

Bluefish ESP indicator figures

Abigail Tyrell & Samantha Werner

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This document contains in-progress bluefish ESP figures. Recompile the .Rmd to view the most recent figures.

Background

Socioeconomic background

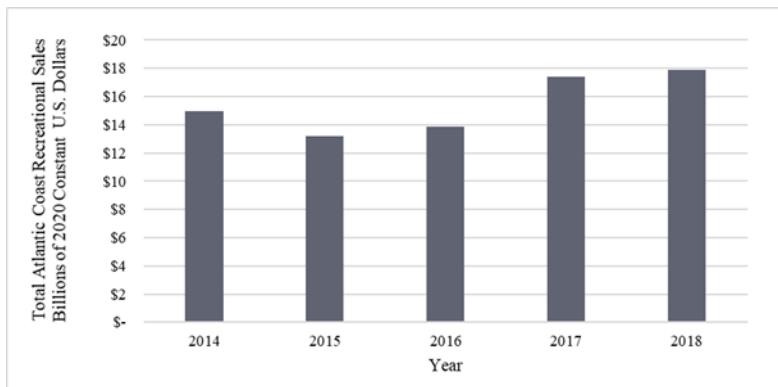


Figure 1 Figure 1. Figure aa. Total annual recreational sales from Atlantic coastal states over 2014-2018 in billions of 2020 constant U.S. Dollars. Data obtained from the Fisheries Economics of the United States Reports (2014-2018). Values were adjusted using the Gross Domestic Product Implicit Price Deflator. Values range from a low of around 13 billion in 2015 to just under 18 billion in 2018

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Figure 2 Figure 2. Figure bb. Total annual recreational sales by Atlantic Coastal state from 2014-2018 in millions of 2020 constant U.S. Dollars. Data obtained from the Fisheries Economics of the United States. Values were adjusted using the Gross Domestic Product Implicit Price Deflator.

Figure 3 Figure 3. Figure cc Figure 3. Recreational bluefish catch from Atlantic Coastal states over 2010-2021. Data acquired from the Marine Recreational Information Program (MRIP) query tool in January 2022.

Figure 4 Figure 4. Figure dd. Recreational bluefish catch box plots from 2010-2021 by Atlantic coastal states. Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022.

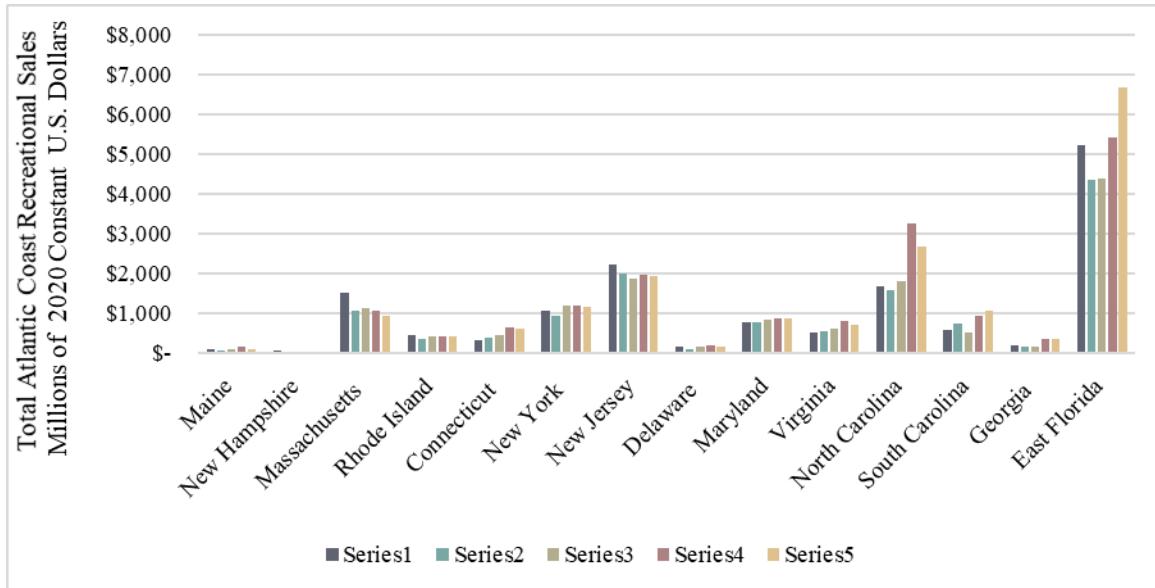


Figure 2: Total annual recreational sales by Atlantic Coastal state from 2014-2018 in millions of 2020 constant U.S. Dollars. Data obtained from the Fisheries Economics of the United States. Values were adjusted using the Gross Domestic Product Implicit Price Deflator. East Florida, North Carolina and New Jersey had the highest sales over the time series.

Figure 5 Figure 5. Figure ee. Number of directed recreational bluefish trips from Atlantic coastal states (2010-2021). Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022.

Figure 6 Figure 6. Figure ff. Proportion of regional recreational bluefish catch in number of fish by fishing mode (2010-2021). Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022.

Figure 7 Figure 7. Figure gg. Proportion of total recreational bluefish catch by month grouping and region (2010-2021). Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022

Figure 8 Figure 8. Figure hh. Recreational bluefish catch as a percent of total recreational catch by region over 2010-2021. Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022.

Figure 9 Figure 9. Figure ii. Box plots of recreational bluefish catch as a percent of total recreational catch by state over 2010-2021. Data source: Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022. Connecticut has the highest percent of bluefish catch relative to other species and New Hampshire the lowest.

Environment and distribution

Federal surveys

EcoMon/MARMAP

Eggs

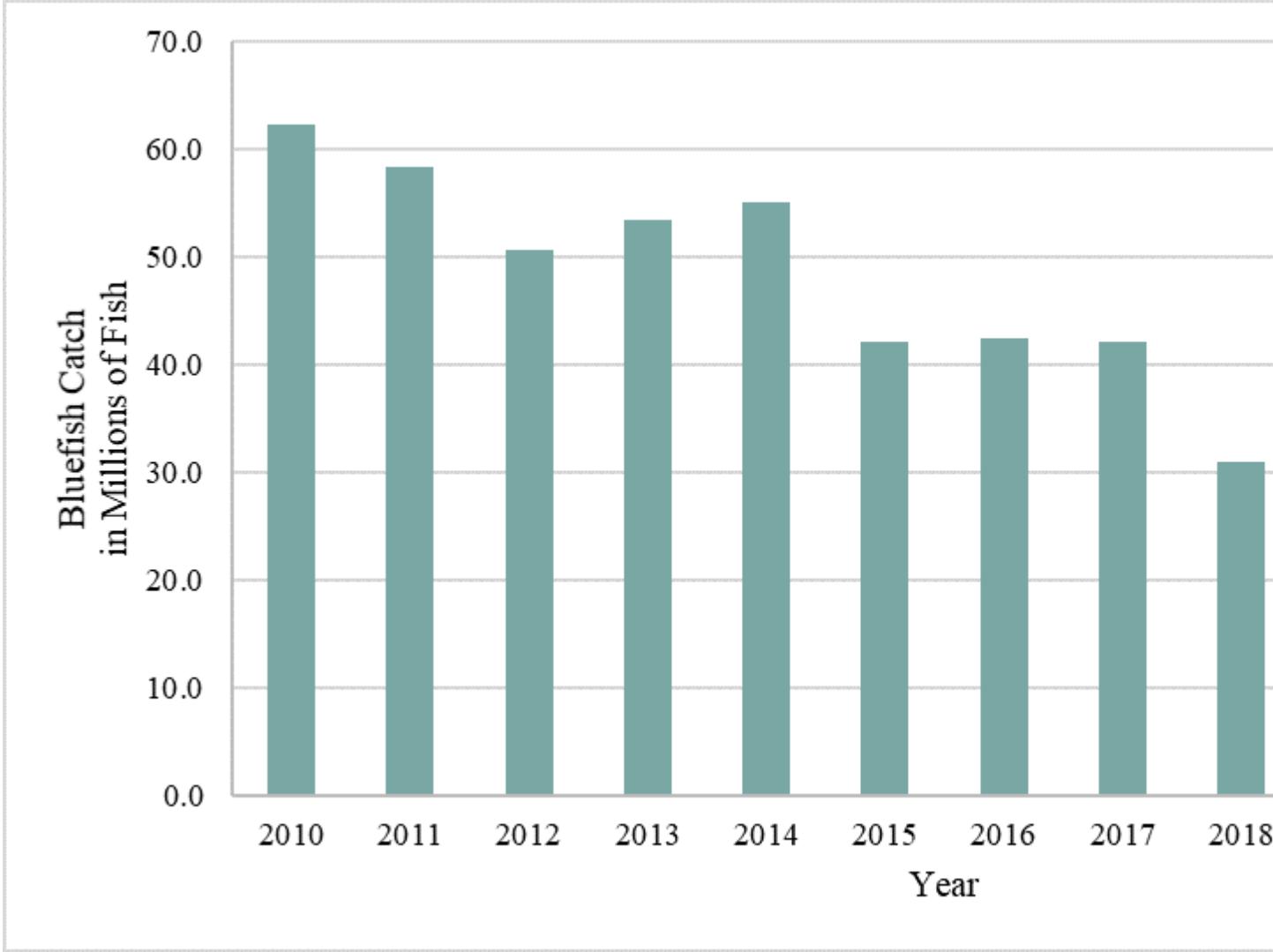


Figure 3: Recreational bluefish catch from Atlantic Coastal states over 2010-2021. Data acquired from the Marine Recreational Information Program (MRIP) query tool in January 2022. Bluefish catch followed an overall decreasing trend over the time series.

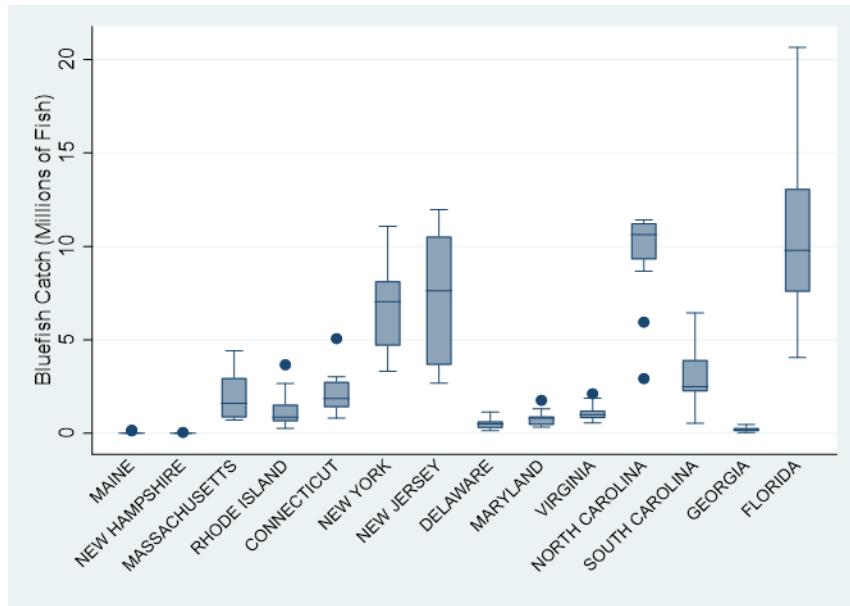


Figure 4: Recreational bluefish catch box plots from 2010-2021 by Atlantic coastal states. Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022. North Carolina and Florida have the highest median recreational bluefish catch with median values of 10.6 and 9.8 million fish

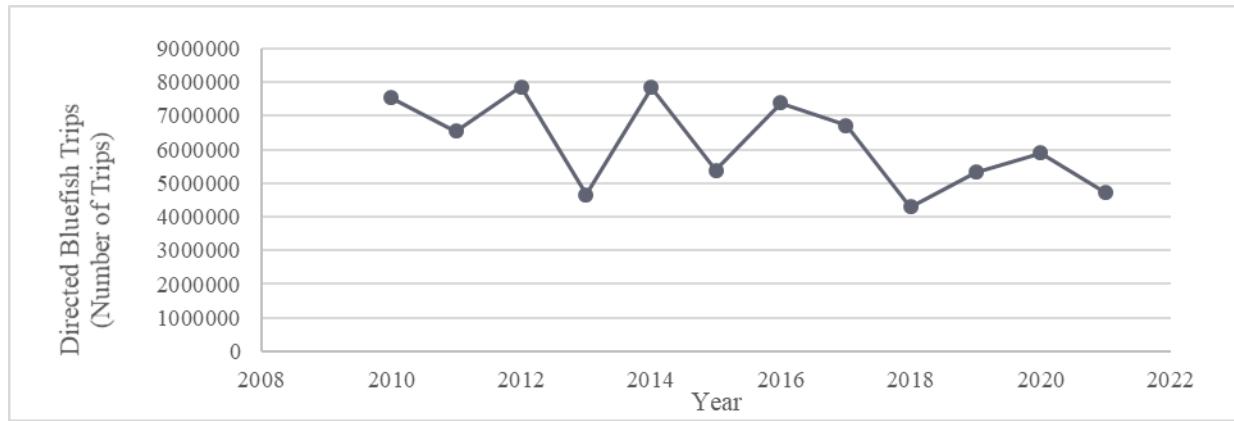


Figure 5: Number of directed recreational bluefish trips from Atlantic coastal states (2010-2021). Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022. The number of directed recreational bluefish trips off the Atlantic Coast are lowest in the last 4 years in the time series relative to the entire 11-year period

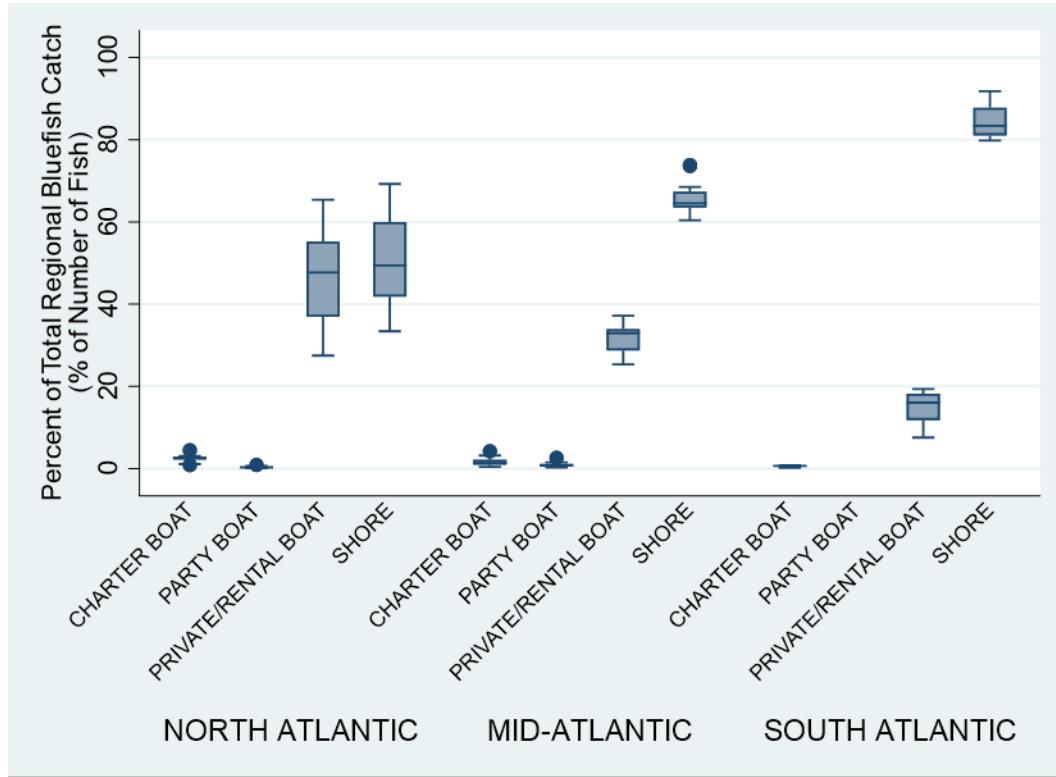


Figure 6: Proportion of regional recreational bluefish catch in number of fish by fishing mode (2010-2021). Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022. Over the past decade, recreational bluefish catch has been primarily caught by shore-based fishing efforts or on private/rental boats across the Atlantic Coast

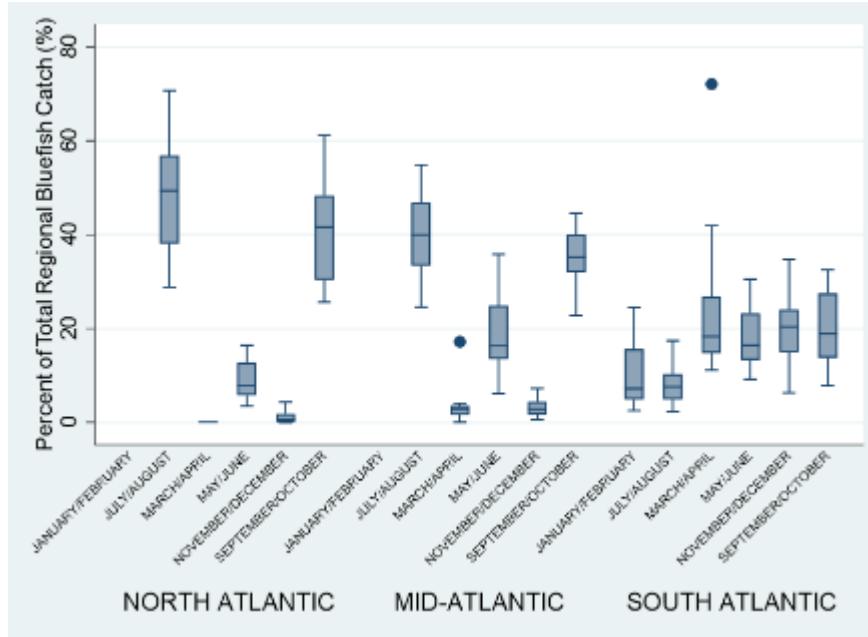


Figure 7: Proportion of total recreational bluefish catch by month grouping and region (2010-2021). Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022. The season in which recreational bluefish are caught differs across the regions.



Figure 8: Recreational bluefish catch as a percent of total recreational catch by region over 2010-2021. Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022. Bluefish catch, as a percent of total recreational catch, follows an overall decreasing trend from 2010 to 2021 along the Atlantic Coast

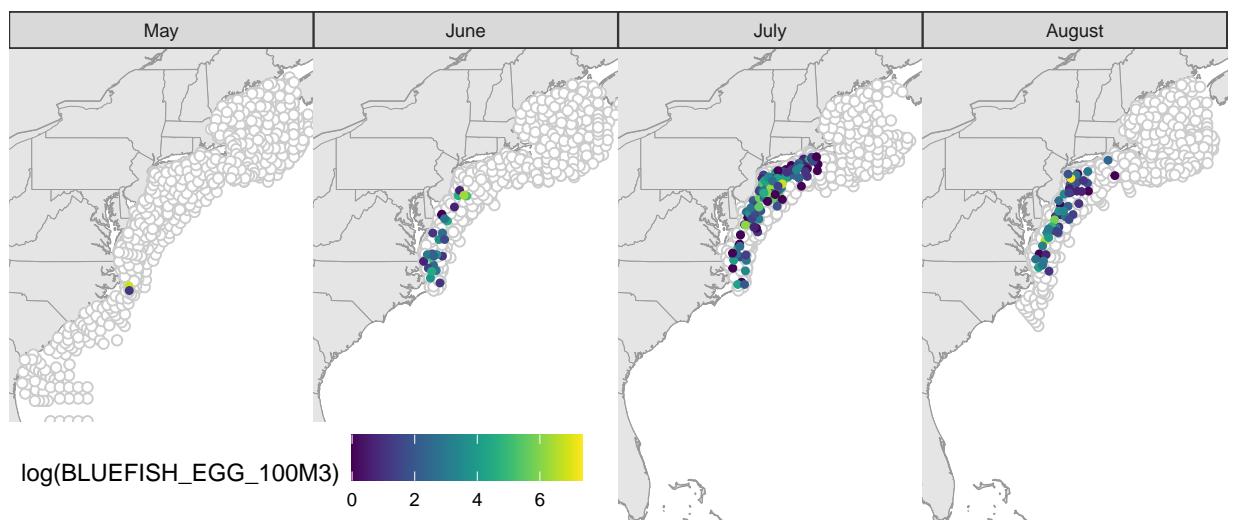


Figure 10

Figure 10. you haven't written this yet!

Summary table

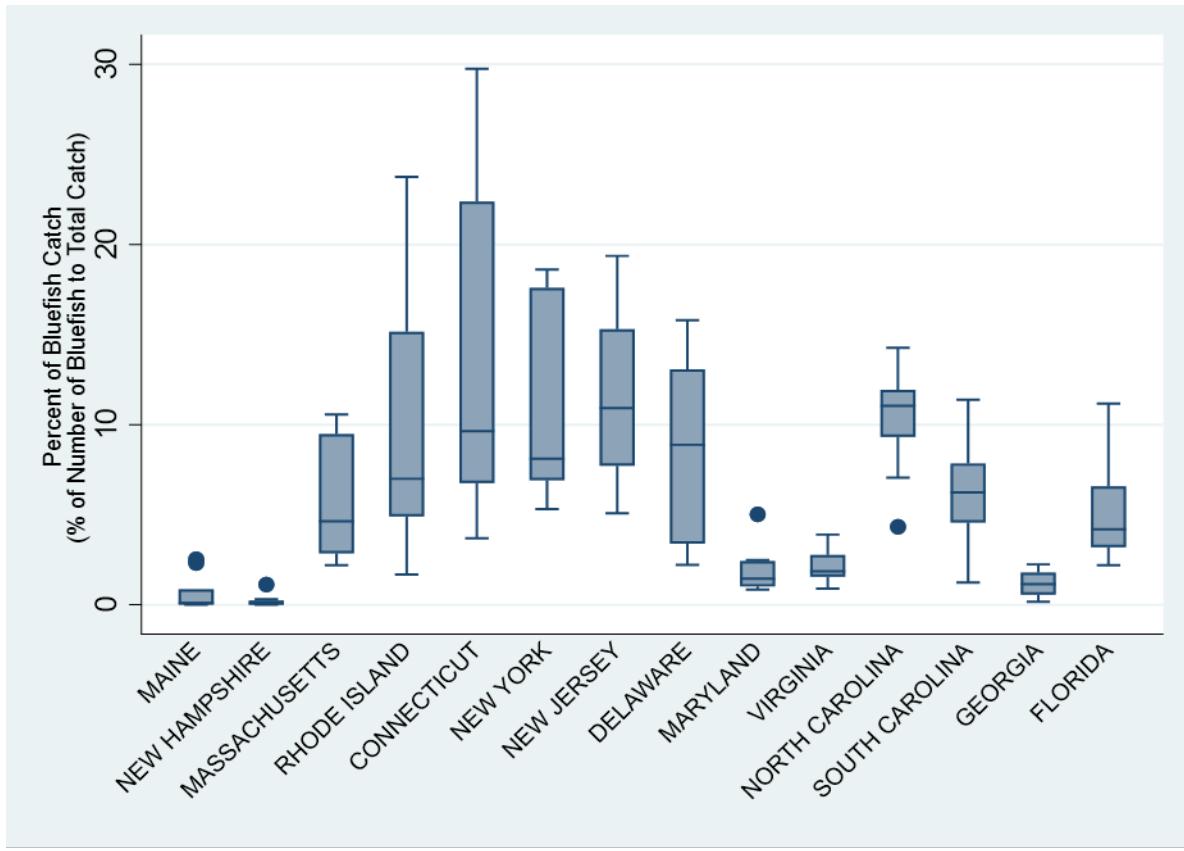


Figure 9: Box plots of recreational bluefish catch as a percent of total recreational catch by state over 2010-2021. Data source: Data retrieved from the Marine Recreational Information Program (MRIP) query tool in January 2022.

MONTH	n_tows	n_positive_tow	total_n	n_per_tow	n_years	n_positive_years	mean_surface_temp	n_
5	1681	2	876.0	0.5	12	2	19.9	
6	996	28	1636.4	1.6	10	4	20.4	
7	966	132	10321.3	10.7	11	8	21.5	1
8	1183	53	3095.6	2.6	11	8	24.4	

Larvae

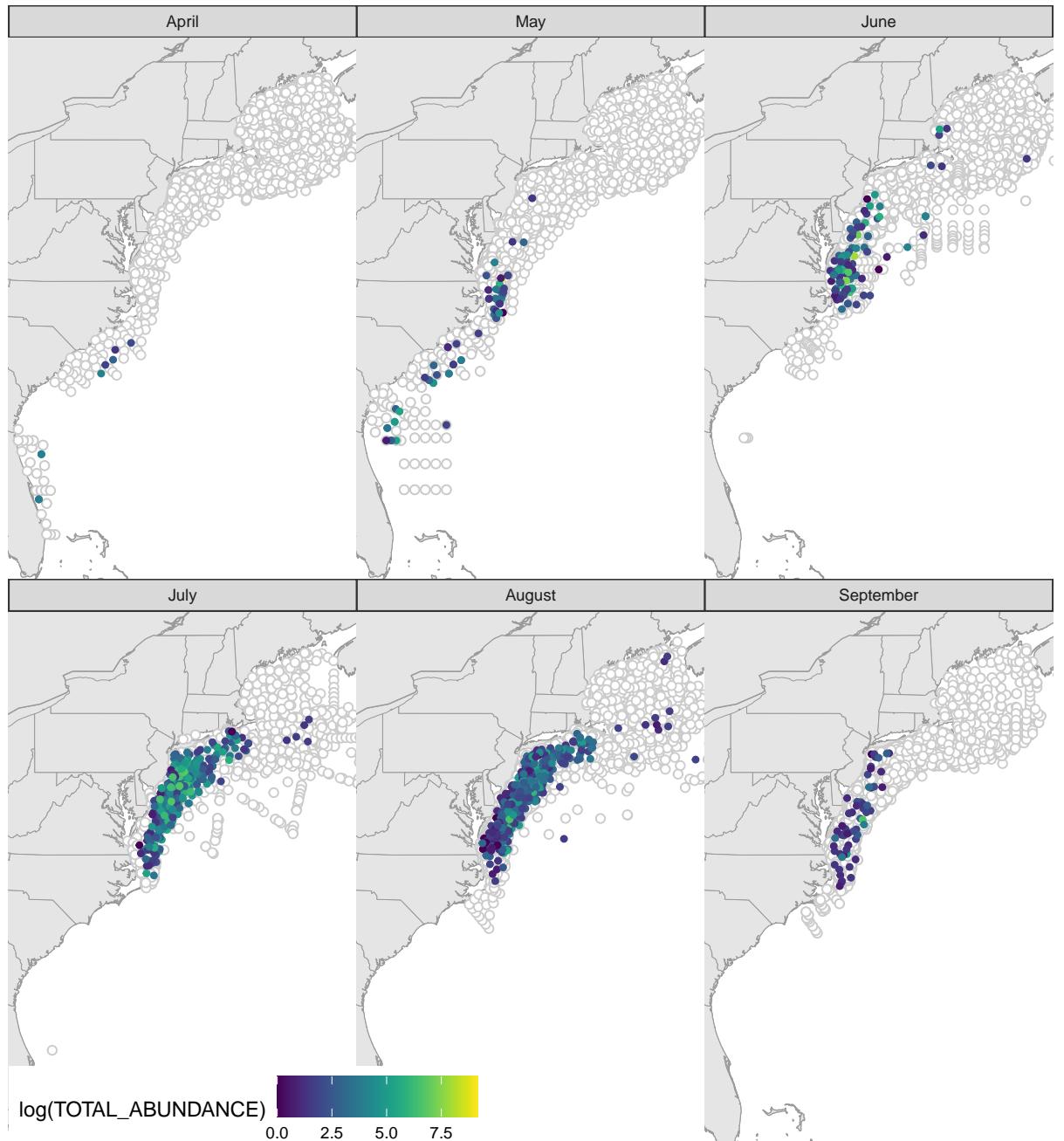


Figure 11

Summary table

NMFS bottom trawl

MONTH	n_tows	n_positive_tow	total_n	n_per_tow	n_years	n_positive_years	mean_surface_temp	n
1	1789	1	2.2	0.0	26	1	NA	
4	3266	13	260.3	0.1	44	1	NA	
5	3477	105	11913.1	3.4	38	11	21.9	1
6	3083	218	15961.1	5.2	34	17	22.3	
7	1430	1010	46984.9	32.9	21	17	23.3	
8	3011	915	18413.0	6.1	31	27	24.5	
9	2210	96	631.5	0.3	43	19	23.8	

Small fish (<=32.1cm)

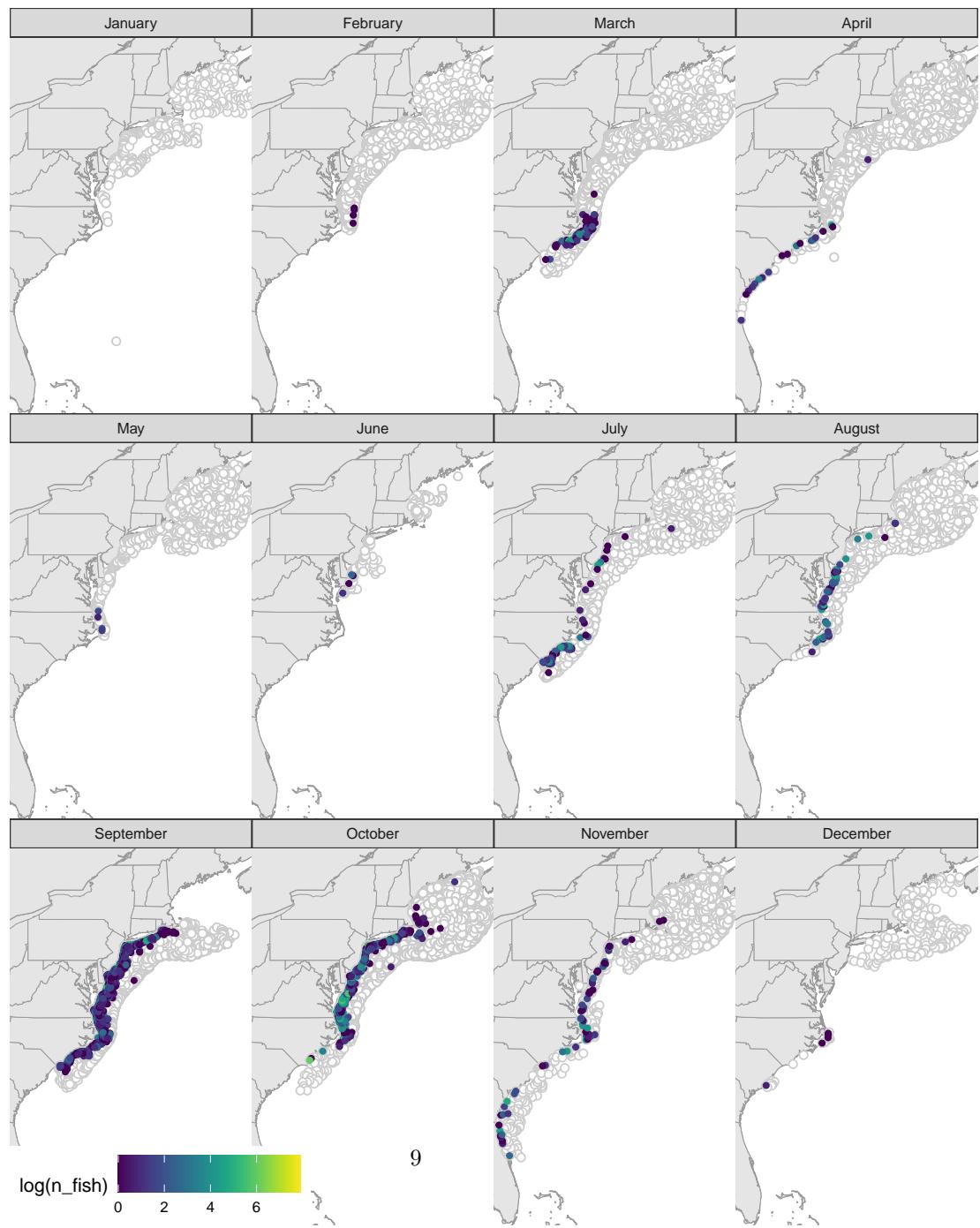


Figure 12. you haven't written this yet!

Medium fish (31.2–49.6cm)

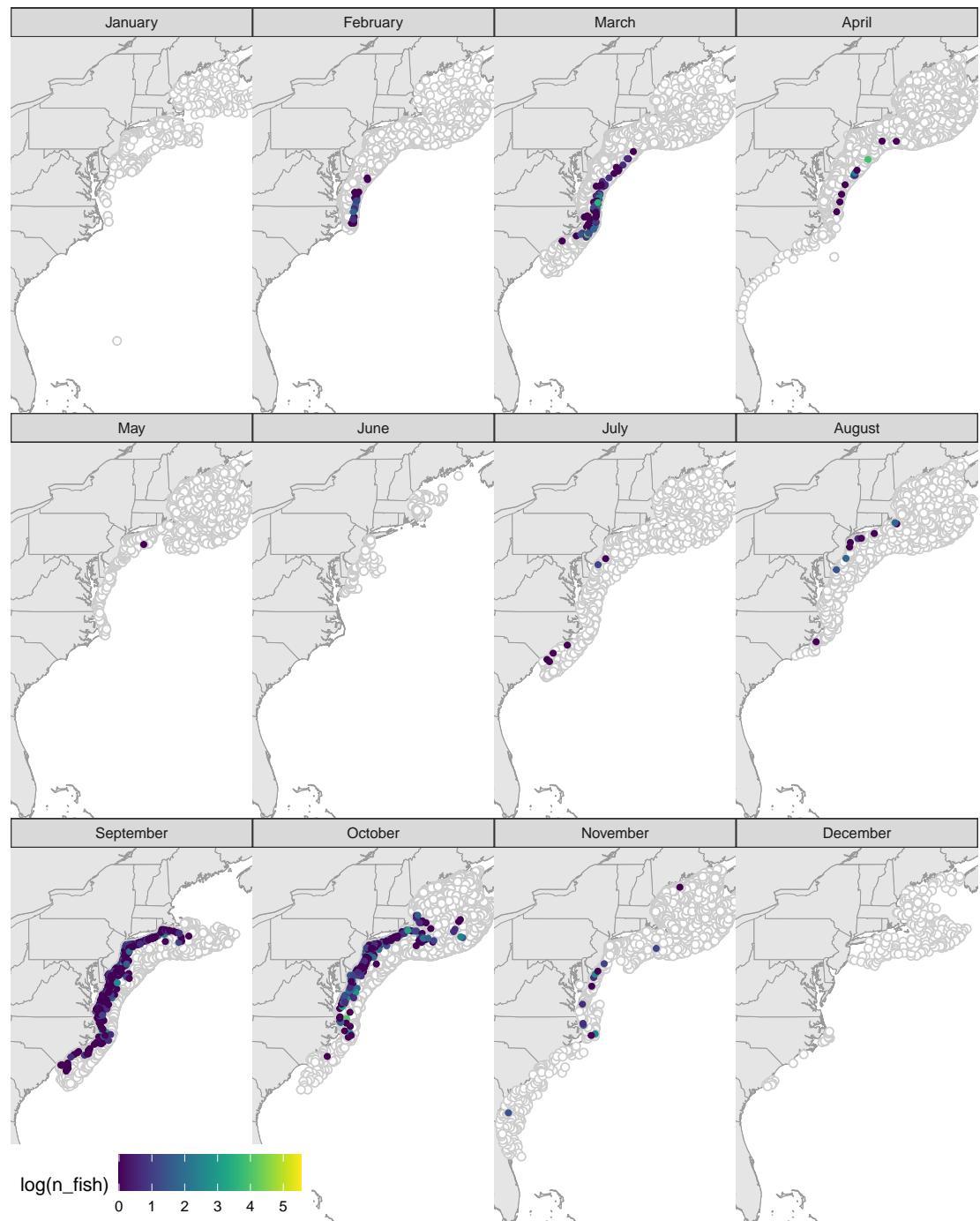


Figure 13

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Large fish ($\geq 49.6\text{cm}$)

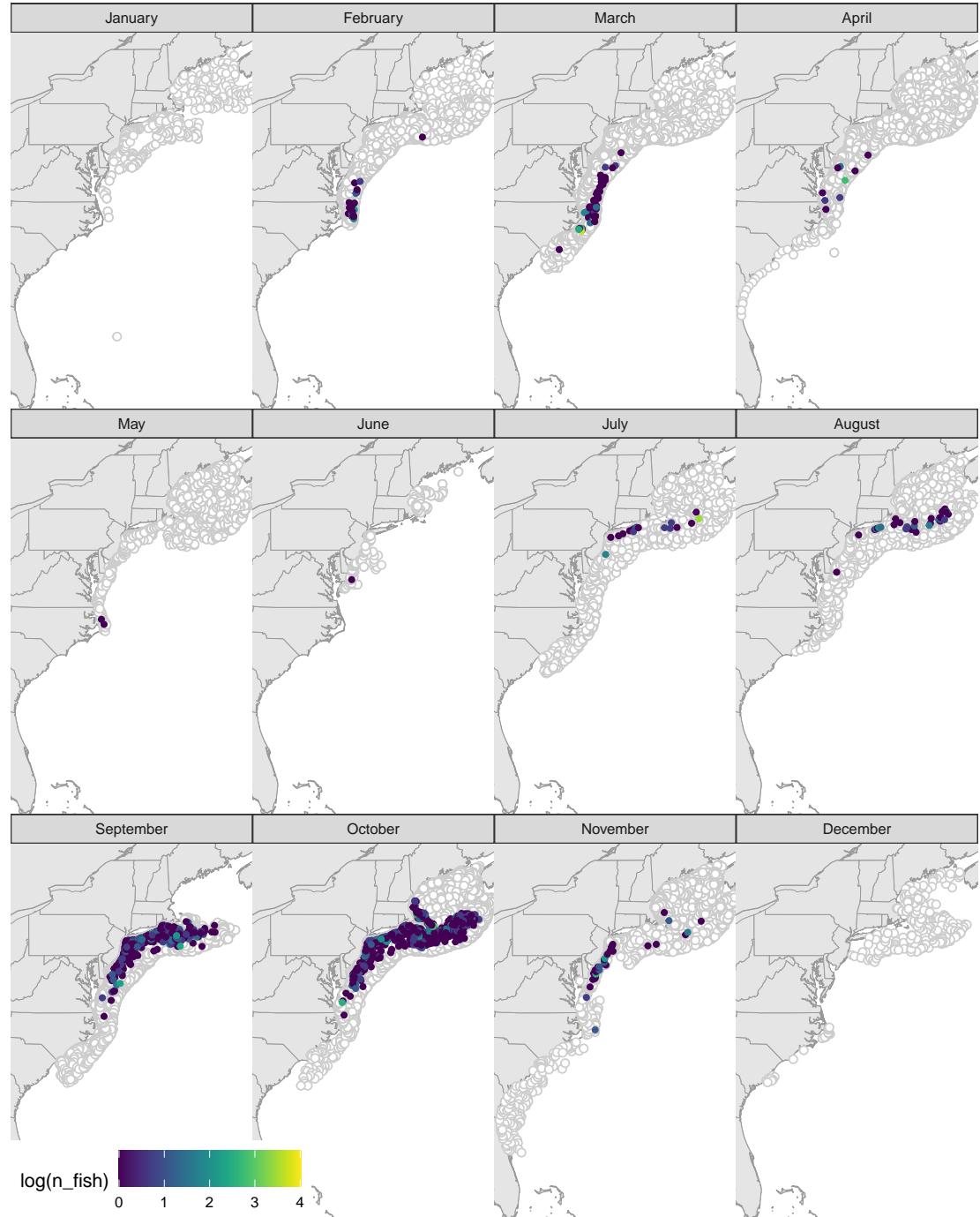


Figure 14

Table 1: Small bluefish

MONTH	n_tows	total_n	n_per_tow	mean_surface_temp	n_temp	mean_surface_sal	n_sal
2	2381	4	0.0	12.2	3	34.5	3
3	8746	1004	0.1	11.7	993	32.9	526
4	8252	201	0.0	16.9	199	35.1	95
5	1803	18	0.0	18.6	18	NA	NA
6	123	18	0.1	19.9	18	NA	NA
7	959	855	0.9	26.4	737	NA	NA
8	1366	1428	1.0	24.0	1353	NA	NA
9	7066	63043	8.9	21.5	51742	30.9	26324
10	8974	15737	1.8	18.8	12928	30.8	3676
11	3512	813	0.2	18.5	812	31.9	2
12	243	6	0.0	14.4	6	NA	NA

Table 2: Medium bluefish

MONTH	n_tows	total_n	n_per_tow	mean_surface_temp	n_temp	mean_surface_sal	n_sal
2	2381	84	0.0	10.3	78	33.9	77
3	8746	625	0.1	11.6	480	34.3	378
4	8252	75	0.0	8.5	74	33.7	74
5	1803	1	0.0	8.4	1	32.7	1
7	959	8	0.0	24.6	8	NA	NA
8	1366	24	0.0	21.7	20	NA	NA
9	7066	1814	0.3	20.8	1584	31.1	1095
10	8974	742	0.1	17.8	645	31.7	197
11	3512	50	0.0	17.4	50	NA	NA

Figure 14. you haven't written this yet!

Summary table

MRIP catch and CPUE

Table 3: Large bluefish

MONTH	n_tows	total_n	n_per_tow	mean_surface_temp	n_temp	mean_surface_sal	n_sal
2	2381	62	0.0	10.2	61	33.7	59
3	8746	264	0.0	11.3	184	34.6	137
4	8252	29	0.0	10.3	27	33.8	23
5	1803	2	0.0	18.8	2	NA	NA
6	123	1	0.0	21.5	1	NA	NA
7	959	59	0.1	17.6	58	NA	NA
8	1366	70	0.1	17.2	70	NA	NA
9	7066	908	0.1	18.8	703	31.9	496
10	8974	1733	0.2	15.6	1507	32.2	718
11	3512	66	0.0	15.4	62	NA	NA

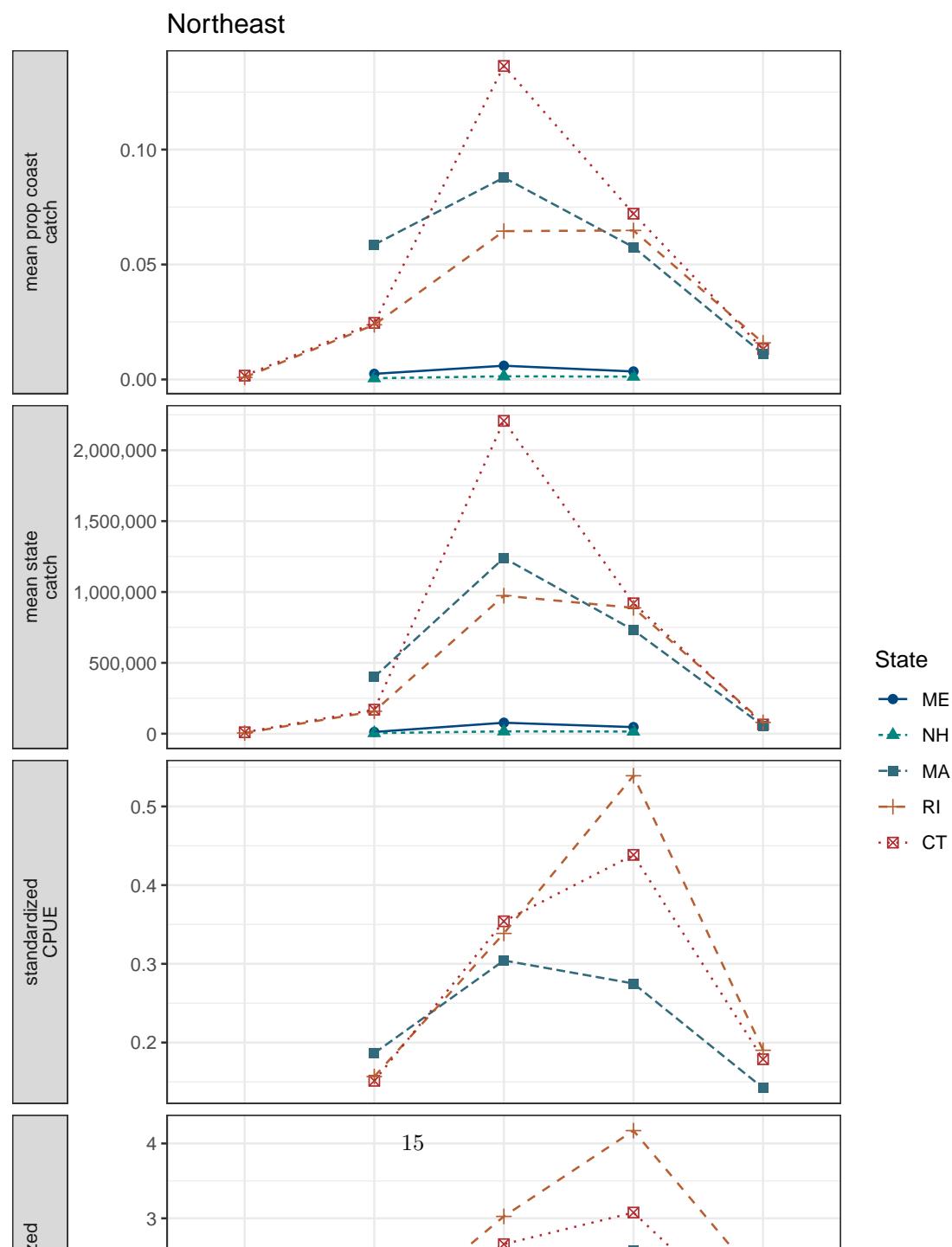


Figure 15. you haven't written this yet!

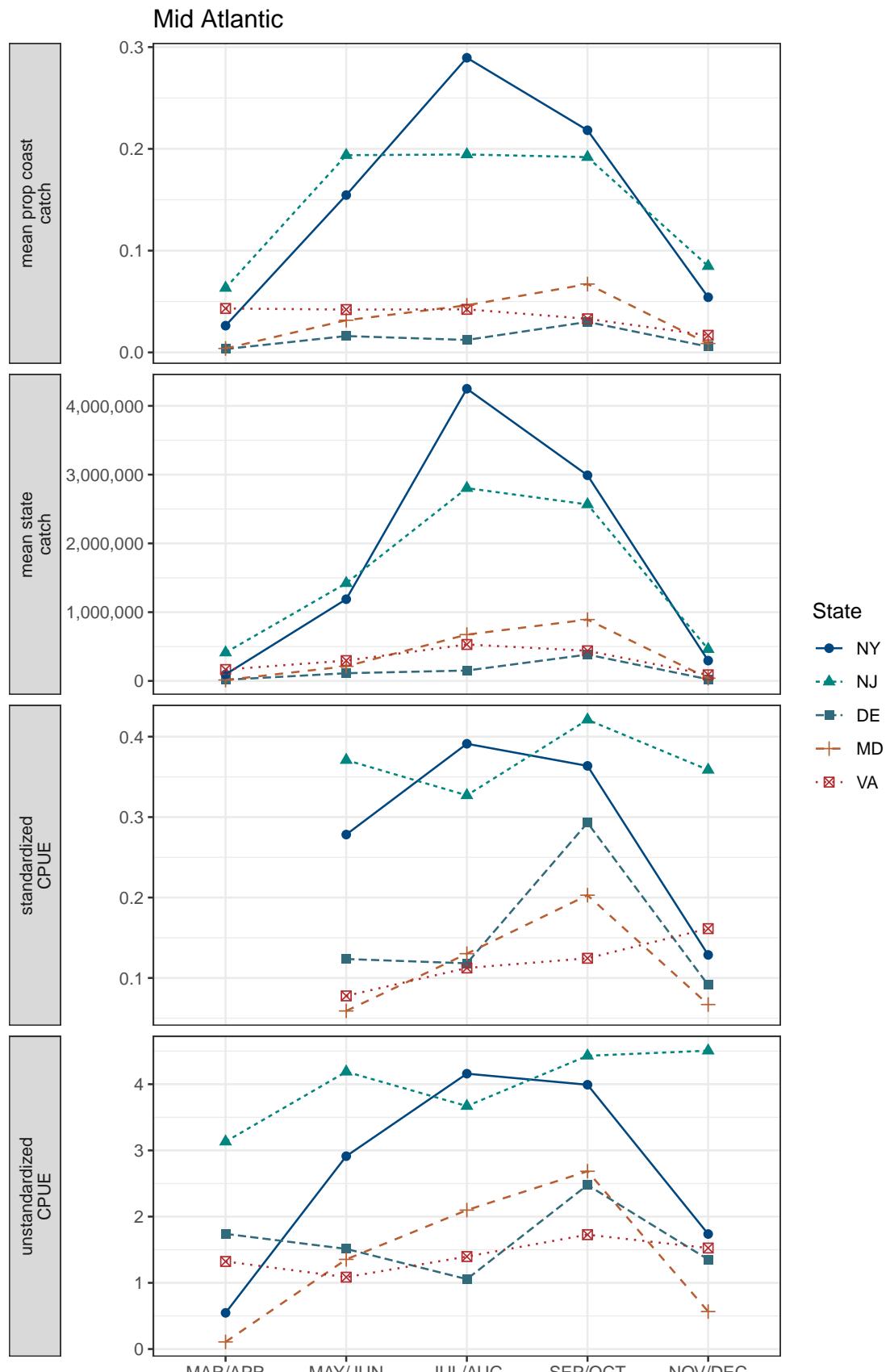


Figure 16

Figure 16. you haven't written this yet!

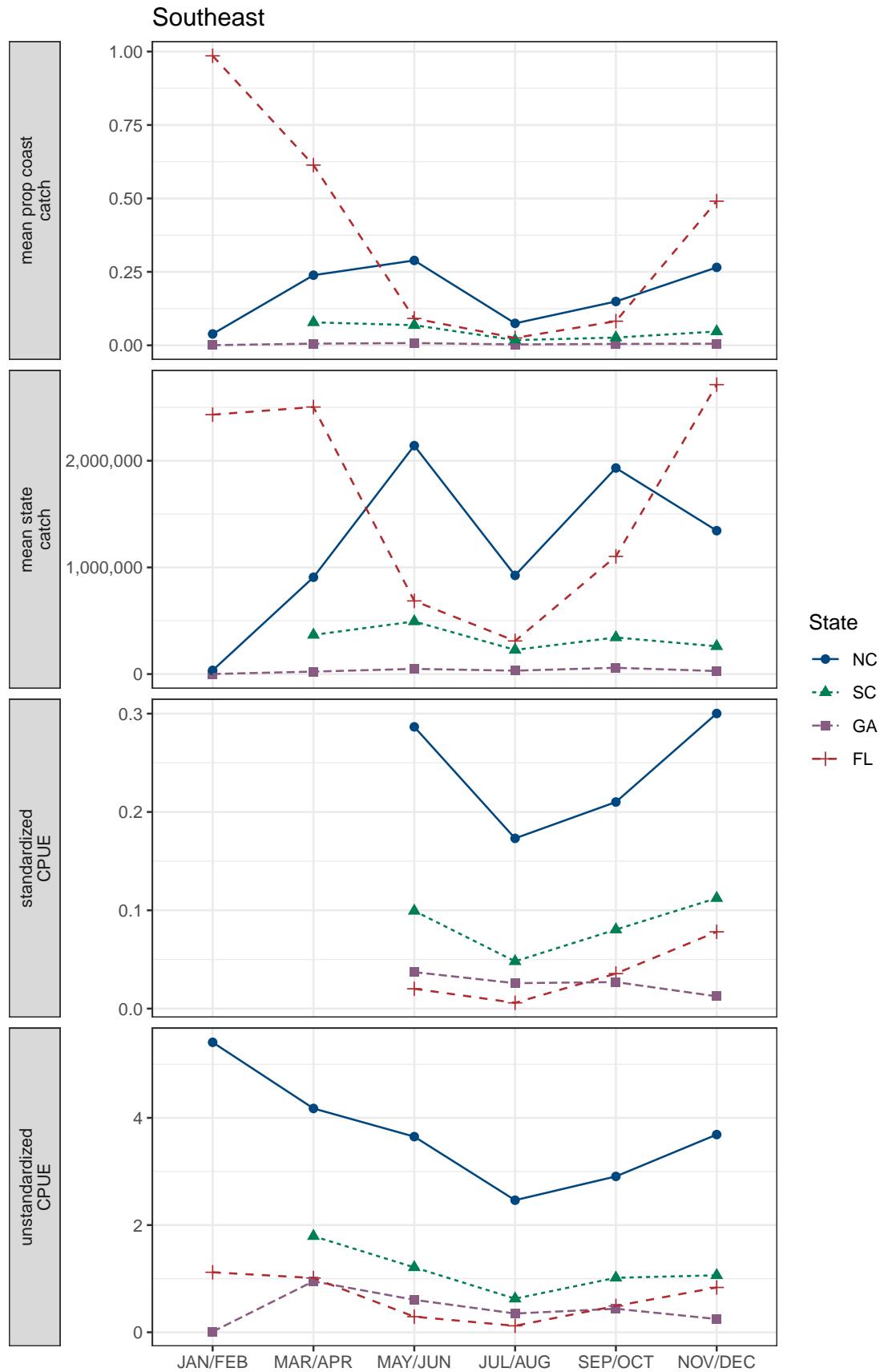


Figure 17

Figure 17. you haven't written this yet!

State surveys

Observations by month

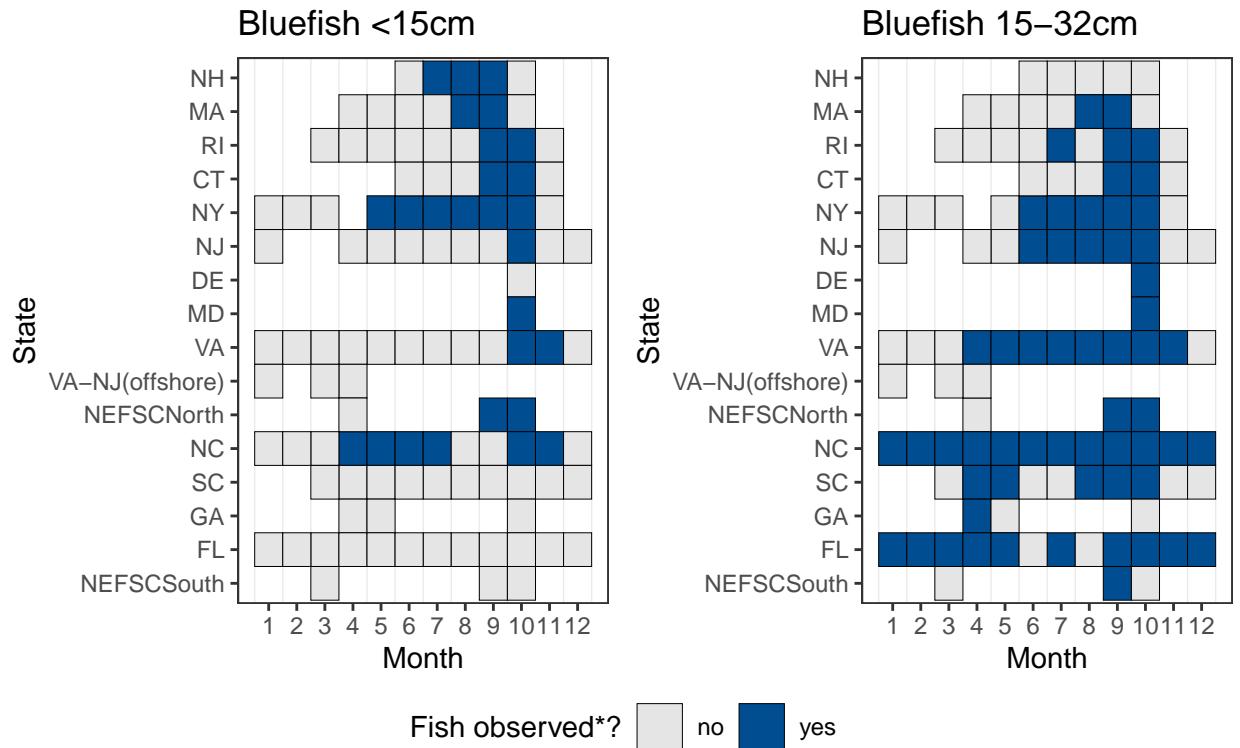


Figure 18

Figure 18. you haven't written this yet!

Select length cohort plots

New Hampshire

New Hampshire Juvenile Finfish Survey

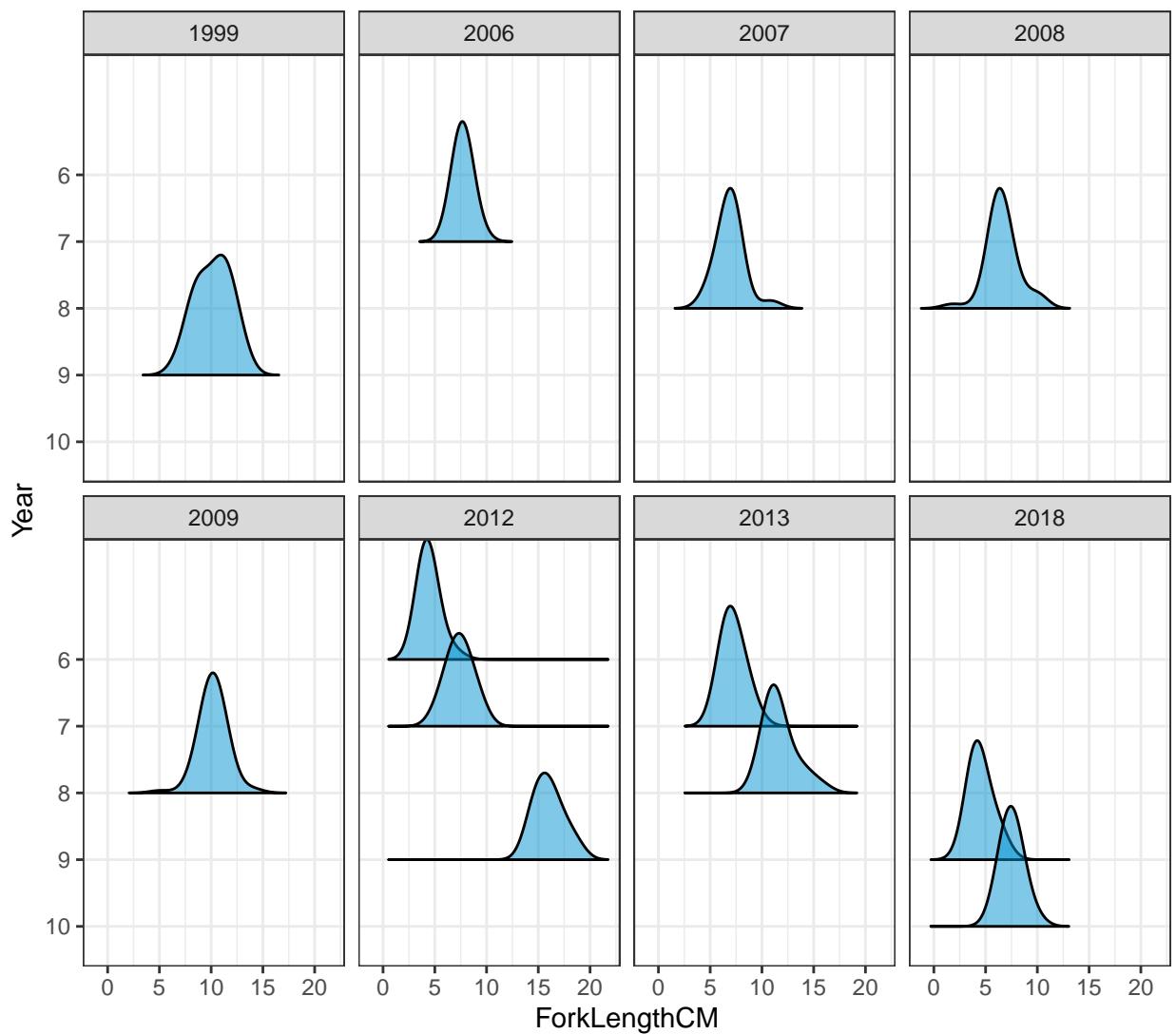


Figure 19

Figure 19. you haven't written this yet!

New York (select years only)

New York, select years

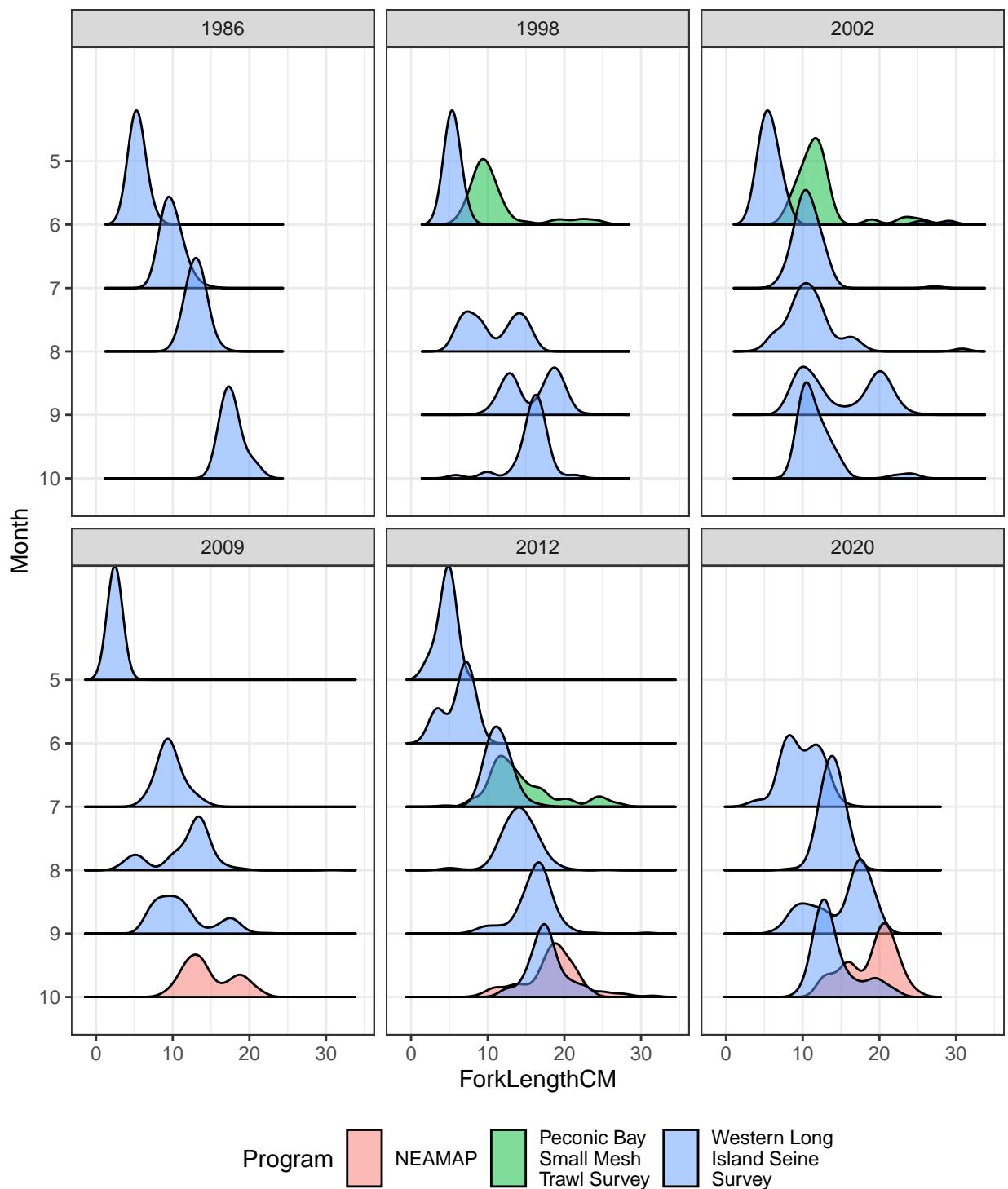


Figure 20

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North Carolina (select years only)

North Carolina, select years

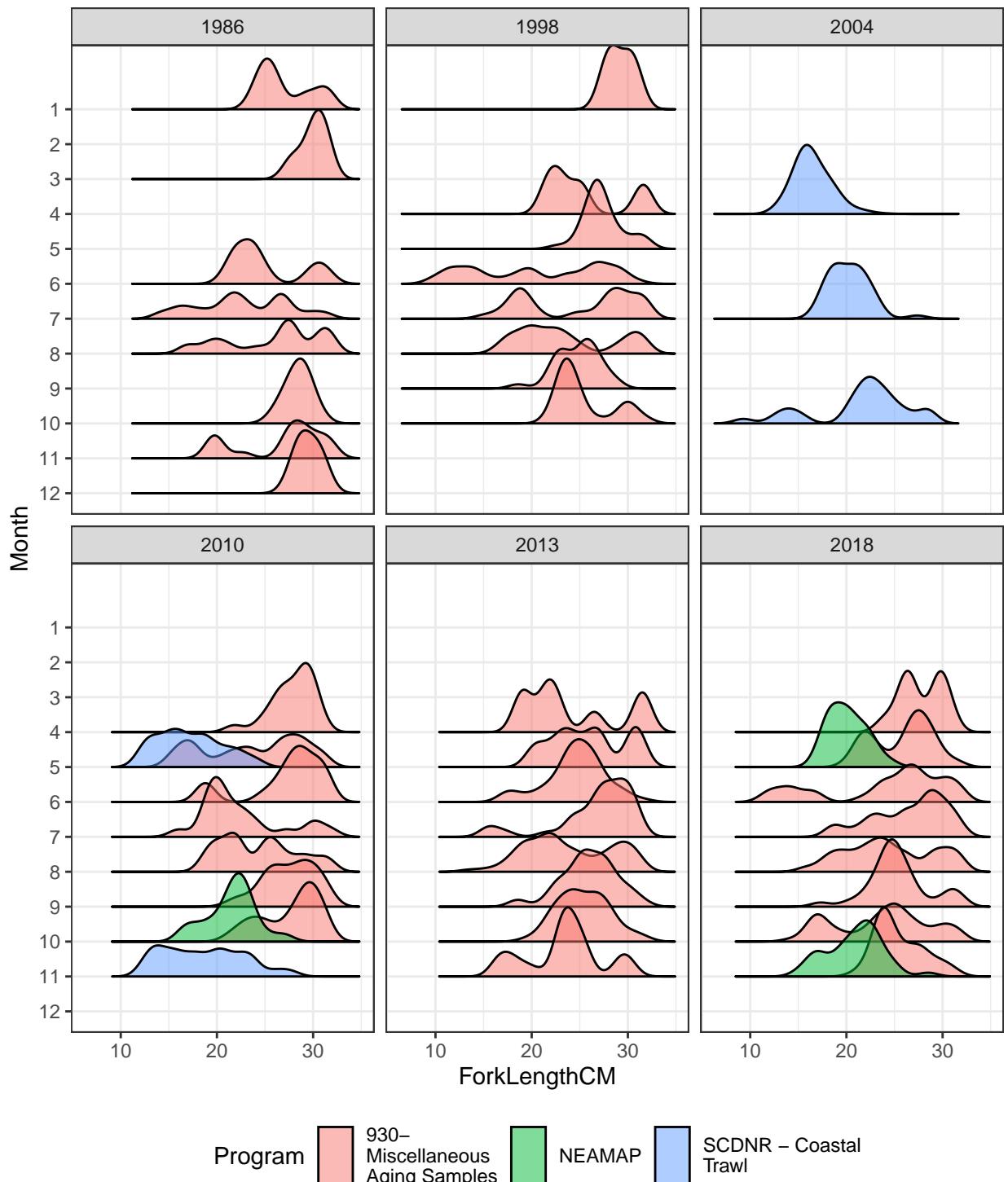


Figure 21

Figure 21. you haven't written this yet!

Indicator methods

Map of geography used for climate calculations

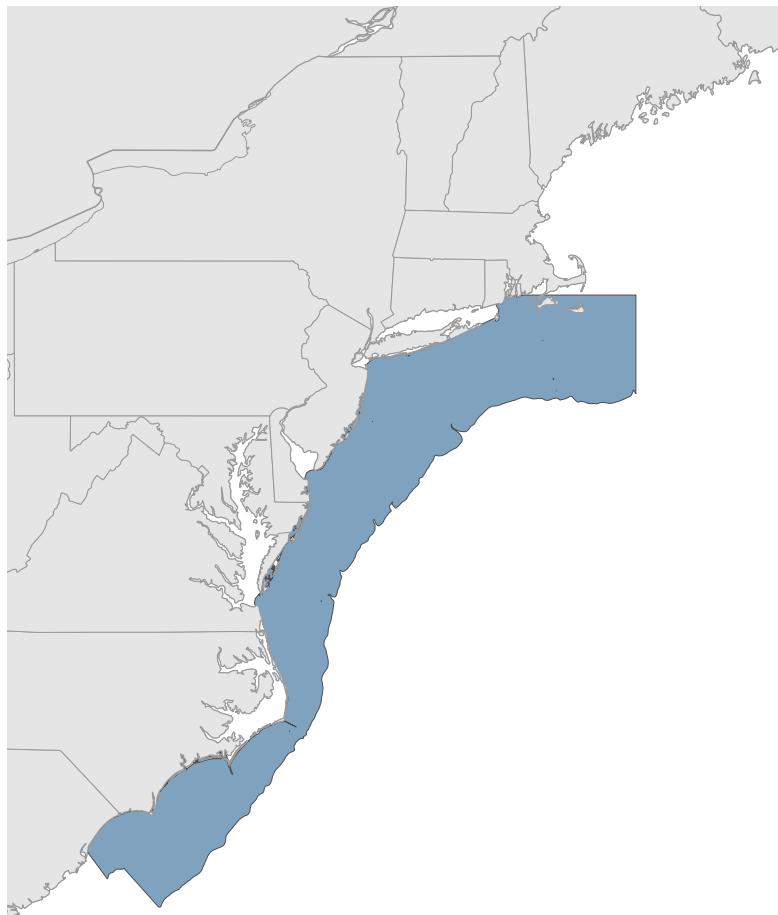


Figure 22

Figure 22. you haven't written this yet!

ESP time series

Ecosystem Indicators

Distribution

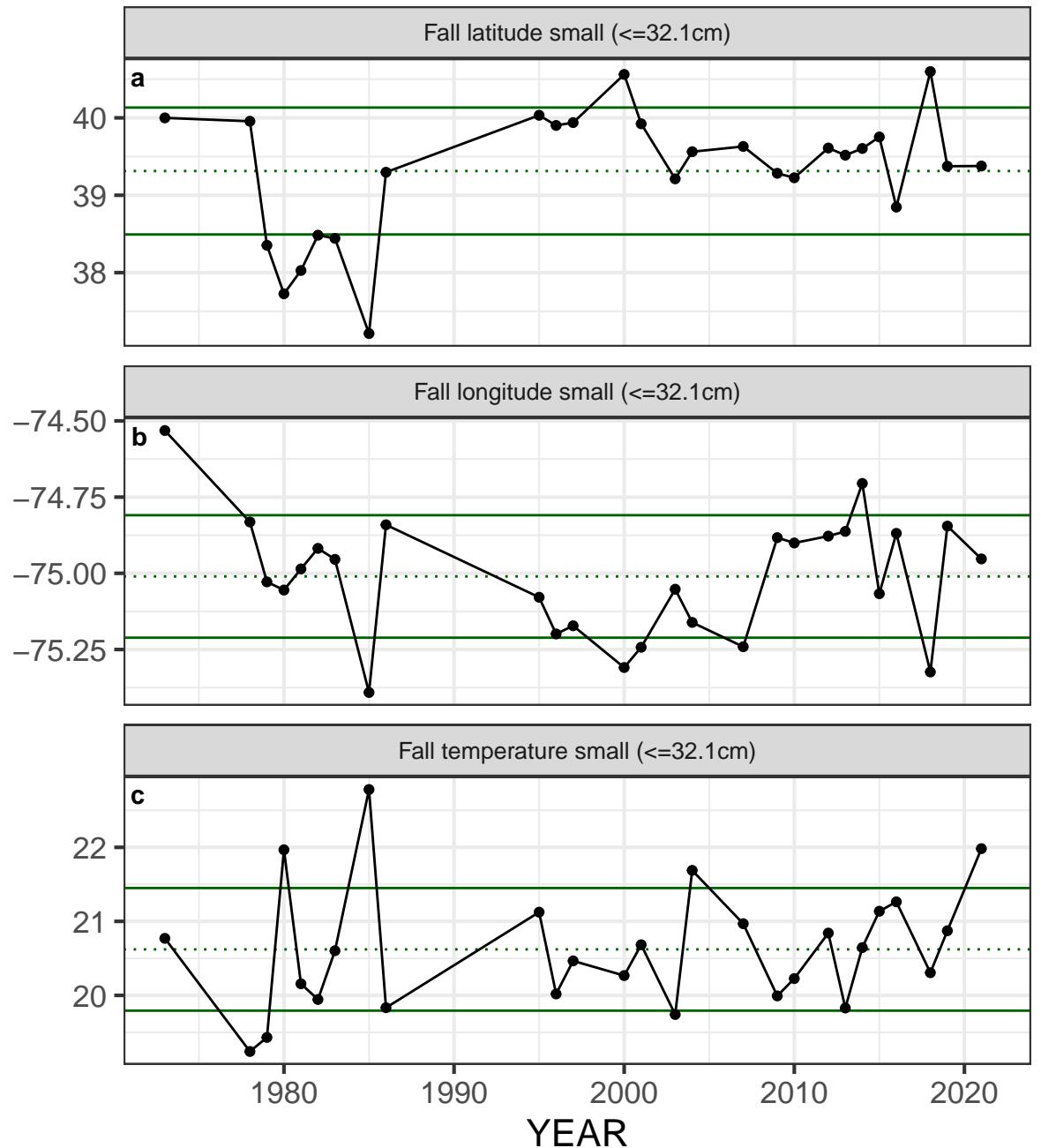


Figure 23

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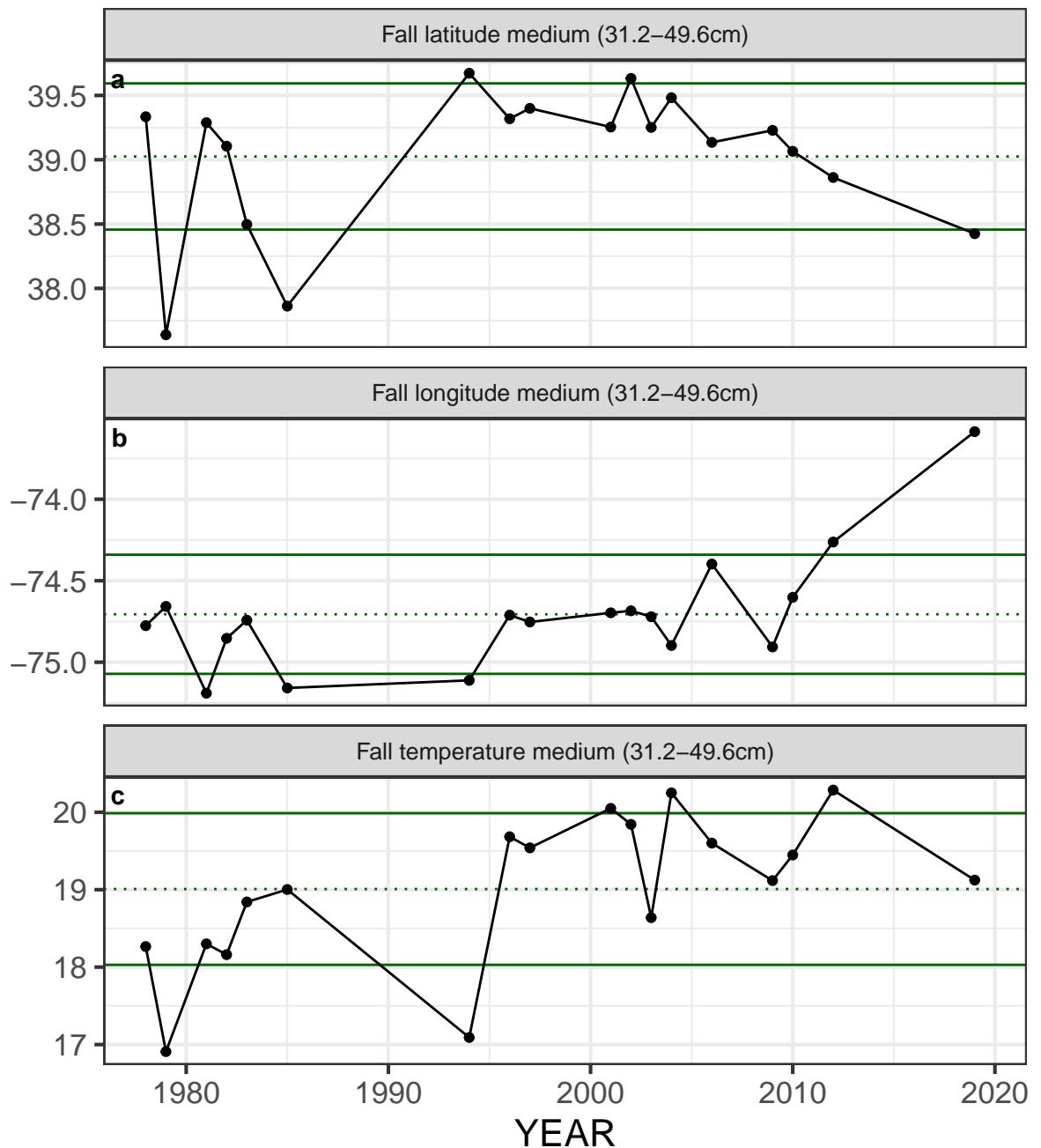


Figure 24

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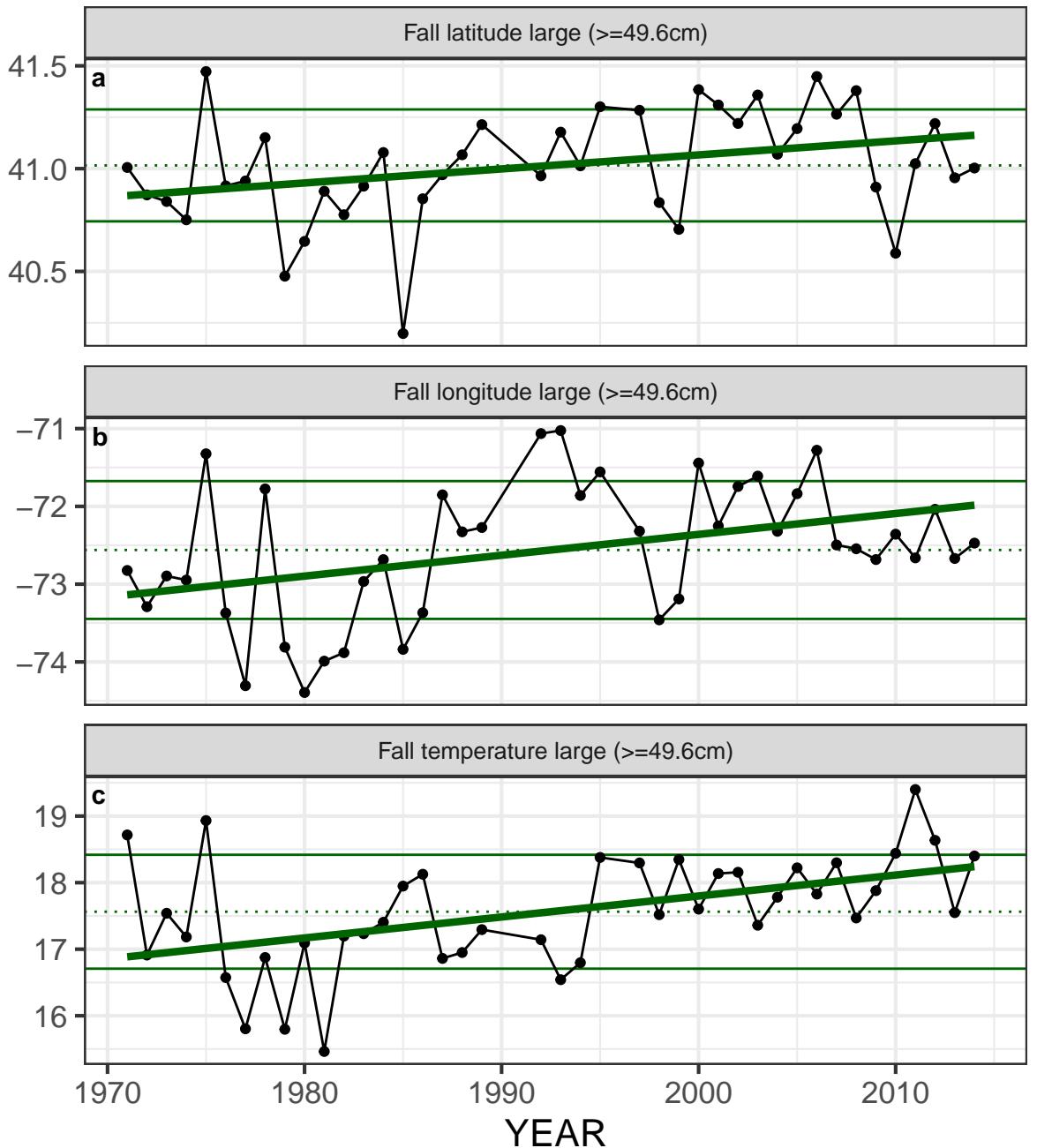


Figure 25

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Climate

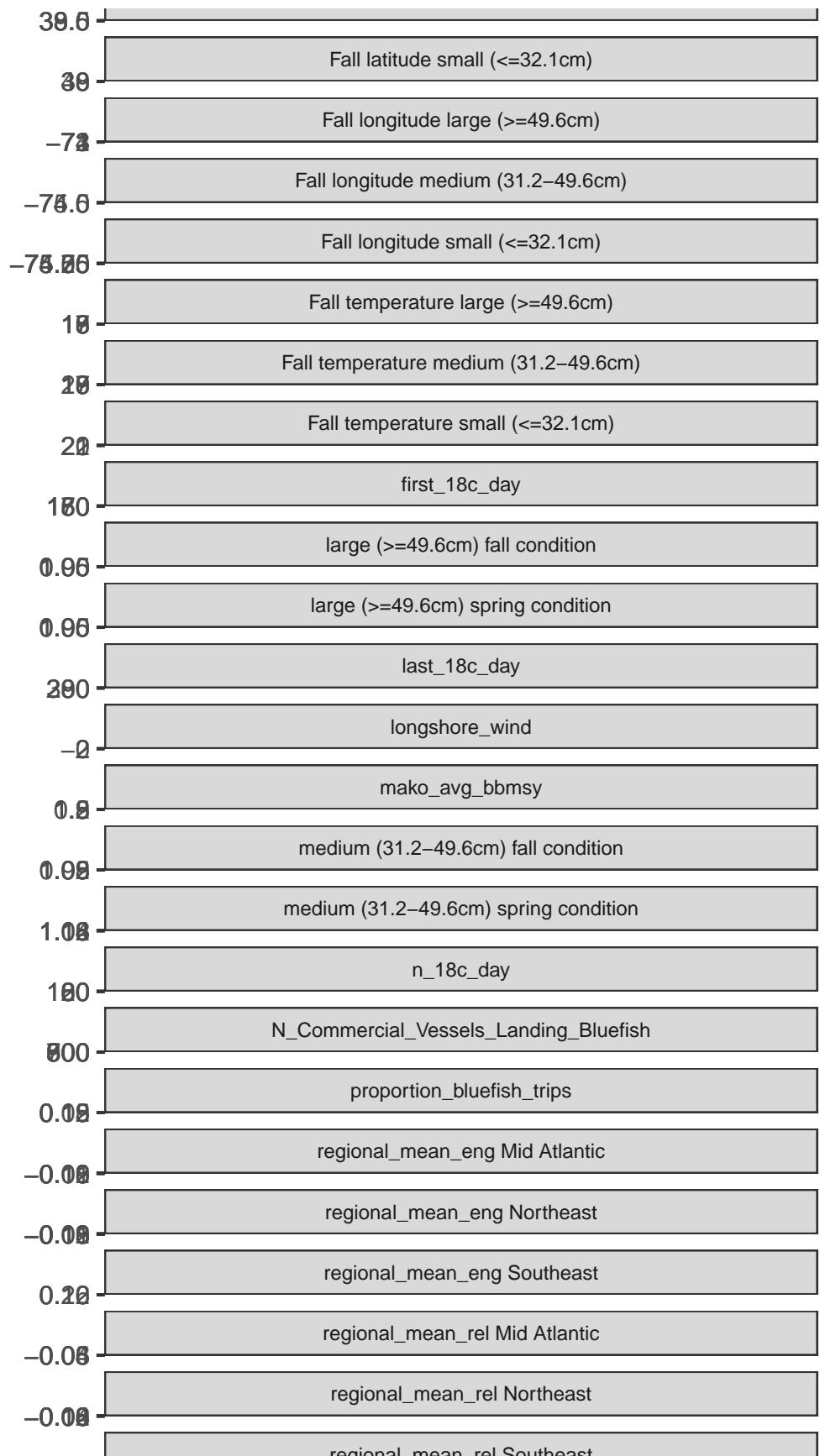


Figure 26

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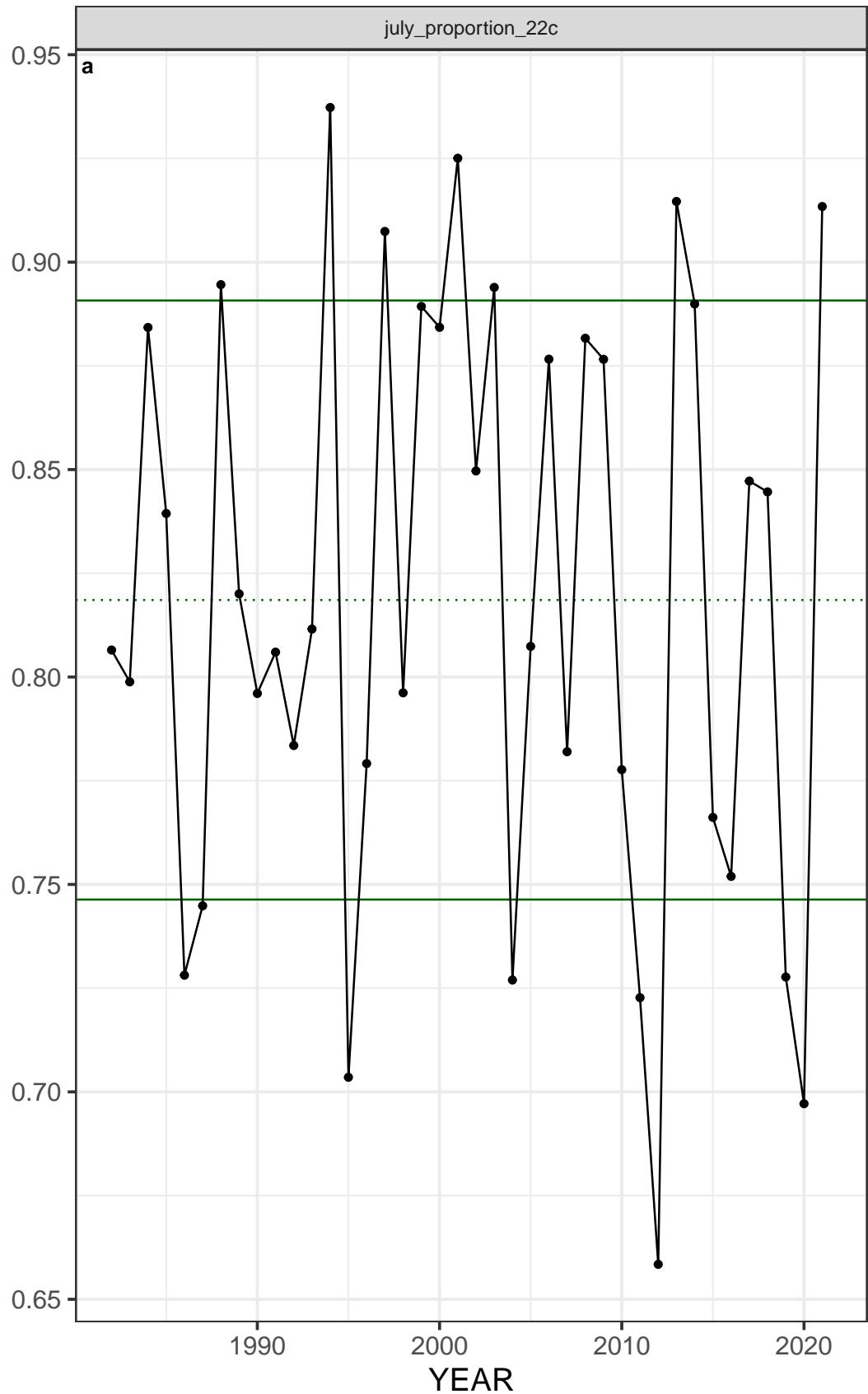


Figure 27

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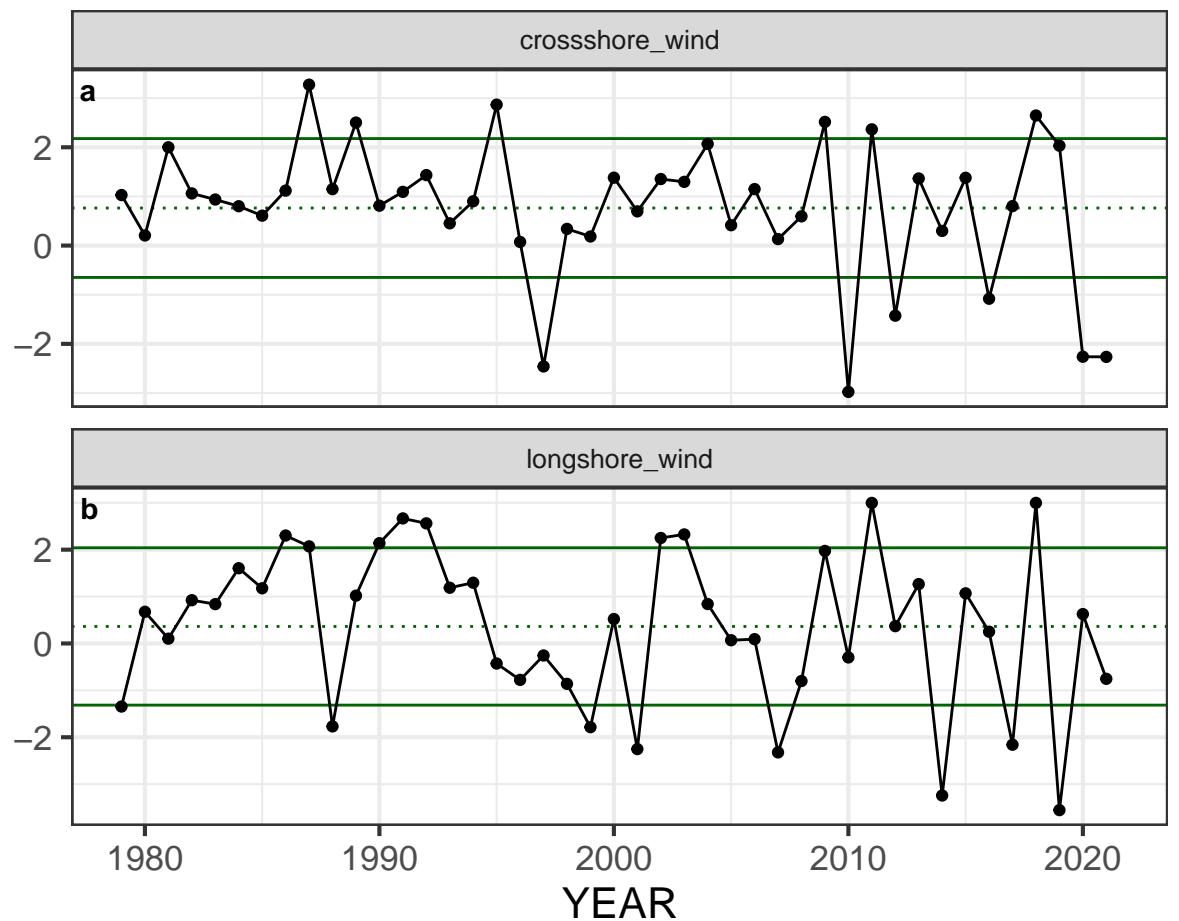


Figure 28

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Natural mortality

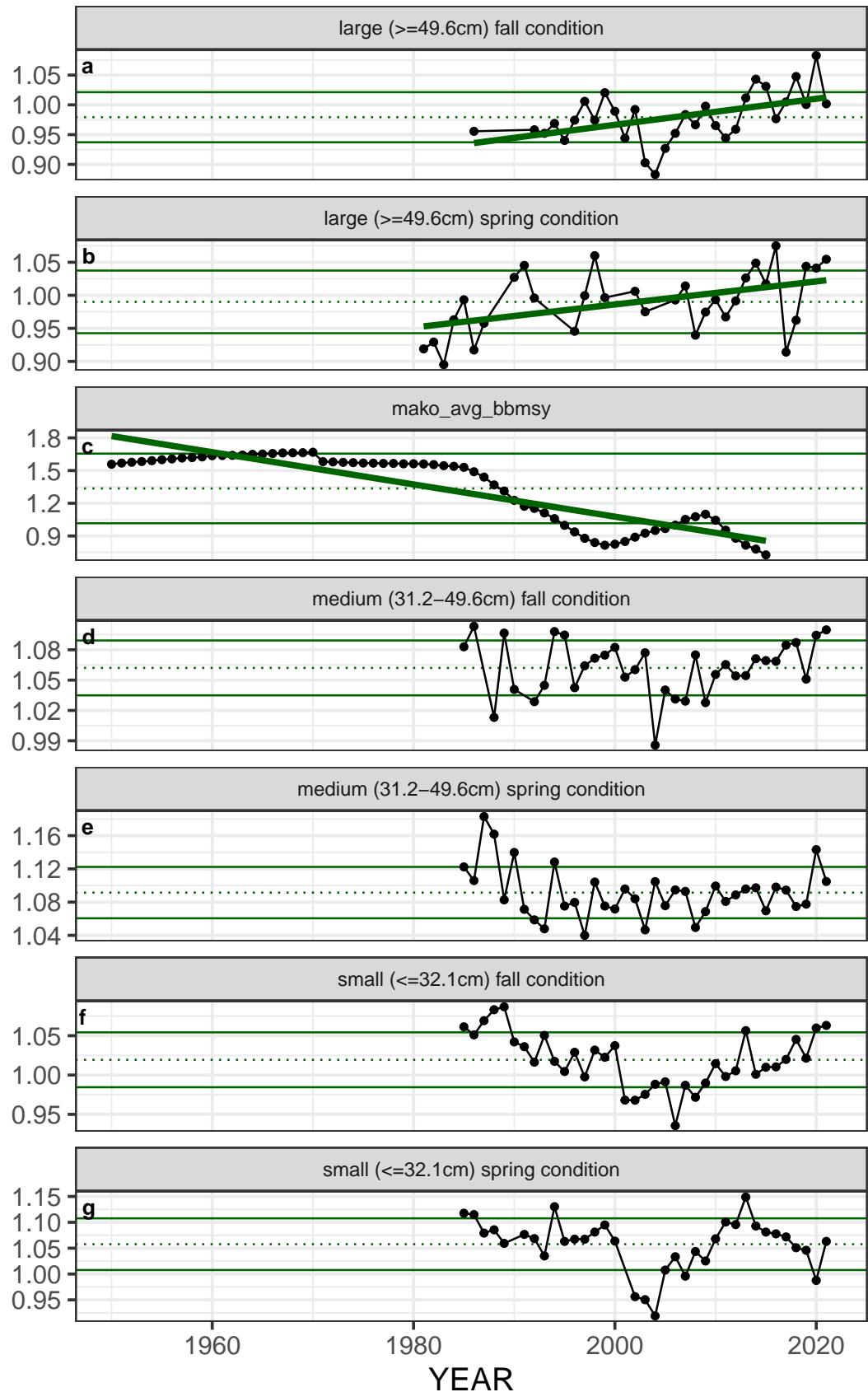


Figure 29

Figure @ref(fig:traffic). Figure 29. Number of directed recreational bluefish trips from 1981-2021. The proportion of directed recreational bluefish trips relative to other directed trips from 1981-2021. Total recreational bluefish catch in number of fish from 1981-2021. Total recreational bluefish landings (lbs) from 1981-2021

Socioeconomic Indicators

Recreational

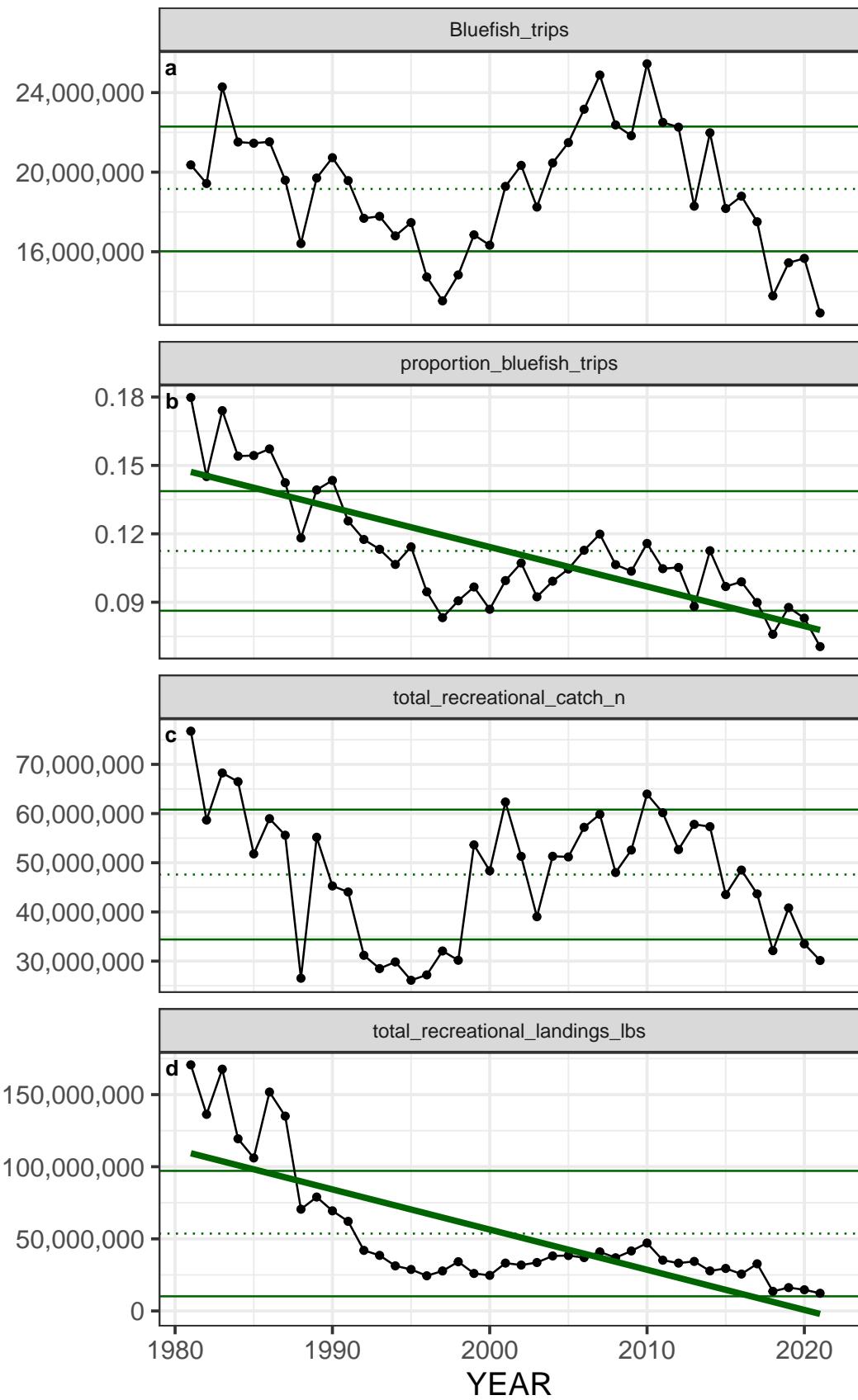


Figure 30

Figure @ref(fig:traffic). Figure 30. Average annual ultra-low-sulfur number 2 diesel fuel prices in 2021 constant U.S. dollars from 2007-2021. Ex-vessel bluefish prices (/lb) from 2000 – 2021 in 2021 constant U.S. dollars. Ex-vessel bluefish prices (/lb) from 2000-2021 in 2021 constant U.S. dollars. Commercial bluefish landings (lbs.) from 2000-2021. Number of commercial vessels landing bluefish from 2000-2021. Total annual commercial bluefish revenue in 2021 constant U.S. dollars from 2000-2021.

Commercial

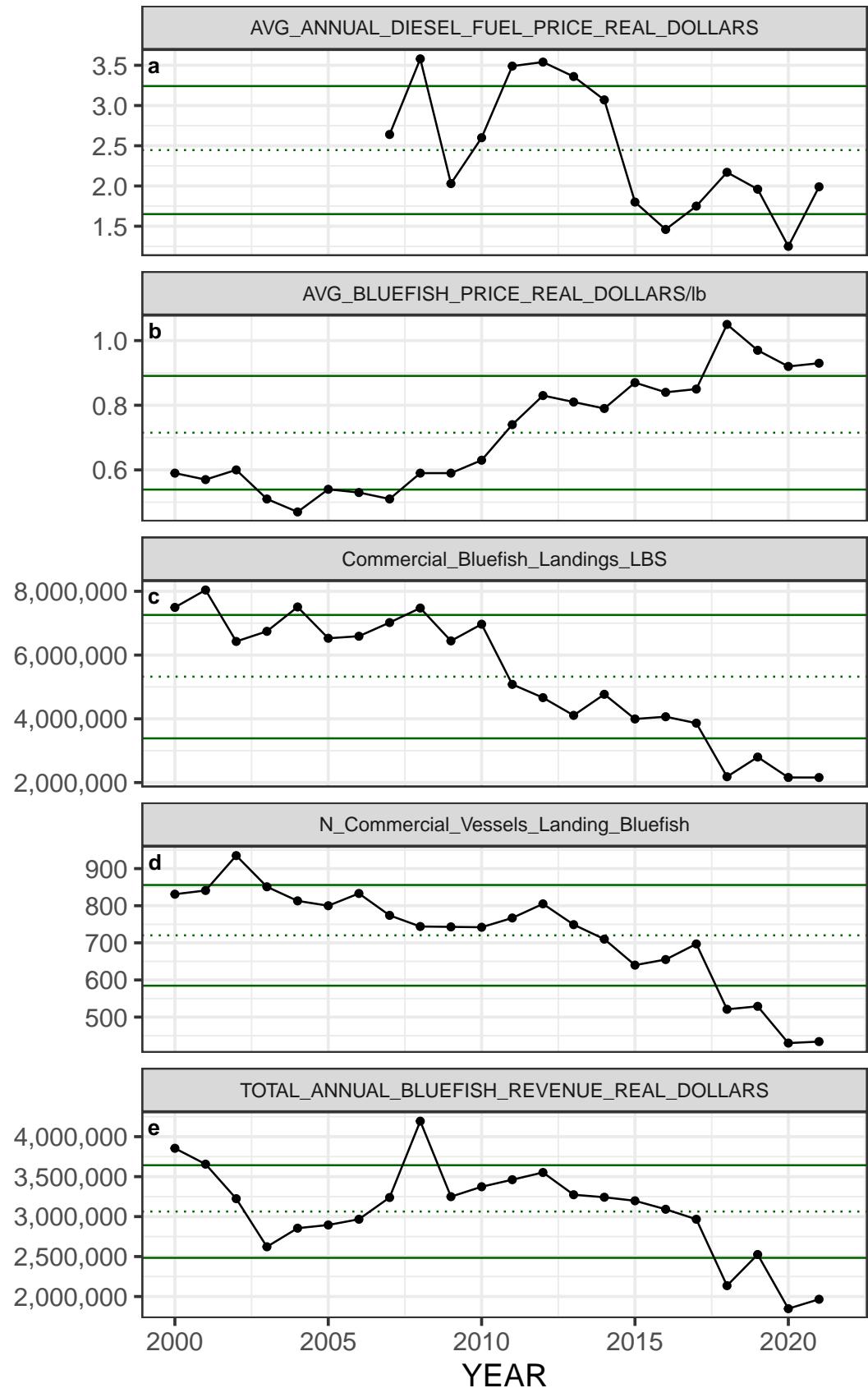


Figure 31

Figure @ref(fig:traffic). Figure 31. Average annual recreational engagement scores for the Northeast region from 2009-2019. Average annual recreational engagement scores for the Mid-Atlantic region from 2009-2019. Average annual recreational engagement scores for the Southeast region from 2009-2019. Average annual recreational reliance scores for the Northeast region from 2009-2019. Average annual recreational reliance scores for the Mid-Atlantic region from 2009-2019. Average annual recreational reliance scores for the Southeast region from 2009-2019.

Community

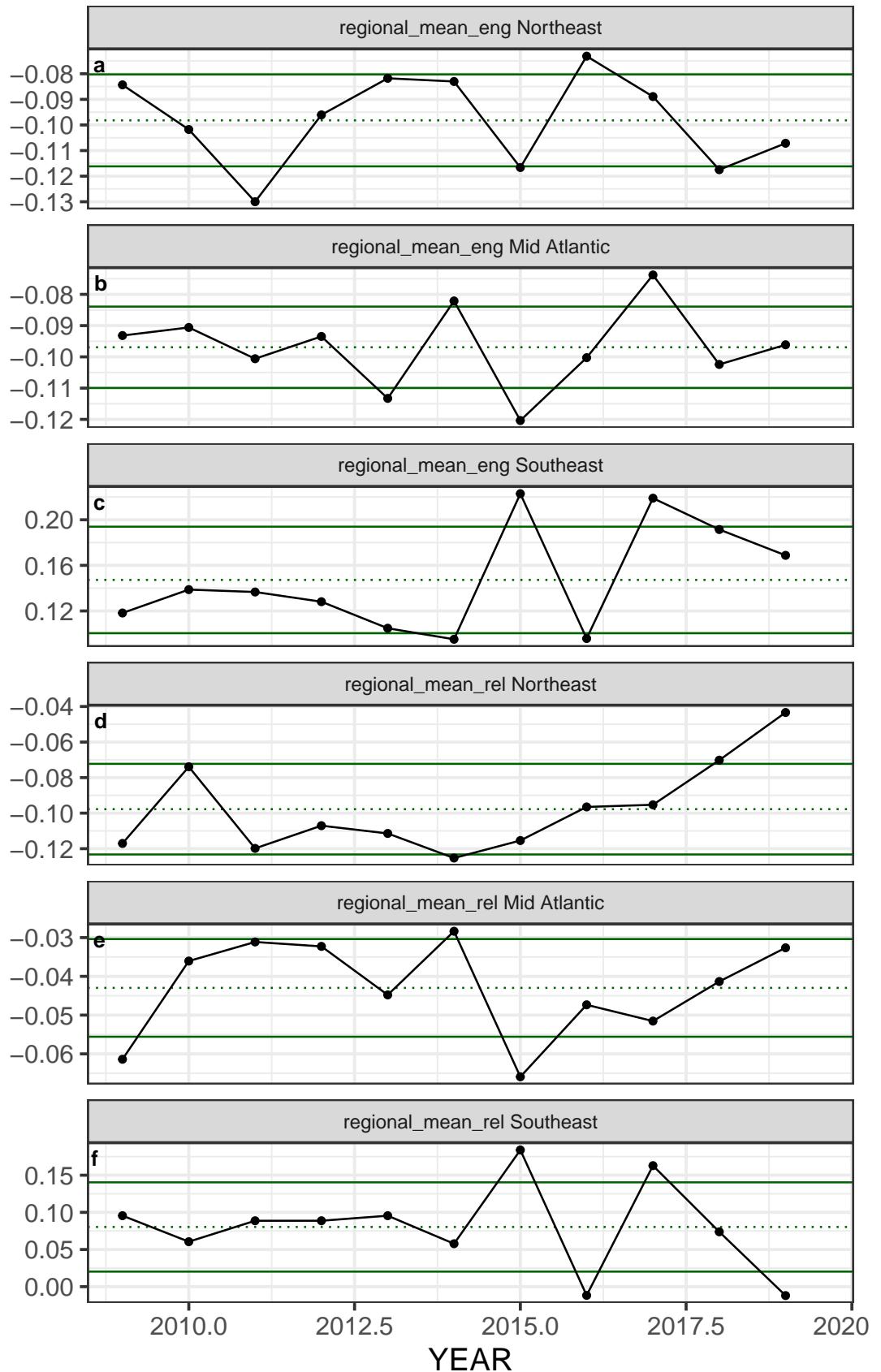


Figure 32

Figure @ref(fig:traffic). Figure 32. NA