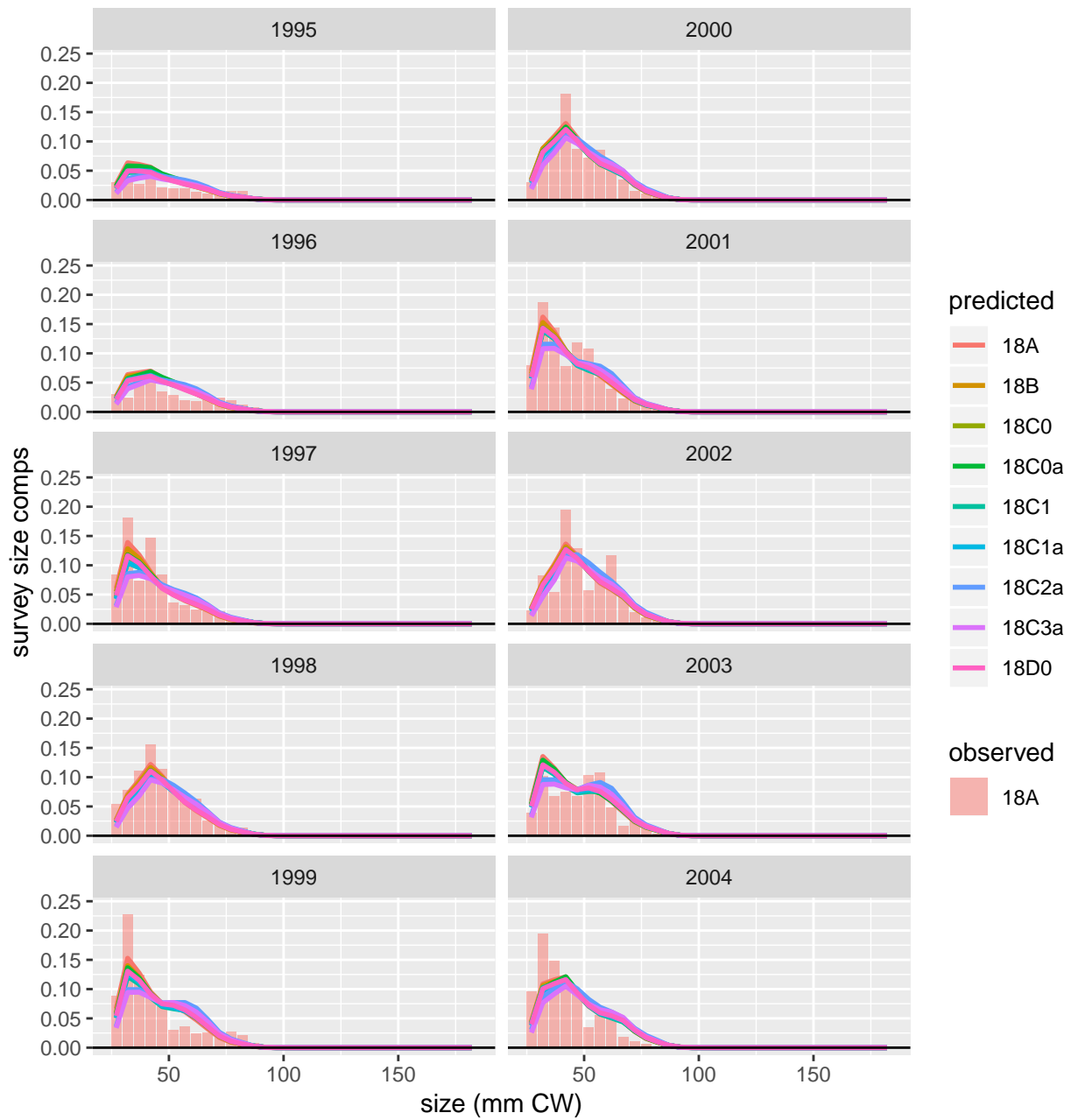


Figure 33: Comparison of observed and predicted female, immature, new shell survey size comps for NMFS (females by XMS). Page 3 of 5.

NMFS (females by XMS): female, immature, new shell

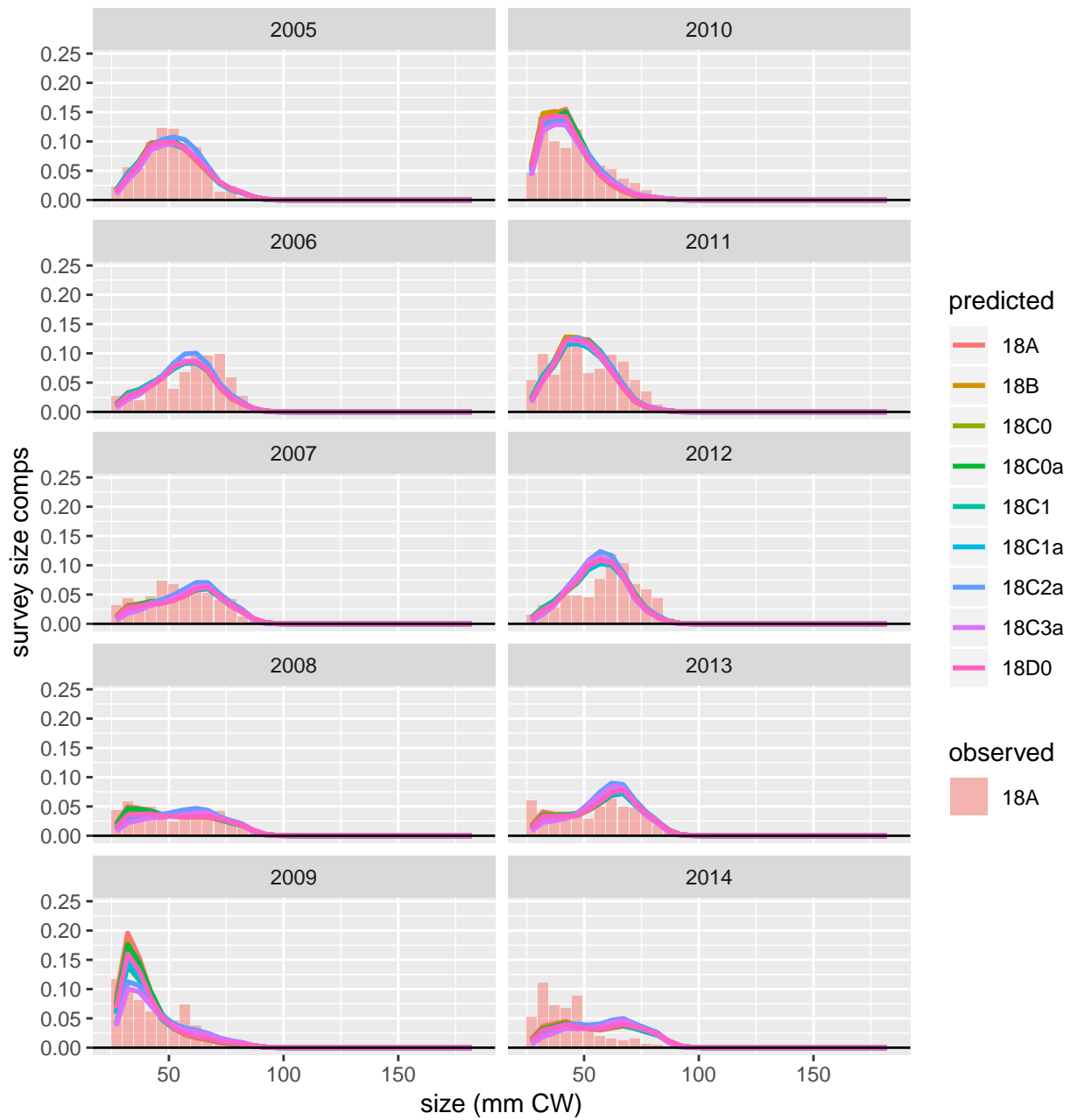


Figure 34: Comparison of observed and predicted female, immature, new shell survey size comps for NMFS (females by XMS). Page 4 of 5.

NMFS (females by XMS): female, immature, new shell

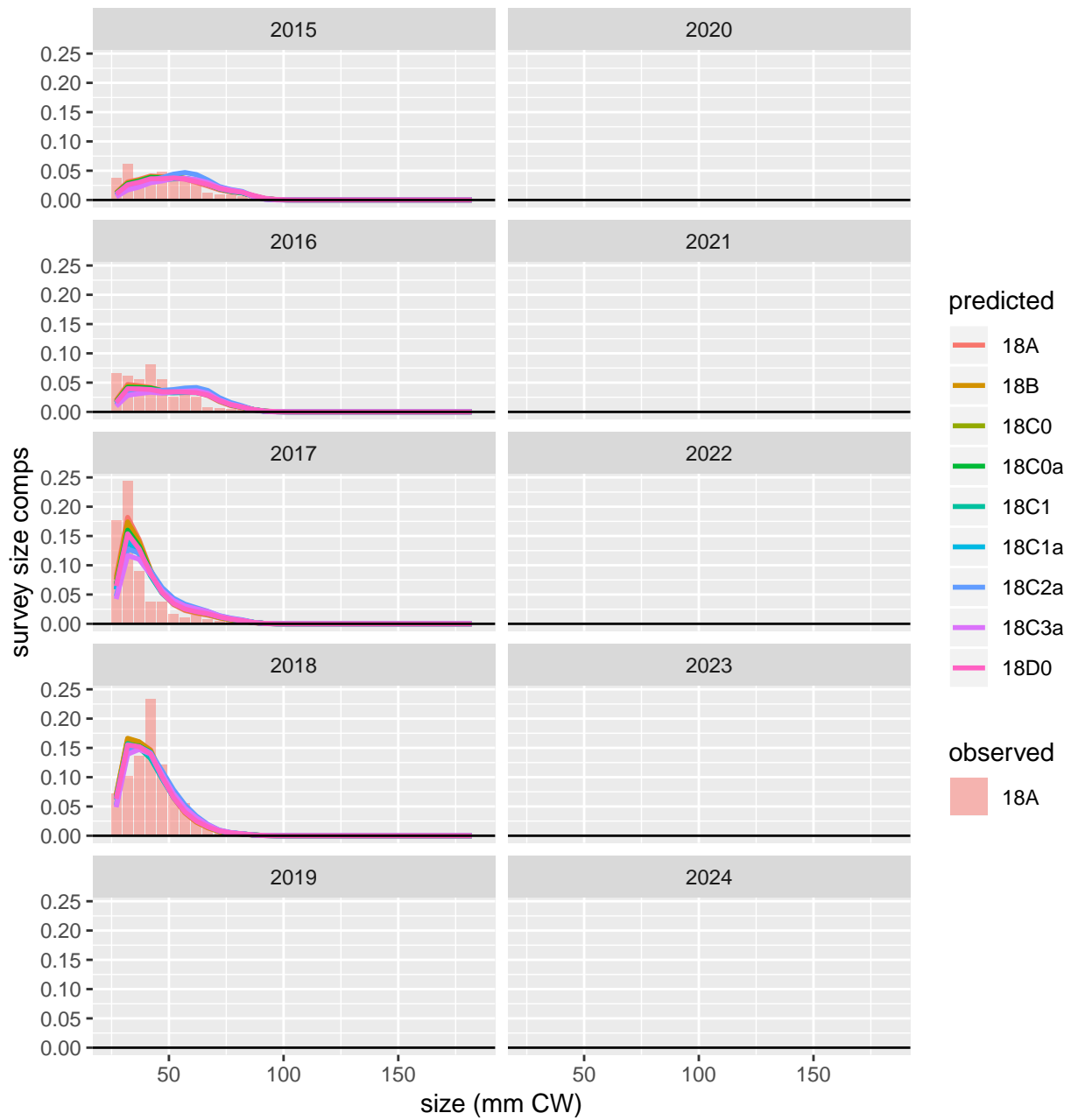


Figure 35: Comparison of observed and predicted female, immature, new shell survey size comps for NMFS (females by XMS). Page 5 of 5.

NMFS (females by XMS): female, mature, new shell

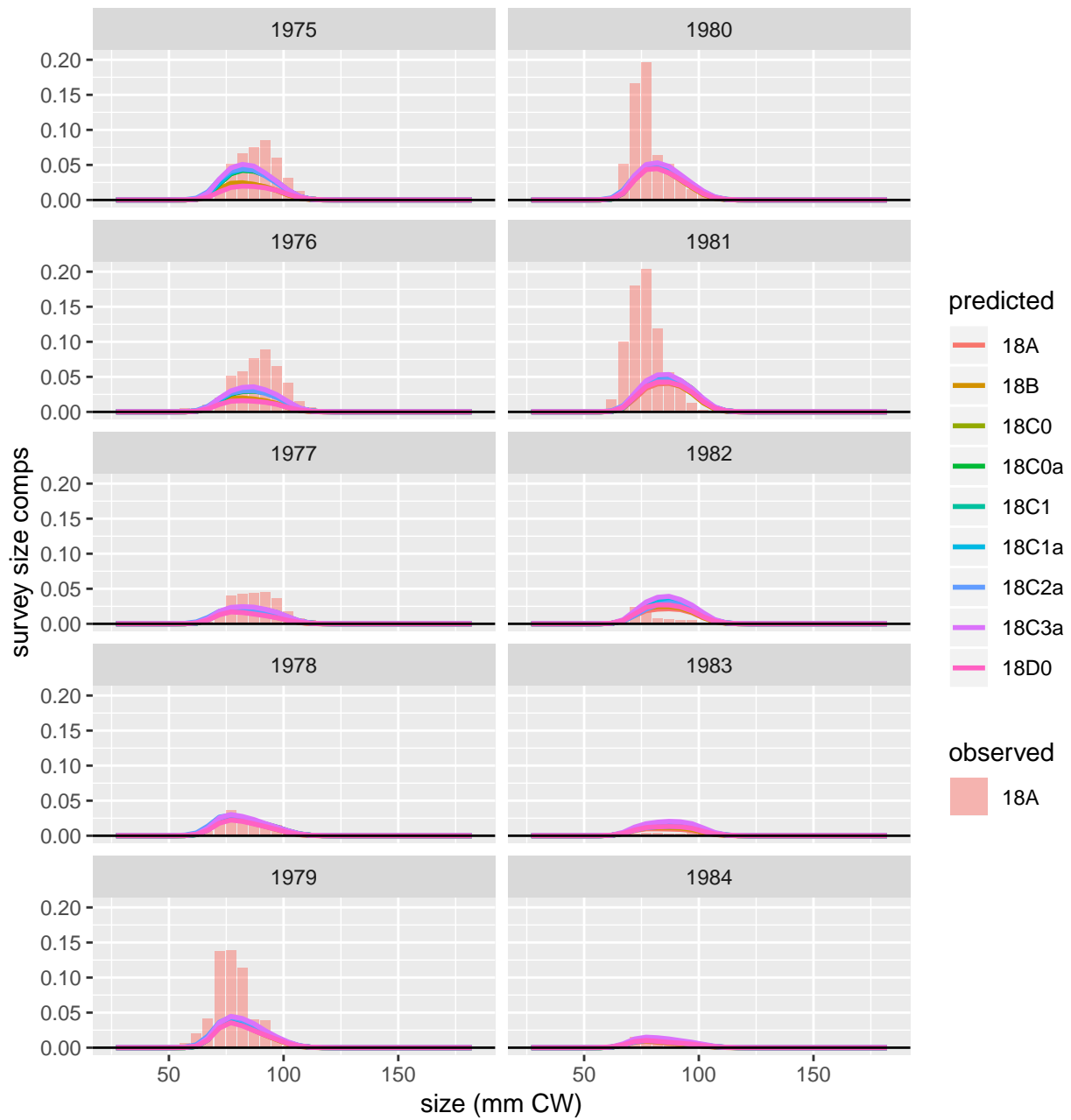


Figure 36: Comparison of observed and predicted female, mature, new shell survey size comps for NMFS (females by XMS). Page 1 of 5.

NMFS (females by XMS): female, mature, new shell

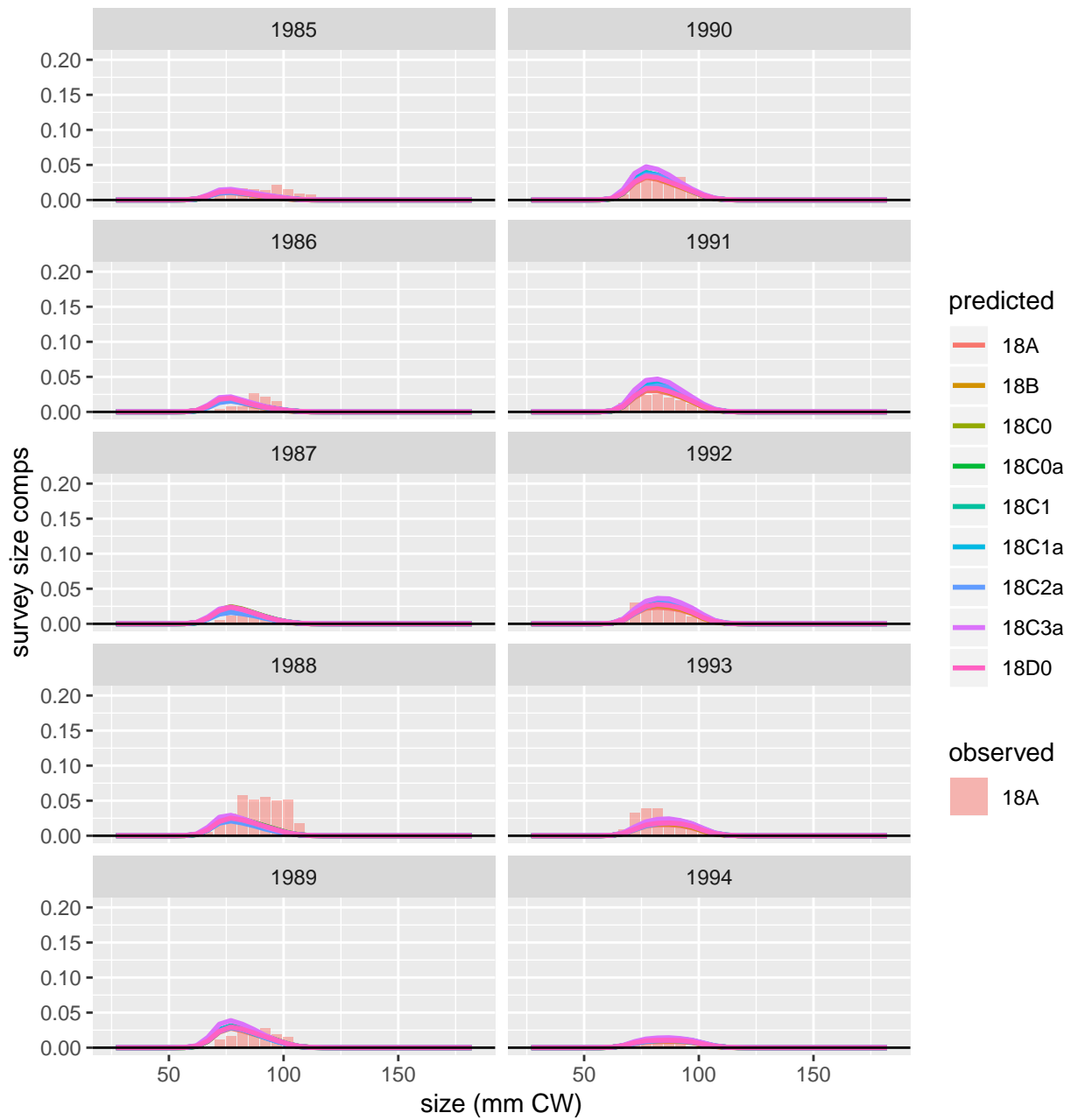


Figure 37: Comparison of observed and predicted female, mature, new shell survey size comps for NMFS (females by XMS). Page 2 of 5.

NMFS (females by XMS): female, mature, new shell

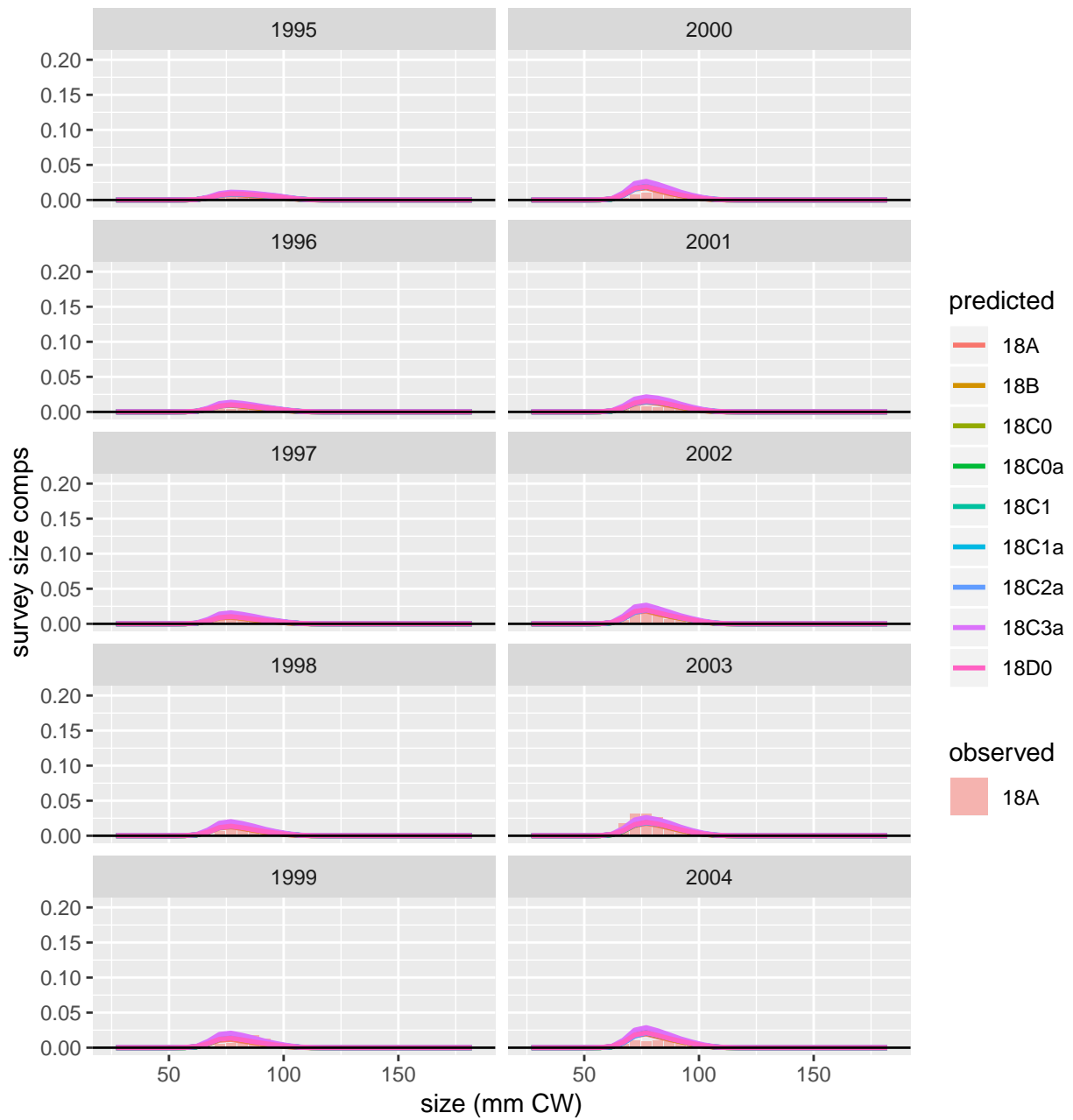


Figure 38: Comparison of observed and predicted female, mature, new shell survey size comps for NMFS (females by XMS). Page 3 of 5.

NMFS (females by XMS): female, mature, new shell

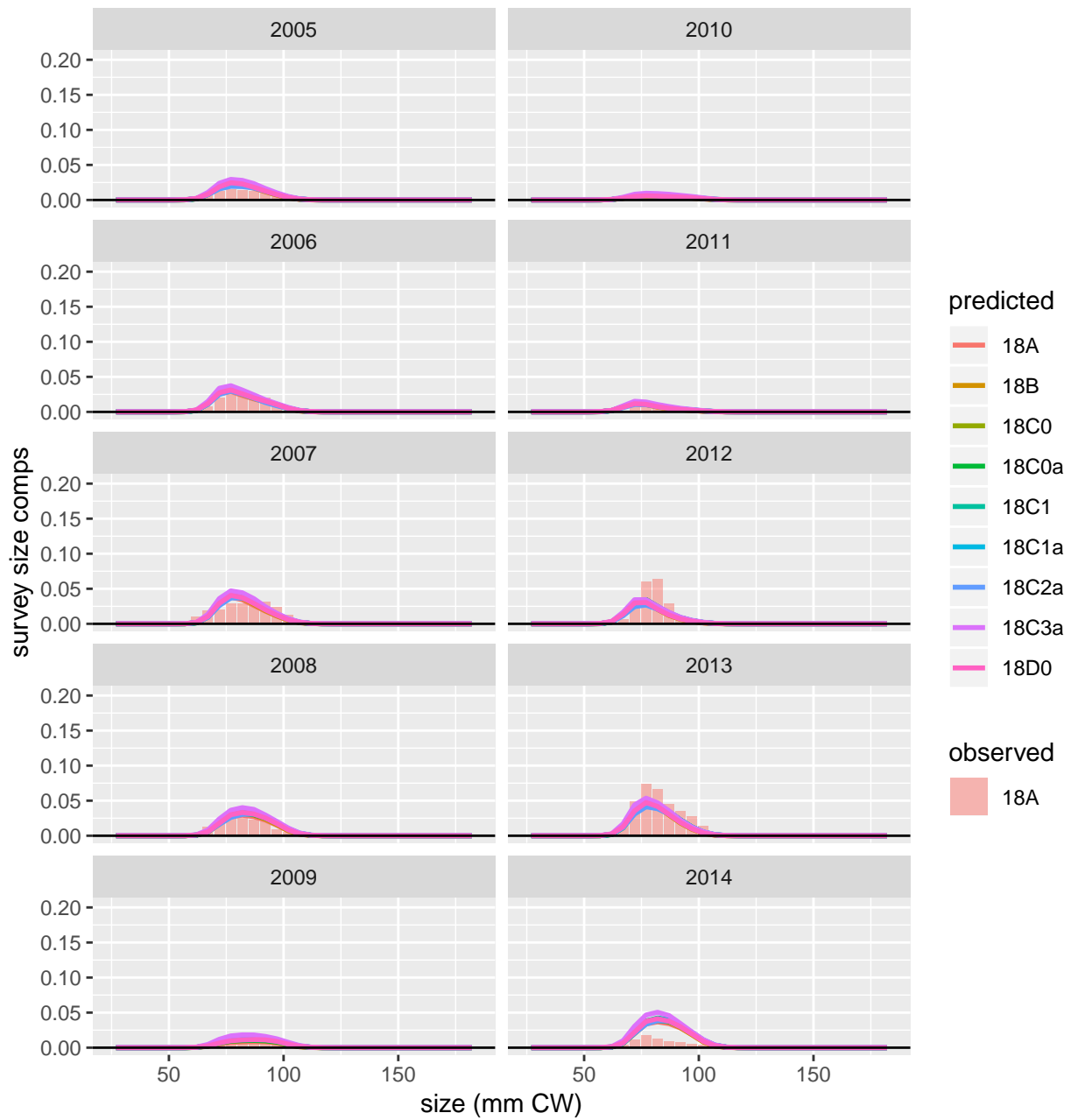


Figure 39: Comparison of observed and predicted female, mature, new shell survey size comps for NMFS (females by XMS). Page 4 of 5.



NMFS (females by XMS): female, mature, new shell

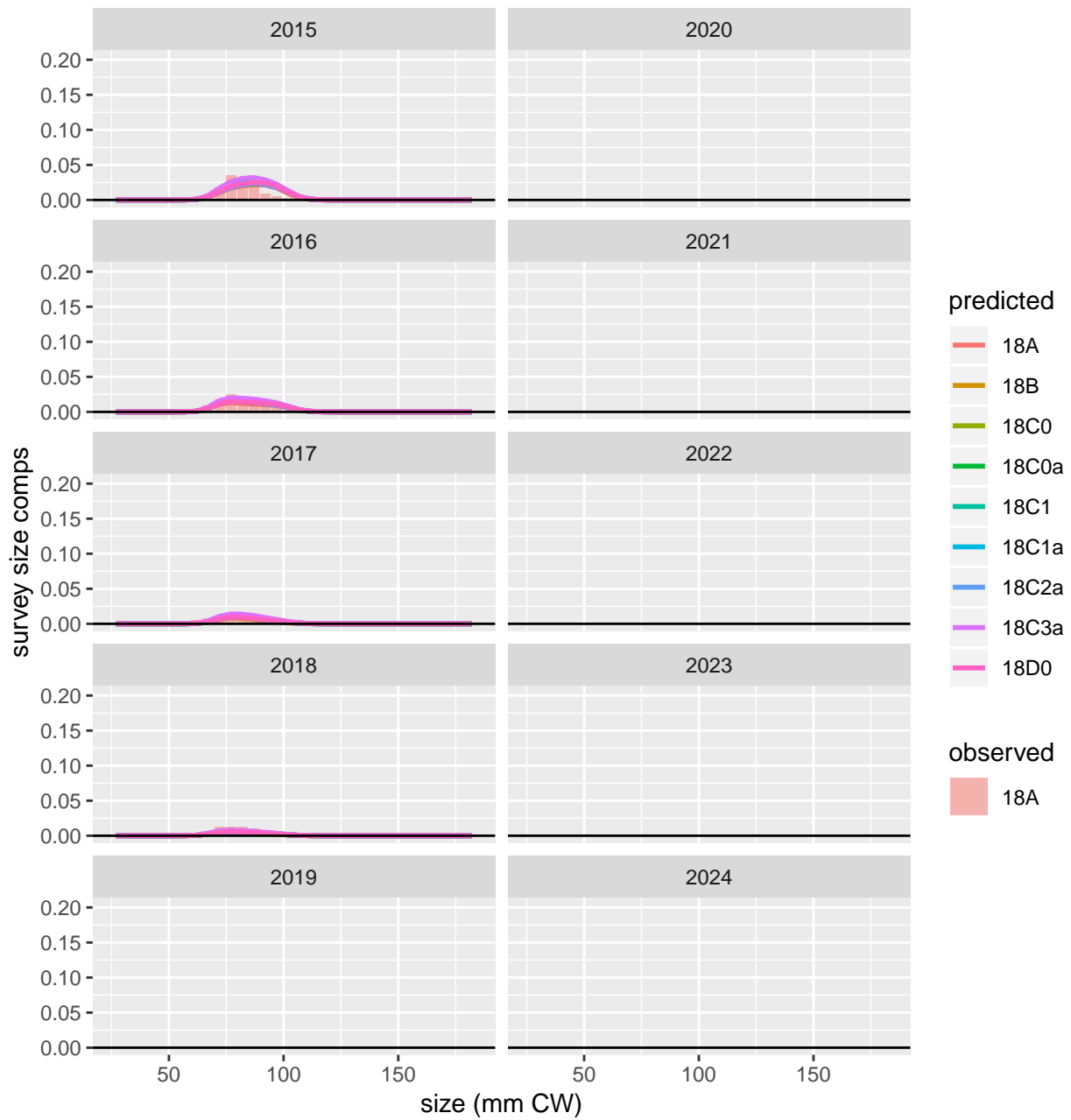


Figure 40: Comparison of observed and predicted female, mature, new shell survey size comps for NMFS (females by XMS). Page 5 of 5.

### NMFS (females by XMS): female, mature, old shell

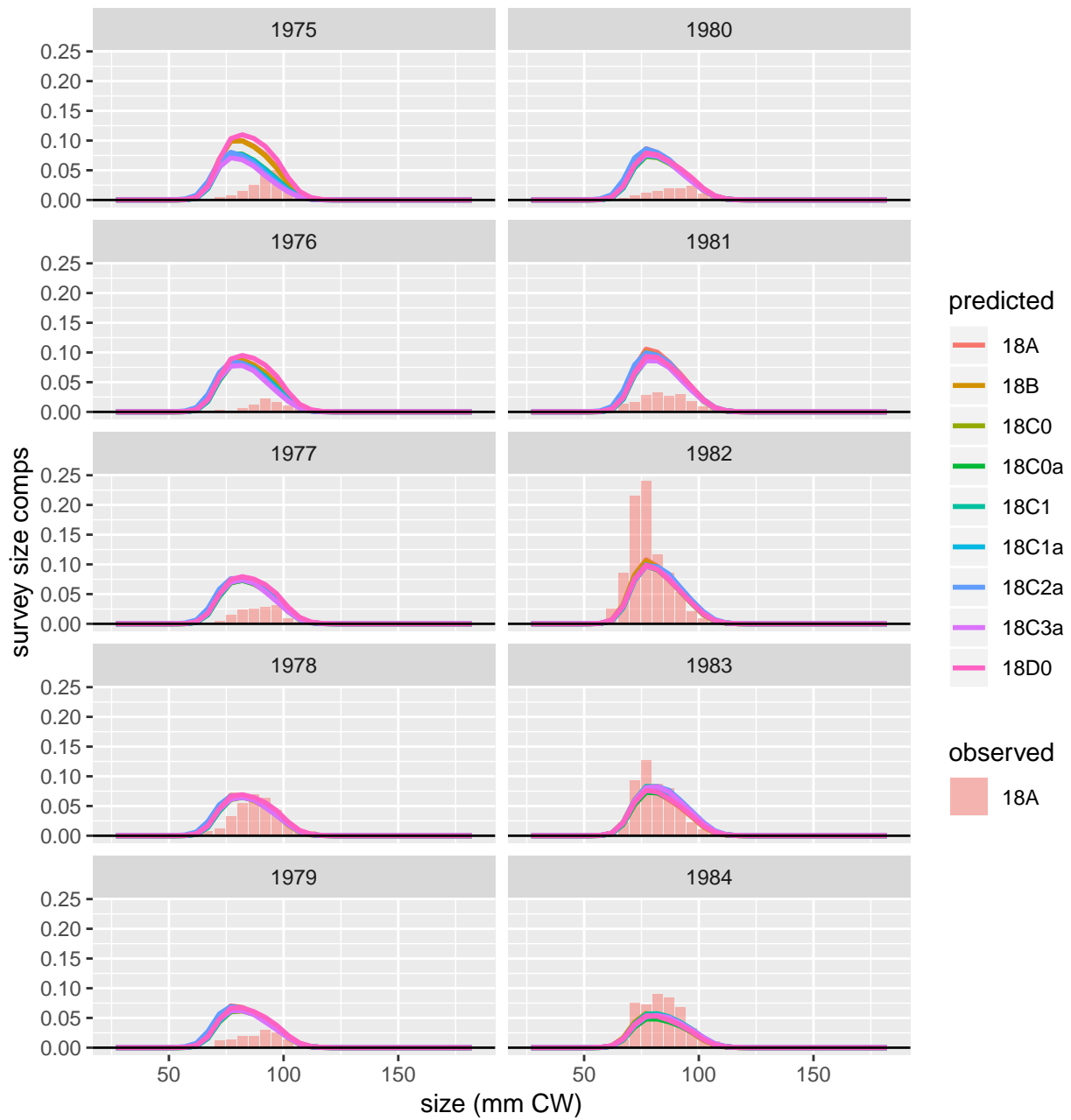


Figure 41: Comparison of observed and predicted female, mature, old shell survey size comps for NMFS (females by XMS). Page 1 of 5.

NMFS (females by XMS): female, mature, old shell

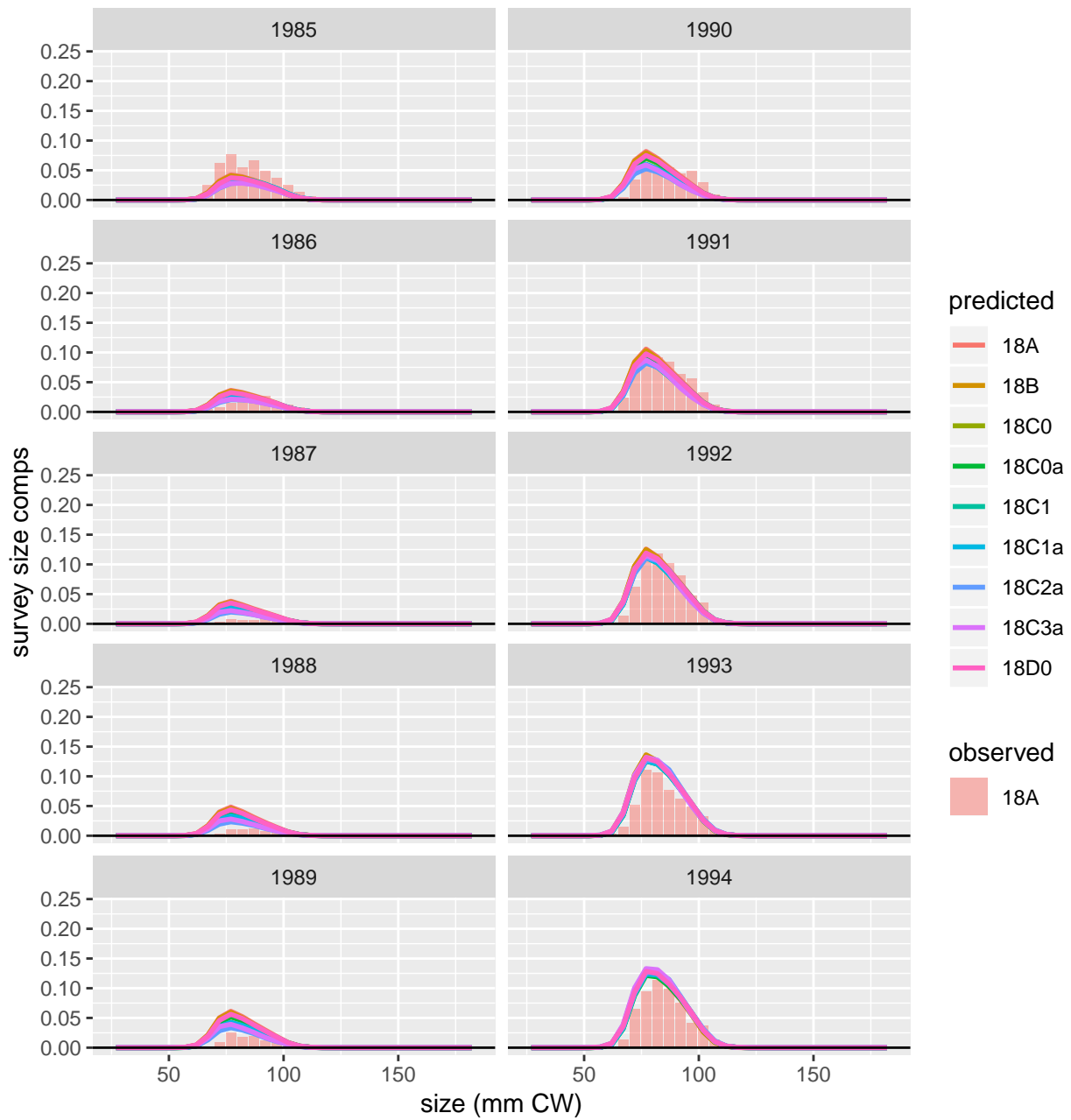


Figure 42: Comparison of observed and predicted female, mature, old shell survey size comps for NMFS (females by XMS). Page 2 of 5.

NMFS (females by XMS): female, mature, old shell

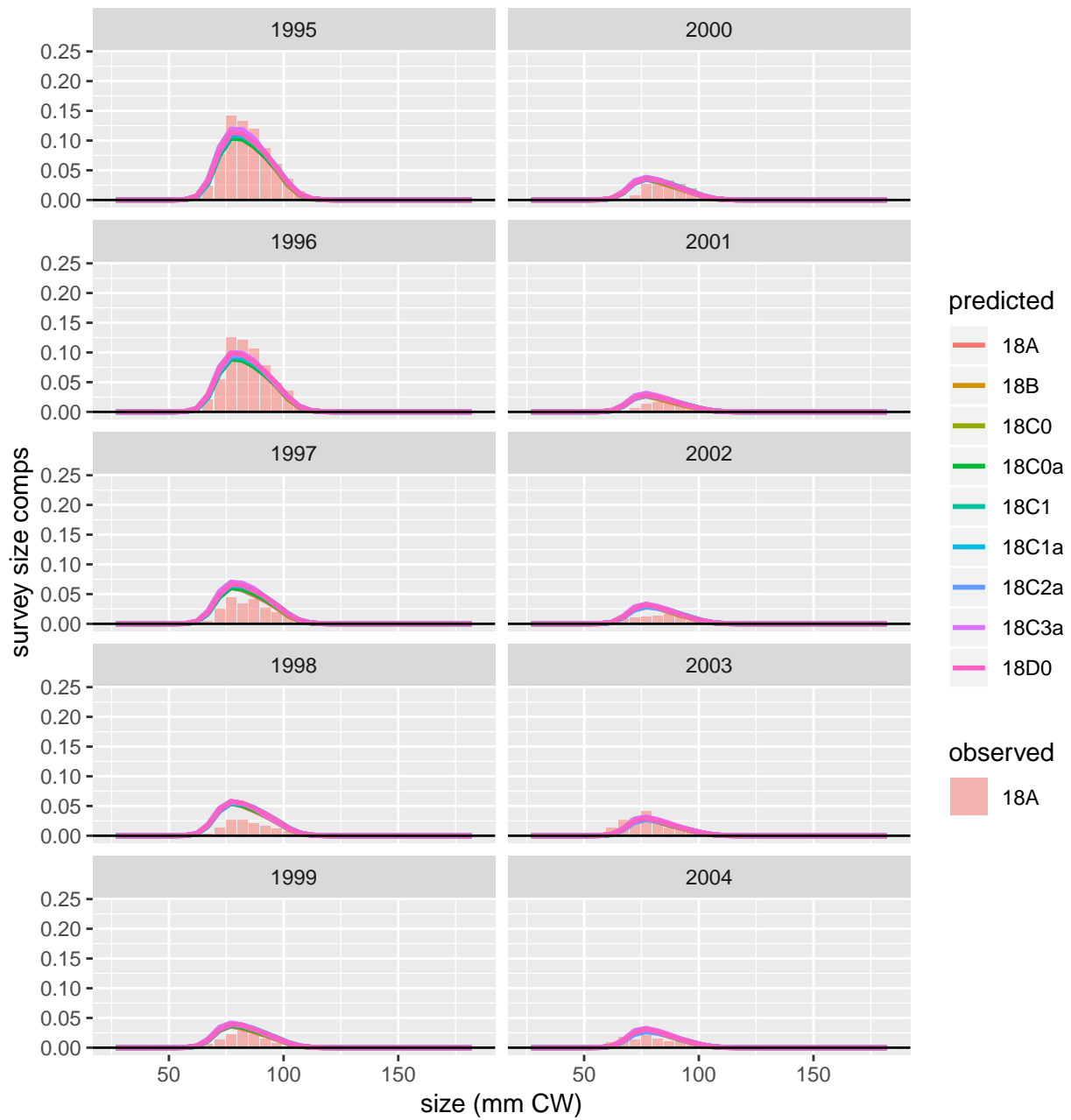


Figure 43: Comparison of observed and predicted female, mature, old shell survey size comps for NMFS (females by XMS). Page 3 of 5.

NMFS (females by XMS): female, mature, old shell

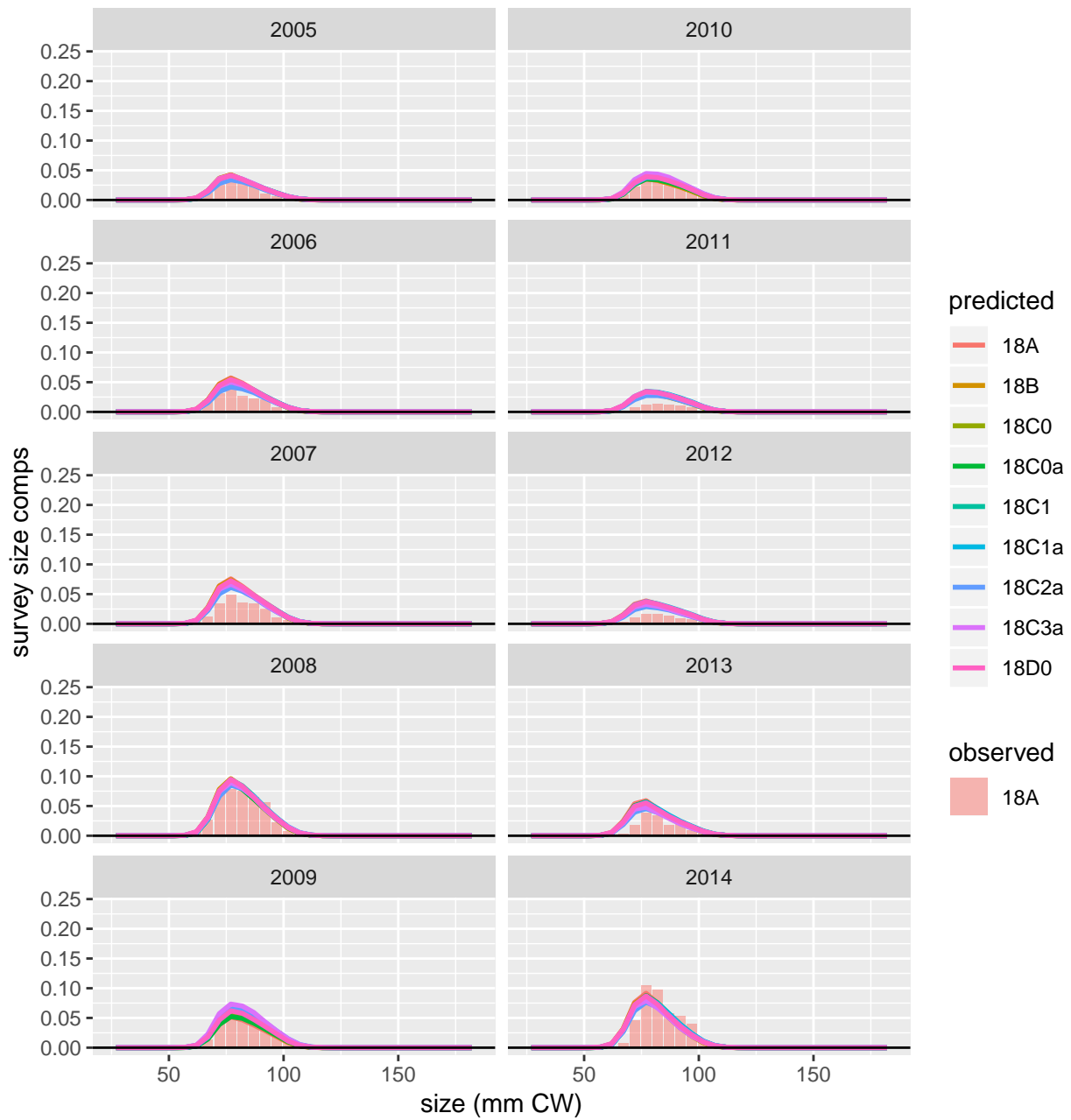


Figure 44: Comparison of observed and predicted female, mature, old shell survey size comps for NMFS (females by XMS). Page 4 of 5.

### NMFS (females by XMS): female, mature, old shell

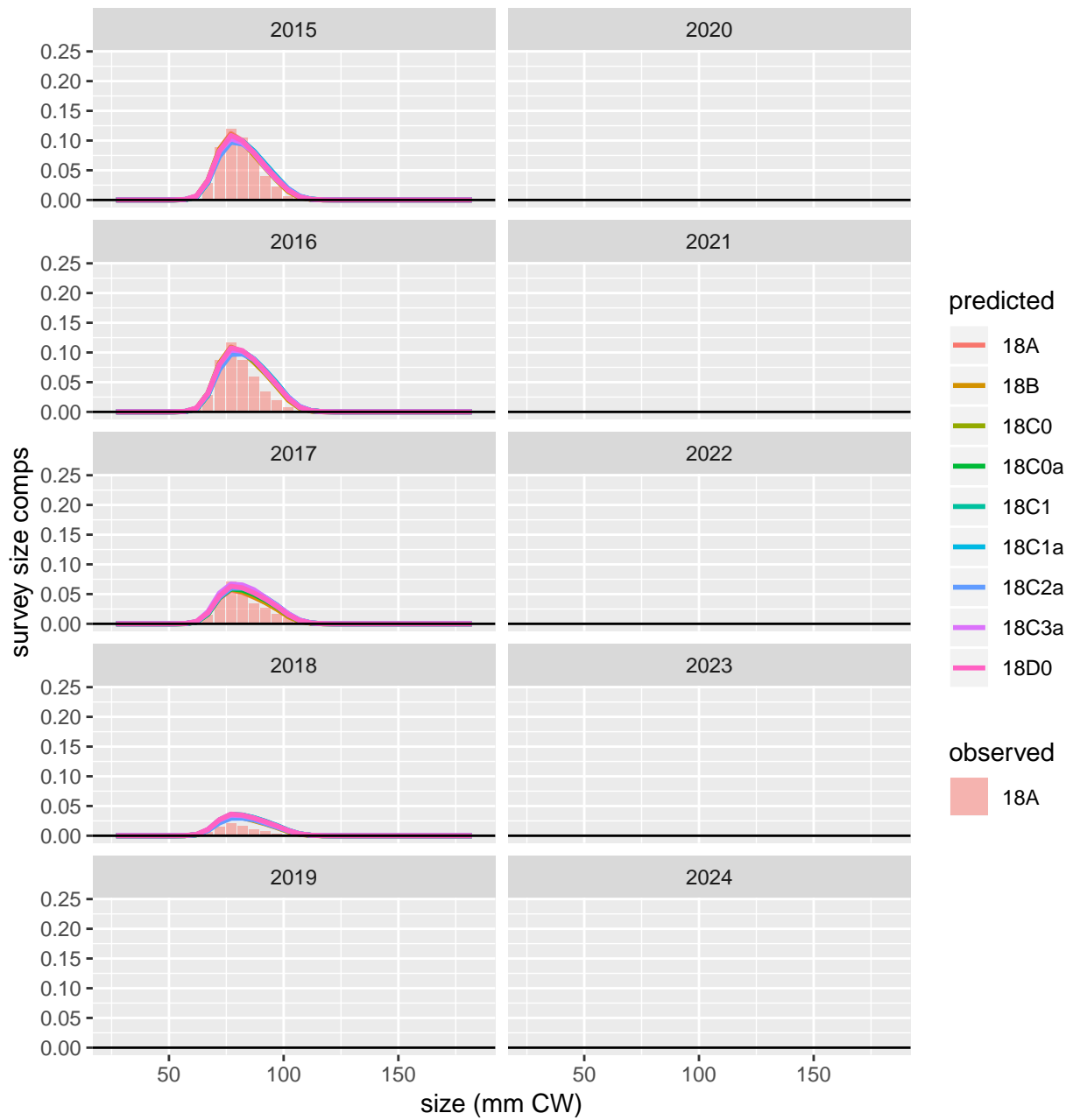


Figure 45: Comparison of observed and predicted female, mature, old shell survey size comps for NMFS (females by XMS). Page 5 of 5.

### NMFS (males by X): male, all maturity, all shell

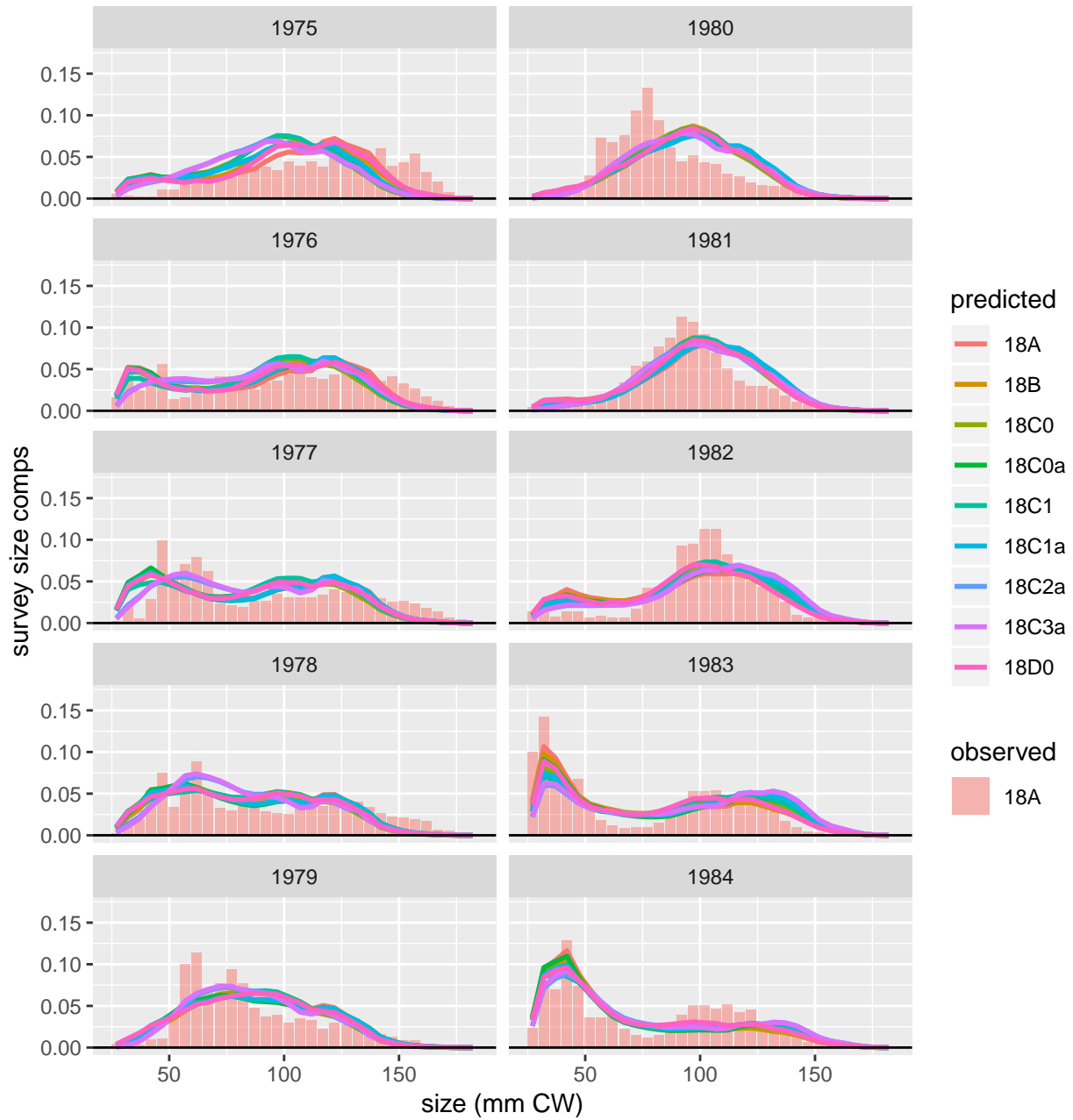


Figure 46: Comparison of observed and predicted male, all maturity, all shell survey size comps for NMFS (males by X). Page 1 of 5.

NMFS (males by X): male, all maturity, all shell

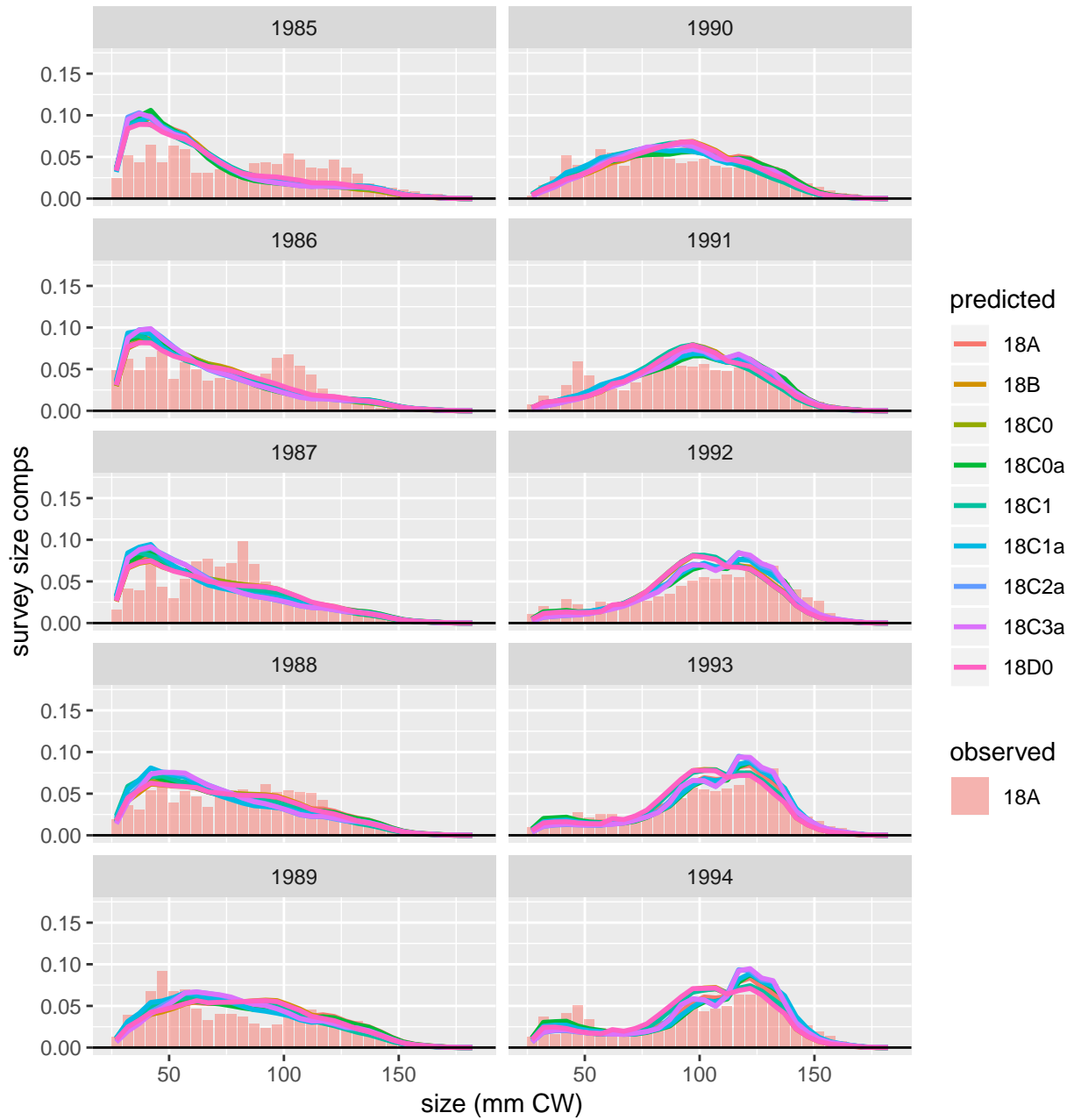


Figure 47: Comparison of observed and predicted male, all maturity, all shell survey size comps for NMFS (males by X). Page 2 of 5.



### NMFS (males by X): male, all maturity, all shell

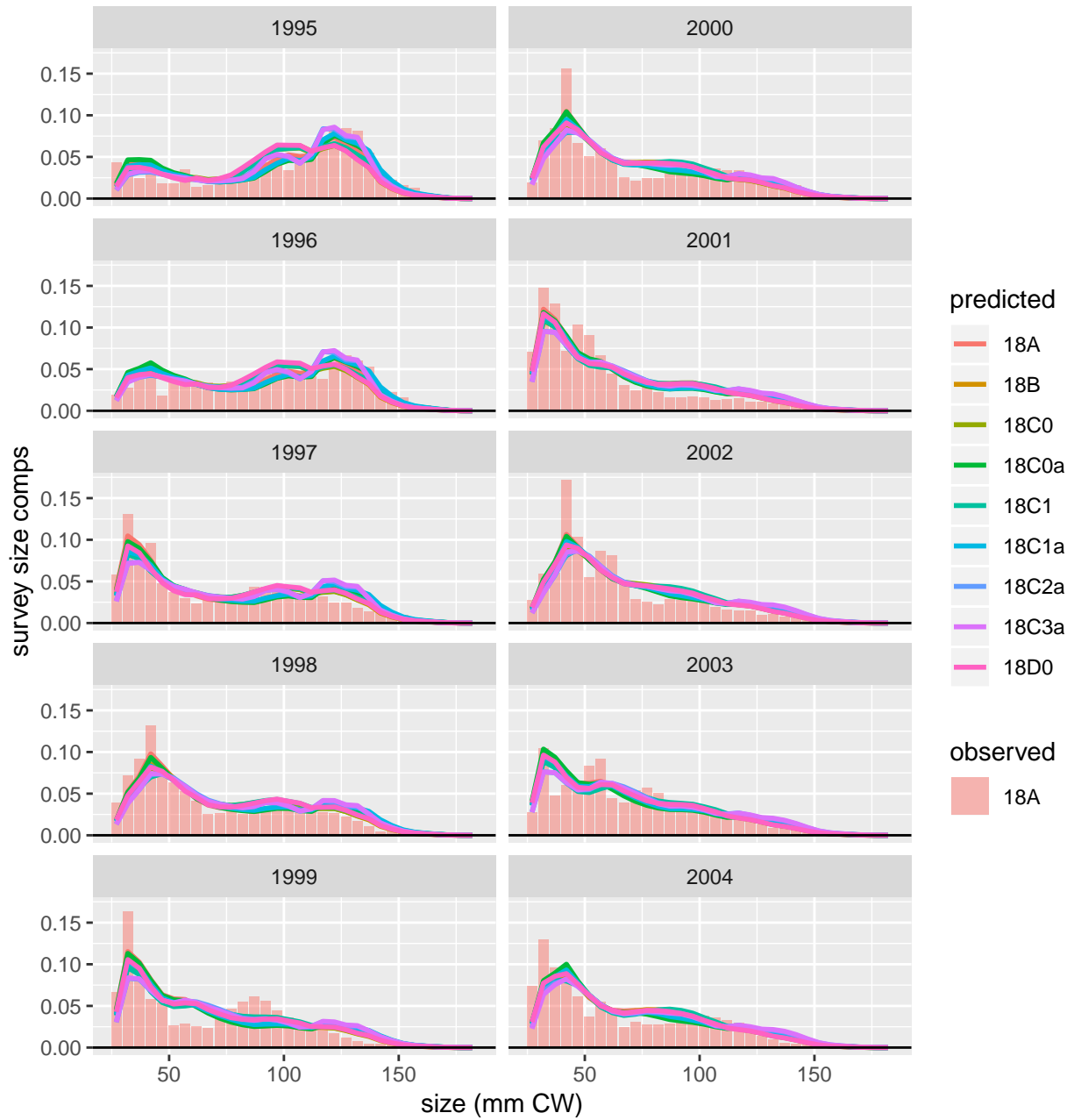


Figure 48: Comparison of observed and predicted male, all maturity, all shell survey size comps for NMFS (males by X). Page 3 of 5.

NMFS (males by X): male, all maturity, all shell

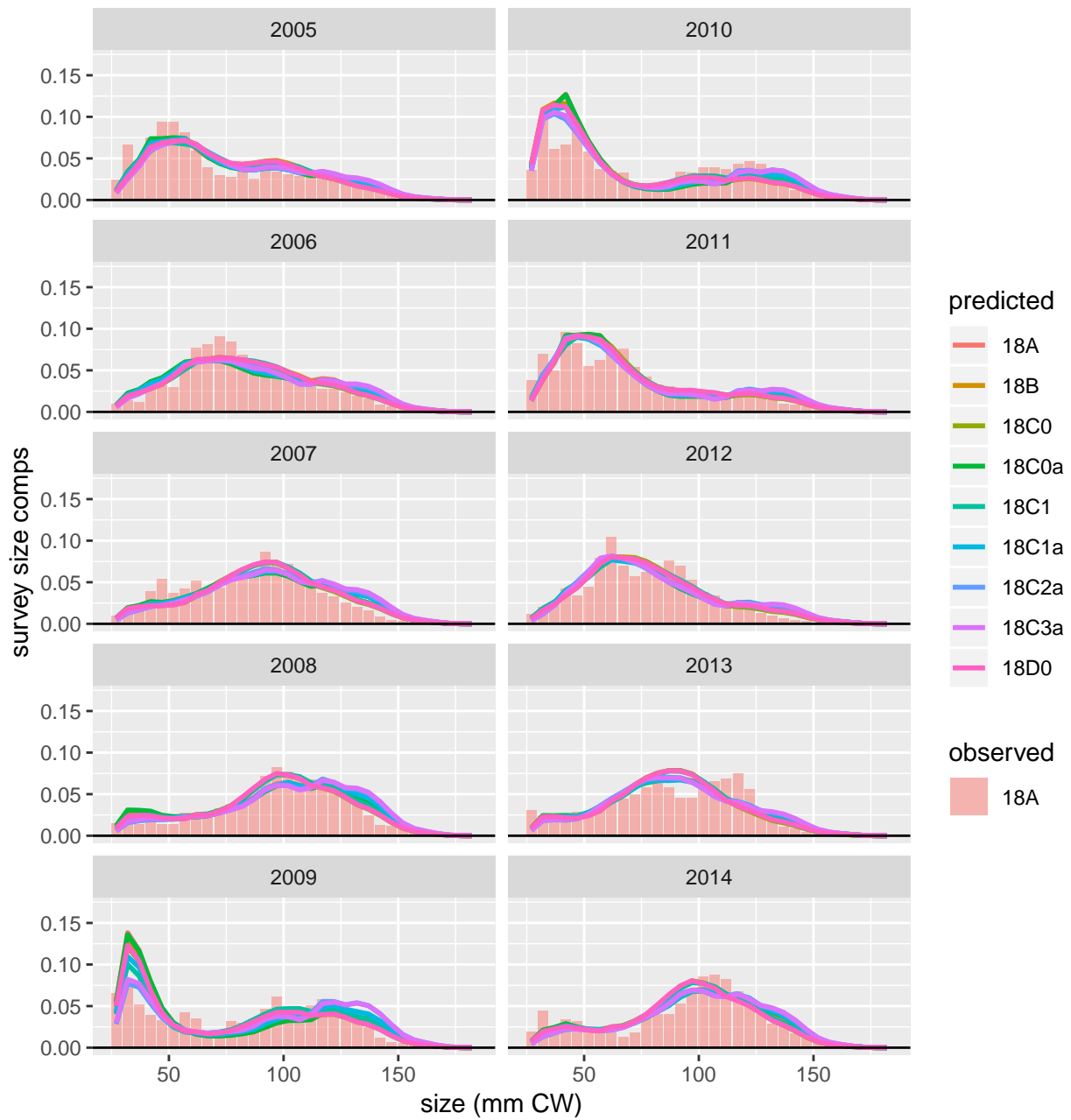


Figure 49: Comparison of observed and predicted male, all maturity, all shell survey size comps for NMFS (males by X). Page 4 of 5.

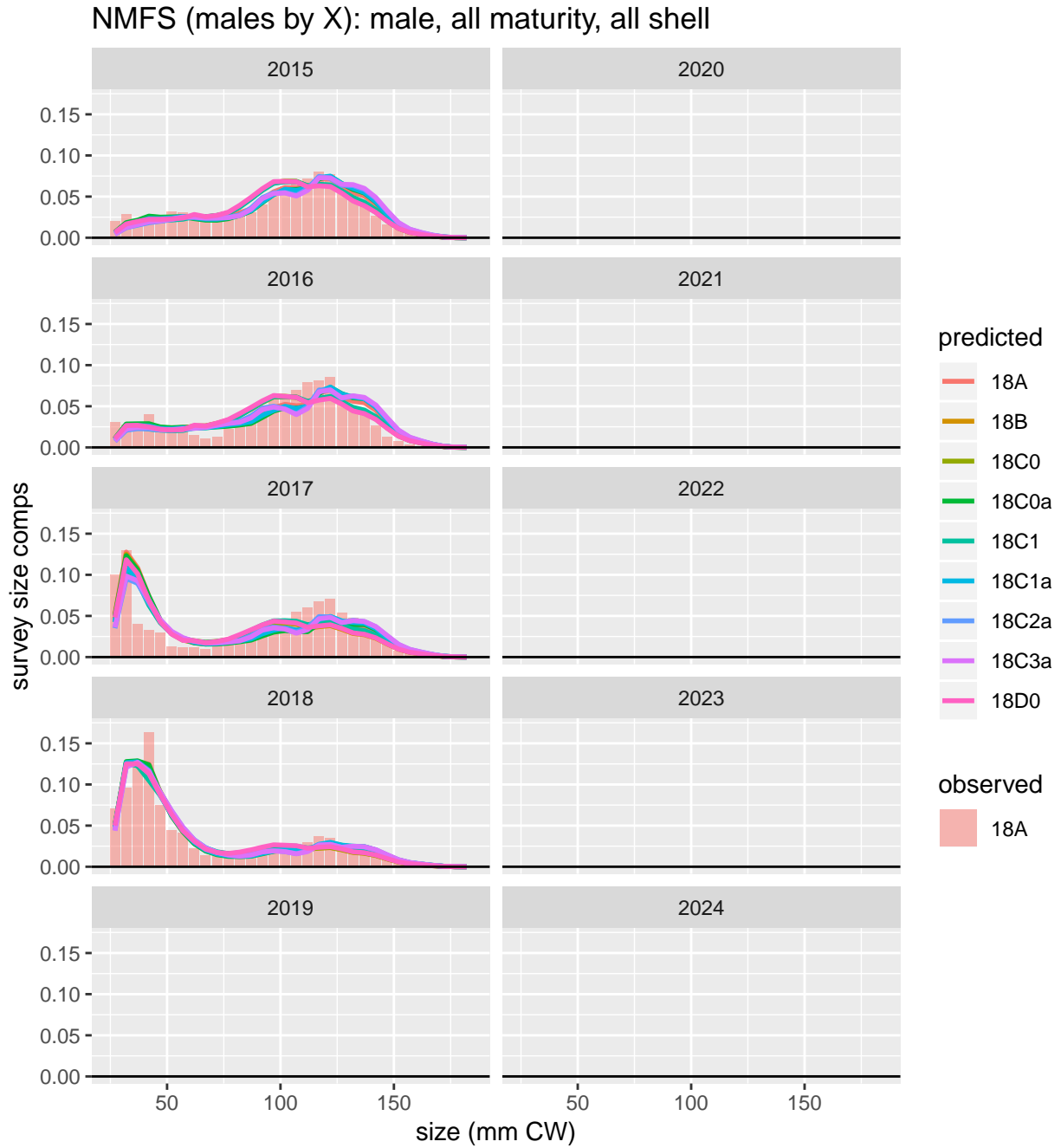


Figure 50: Comparison of observed and predicted male, all maturity, all shell survey size comps for NMFS (males by X). Page 5 of 5.

NMFS (females by XM): female, immature, all shell

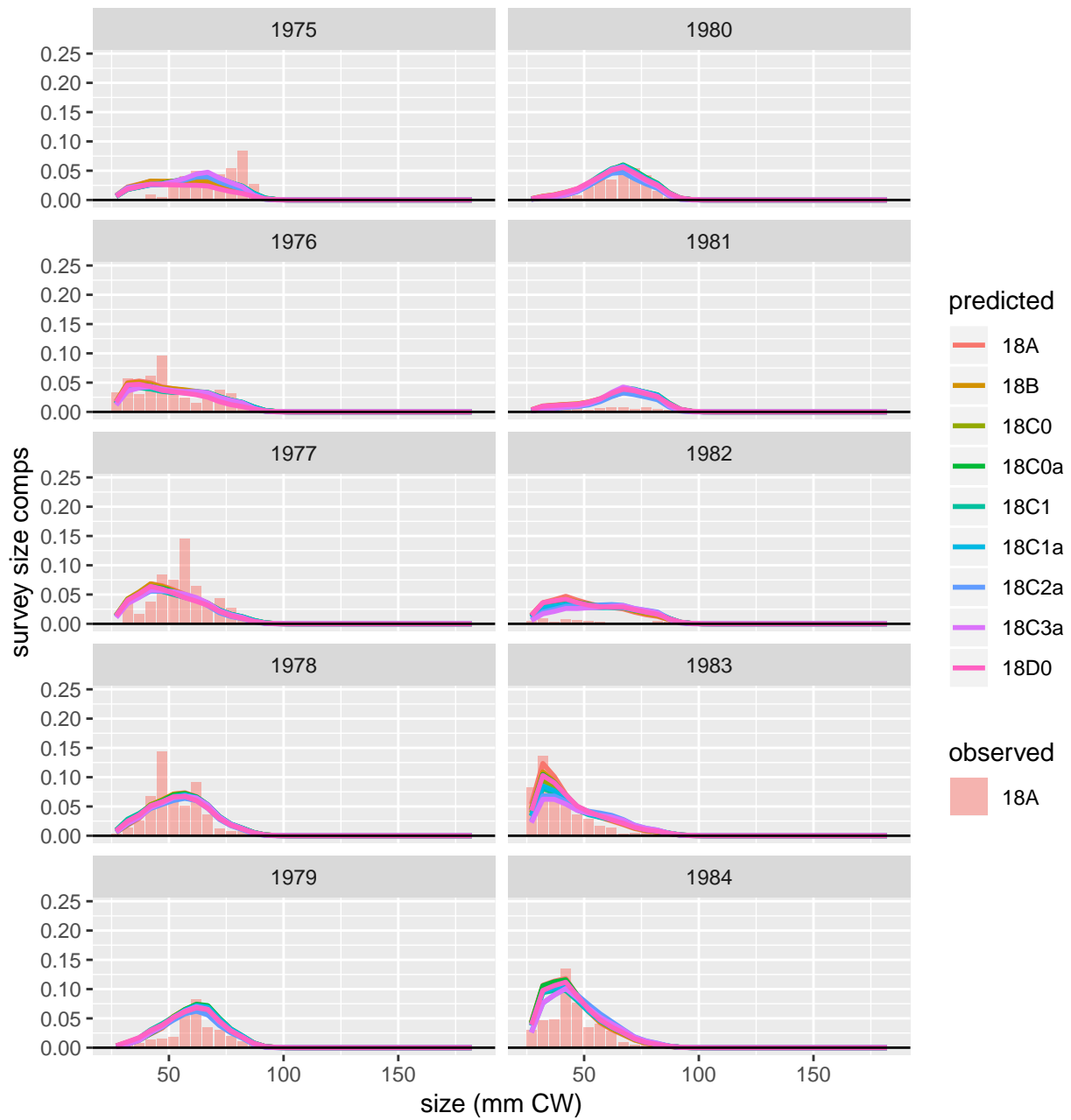


Figure 51: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (females by XM). Page 1 of 5.

### NMFS (females by XM): female, immature, all shell

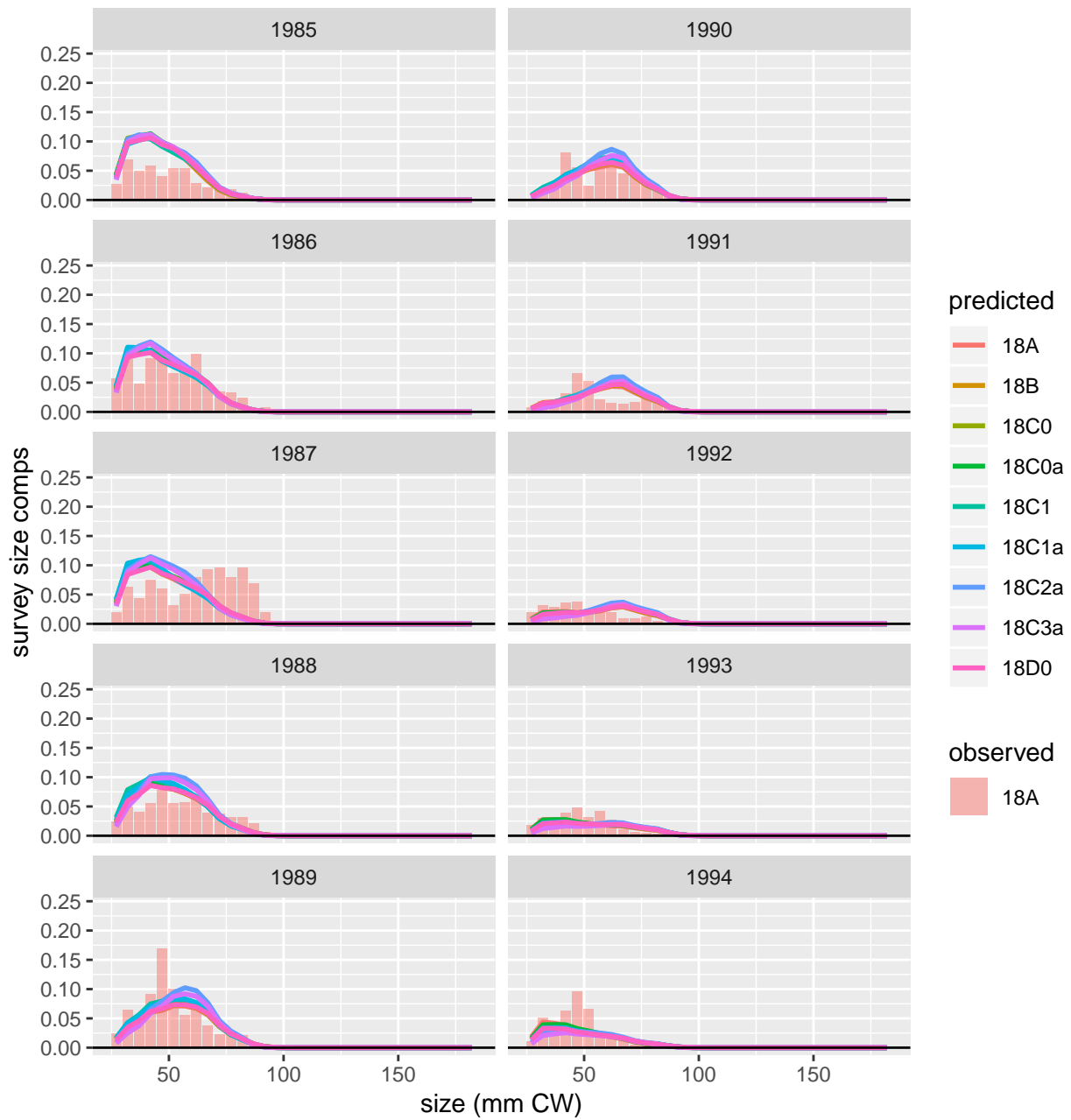


Figure 52: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (females by XM). Page 2 of 5.

NMFS (females by XM): female, immature, all shell

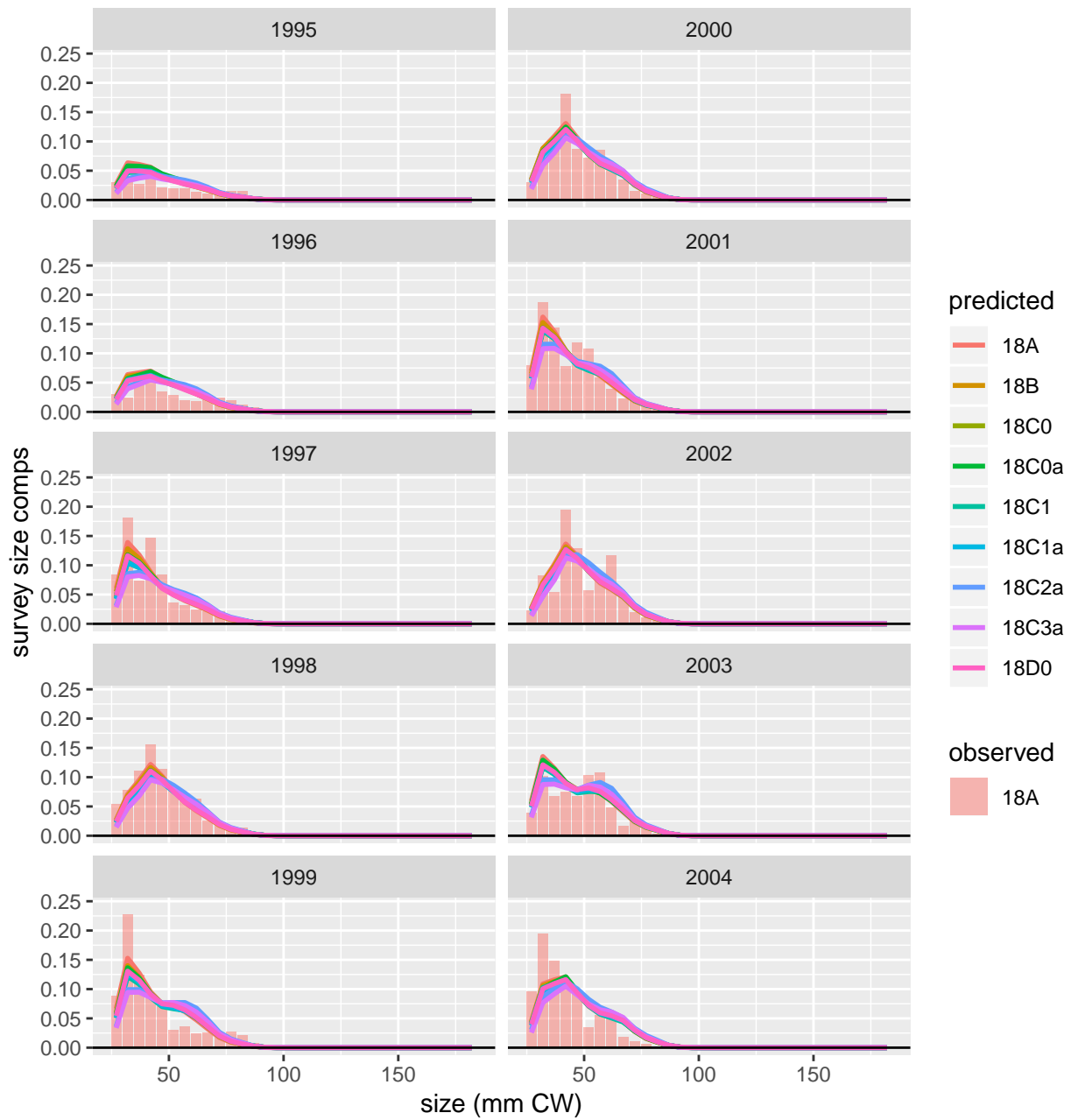


Figure 53: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (females by XM). Page 3 of 5.

NMFS (females by XM): female, immature, all shell

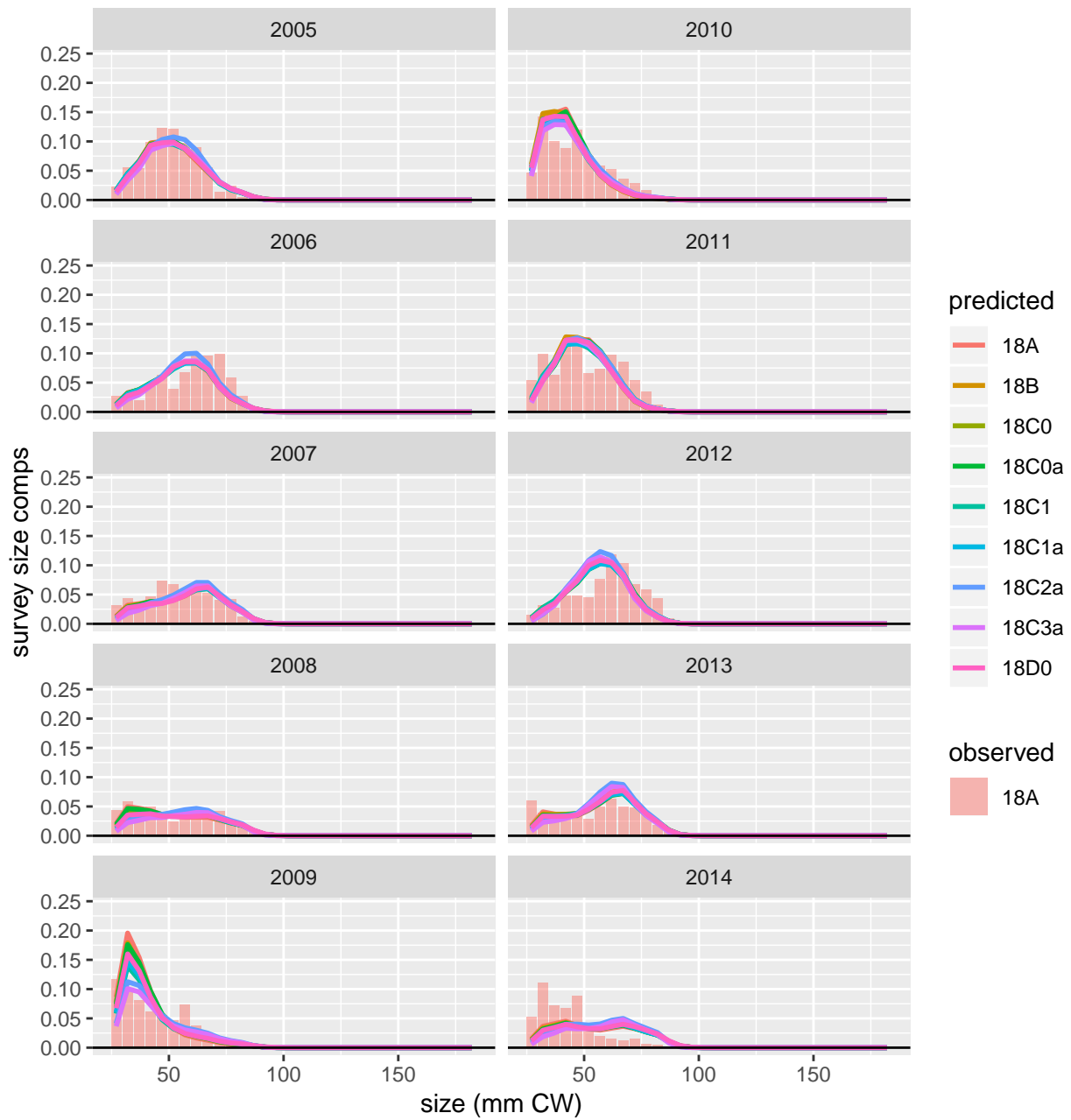


Figure 54: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (females by XM). Page 4 of 5.

NMFS (females by XM): female, immature, all shell

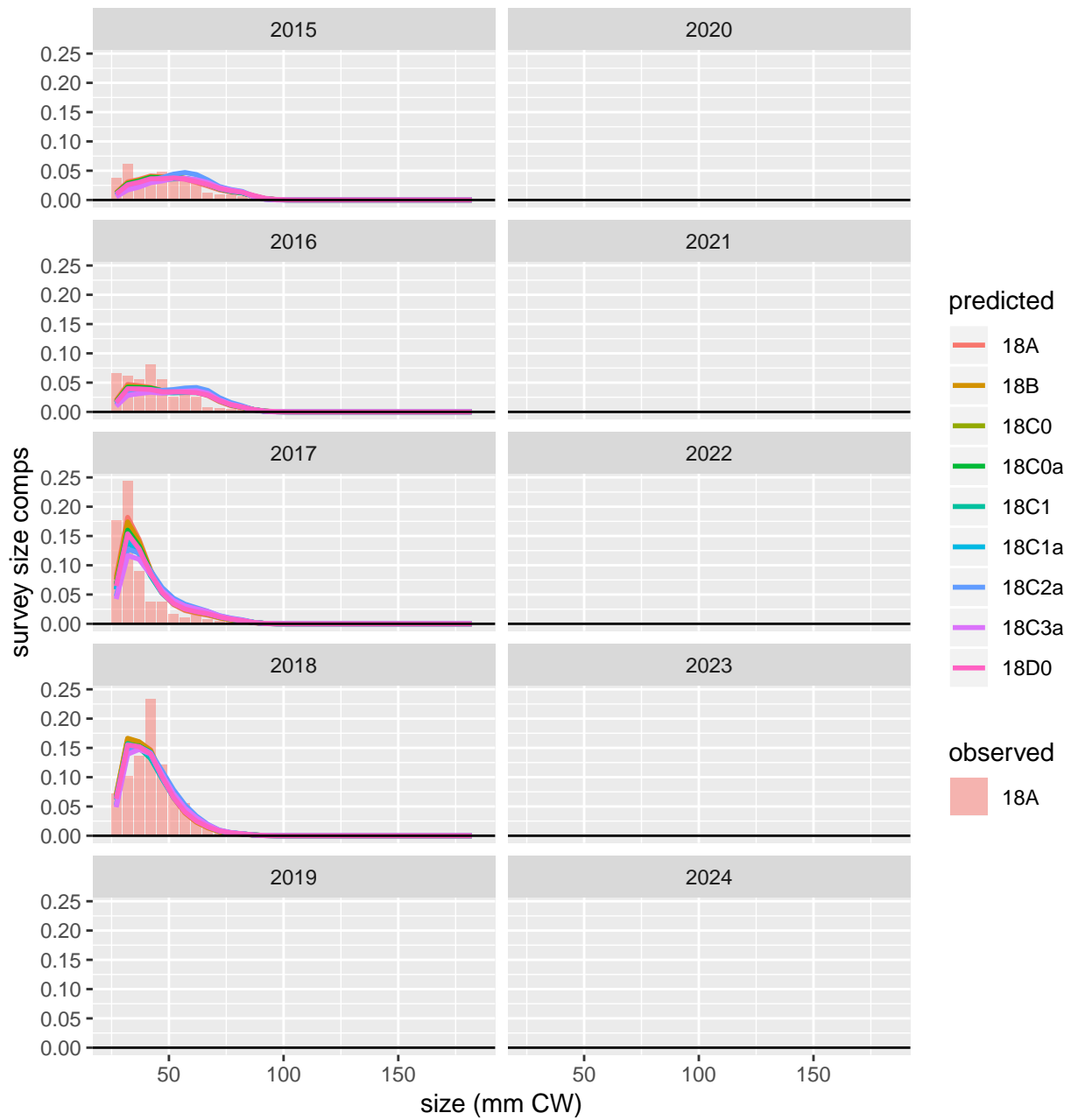


Figure 55: Comparison of observed and predicted female, immature, all shell survey size comps for NMFS (females by XM). Page 5 of 5.



### NMFS (females by XM): female, mature, all shell

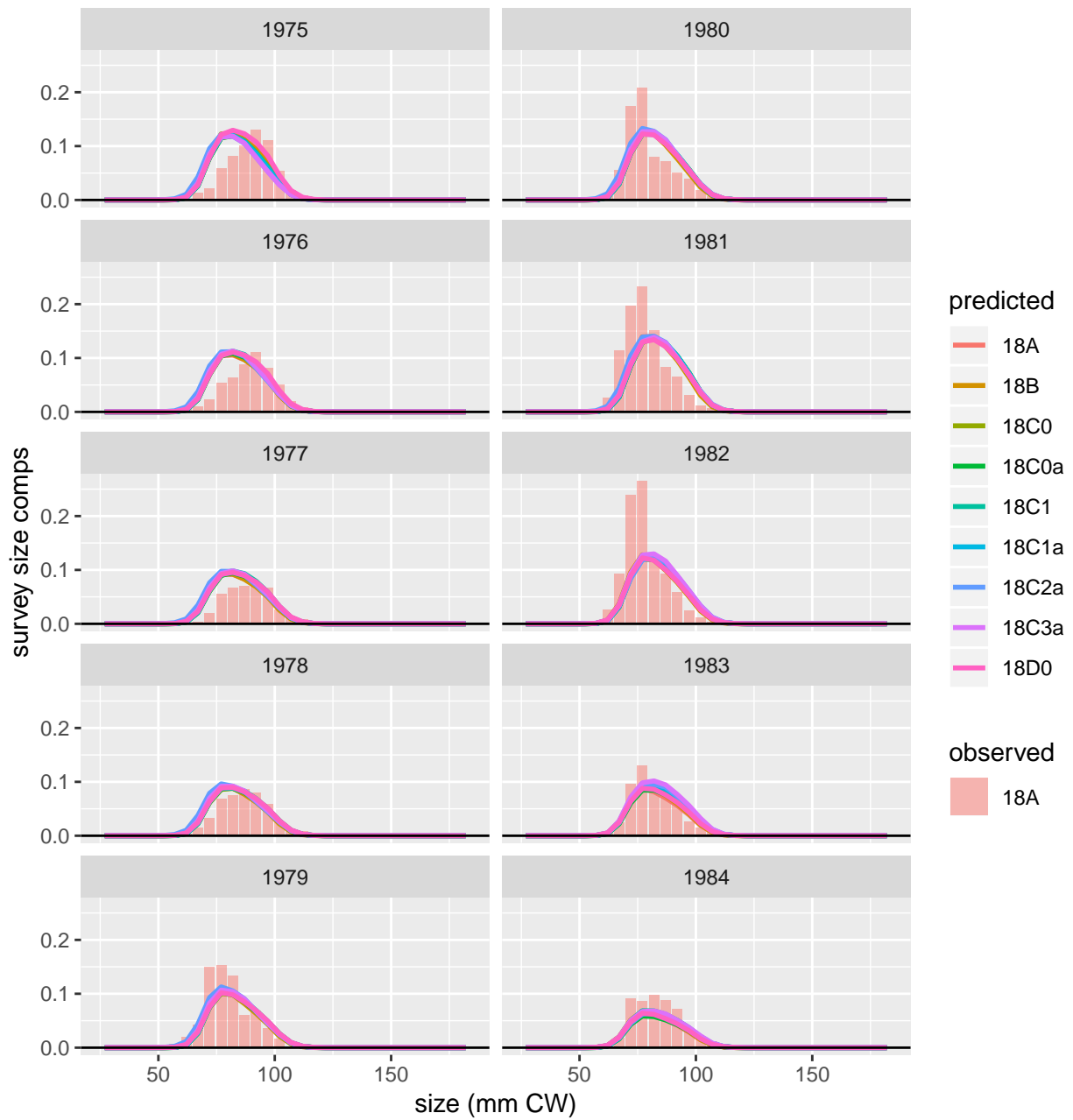


Figure 56: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (females by XM). Page 1 of 5.

NMFS (females by XM): female, mature, all shell

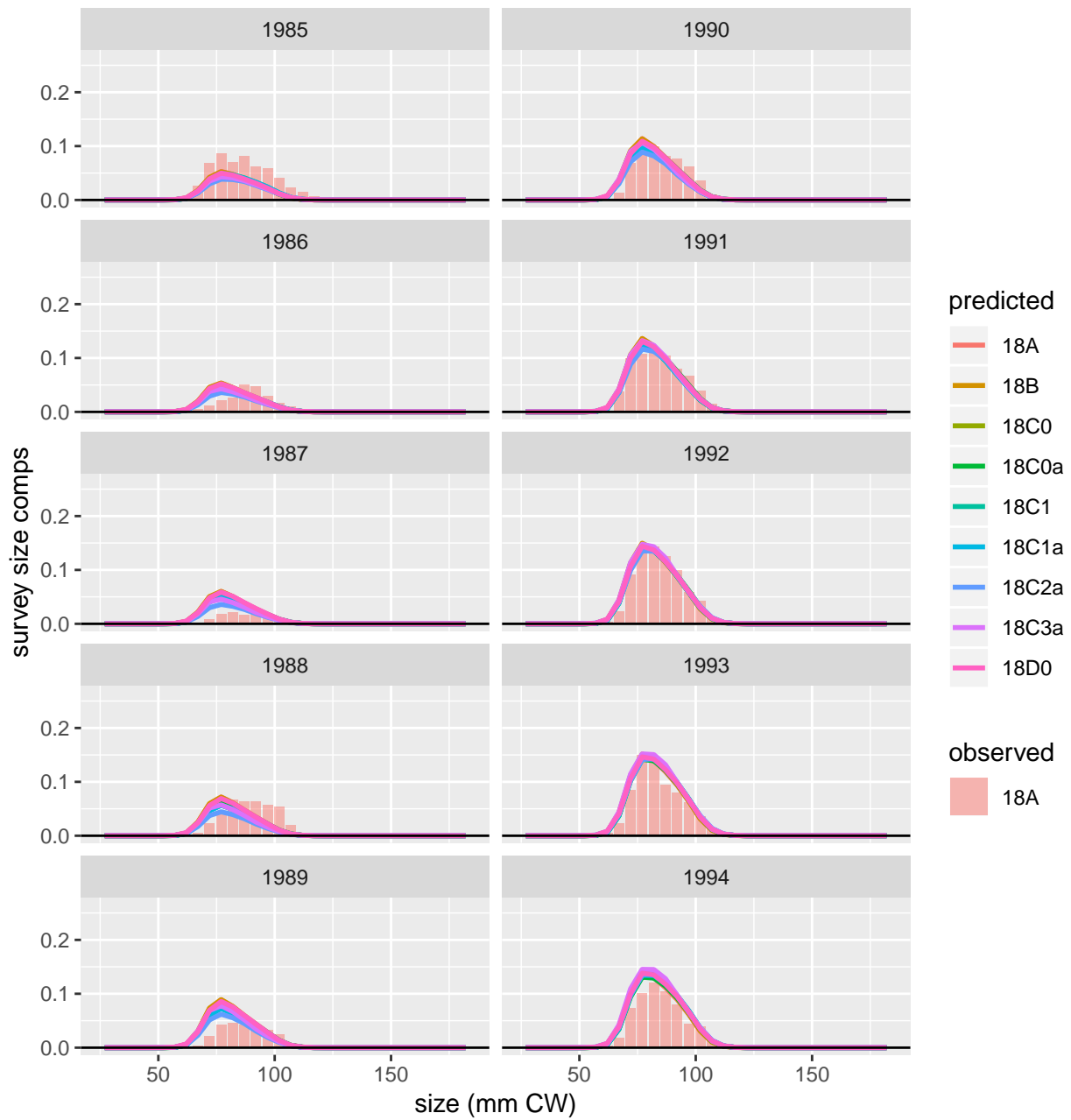


Figure 57: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (females by XM). Page 2 of 5.

NMFS (females by XM): female, mature, all shell

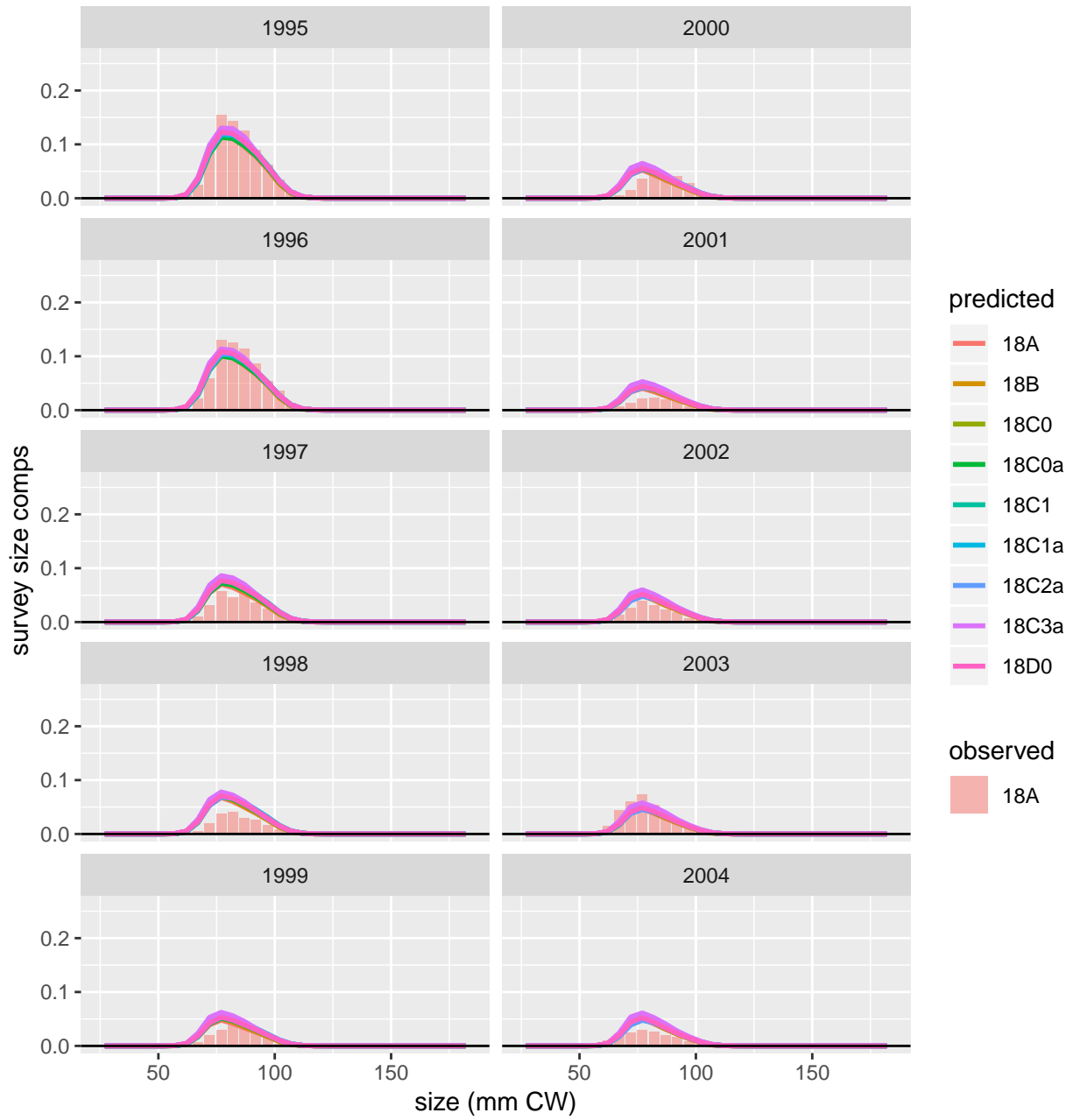


Figure 58: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (females by XM). Page 3 of 5.

NMFS (females by XM): female, mature, all shell

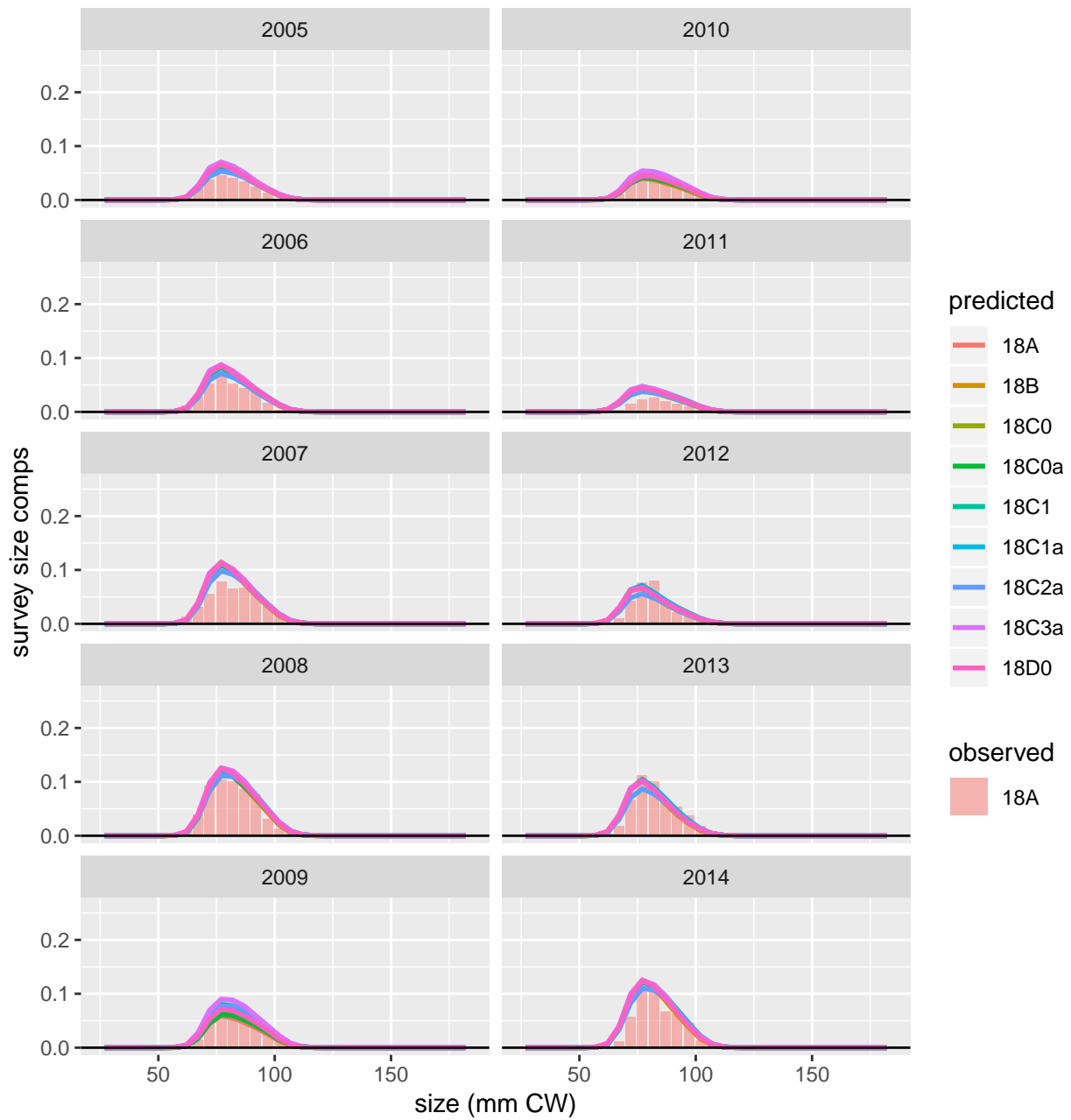


Figure 59: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (females by XM). Page 4 of 5.

NMFS (females by XM): female, mature, all shell

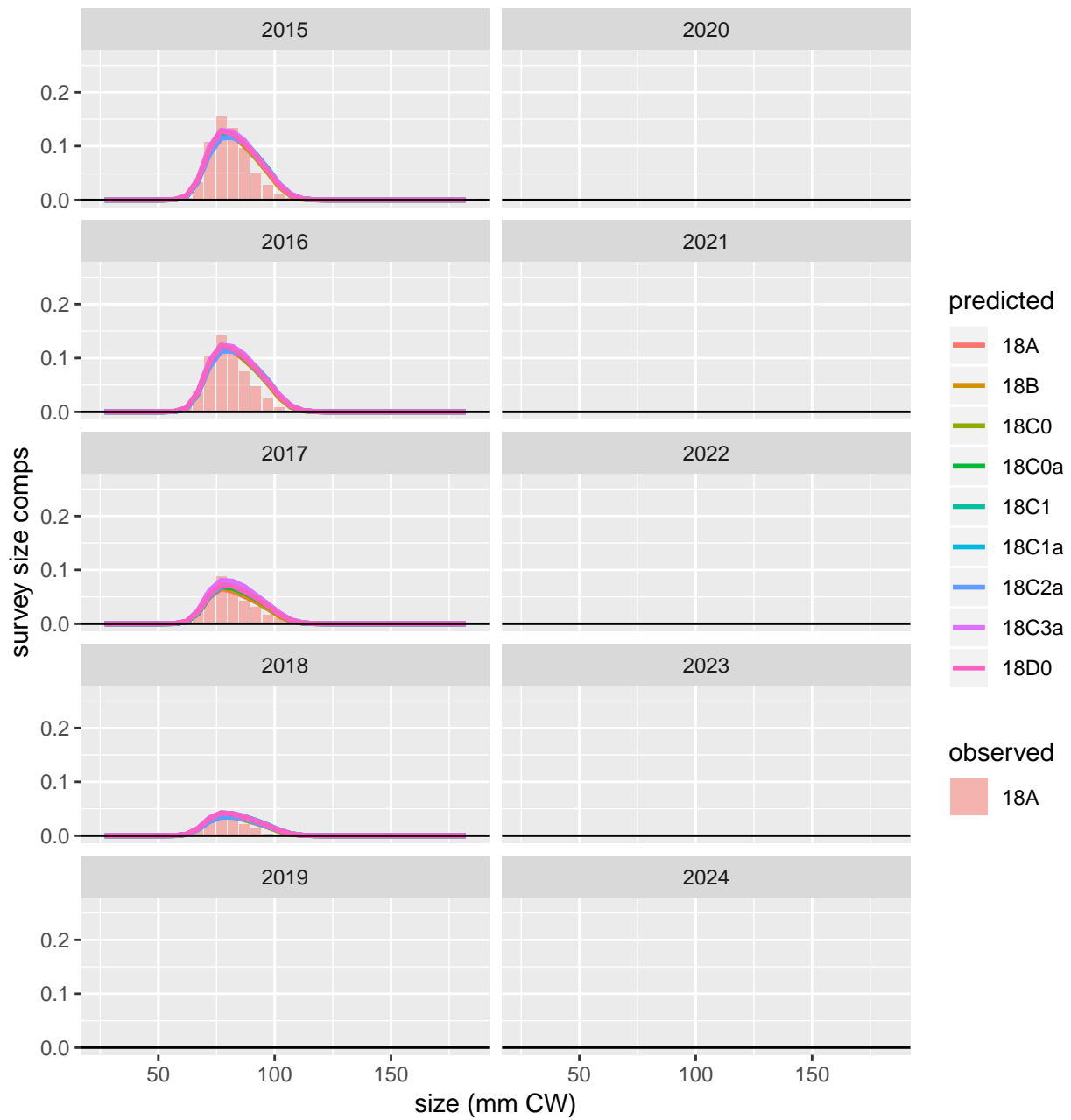


Figure 60: Comparison of observed and predicted female, mature, all shell survey size comps for NMFS (females by XM). Page 5 of 5.

# Fishery retained catch size compositions

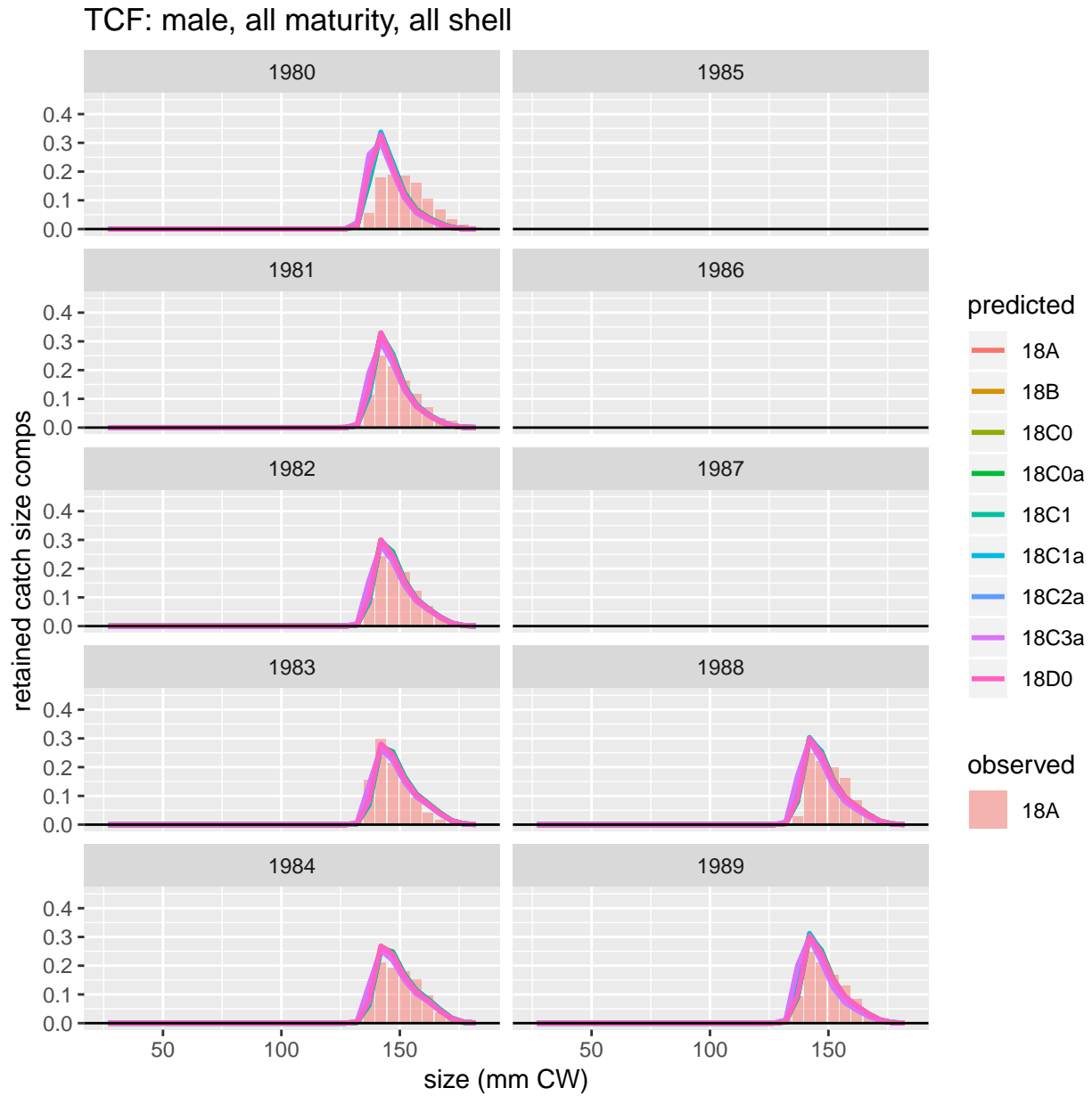


Figure 61: Comparison of observed and predicted male, all maturity, all shell retained catch size comps for TCF. Page 1 of 4.

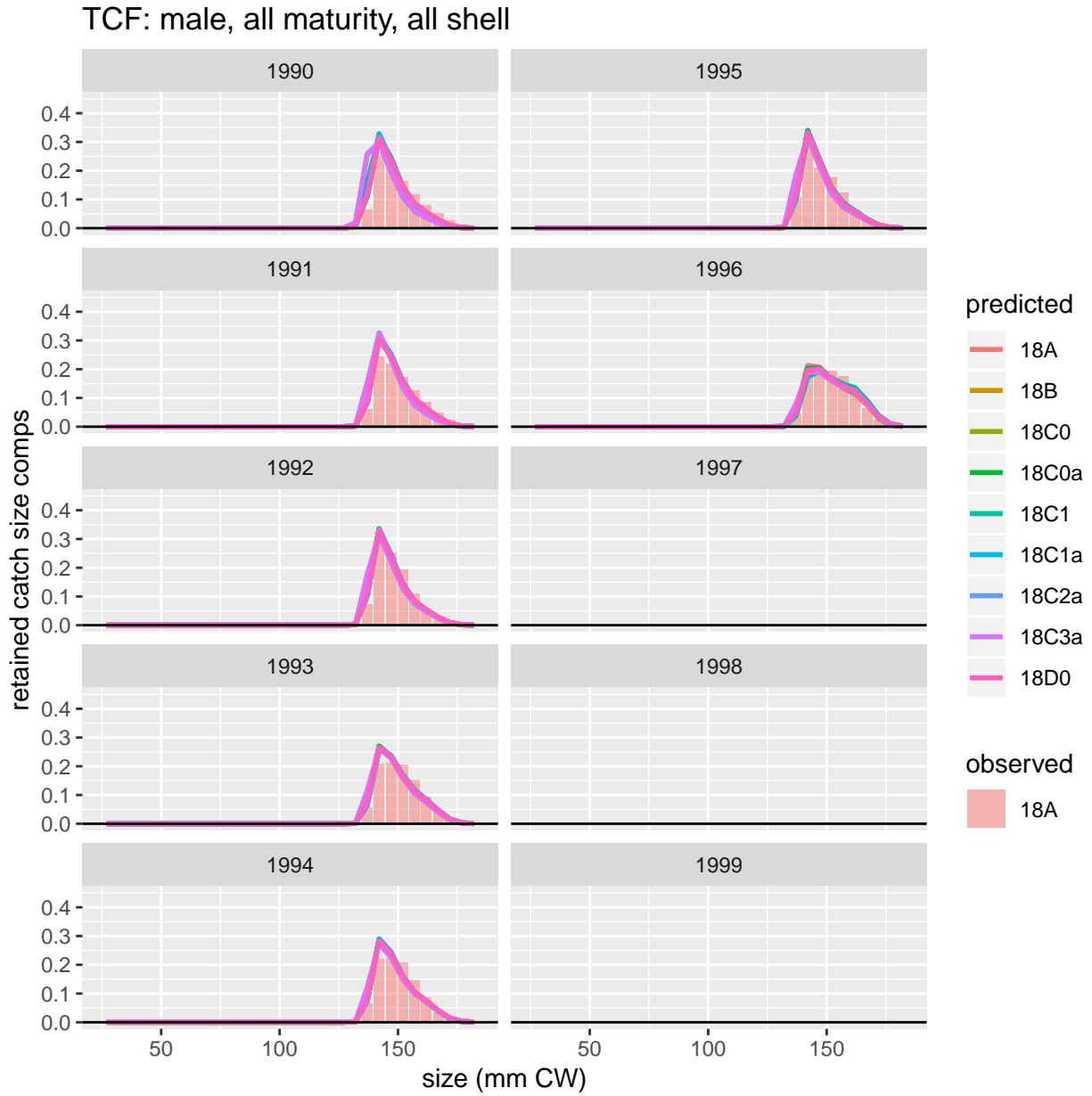


Figure 62: Comparison of observed and predicted male, all maturity, all shell retained catch size comps for TCF. Page 2 of 4.

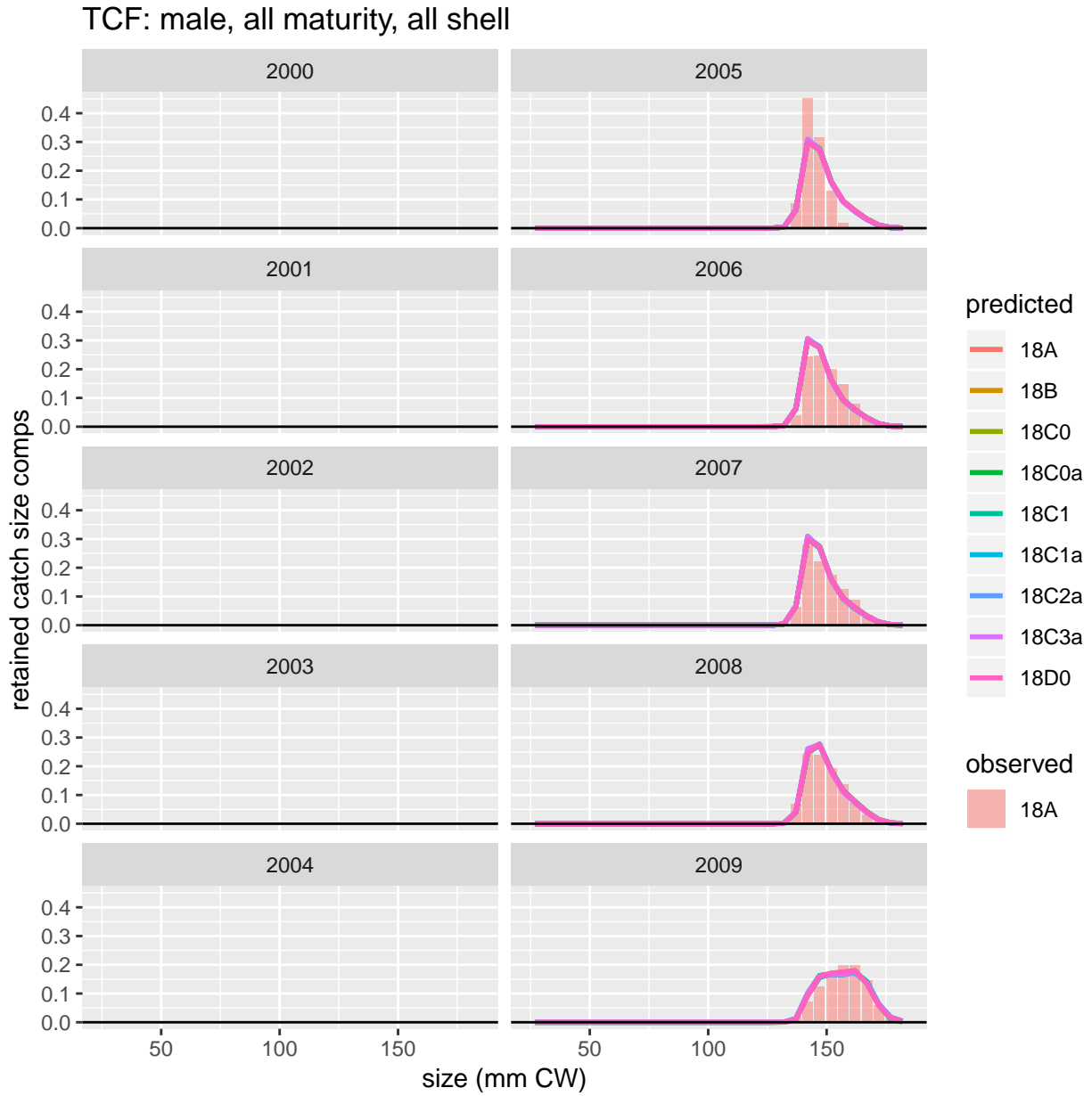


Figure 63: Comparison of observed and predicted male, all maturity, all shell retained catch size comps for TCF. Page 3 of 4.



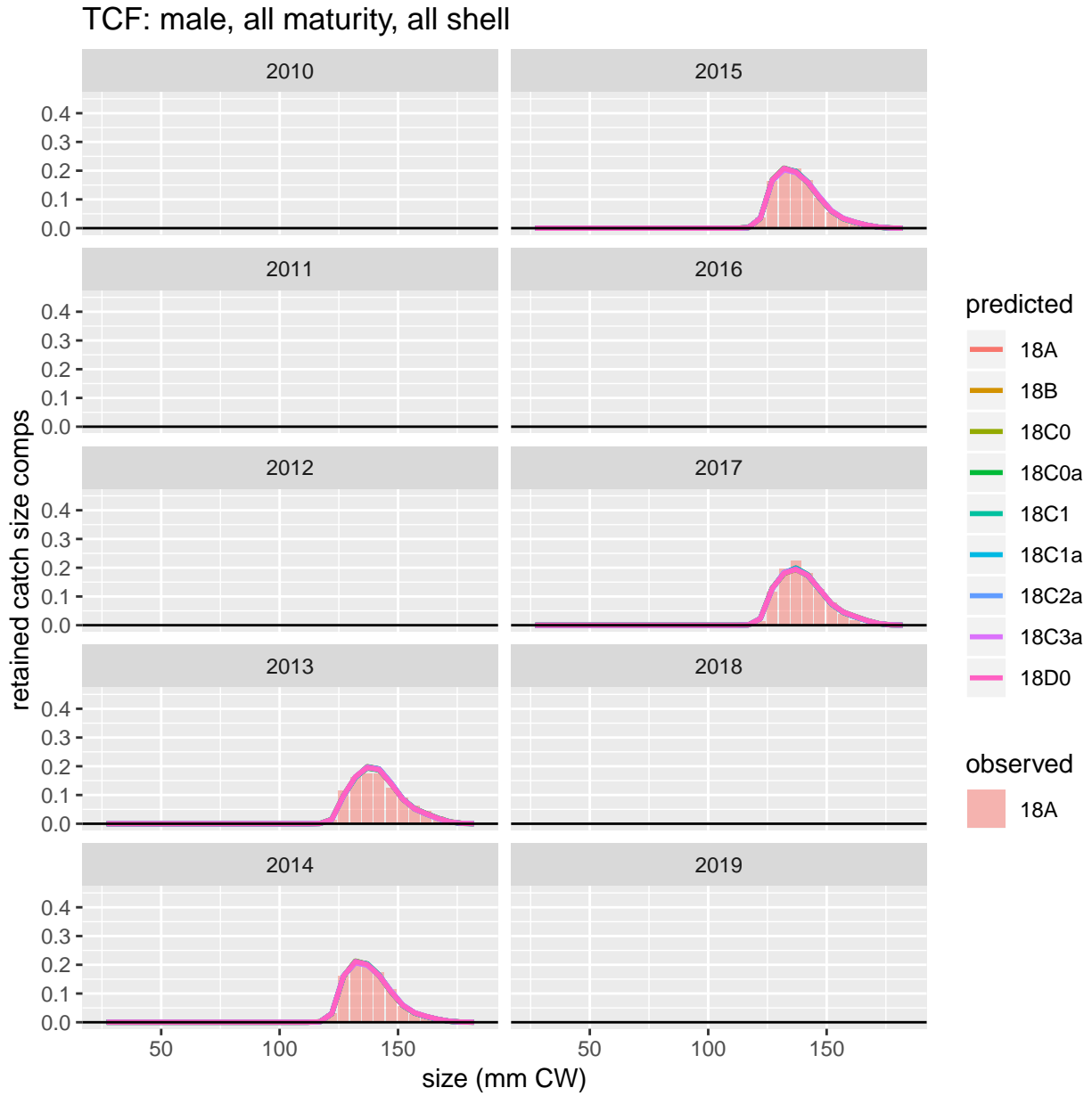


Figure 64: Comparison of observed and predicted male, all maturity, all shell retained catch size comps for TCF. Page 4 of 4.

# Fishery total catch size compositions

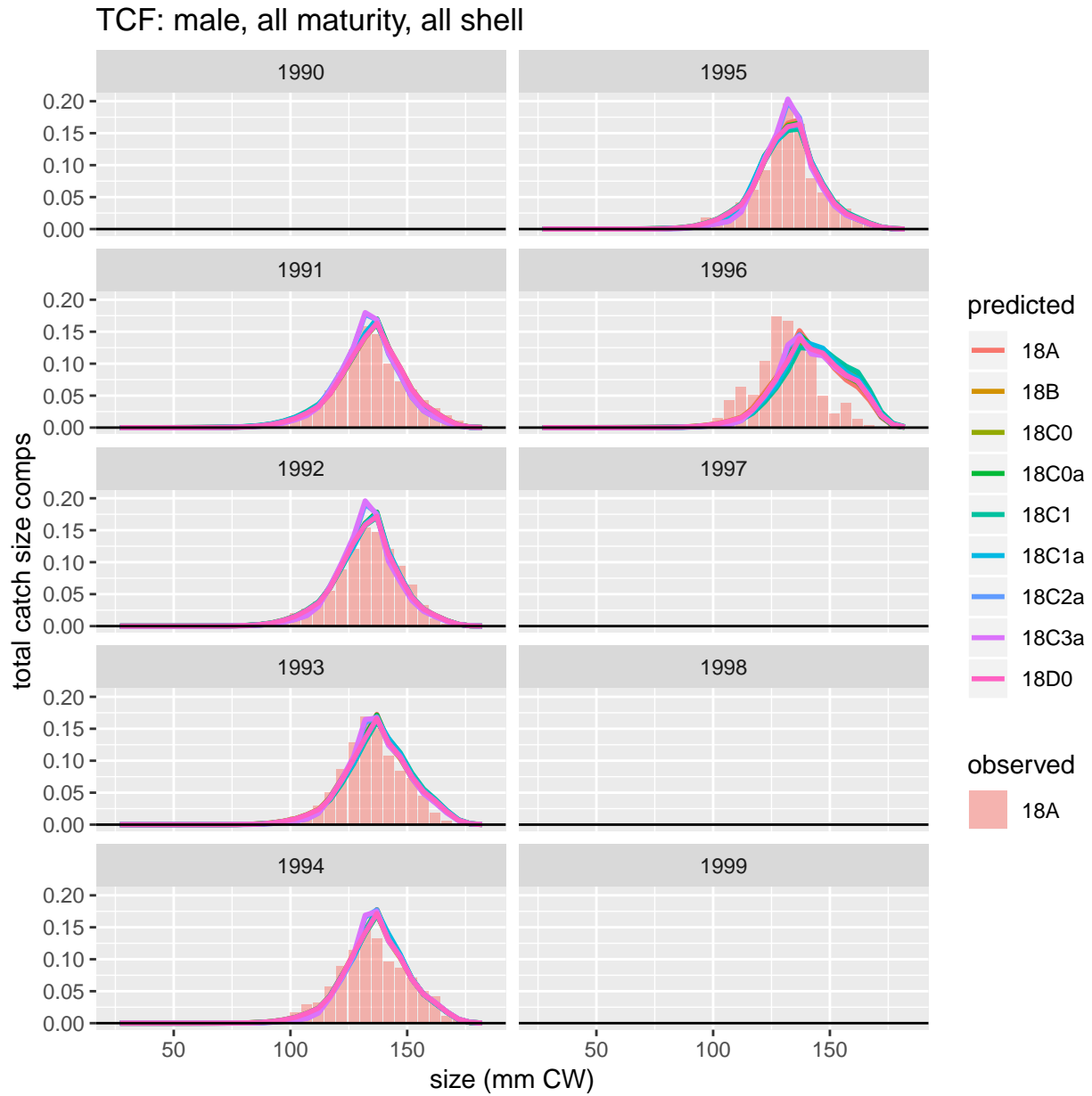


Figure 65: Comparison of observed and predicted male, all maturity, all shell total catch size comps for TCF. Page 1 of 3.

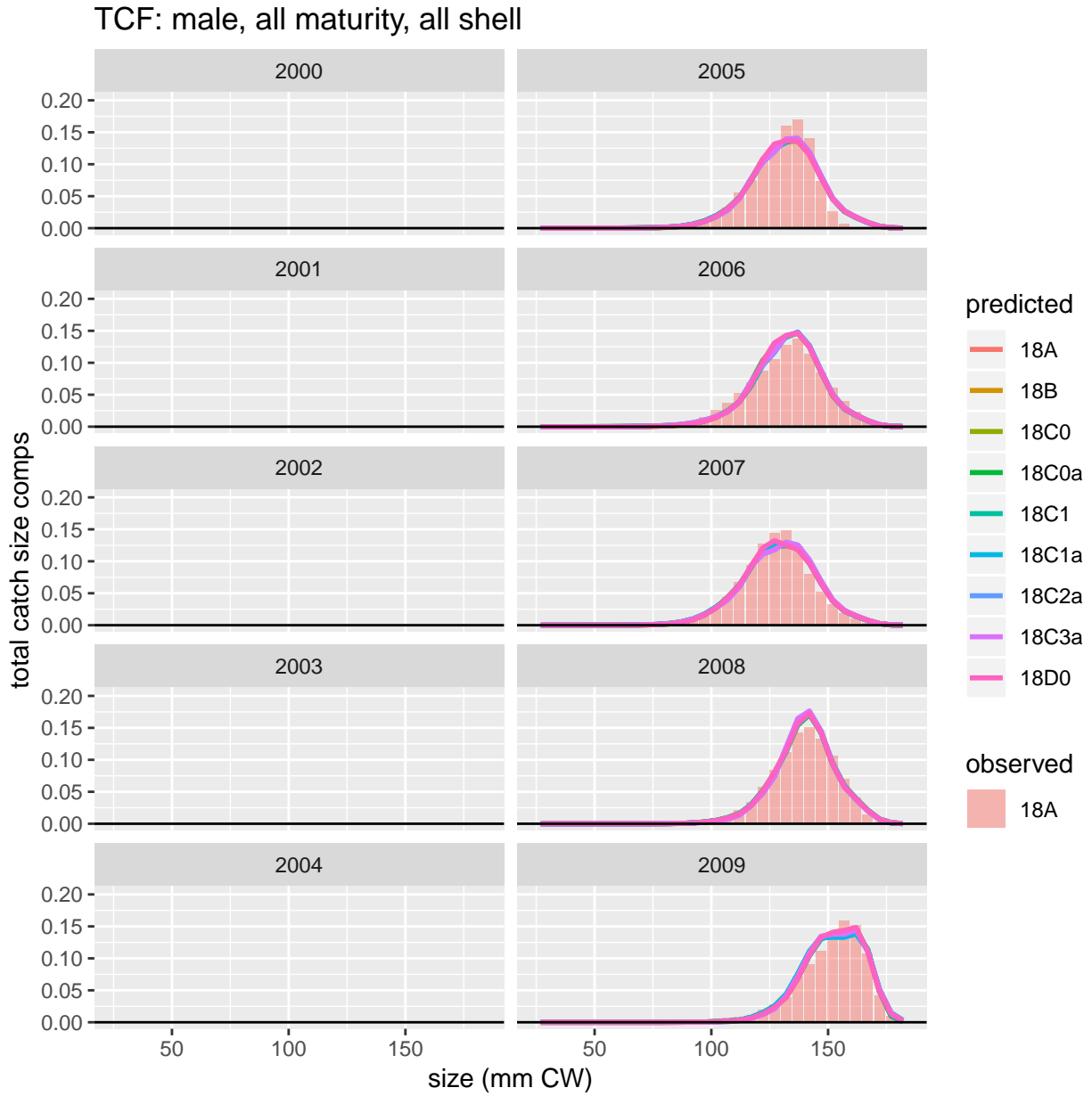


Figure 66: Comparison of observed and predicted male, all maturity, all shell total catch size comps for TCF. Page 2 of 3.

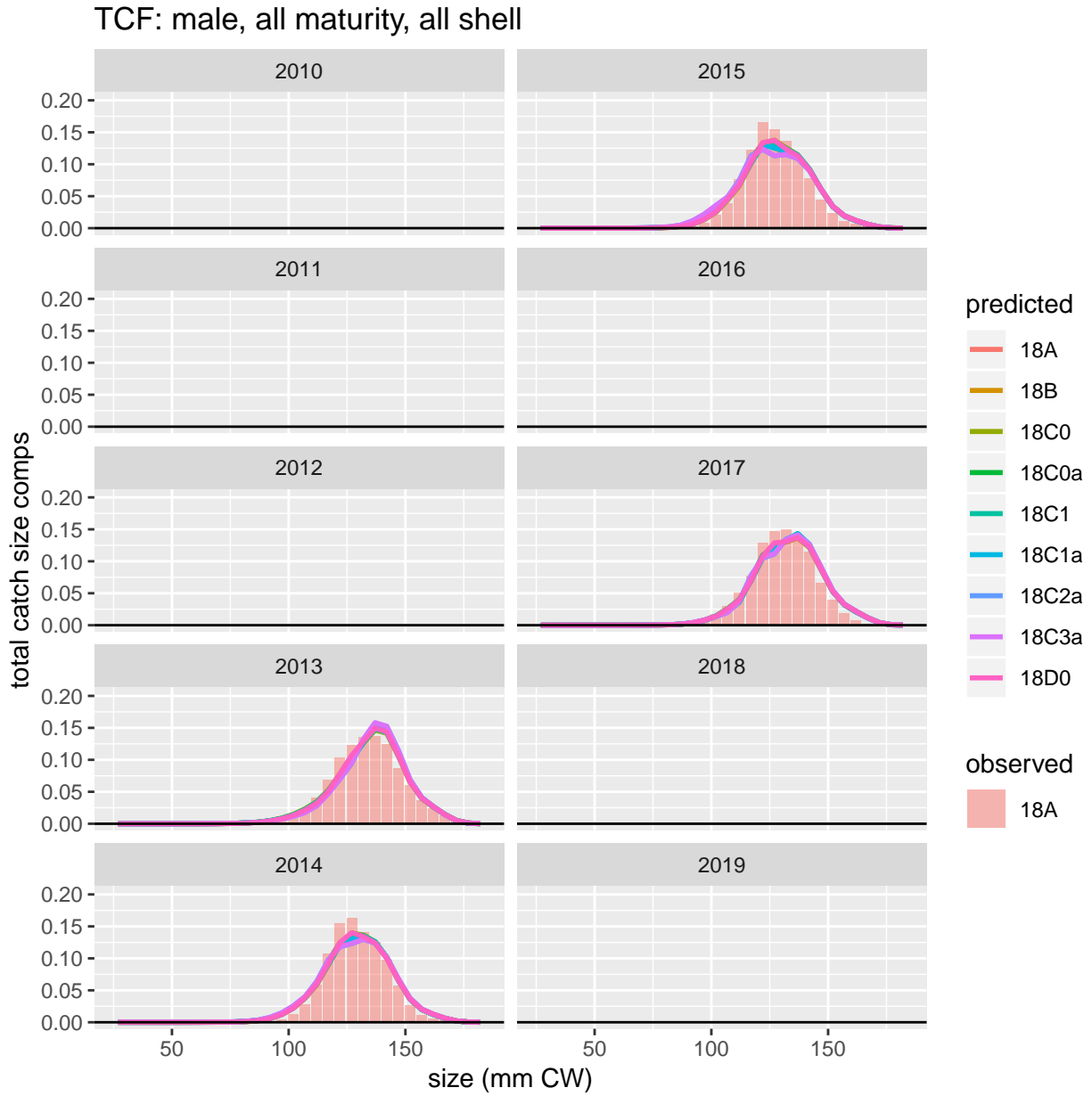


Figure 67: Comparison of observed and predicted male, all maturity, all shell total catch size comps for TCF. Page 3 of 3.

TCF: female, all maturity, all shell

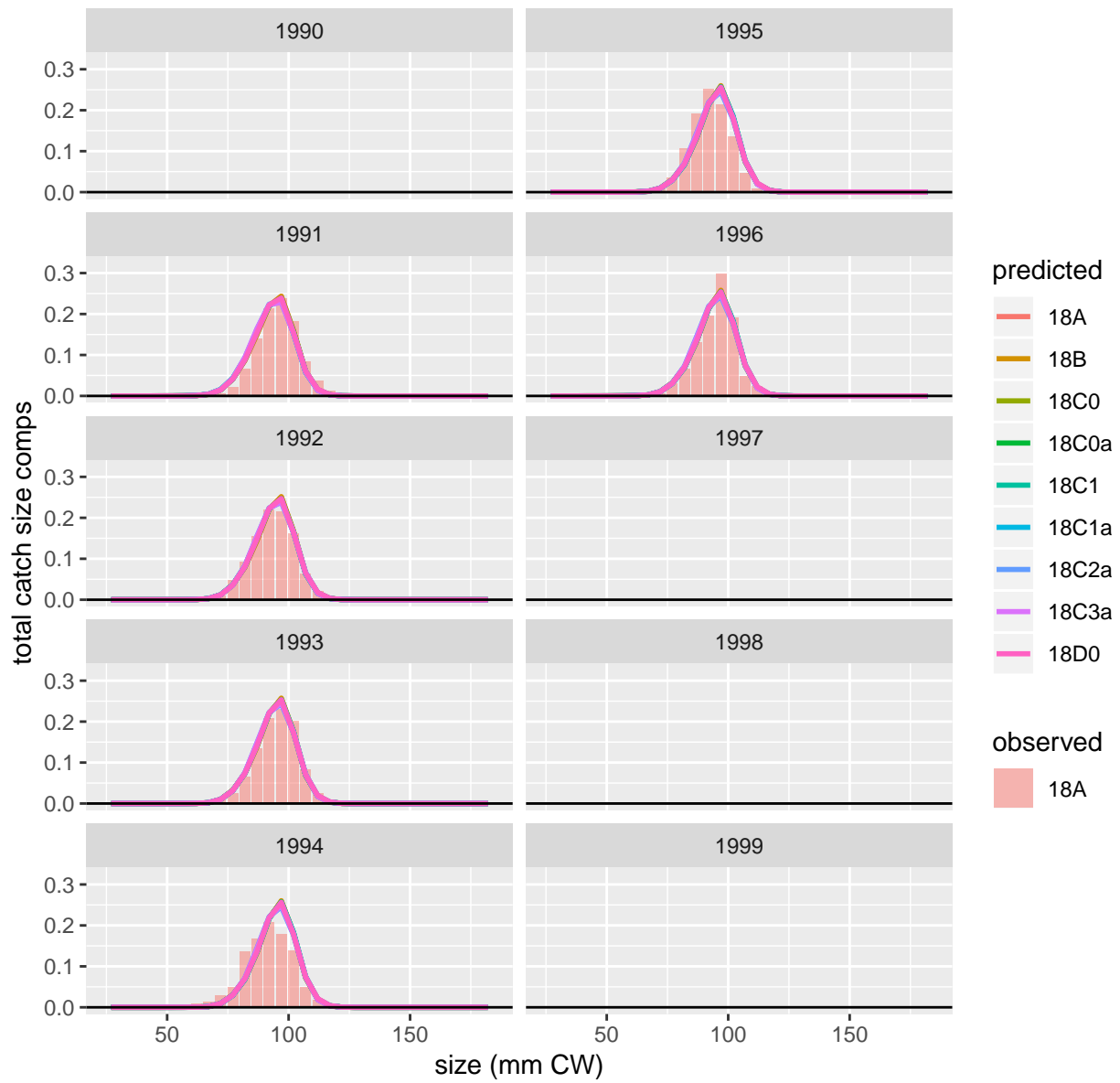


Figure 68: Comparison of observed and predicted female, all maturity, all shell total catch size comps for TCF. Page 1 of 3.

TCF: female, all maturity, all shell

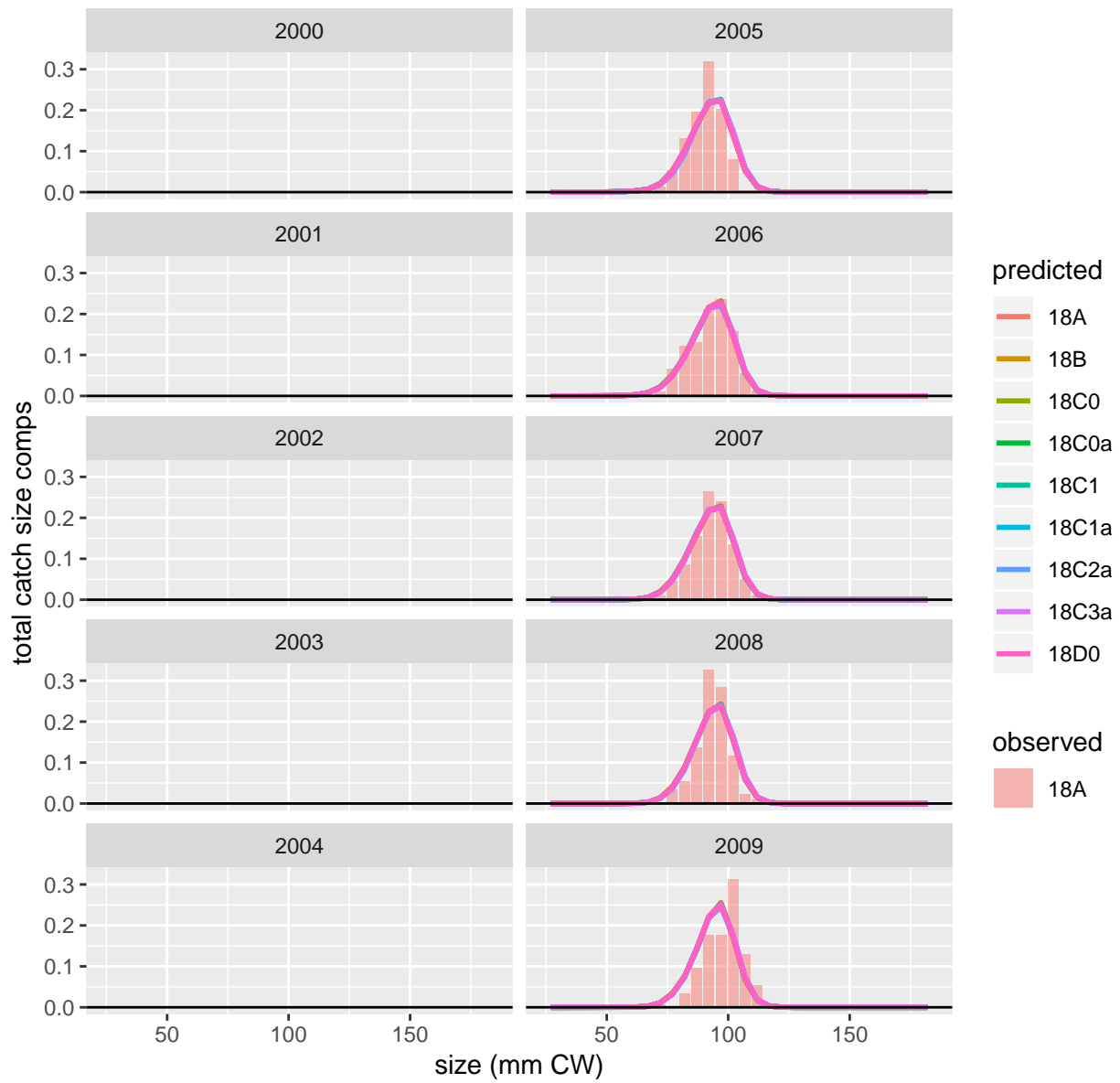


Figure 69: Comparison of observed and predicted female, all maturity, all shell total catch size comps for TCF. Page 2 of 3.

TCF: female, all maturity, all shell

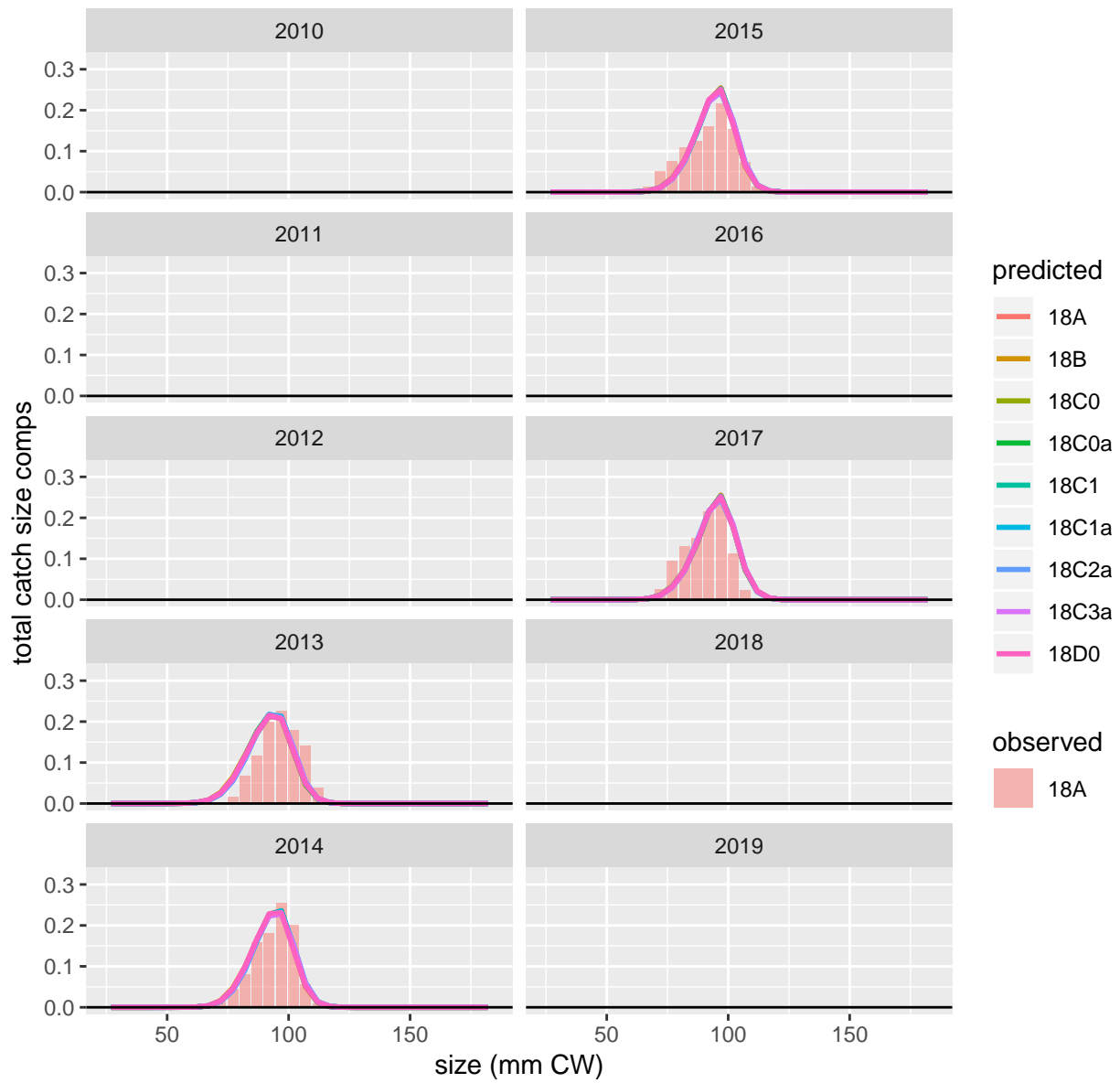


Figure 70: Comparison of observed and predicted female, all maturity, all shell total catch size comps for TCF. Page 3 of 3.

SCF: male, all maturity, all shell

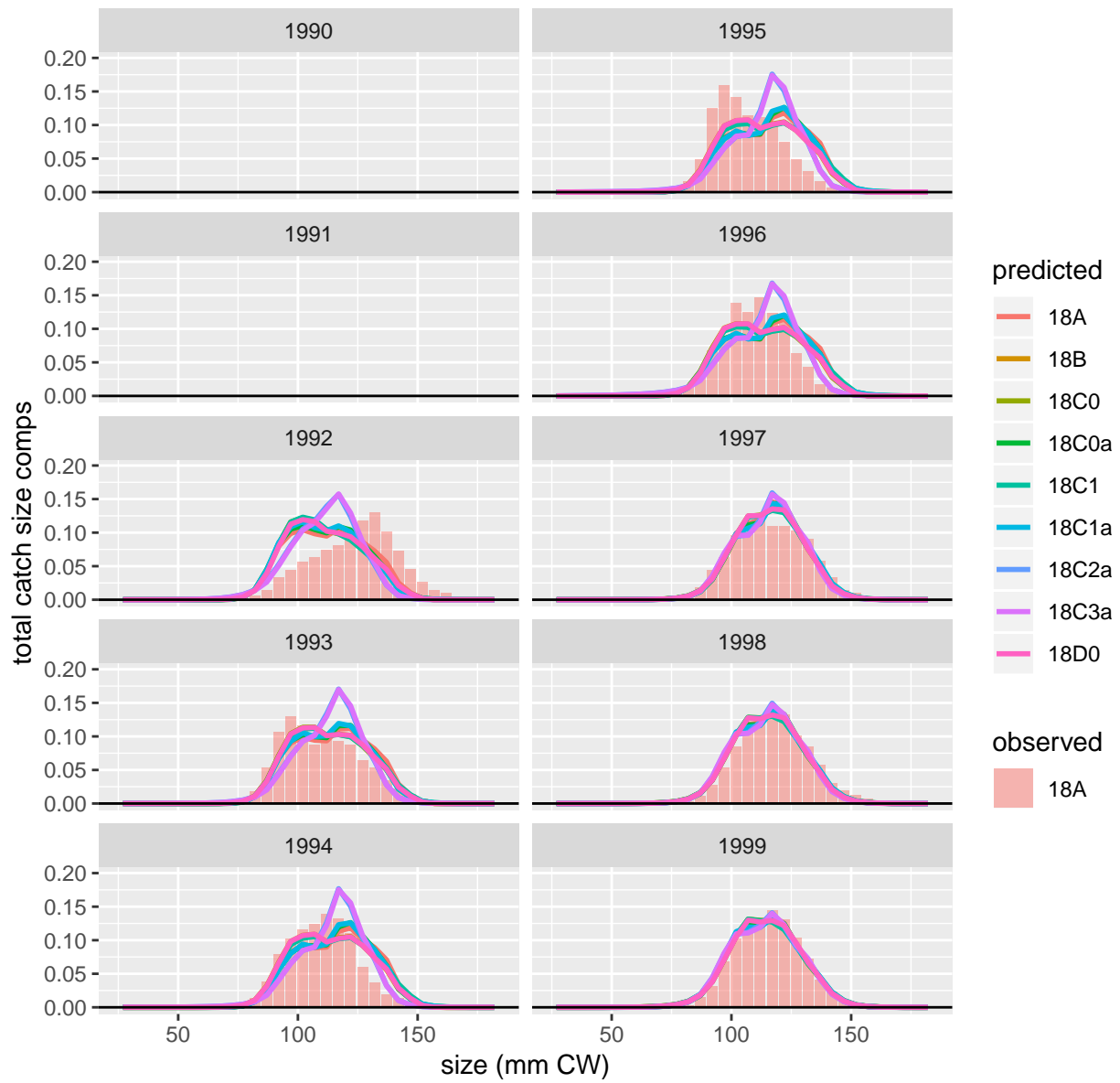


Figure 71: Comparison of observed and predicted male, all maturity, all shell total catch size comps for SCF. Page 1 of 3.



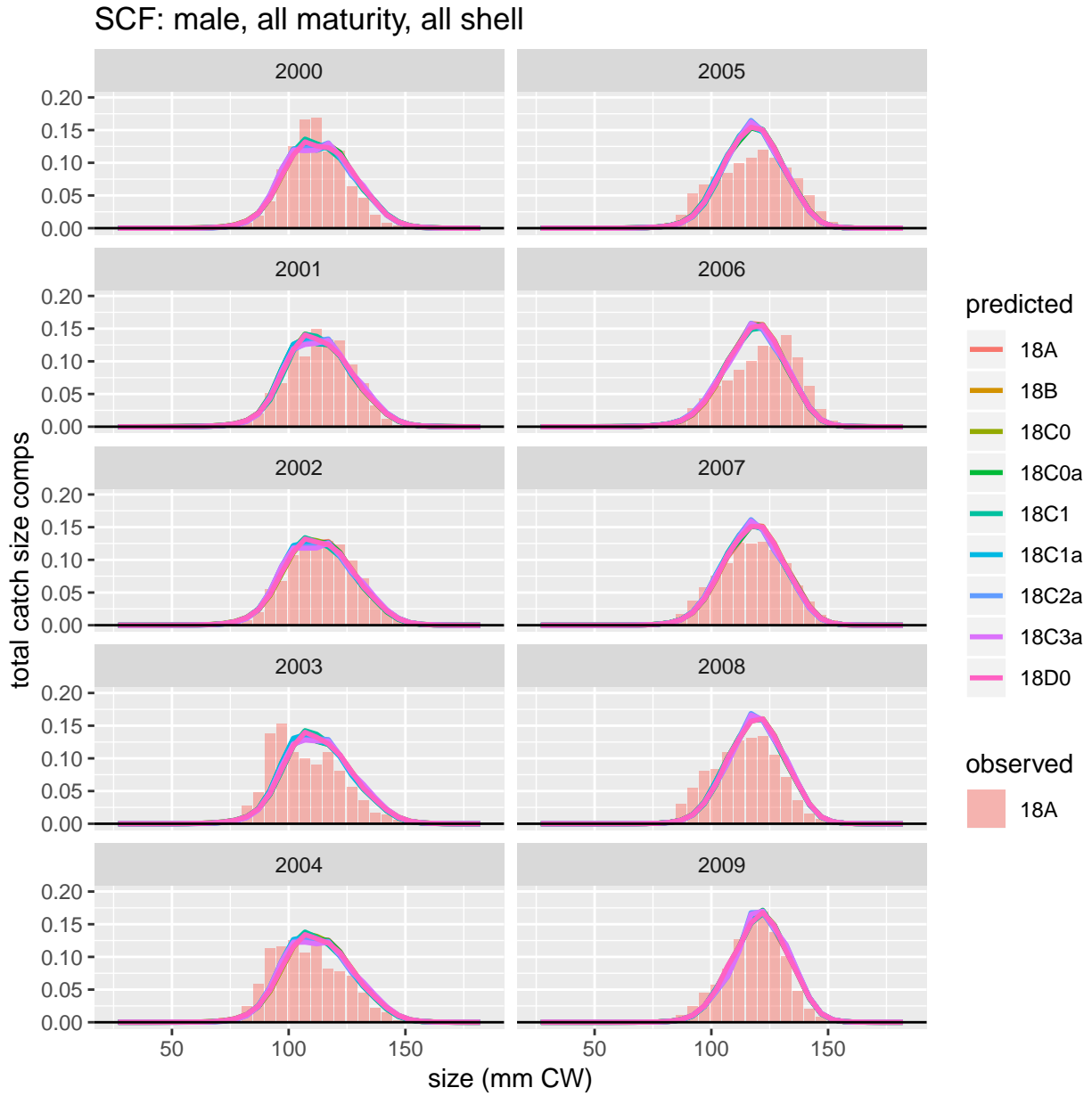


Figure 72: Comparison of observed and predicted male, all maturity, all shell total catch size comps for SCF. Page 2 of 3.

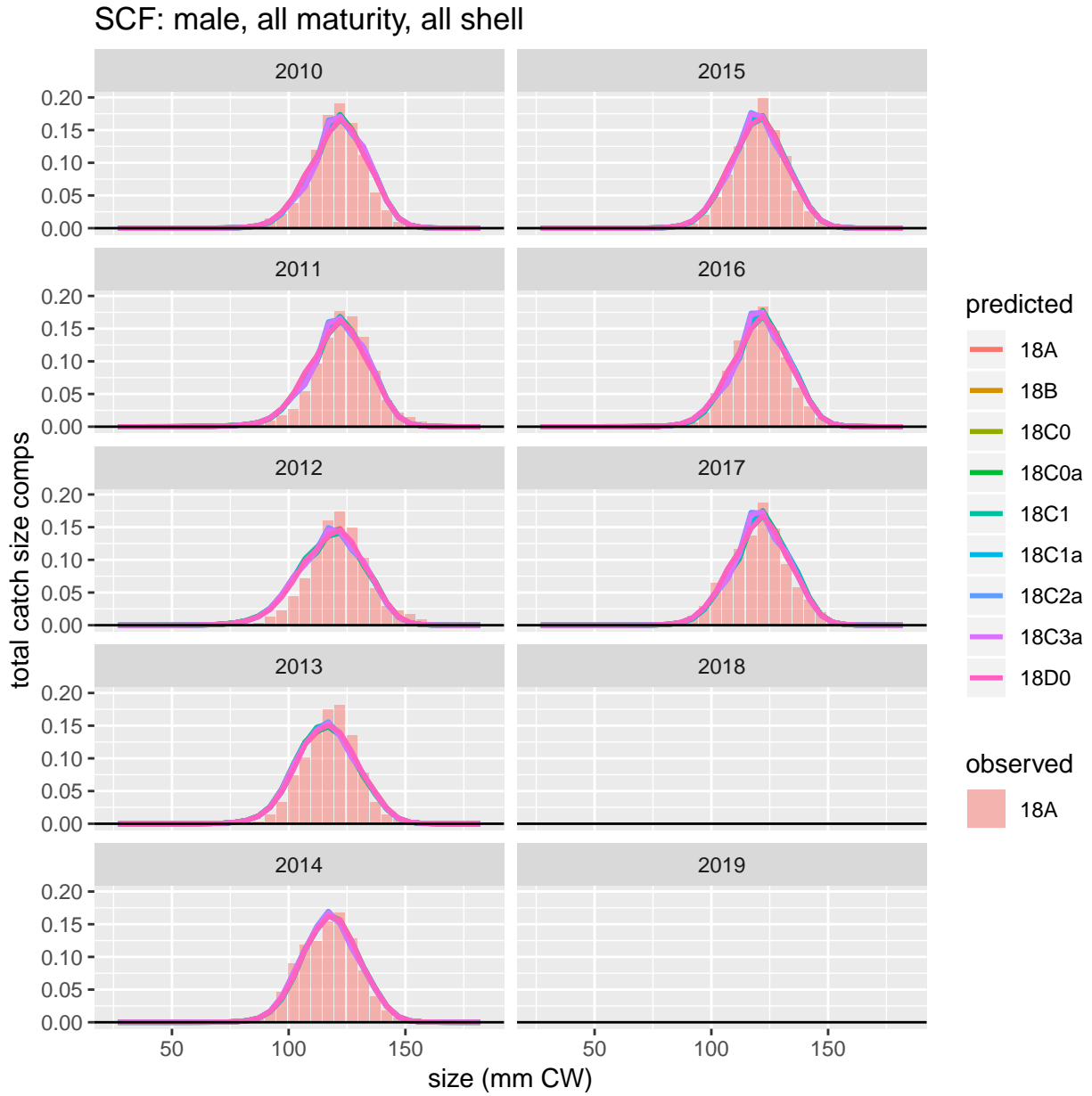


Figure 73: Comparison of observed and predicted male, all maturity, all shell total catch size comps for SCF. Page 3 of 3.

SCF: female, all maturity, all shell

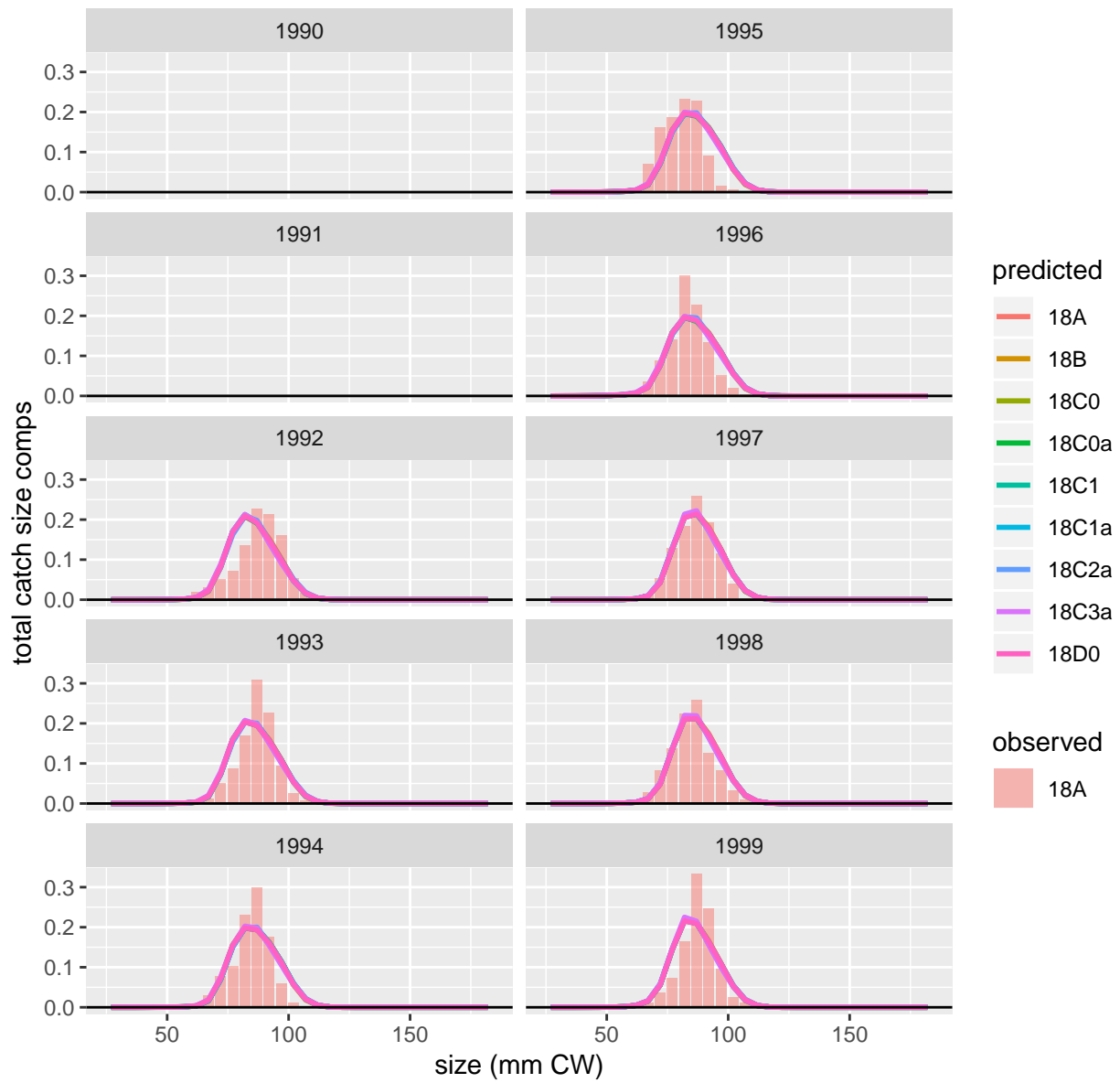


Figure 74: Comparison of observed and predicted female, all maturity, all shell total catch size comps for SCF. Page 1 of 3.

SCF: female, all maturity, all shell

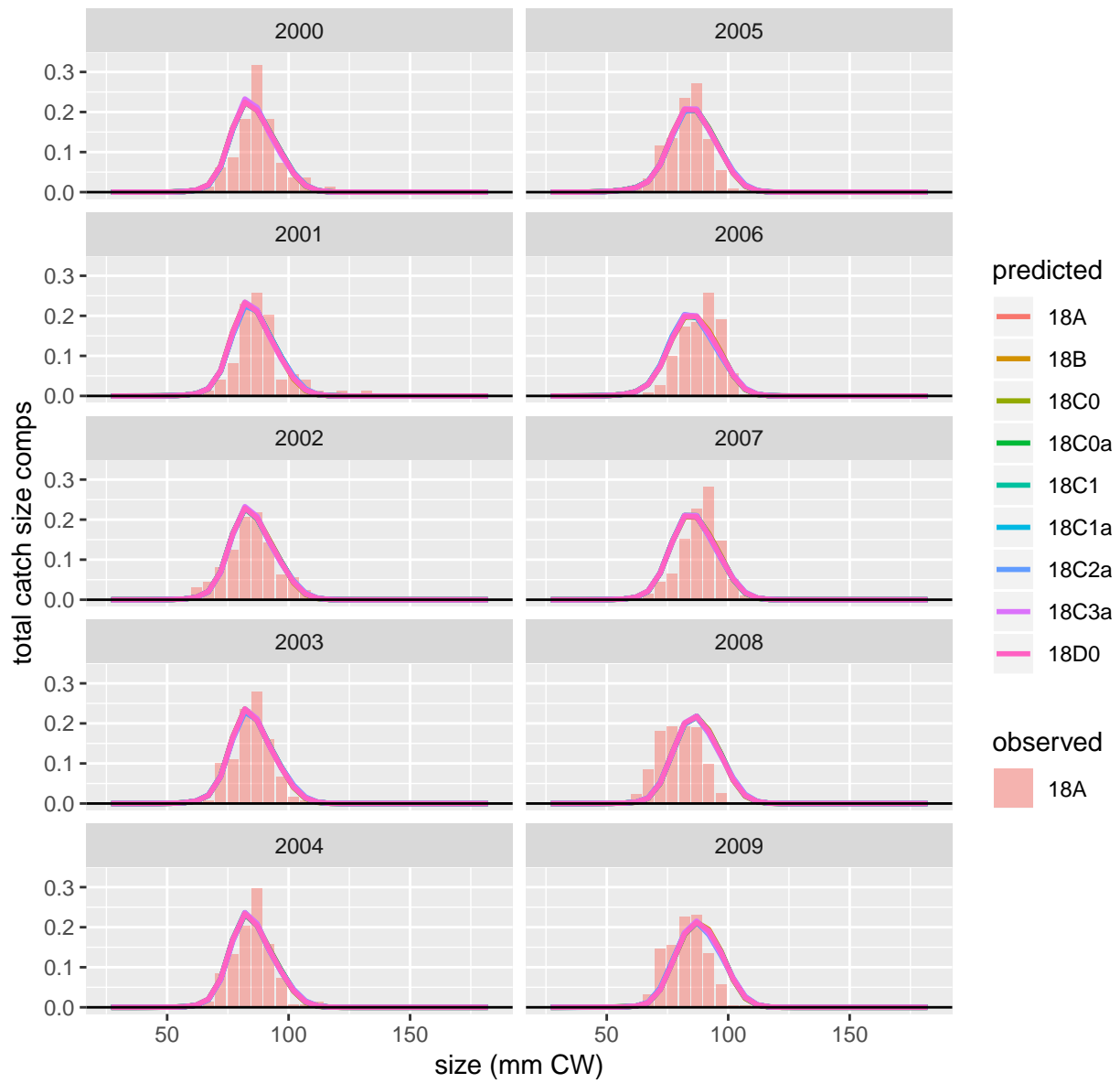


Figure 75: Comparison of observed and predicted female, all maturity, all shell total catch size comps for SCF. Page 2 of 3.

SCF: female, all maturity, all shell

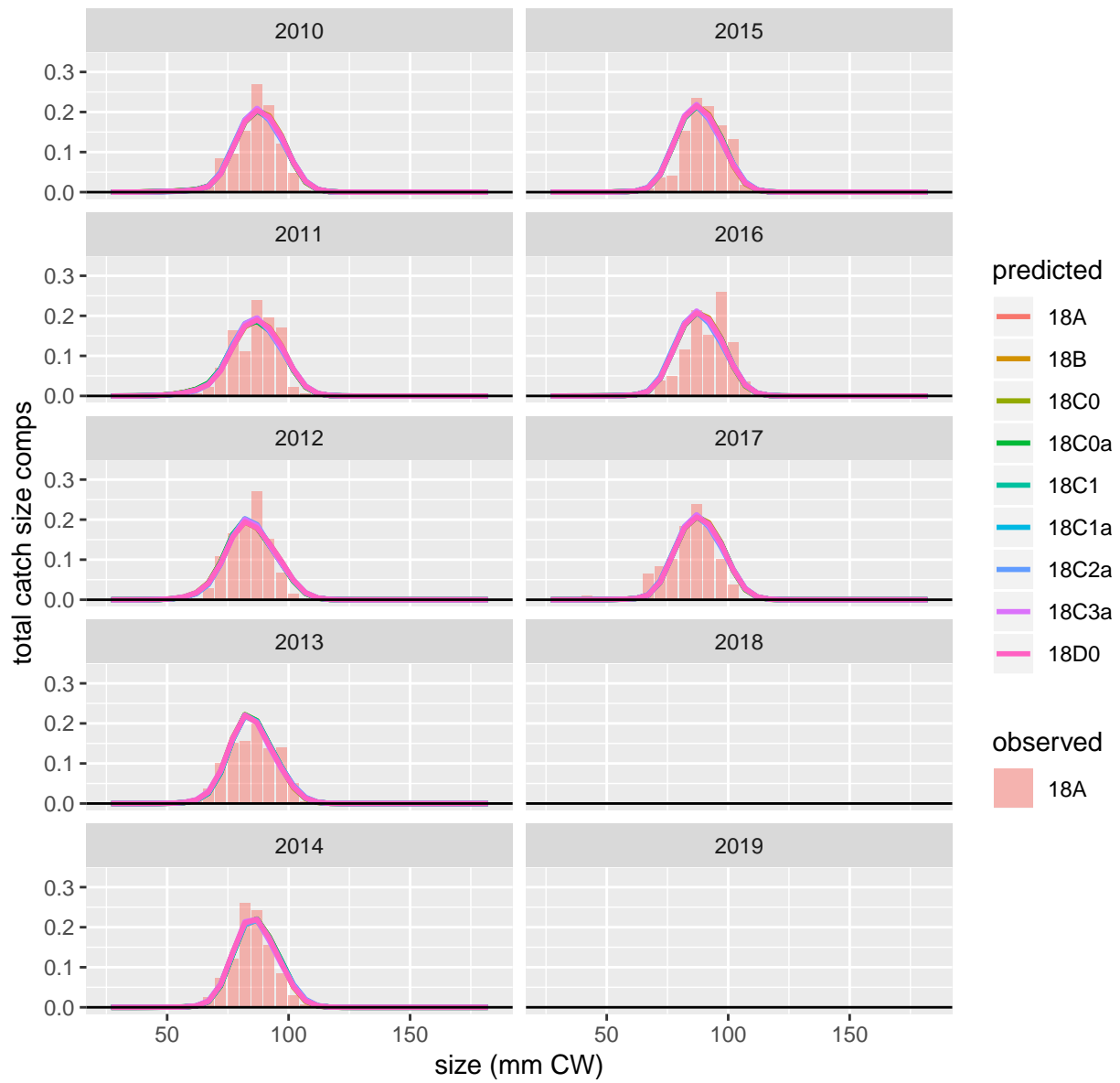


Figure 76: Comparison of observed and predicted female, all maturity, all shell total catch size comps for SCF. Page 3 of 3.

GTF: male, all maturity, all shell

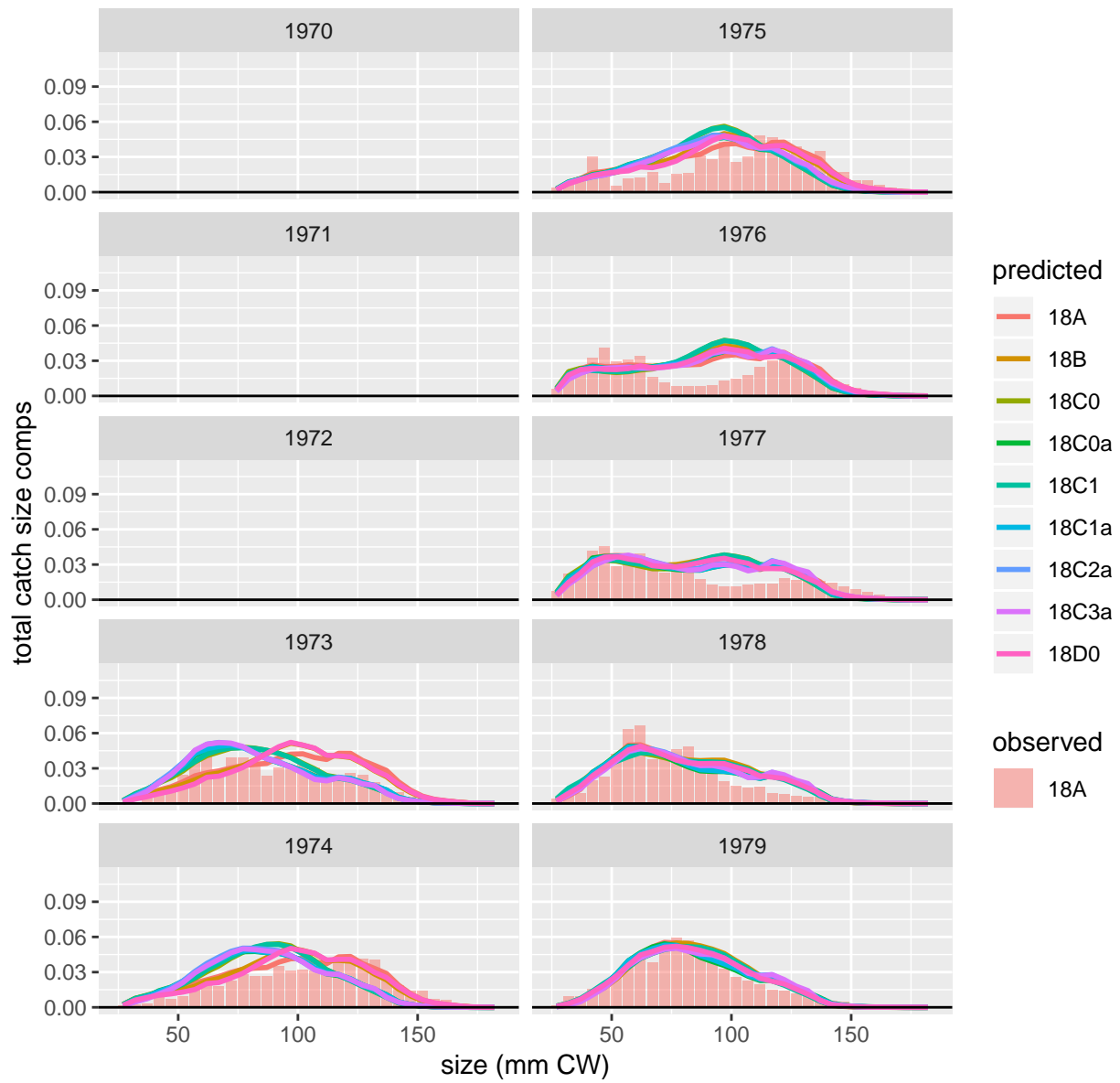


Figure 77: Comparison of observed and predicted male, all maturity, all shell total catch size comps for GTF. Page 1 of 5.

GTF: male, all maturity, all shell

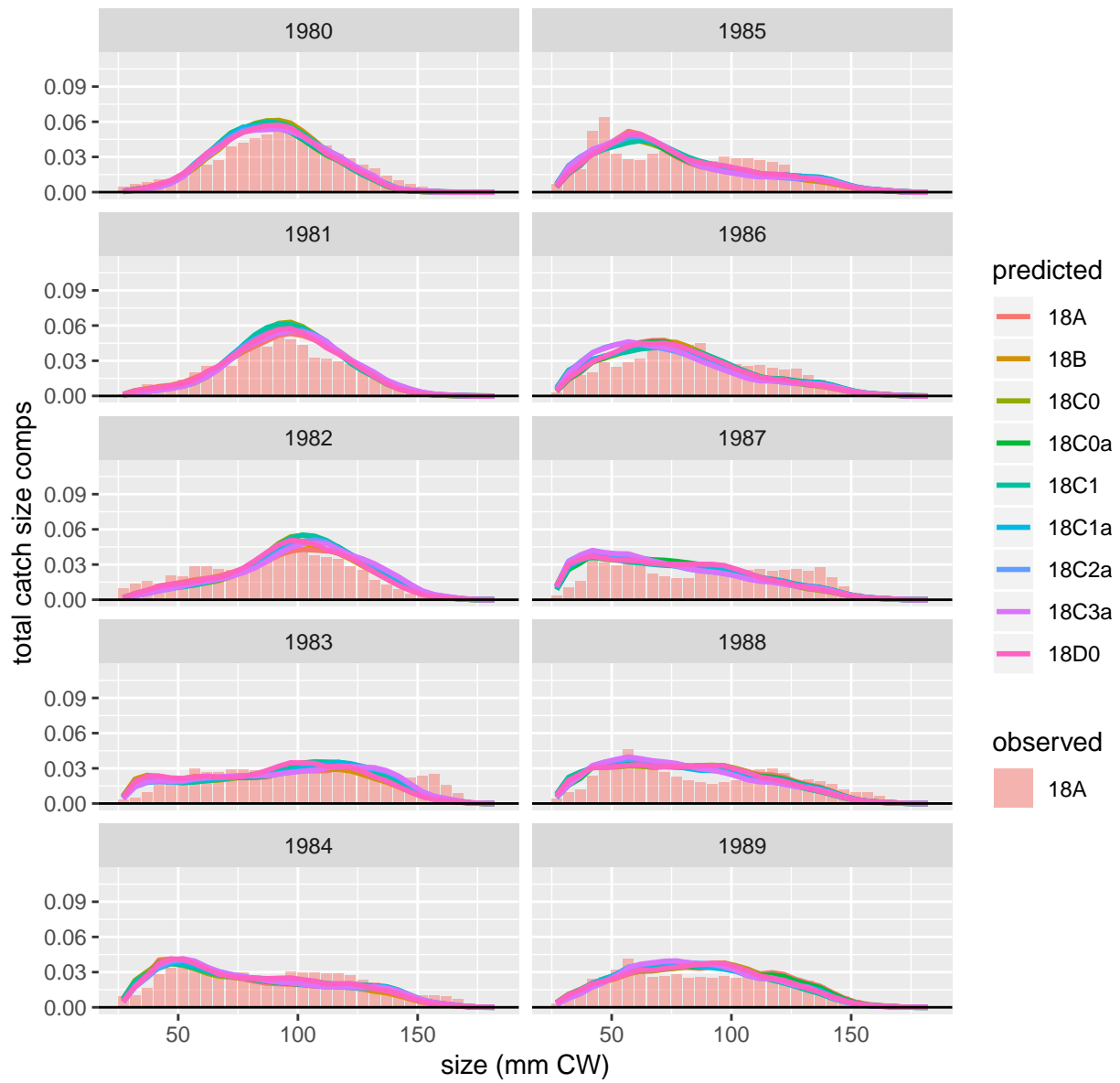


Figure 78: Comparison of observed and predicted male, all maturity, all shell total catch size comps for GTF. Page 2 of 5.

GTF: male, all maturity, all shell

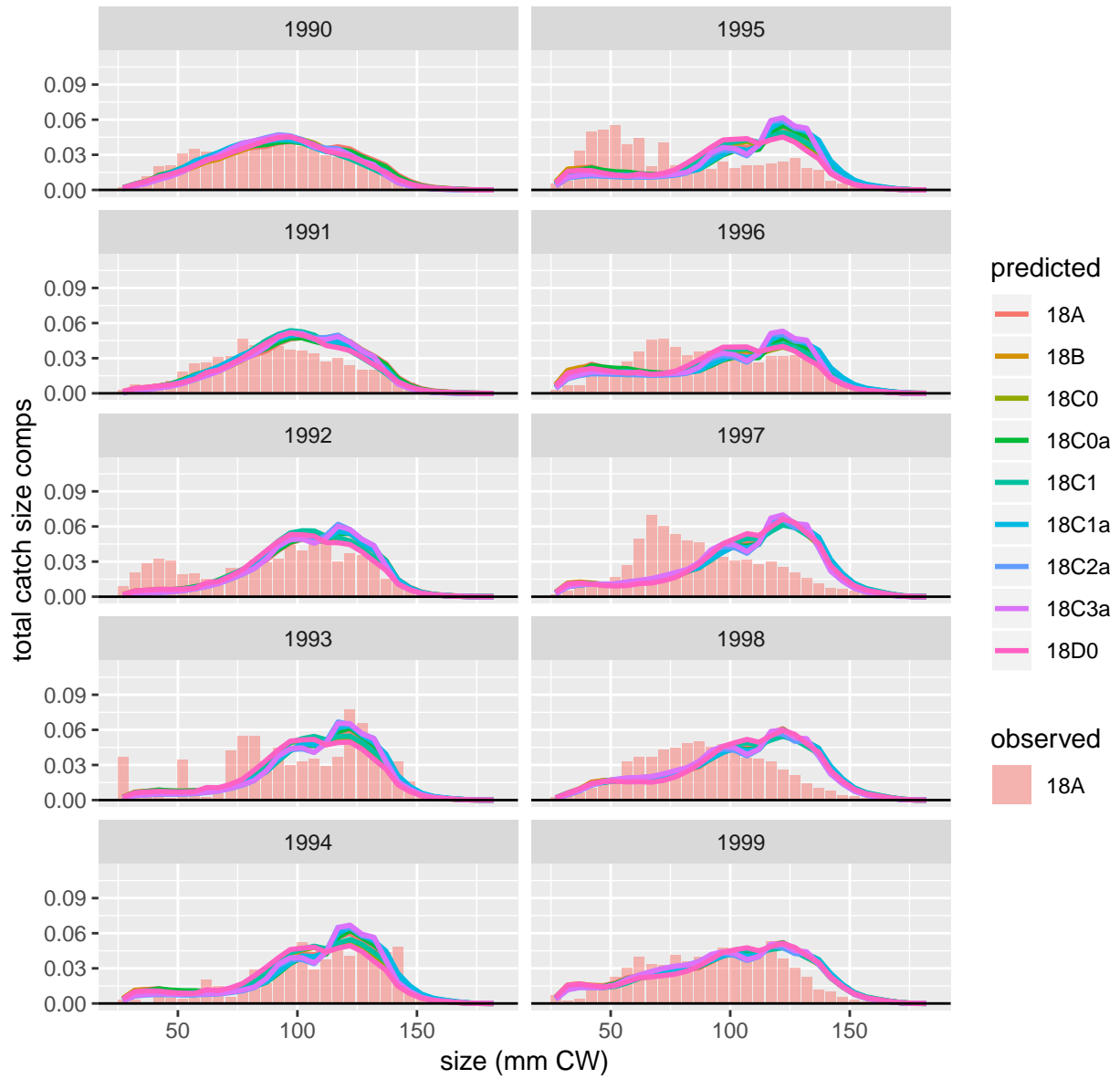


Figure 79: Comparison of observed and predicted male, all maturity, all shell total catch size comps for GTF. Page 3 of 5.



GTF: male, all maturity, all shell

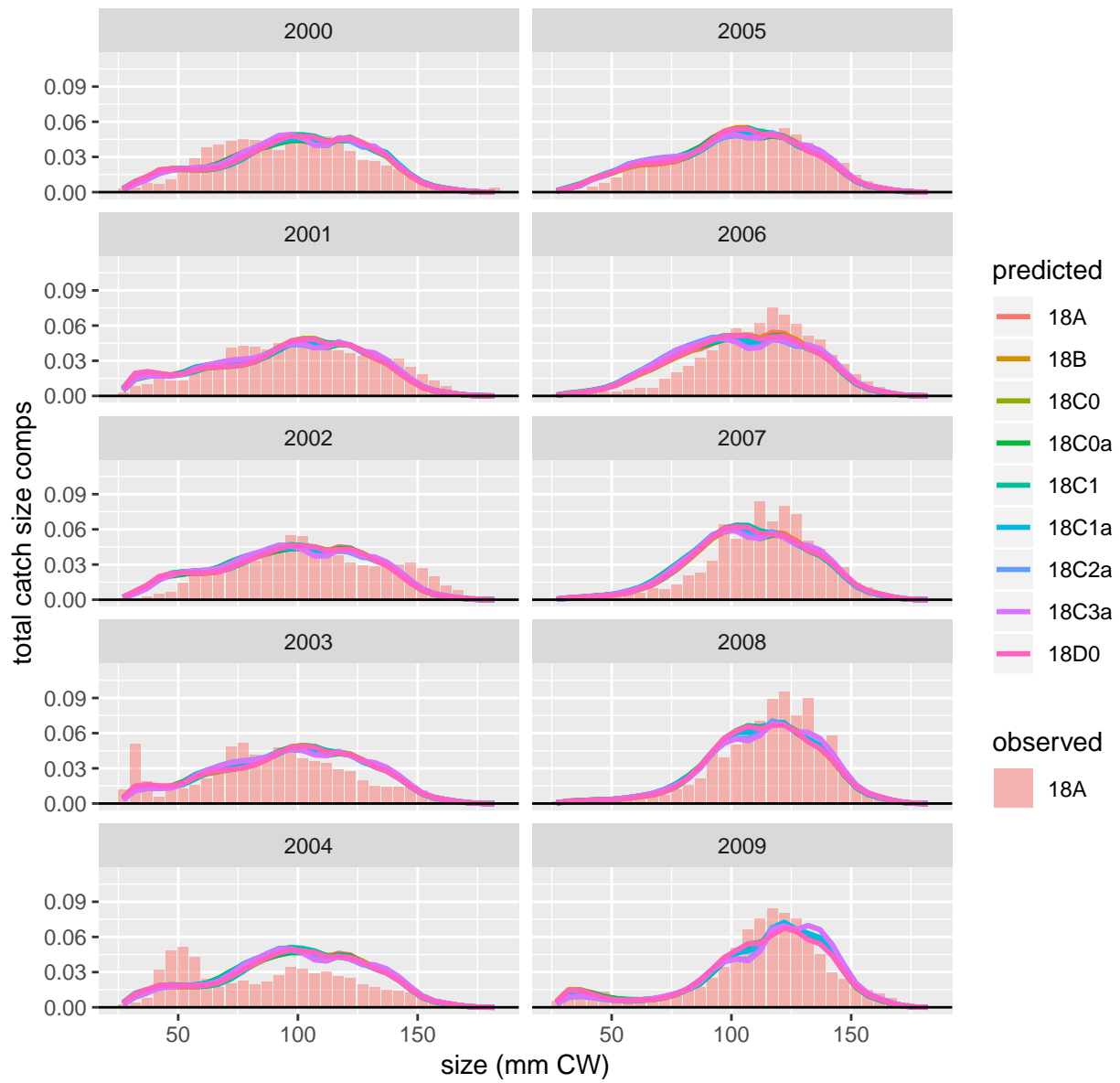


Figure 80: Comparison of observed and predicted male, all maturity, all shell total catch size comps for GTF. Page 4 of 5.

GTF: male, all maturity, all shell

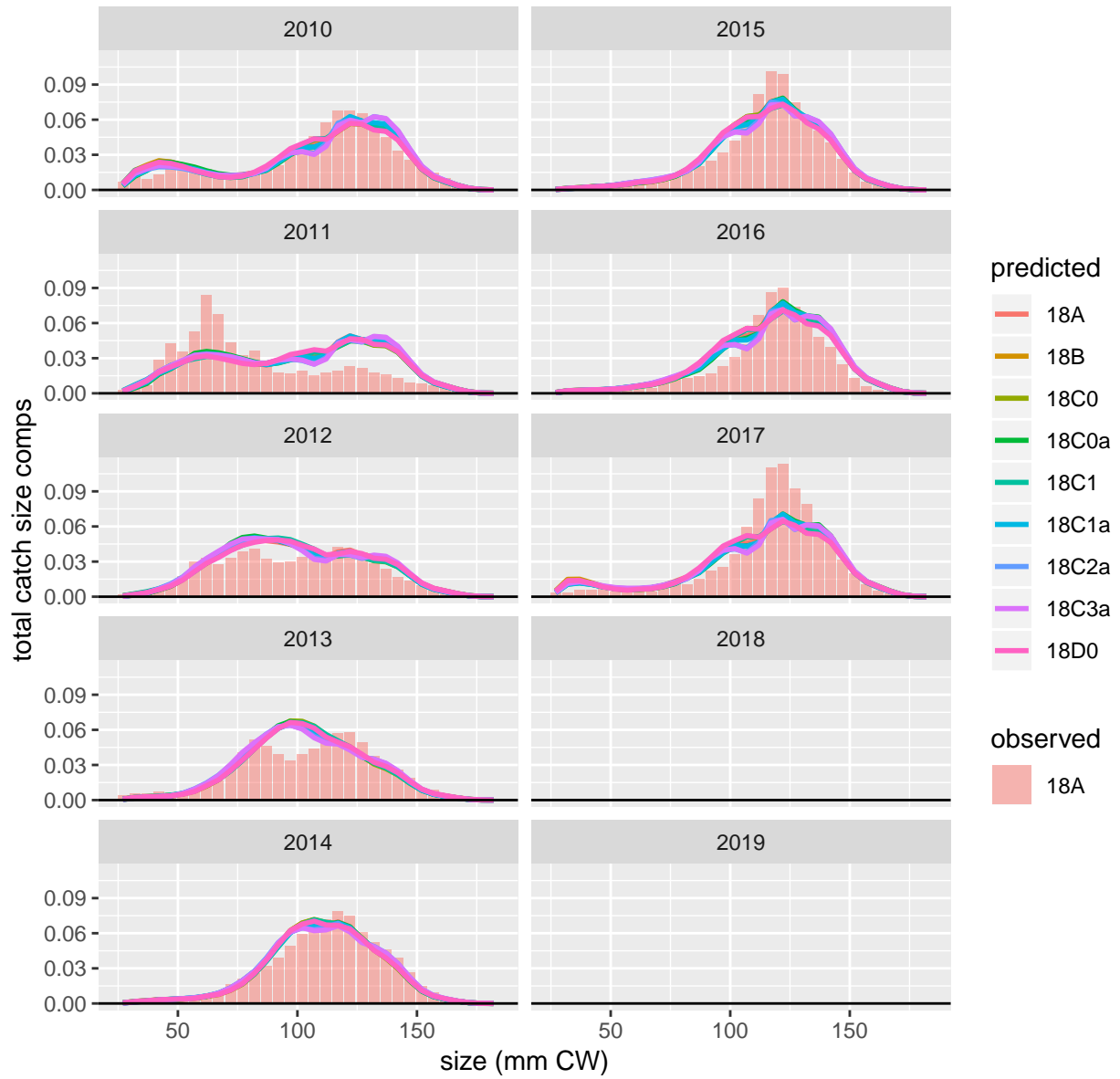


Figure 81: Comparison of observed and predicted male, all maturity, all shell total catch size comps for GTF. Page 5 of 5.

GTF: female, all maturity, all shell

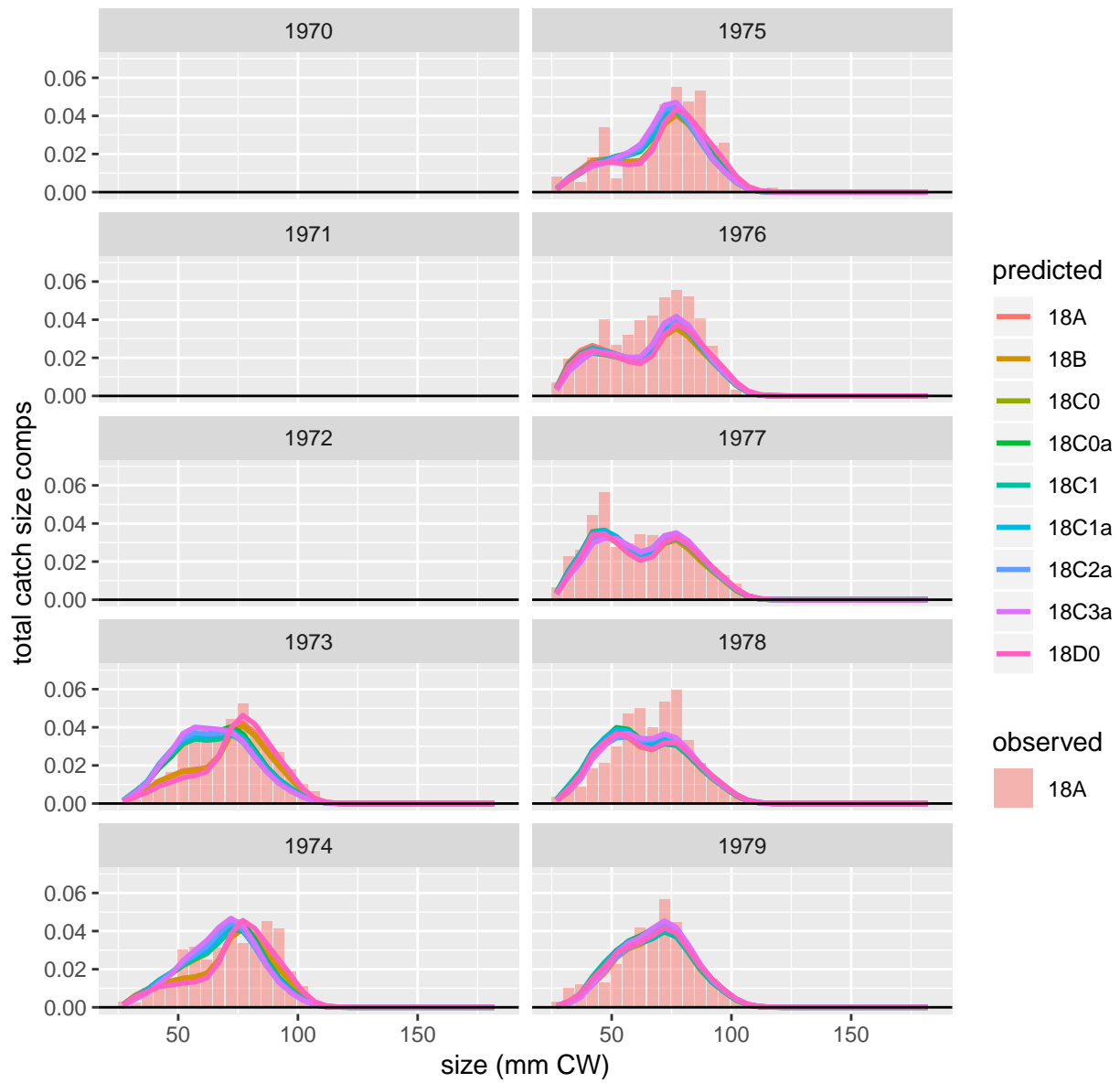


Figure 82: Comparison of observed and predicted female, all maturity, all shell total catch size comps for GTF. Page 1 of 5.

GTF: female, all maturity, all shell

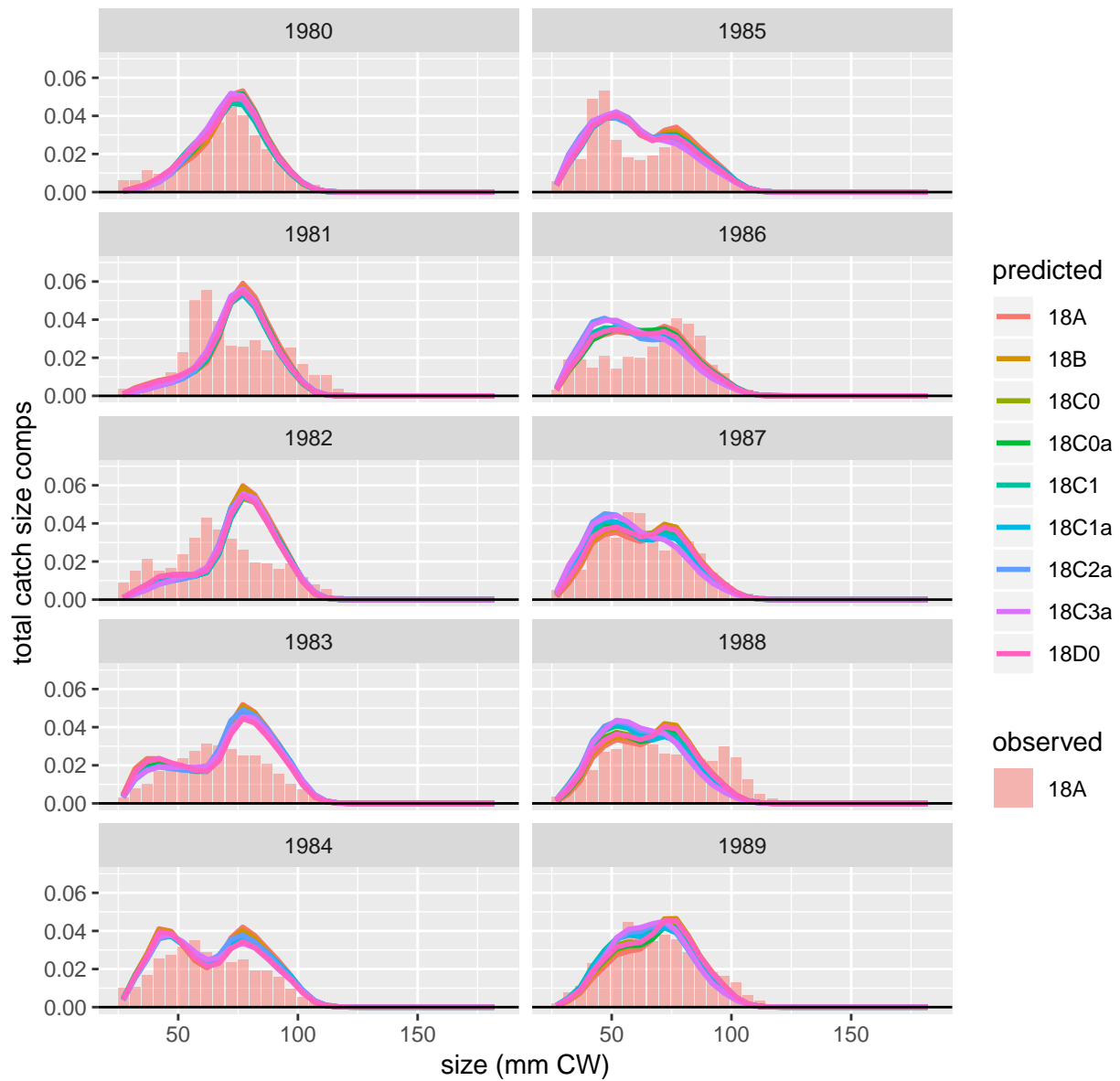


Figure 83: Comparison of observed and predicted female, all maturity, all shell total catch size comps for GTF. Page 2 of 5.

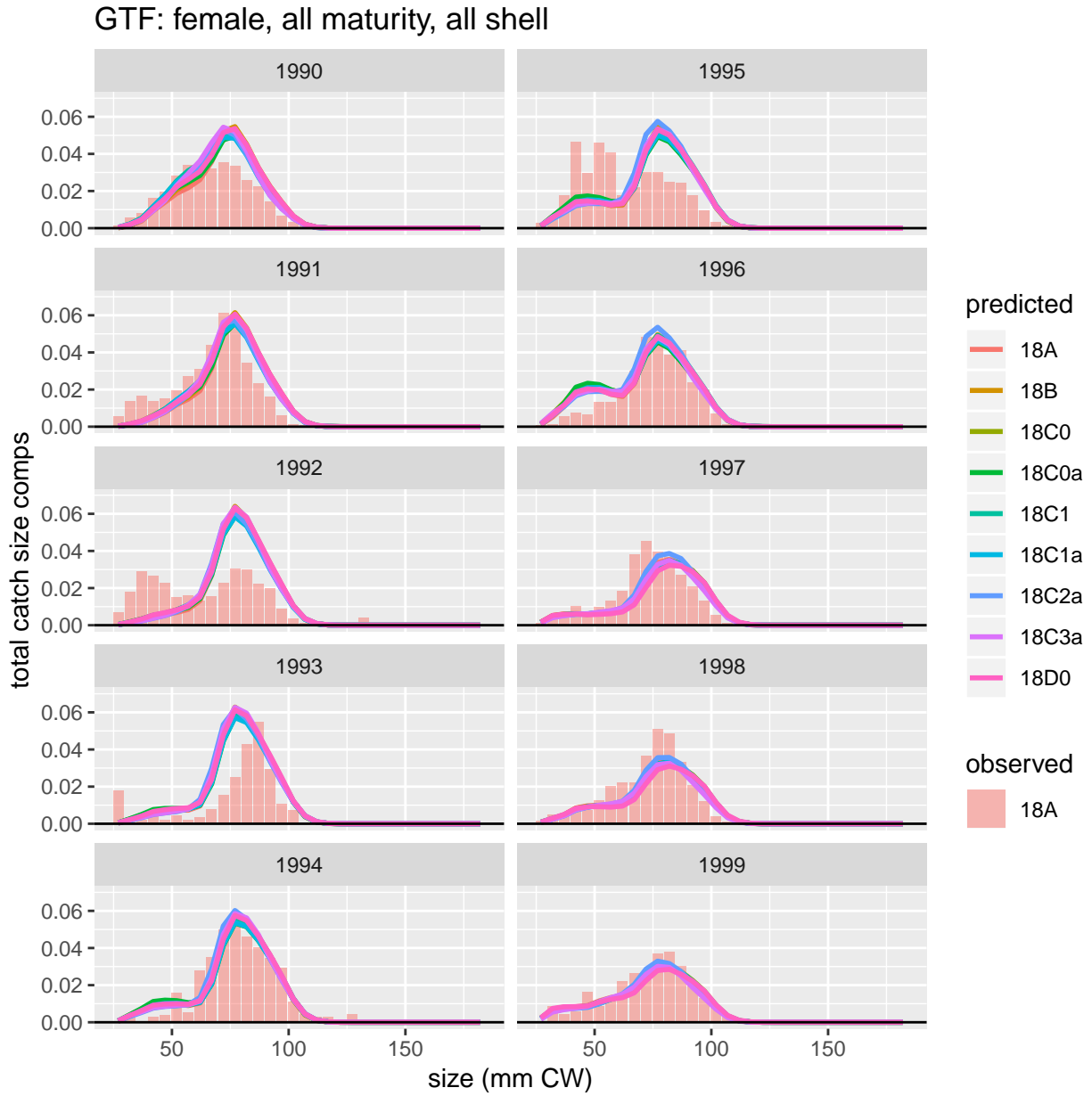


Figure 84: Comparison of observed and predicted female, all maturity, all shell total catch size comps for GTF. Page 3 of 5.

GTF: female, all maturity, all shell

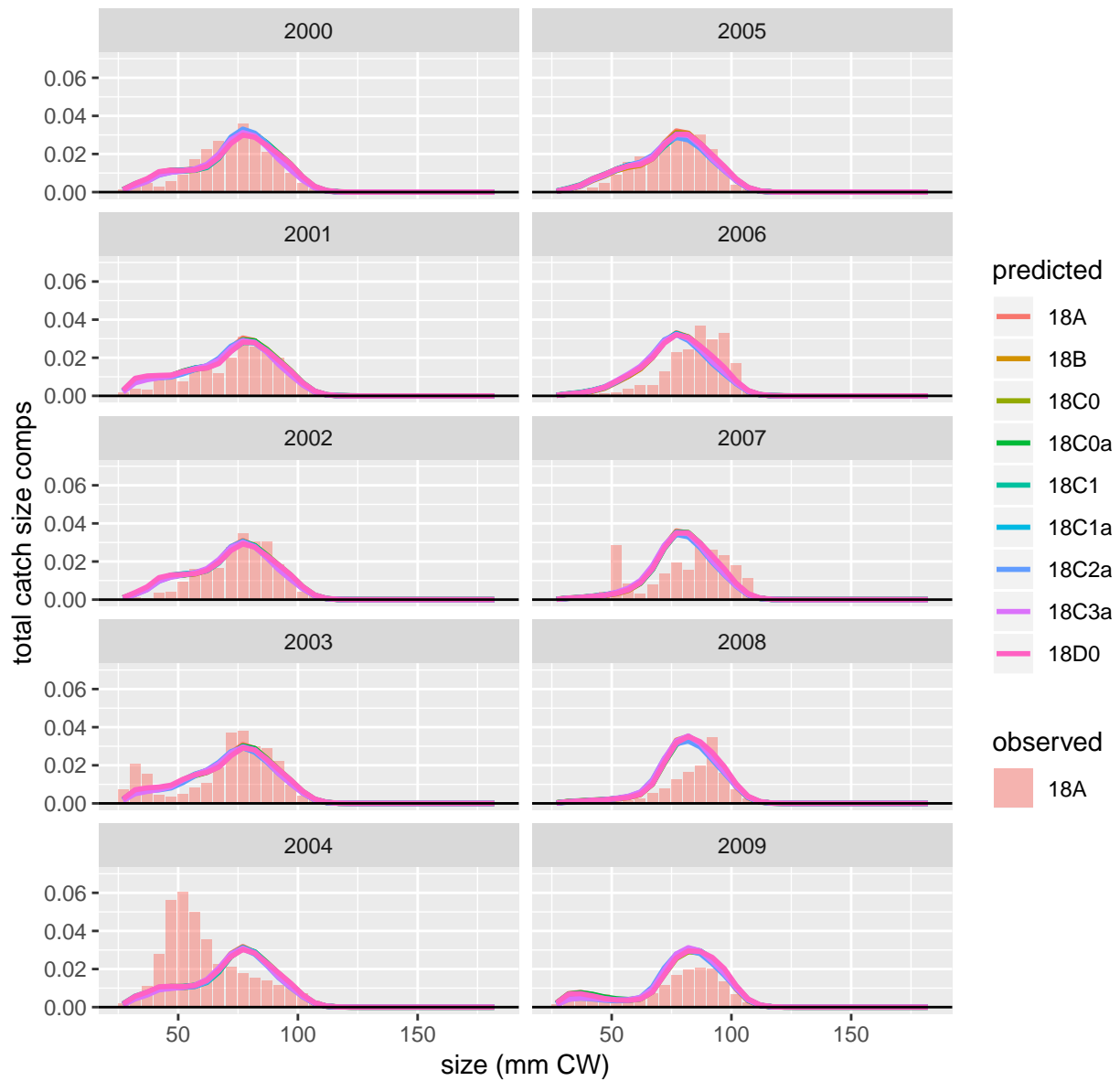


Figure 85: Comparison of observed and predicted female, all maturity, all shell total catch size comps for GTF. Page 4 of 5.

GTF: female, all maturity, all shell

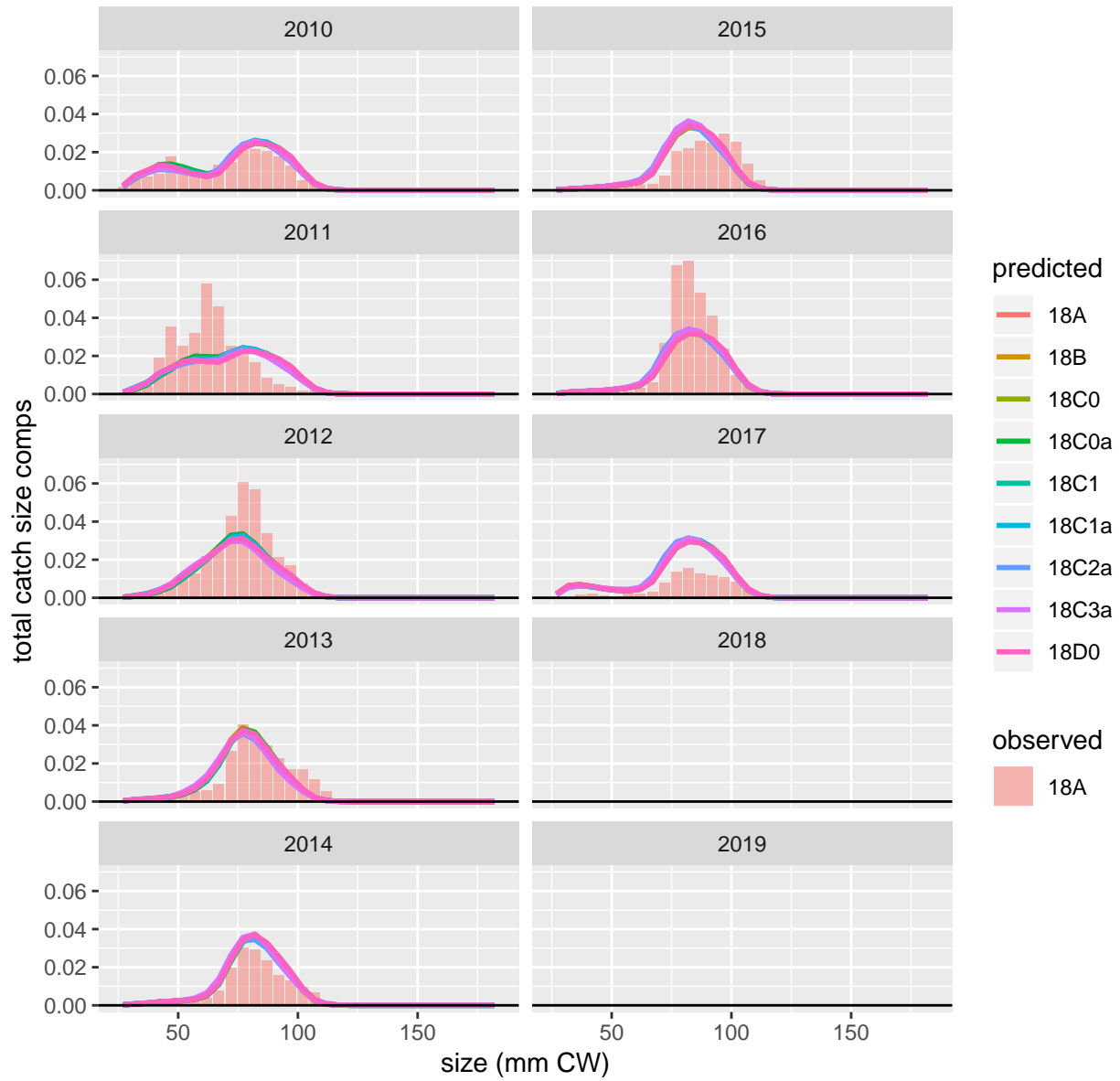


Figure 86: Comparison of observed and predicted female, all maturity, all shell total catch size comps for GTF. Page 5 of 5.

RKF: male, all maturity, all shell

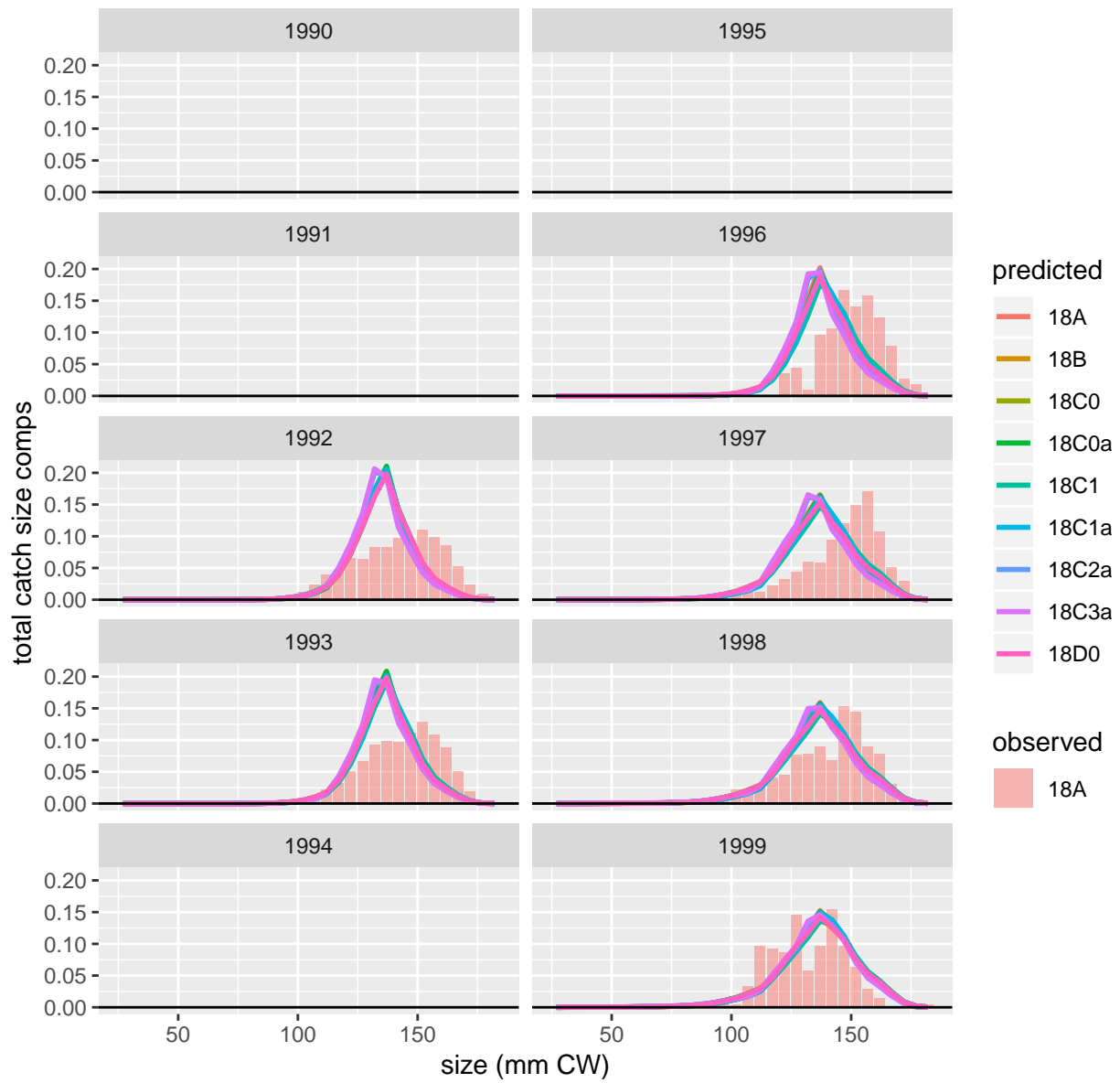


Figure 87: Comparison of observed and predicted male, all maturity, all shell total catch size comps for RKF. Page 1 of 3.



RKF: male, all maturity, all shell

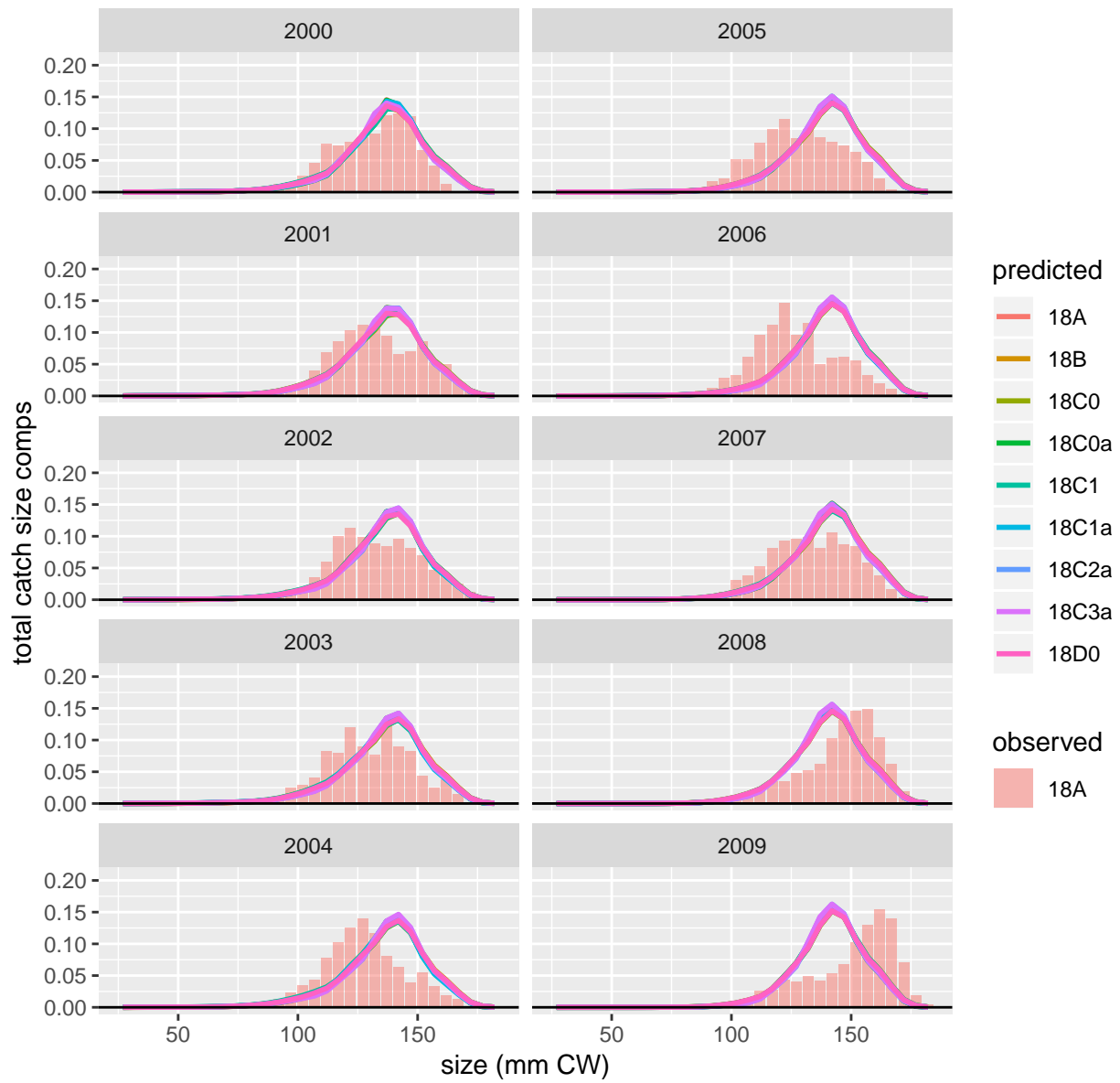


Figure 88: Comparison of observed and predicted male, all maturity, all shell total catch size comps for RKF. Page 2 of 3.

RKF: male, all maturity, all shell

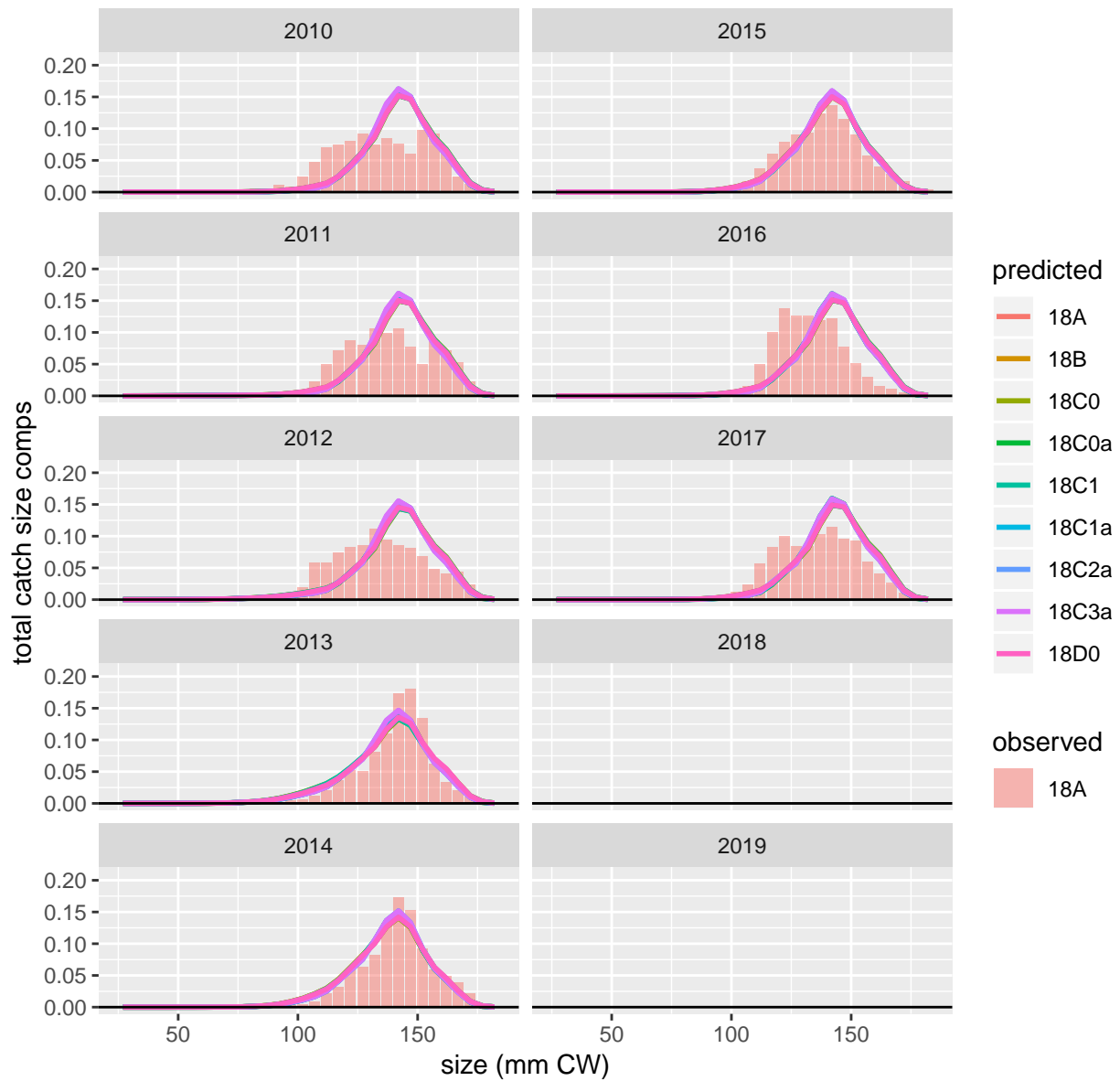


Figure 89: Comparison of observed and predicted male, all maturity, all shell total catch size comps for RKF. Page 3 of 3.

RKF: female, all maturity, all shell

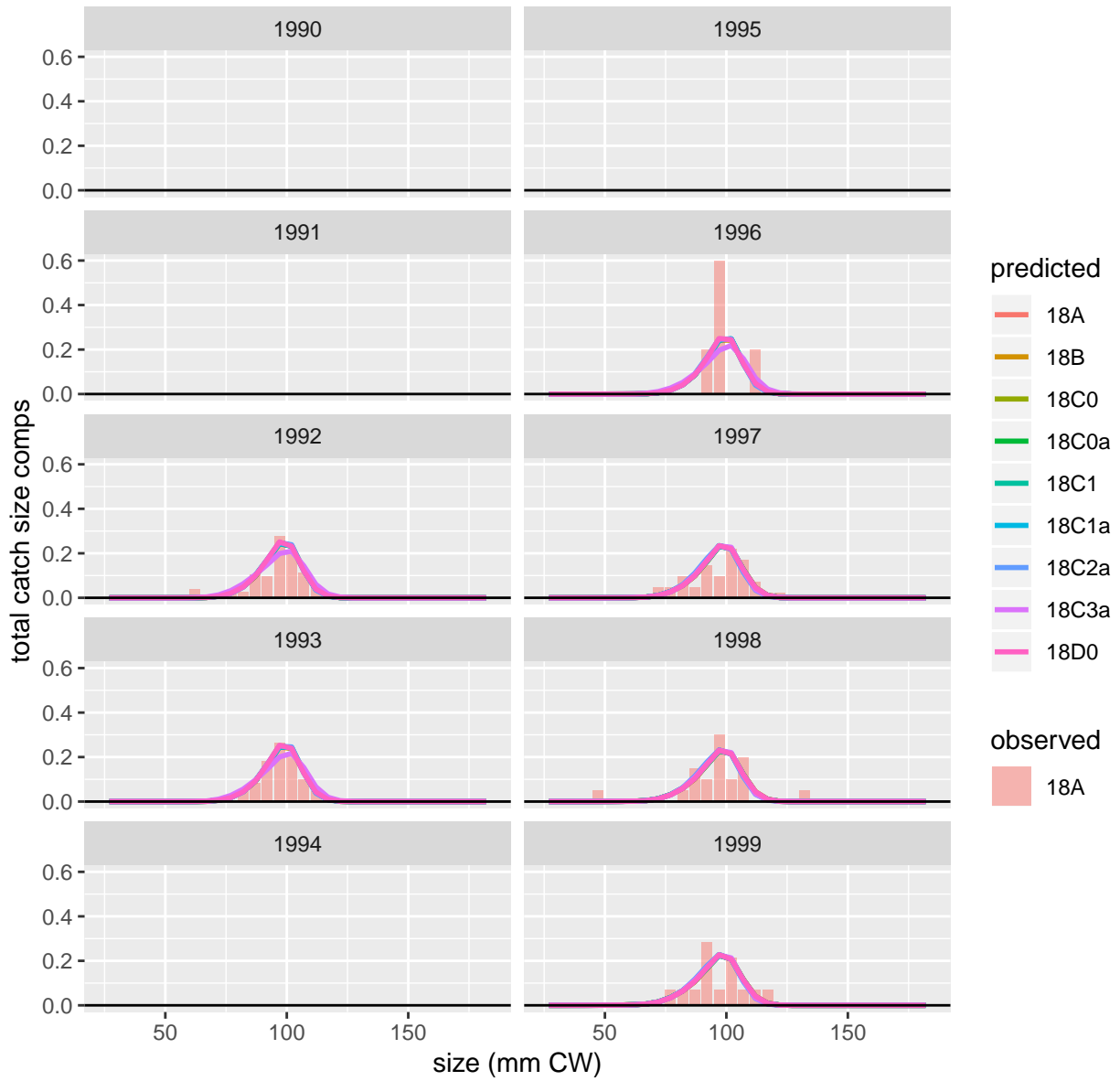


Figure 90: Comparison of observed and predicted female, all maturity, all shell total catch size comps for RKF. Page 1 of 3.

RKF: female, all maturity, all shell

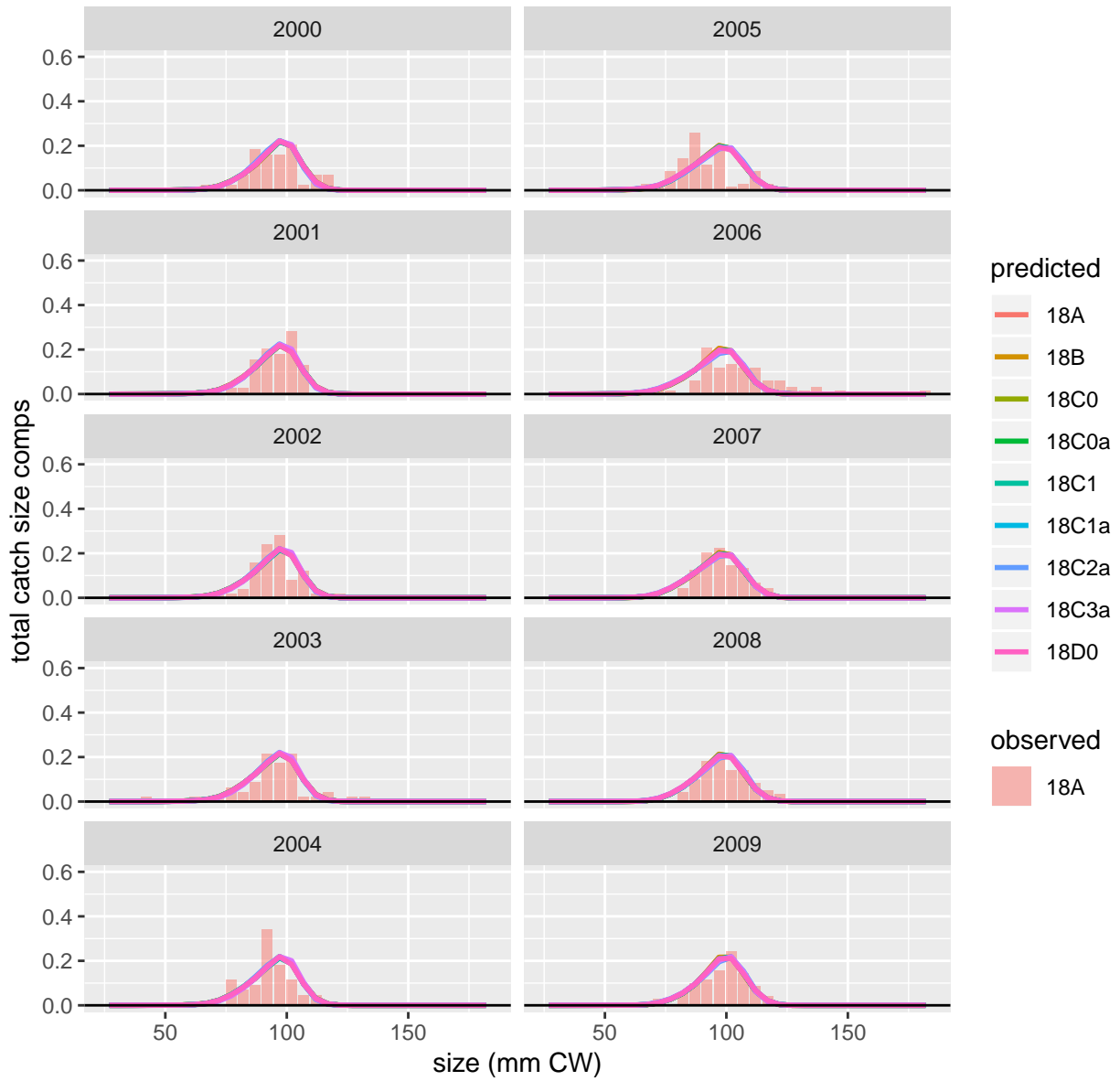


Figure 91: Comparison of observed and predicted female, all maturity, all shell total catch size comps for RKF. Page 2 of 3.

RKF: female, all maturity, all shell

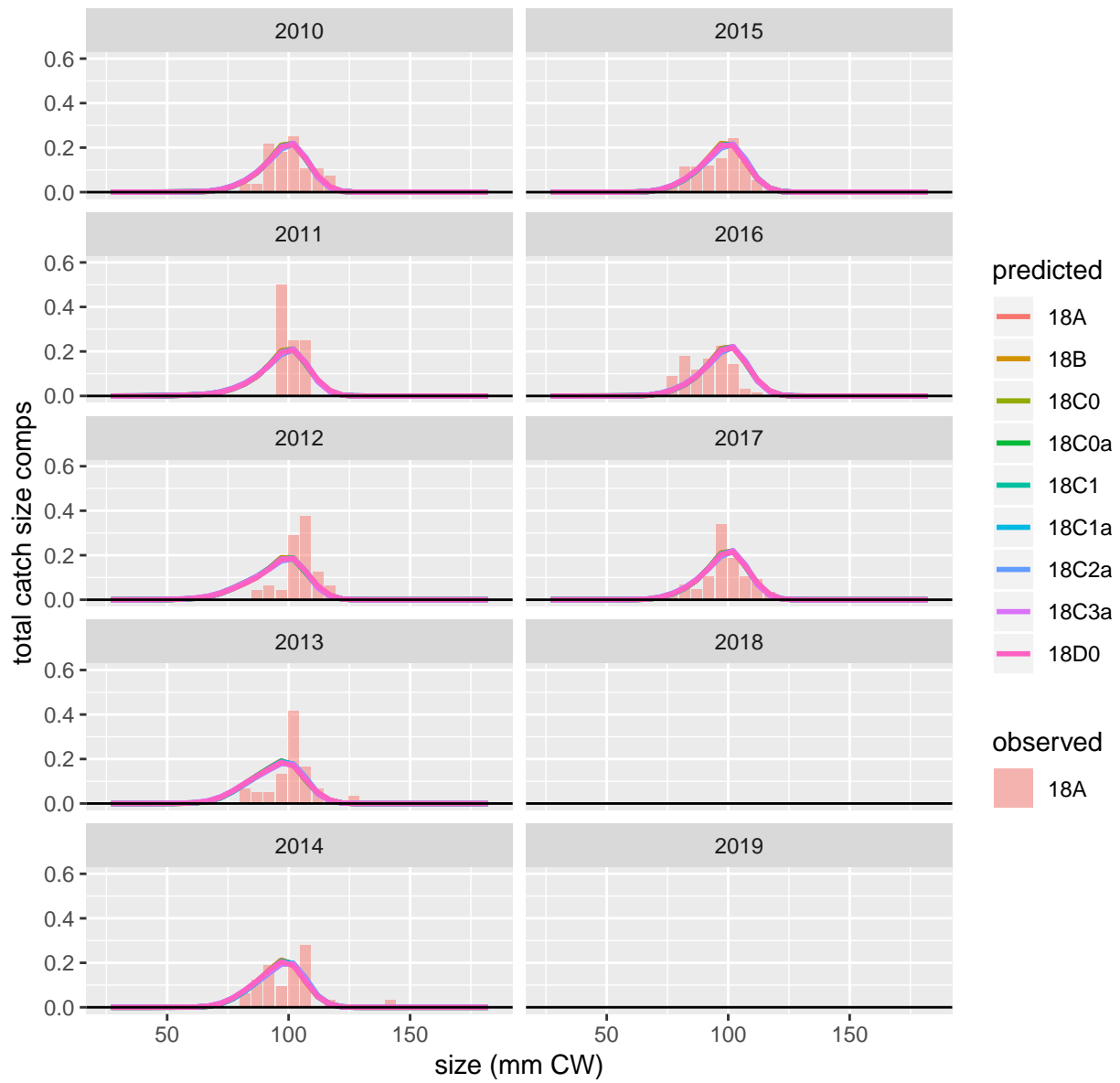


Figure 92: Comparison of observed and predicted female, all maturity, all shell total catch size comps for RKF. Page 3 of 3.