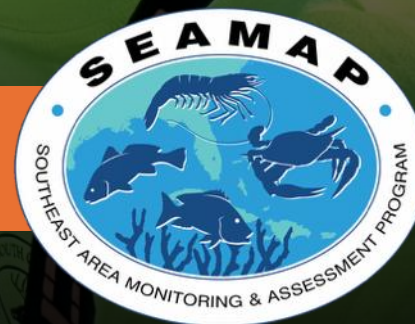


SCDNR Coastal Trawl Survey

Dr. Julie Vecchio
Mackerel Cobia AP Oct. 2026



Today's Presentation

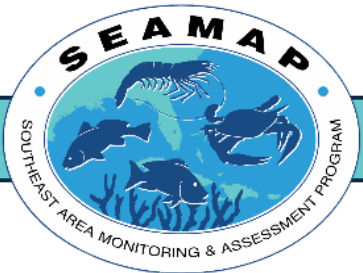
Coastal Trawl Survey Design

Data Products

Index of Abundance

Size Composition

Distribution



Coastal Trawl Survey Design

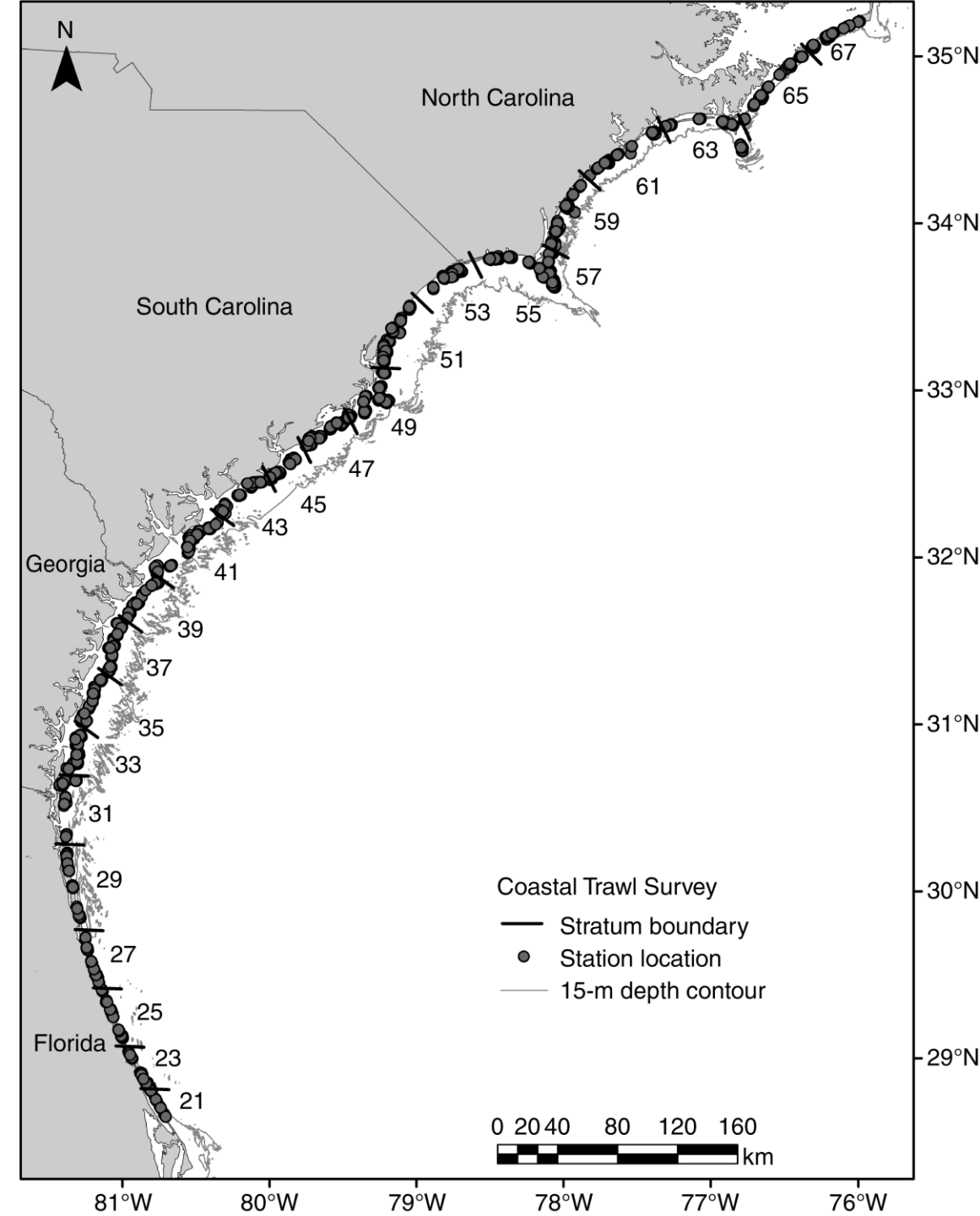
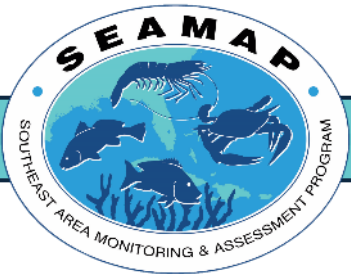
Soft bottom & hard pavements, 4-10 m

Stratified, random sampling

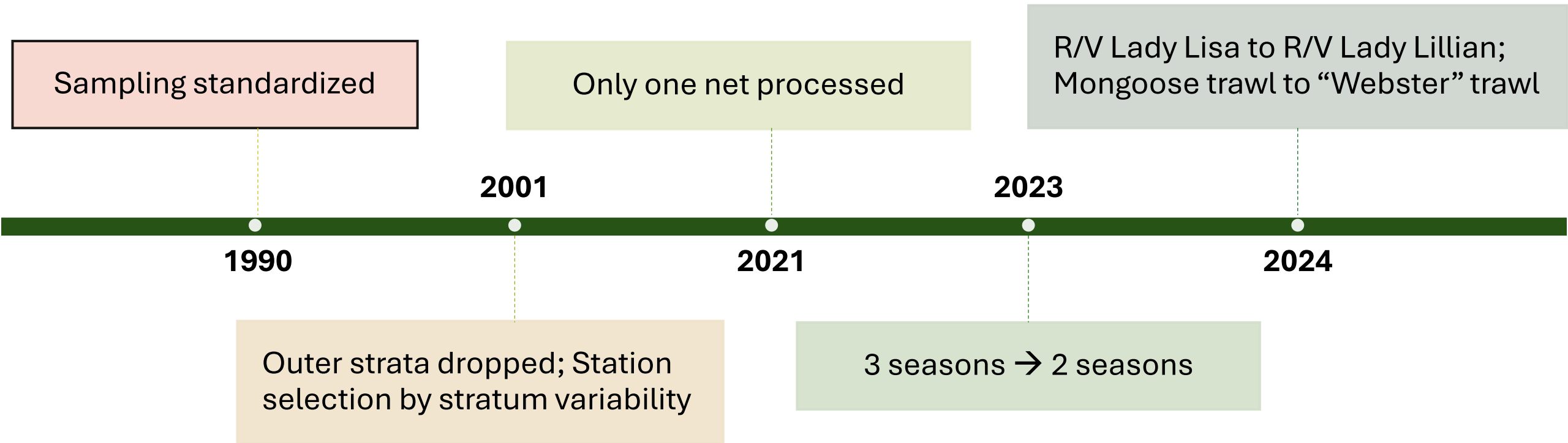
Split into 24 blocks along coast

Block catch variability determines tows
per block the following year

Repeat at least 2 seasons each year



Timeline: Design Modifications



Timeline: Design

Sampling standardized

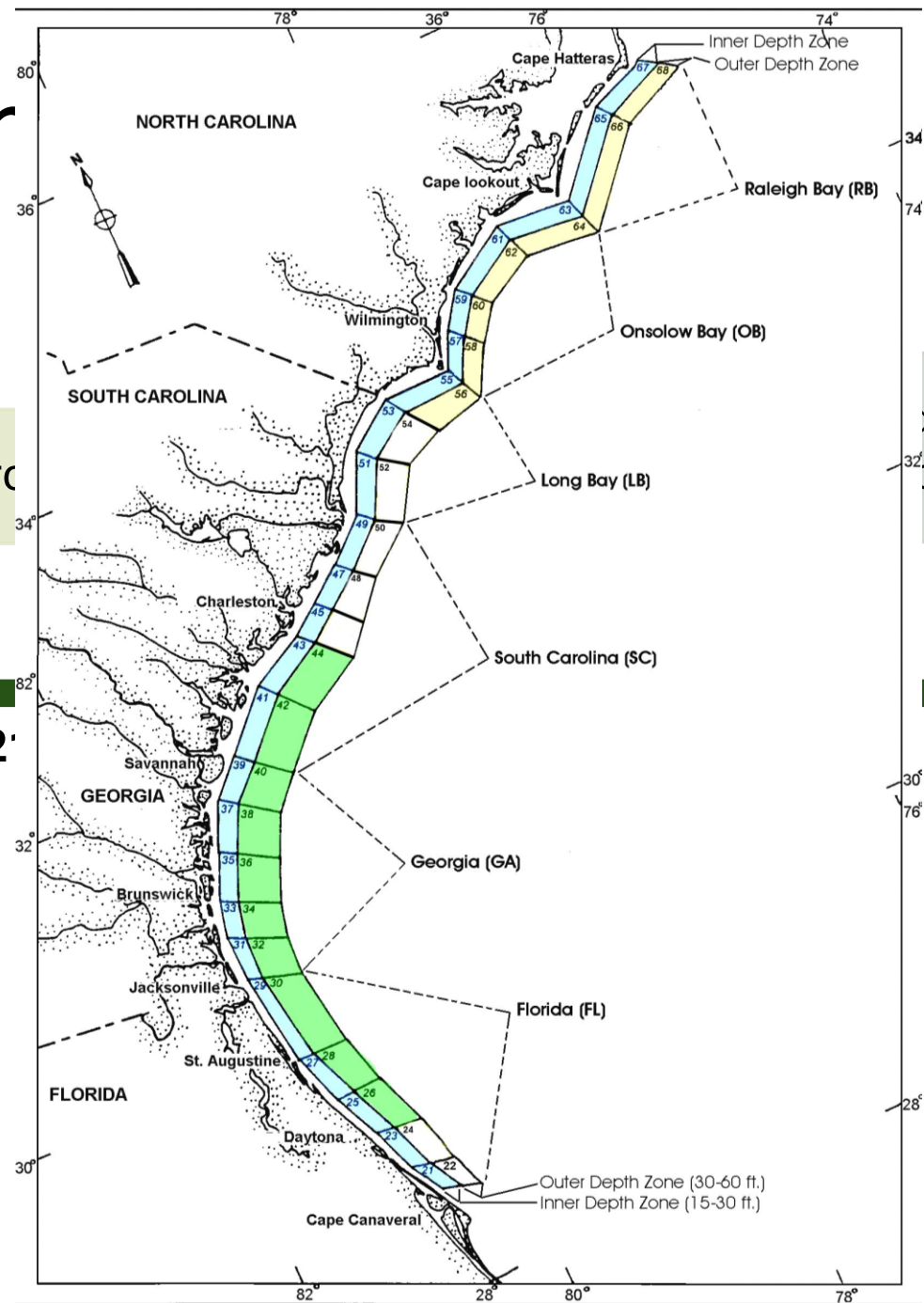
Only one net pro

2001

1990

2021

Outer strata dropped; Station selection by stratum variability



ly Lillian;
oster” trawl

Timeline: Design

Sampling standardized

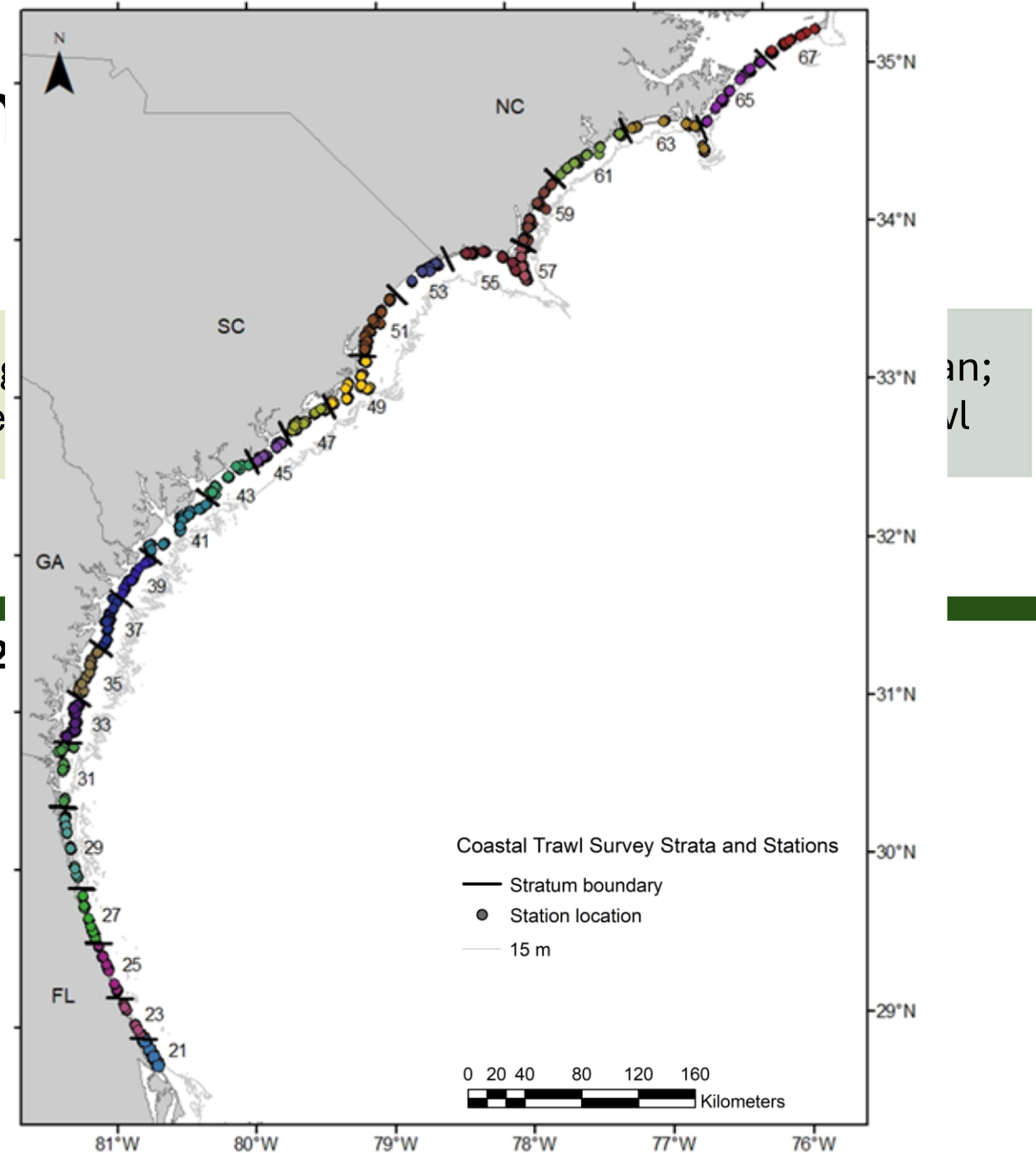
Two net processing
only one net proce

2001

1990

202

Outer strata dropped; Station
selection by stratum variability



Timeline: Design Modifications

Sampling standardized

Only one net processed

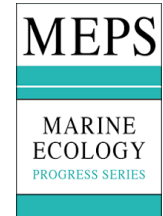
R/V Lady Lisa to R/V Lady Lillian;
Mongoose trawl to “Webster” trawl

2001



2021

2023



DOI: <https://doi.org/10.3354/meps15110>

Community composition across a regional bottom trawl survey and interactions with survey design

Elizabeth Bullard*, Julie Vecchio, Amy Zimney, Tracey Smart

*Corresponding author: bullarde@dnr.sc.gov

Timeline: Design Modifications

1990-2023



Spring (Apr-May)



Summer (Jul-Aug)



Fall (late-Sep-Nov)

2023-2025



Spring/Summer (Apr-Jun)



Summer/Fall (Aug-Oct)

San

rocessed

R/V Lady Lisa to R/V Lady Lillian;
Mongoose trawl to “Webster” trawl

2023

21

2024

3 seasons → 2 seasons

R/V Lady Lisa: 1990-2023

Sampling station



Photo Credit: Lorraine Thompson 2023

ications

R/V Lady Lisa to R/V Lady Lillian;
Mongoose trawl to "Webster" trawl

1990

R/V Lady Lillian: 2024-2025

O
se



Photo Credit: Lorraine Thompson

2024

s → 2 seasons

2024: Vessel & Gear Changes

Outrigger to stern trawler

Kept mesh size

Size-selectivity checked

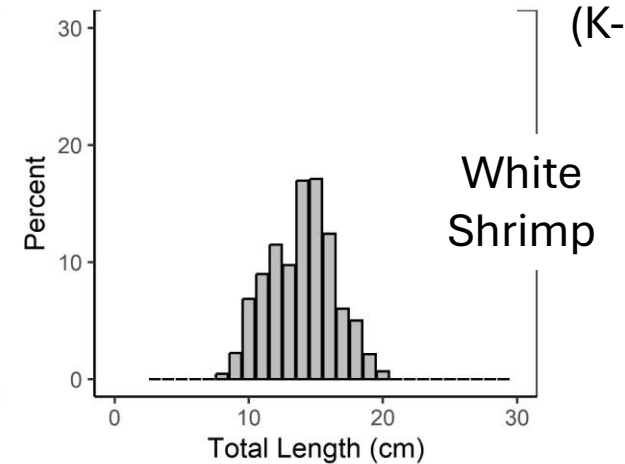
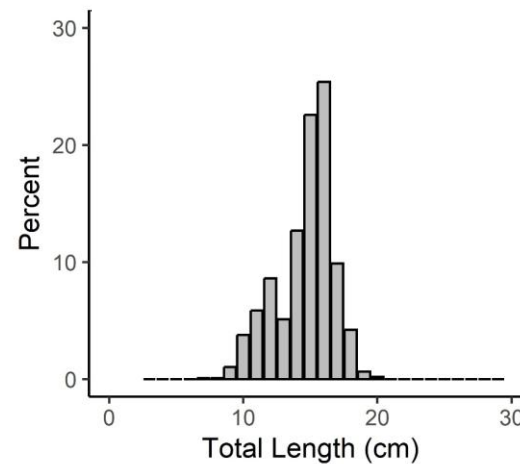
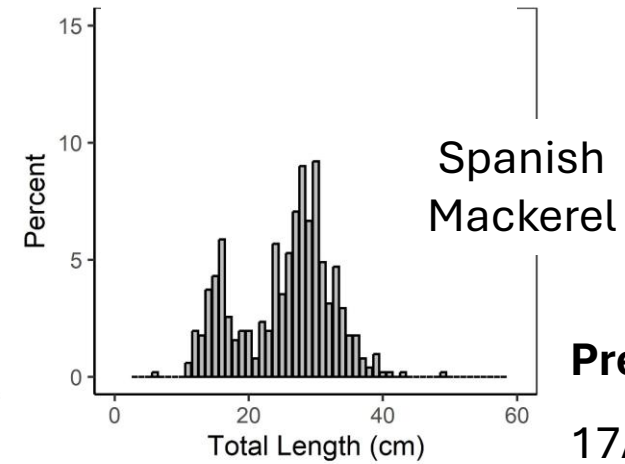
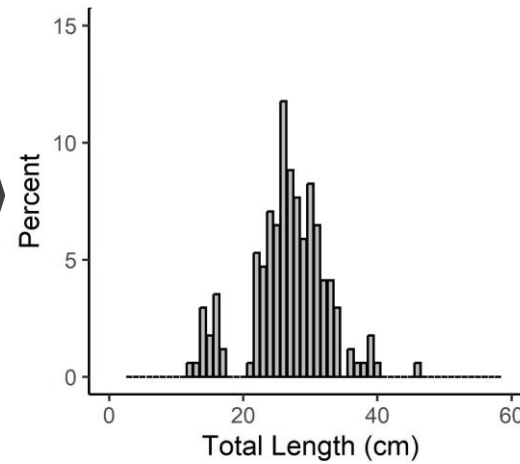
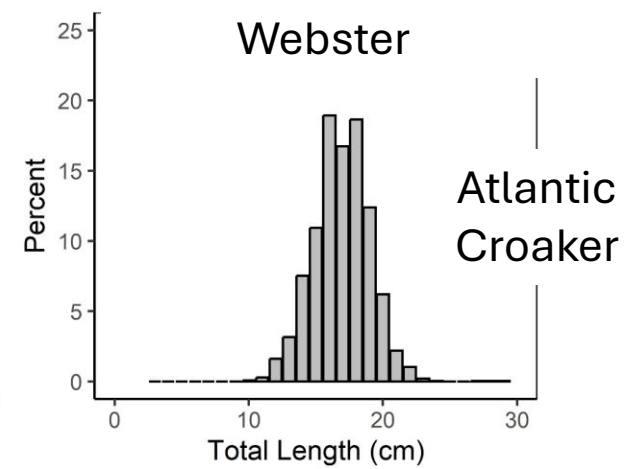
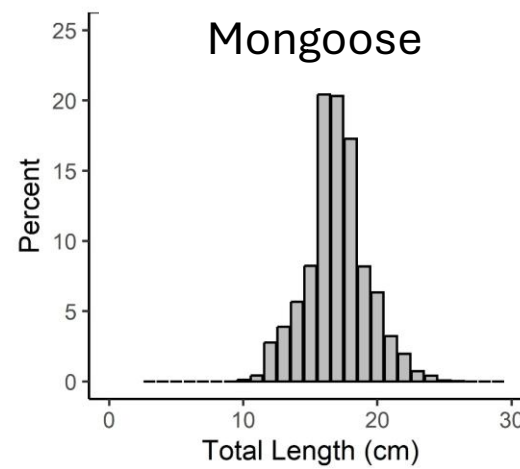
Net geometry measured to correct effort

ZINB standardized indices

Day of Year as covariate



Mongoose vs Webster Trawl Size-Selectivity



Preliminary Result

17/17 Species No Sig. Diff.
(K-S test)

Caveats for Today's Data Products

- Not updates of stock status
- One (of several) data inputs
- May not have been reviewed as data inputs (SEDAR or otherwise) yet
- Model formula may be different from those used as data inputs (SEDAR or otherwise)





Data Products

CTS Mackerel Index Standardization

Depth



Mackerel per Tow



Gear Effort

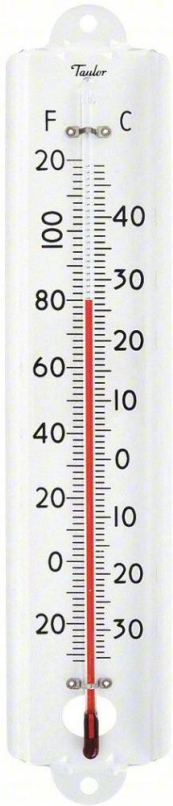


Day of Year



Salinity

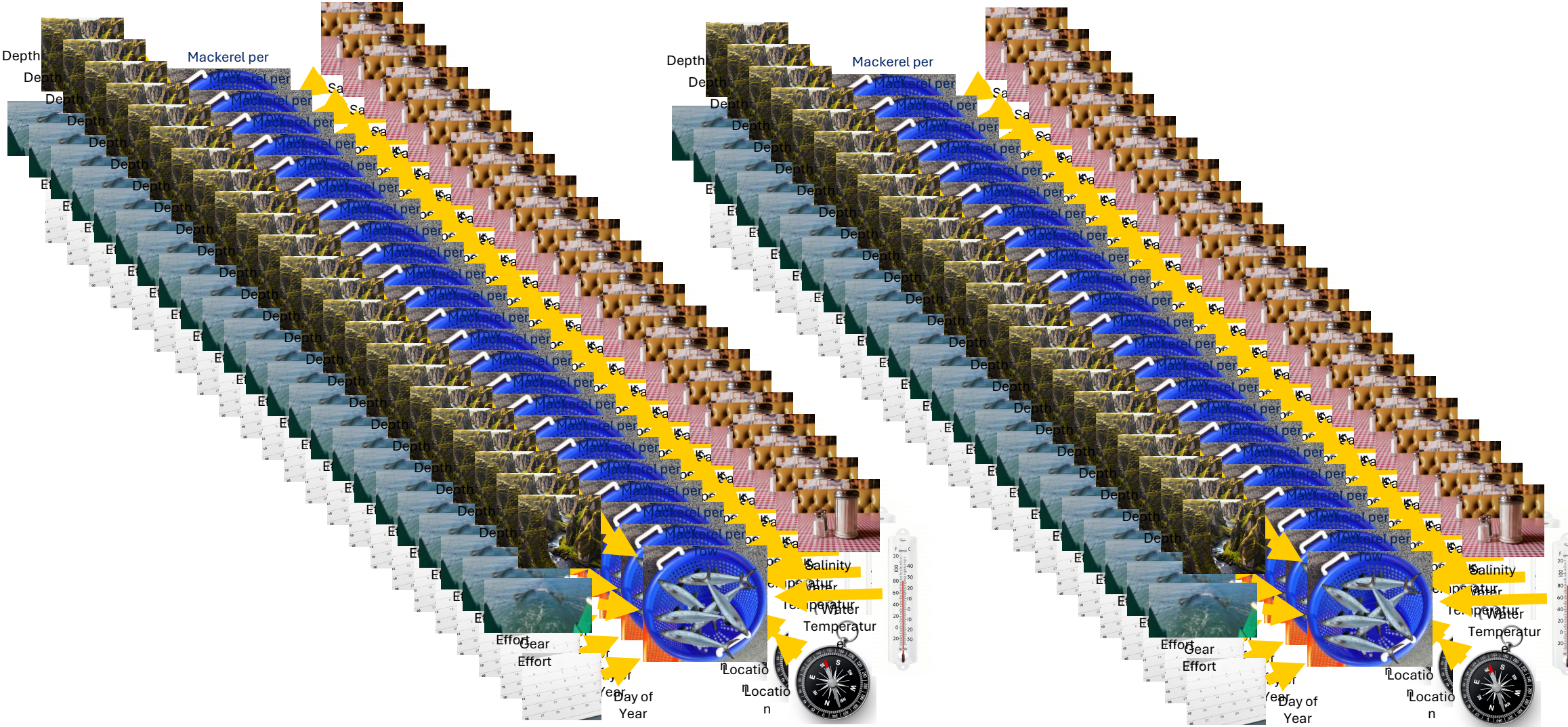
Water Temperature



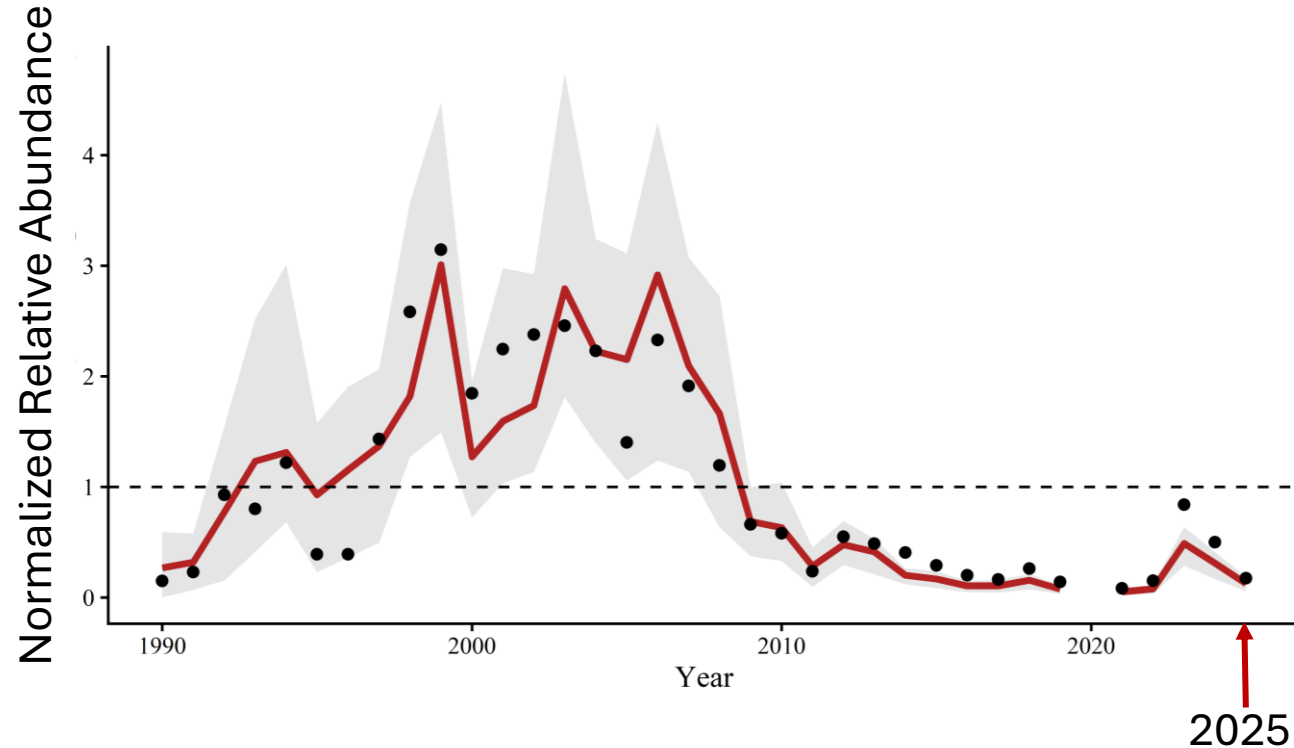
Location



CTS Mackerel Index Standardization



Indices- Example



Red Line	Index Time Series
Gray Shading	95 % Confidence Interval (“error”)
Black Dots •	Nominal Values (“basic counts”)

Normalized to long-term average
(dashed line at 1)

- 2 = twice long-term average
- 0.5 = half long-term average

Data Products Methods: Distributions

“Nominal” abundance

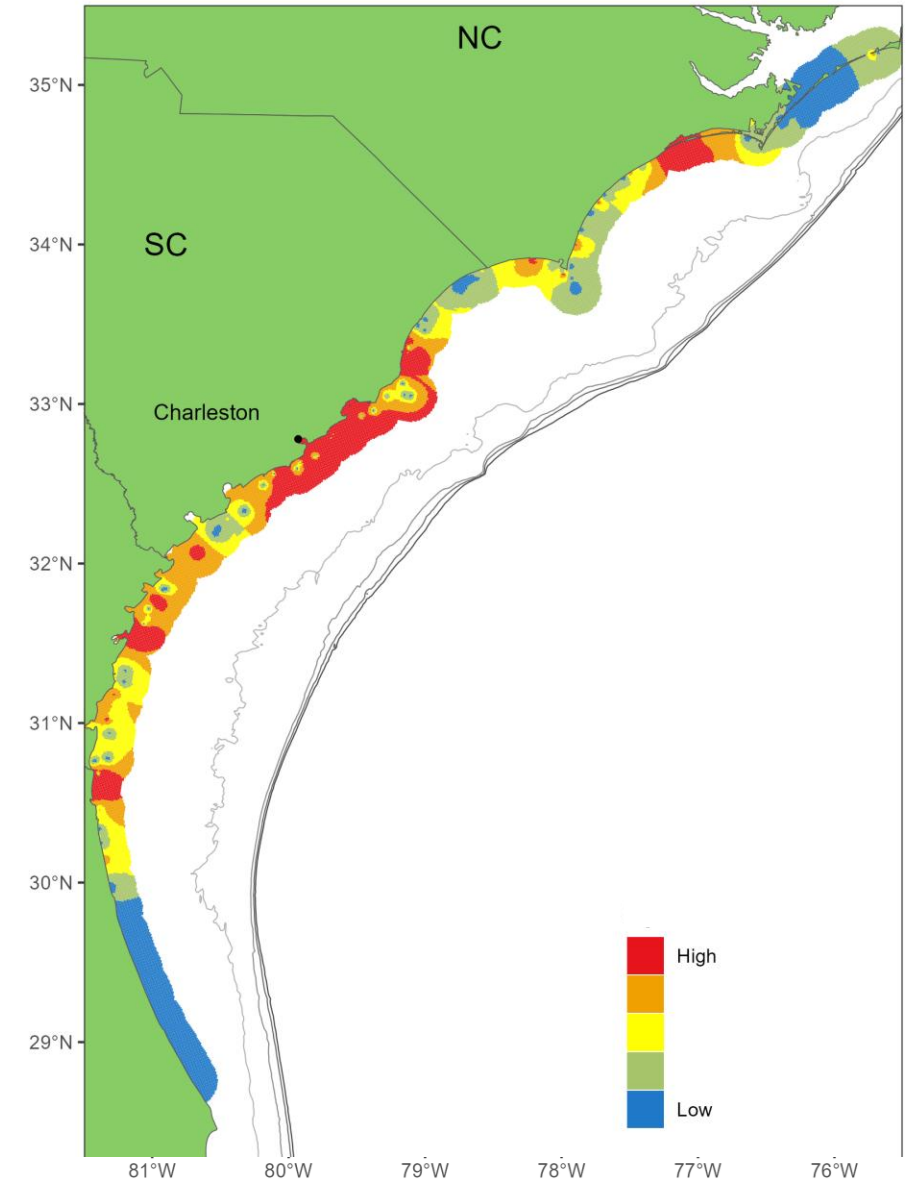
Straight-out-of-net count per species

Divided by area swept

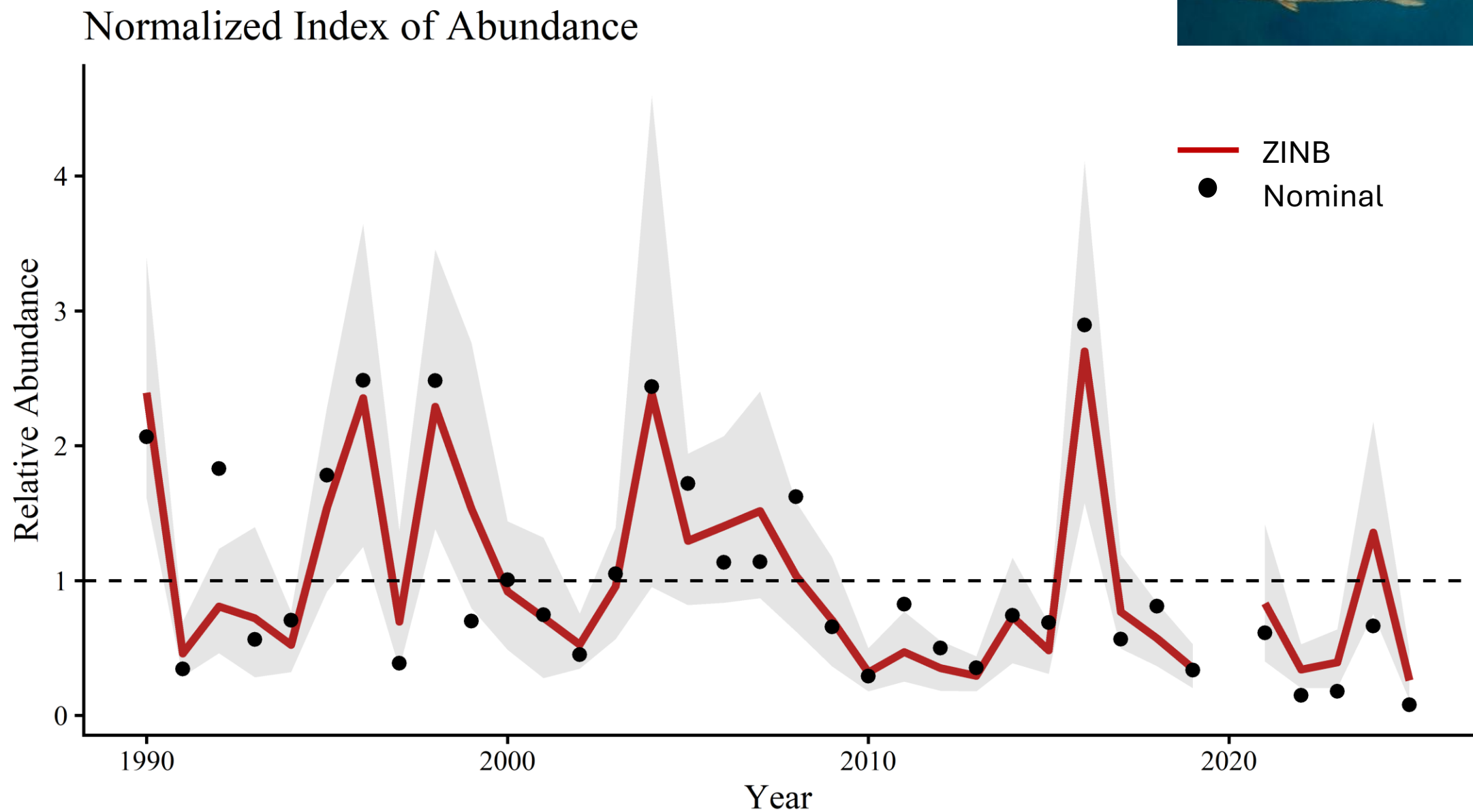
In quintiles (5 blocks)

Warmer colors = higher nominal abundance

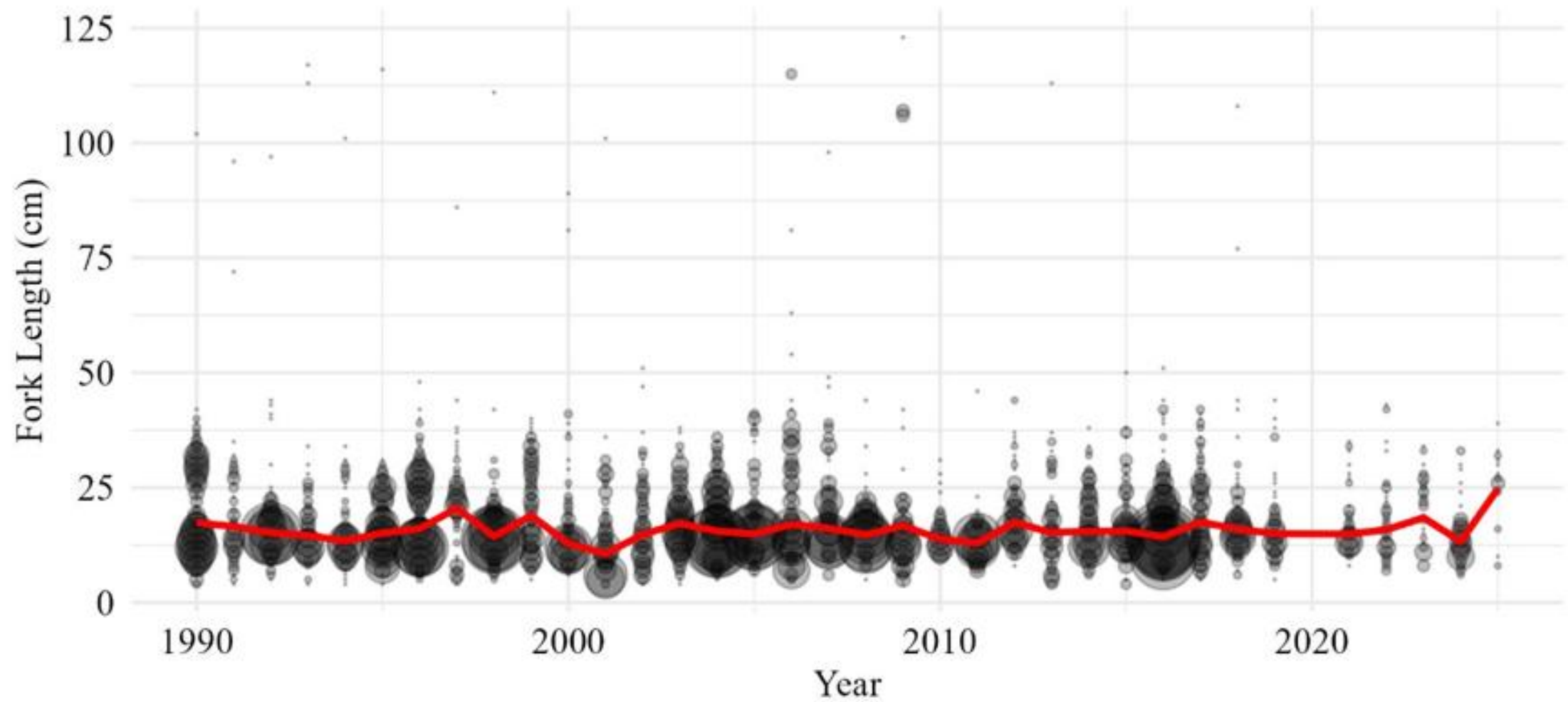
Cooler colors = lower nominal abundance



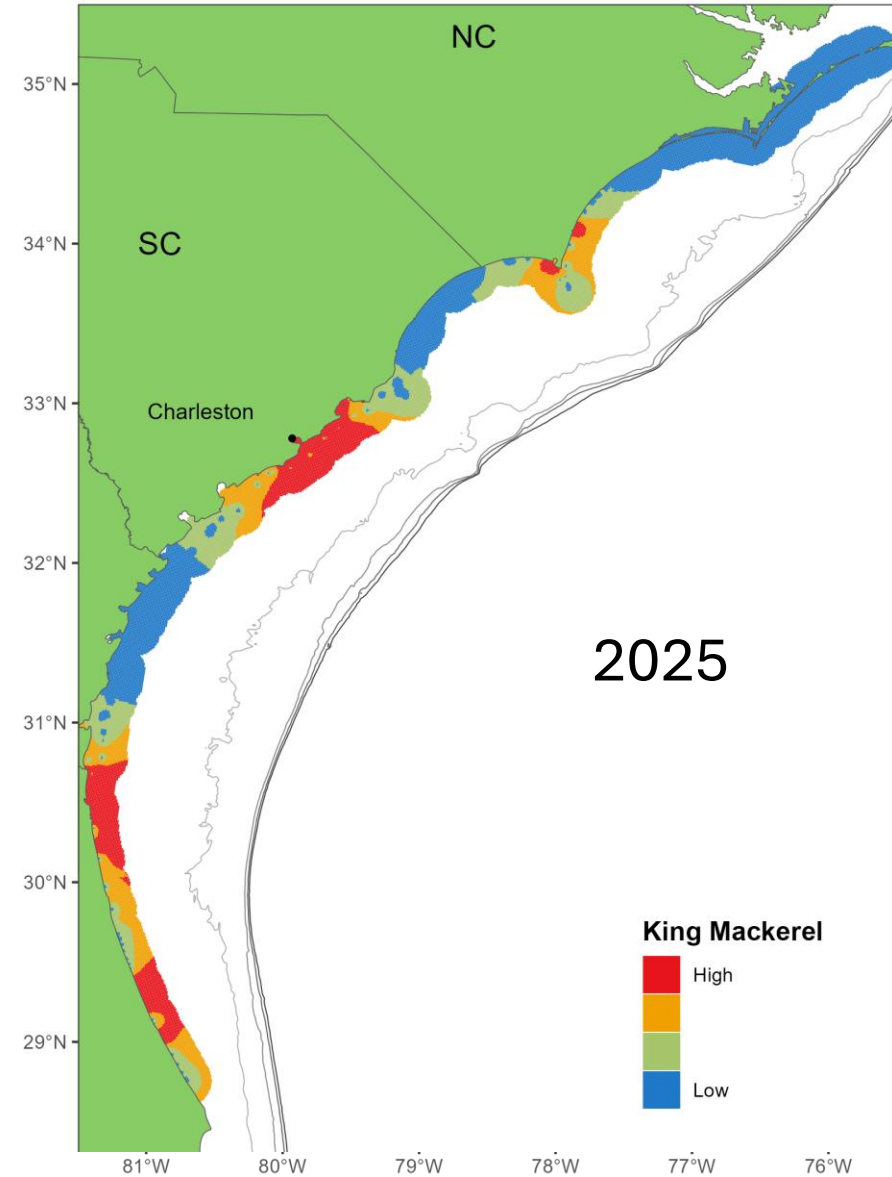
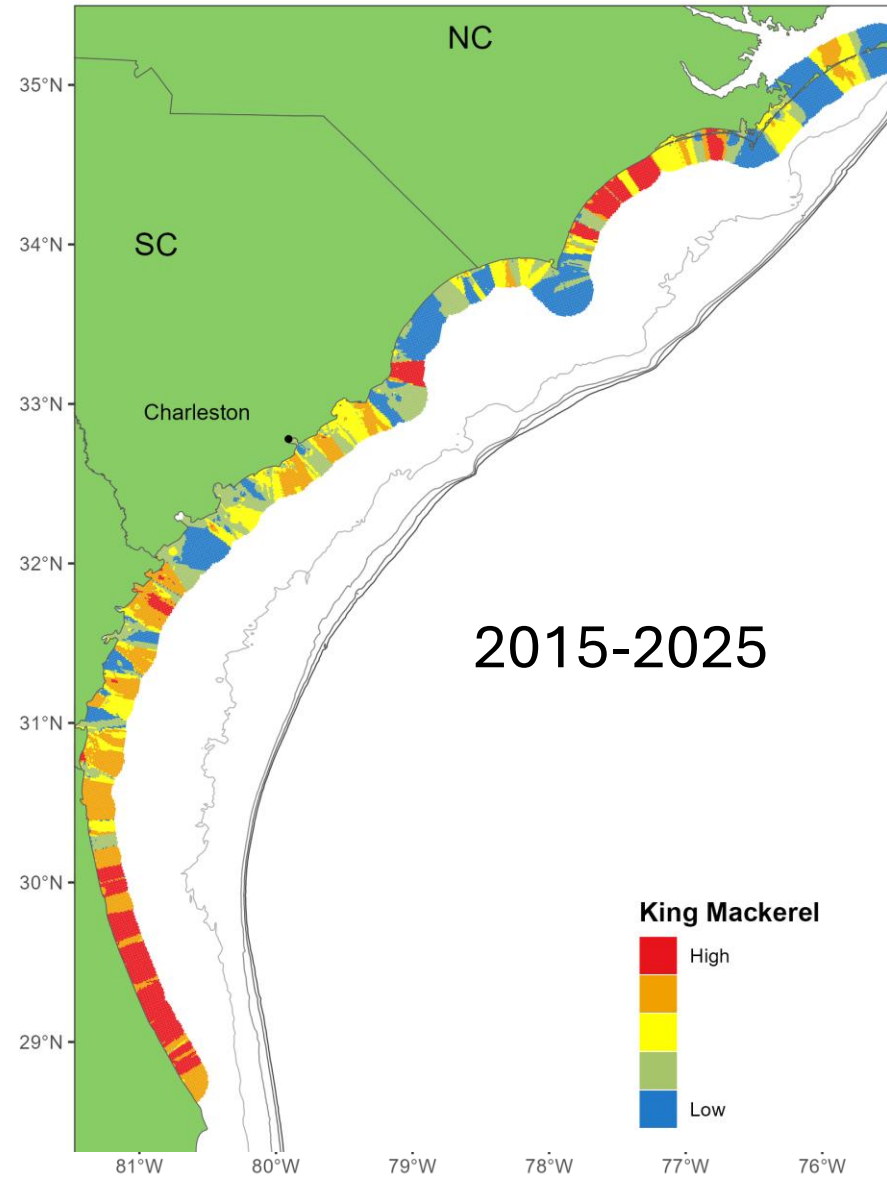
King Mackerel (Age-0 +)



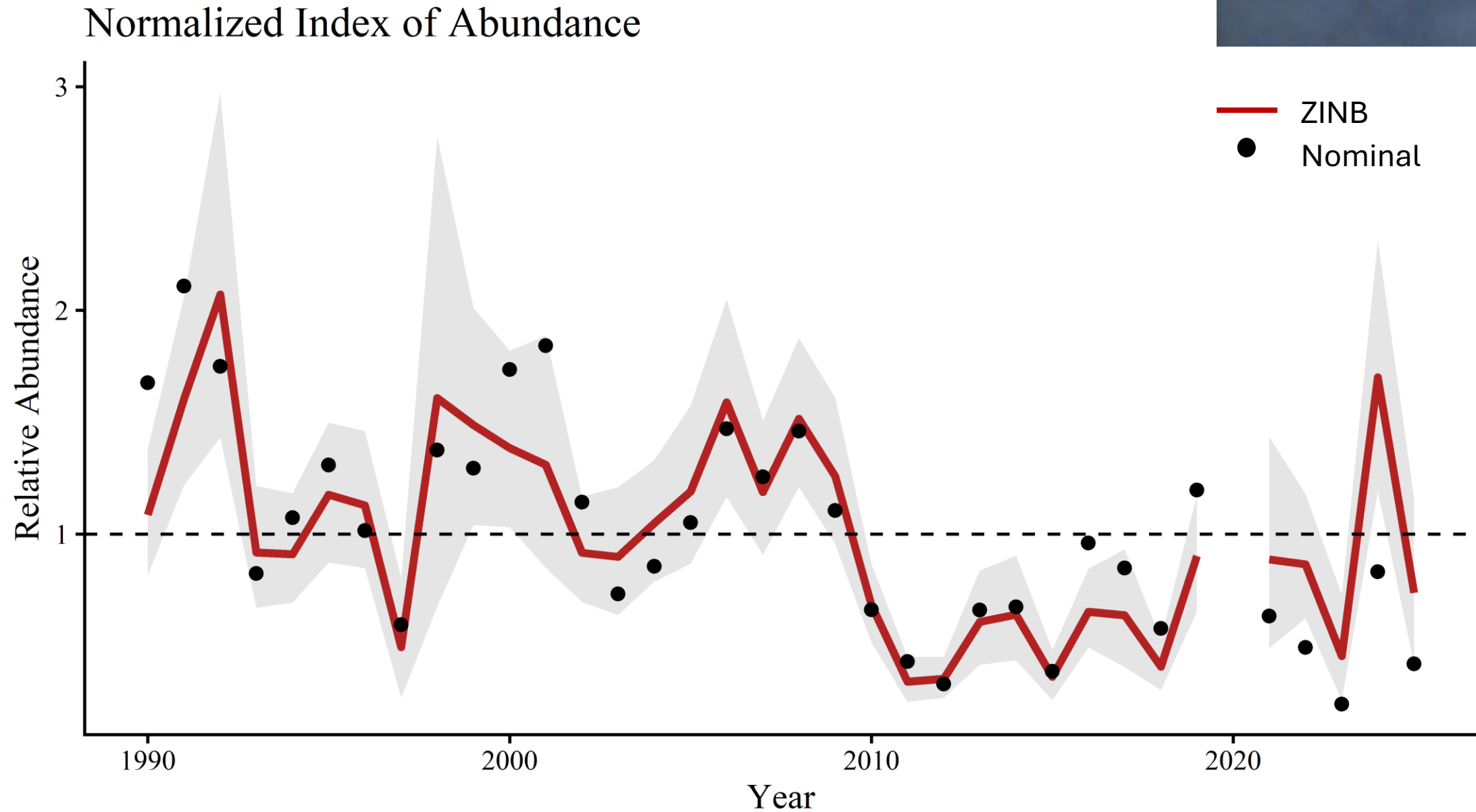
King Mackerel (Age-0 +)



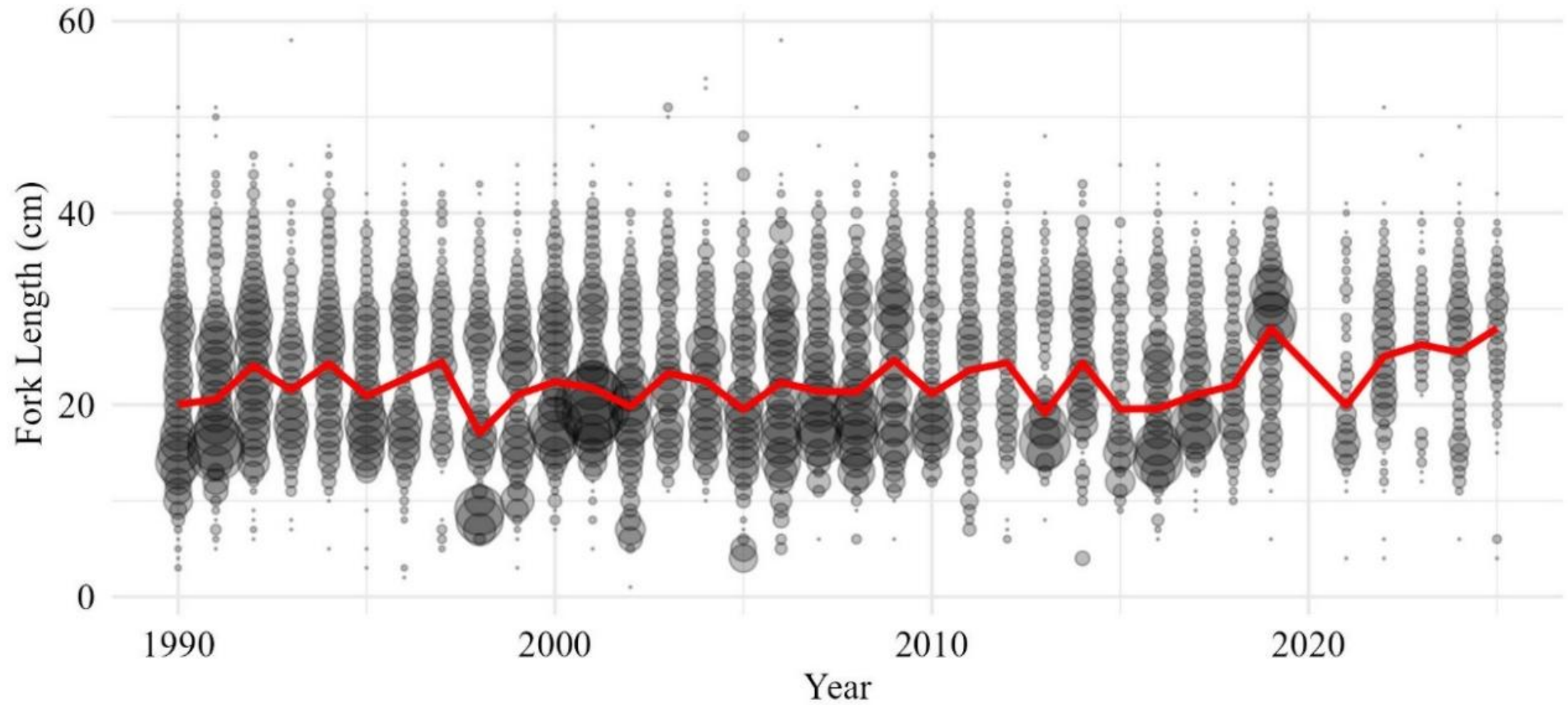
King Mackerel (Age-0 +)



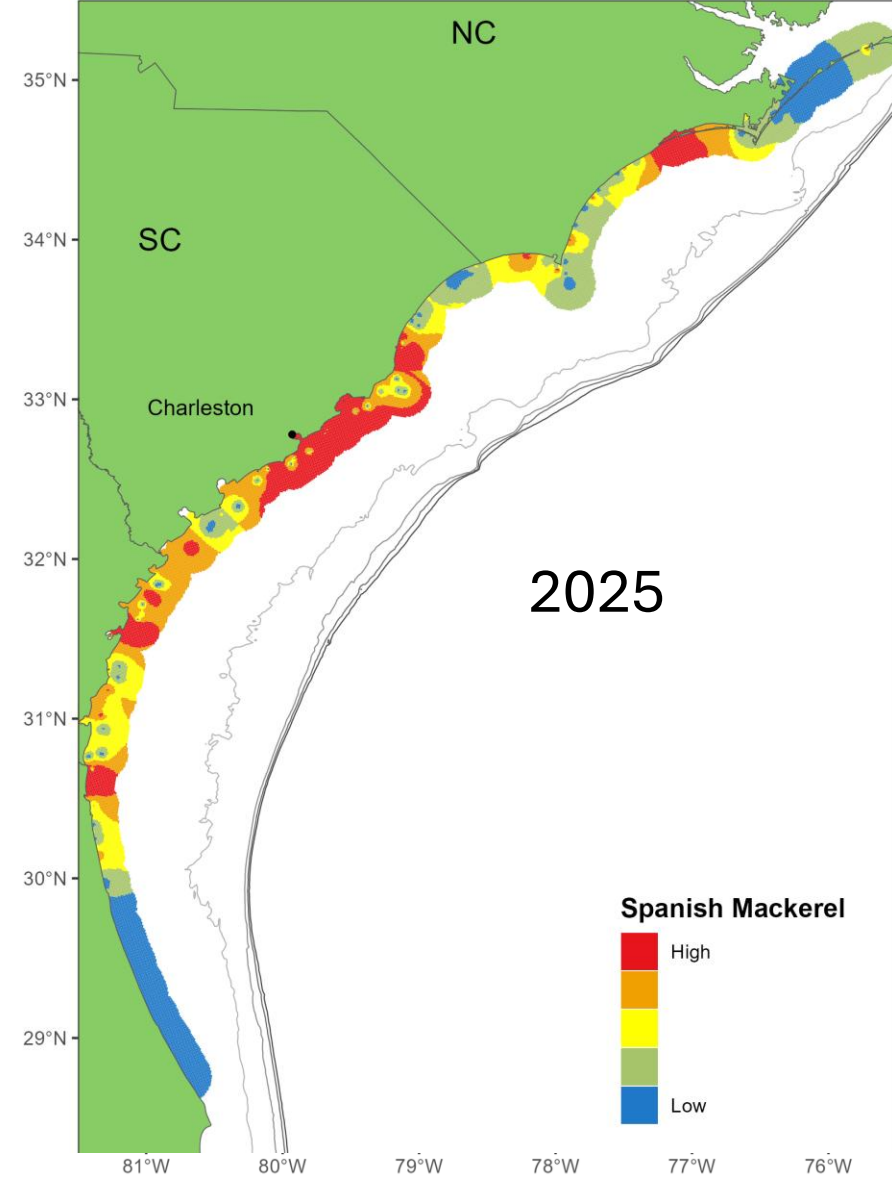
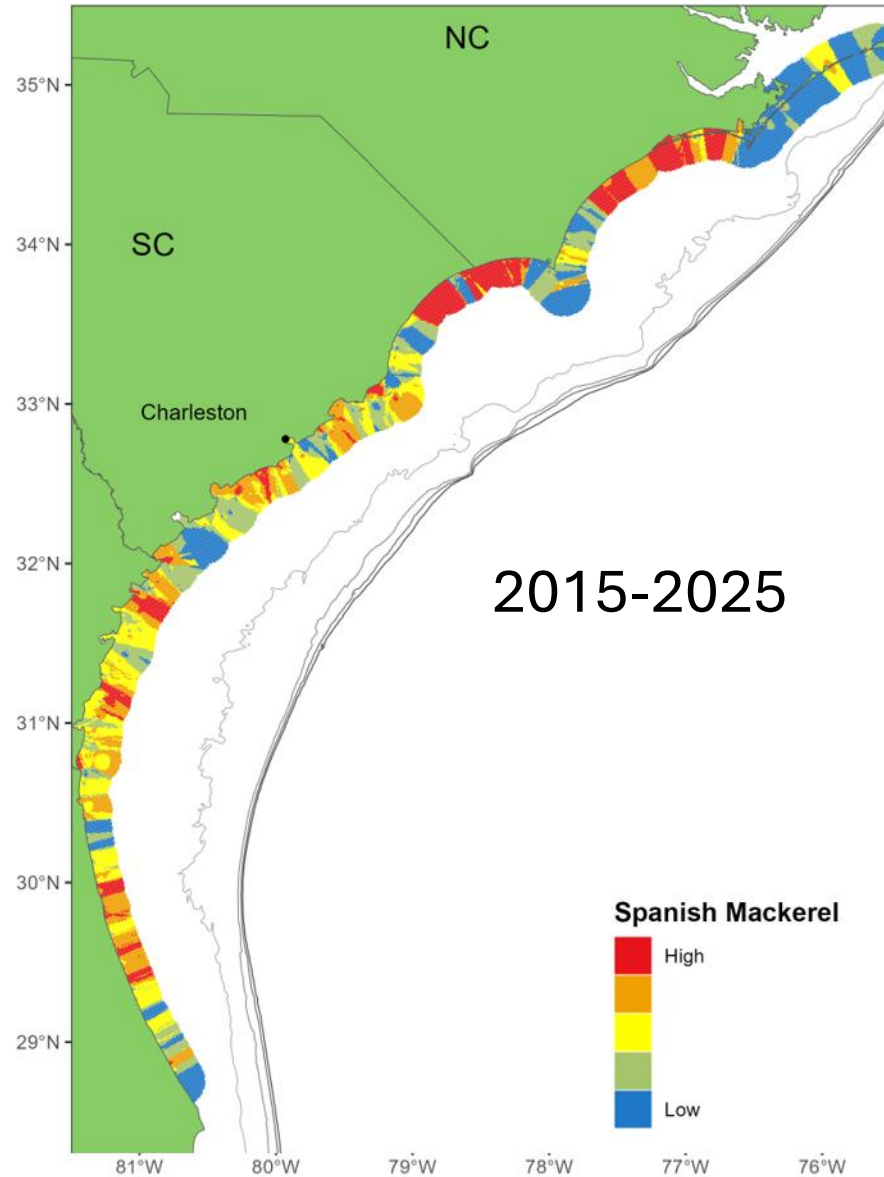
Spanish Mackerel (Age-0 +)



Spanish Mackerel (Age-0 +)



Spanish Mackerel (Age-0 +)





Discussion Time



Extra Slides

King Mackerel



Age-0+

						ZINB Standardized Abundance	
Year	Number of Tows	Positive Tows	% Positive	Total Fish	Normalized Abundance	Normalized	CV
1990	228	98	43.0	1009	2.07	2.39	0.19
1991	231	47	20.4	171	0.35	0.46	0.23
1992	232	47	20.3	910	1.83	0.81	0.24
1993	234	46	19.7	283	0.56	0.72	0.41
1994	233	50	21.5	352	0.71	0.52	0.22
1995	233	66	28.3	889	1.78	1.54	0.23
1996	229	81	35.4	1219	2.48	2.35	0.26
1997	232	47	20.3	192	0.39	0.7	0.37
1998	232	65	28.0	1234	2.48	2.29	0.23
1999	233	77	33.1	349	0.7	1.53	0.33
2000	234	53	22.7	504	1.01	0.92	0.27
2001	295	52	17.6	472	0.75	0.72	0.37
2002	301	64	21.3	291	0.45	0.53	0.2
2003	304	77	25.3	684	1.05	0.96	0.22
2004	304	73	24.0	1589	2.44	2.39	0.42
2005	301	58	19.3	1109	1.72	1.3	0.22
2006	303	59	19.5	737	1.14	1.4	0.23
2007	305	69	22.6	745	1.14	1.52	0.26
2008	304	50	16.5	1057	1.62	1.04	0.23
2009	335	56	16.7	472	0.66	0.71	0.3
2010	335	45	13.4	209	0.29	0.32	0.25
2011	336	40	11.9	594	0.83	0.47	0.28
2012	336	48	14.3	360	0.5	0.35	0.27
2013	294	55	18.7	222	0.35	0.29	0.22
2014	306	50	16.3	487	0.74	0.73	0.27
2015	329	60	18.2	485	0.69	0.48	0.2
2016	330	93	28.2	2047	2.89	2.7	0.24
2017	293	83	28.3	355	0.57	0.77	0.23
2018	228	49	21.5	396	0.81	0.57	0.21
2019	258	34	13.2	186	0.34	0.35	0.24
2020	-	-	-	-	-	-	-
2021	112	28	25.0	147	0.61	0.83	0.32
2022	279	33	11.8	89	0.15	0.34	0.24
2023	177	28	15.8	68	0.18	0.39	0.28
2024	143	41	28.7	203	0.66	1.36	0.28
2025	155	15	9.7	26	0.08	0.26	0.36

Spanish Mackerel



Age-0 +

					ZINB Standardized Abundance		
Year	Number of Tows	Positive Tows	% Positive	Total Fish	Normalized Abundance	Normalized	CV
1990	228	145	63.6	1616	1.68	1.09	0.13
1991	231	153	66.2	2060	2.11	1.6	0.14
1992	232	146	62.9	1717	1.75	2.07	0.19
1993	234	97	41.5	815	0.82	0.92	0.15
1994	233	137	58.8	1057	1.07	0.91	0.14
1995	233	121	51.9	1289	1.31	1.18	0.13
1996	229	120	52.4	983	1.01	1.13	0.14
1997	232	91	39.2	583	0.59	0.49	0.28
1998	232	105	45.3	1349	1.37	1.61	0.34
1999	233	121	51.9	1275	1.29	1.49	0.17
2000	234	146	62.4	1718	1.74	1.38	0.14
2001	295	161	54.6	2299	1.84	1.31	0.2
2002	301	149	49.5	1454	1.14	0.92	0.13
2003	304	121	39.8	941	0.73	0.9	0.16
2004	304	126	41.5	1100	0.86	1.05	0.13
2005	301	106	35.2	1338	1.05	1.19	0.15
2006	303	127	41.9	1884	1.47	1.59	0.14
2007	305	149	48.9	1619	1.25	1.19	0.13
2008	304	156	51.3	1877	1.46	1.52	0.11
2009	335	196	58.5	1565	1.1	1.26	0.13
2010	335	151	45.1	937	0.66	0.68	0.13
2011	336	148	44.1	610	0.43	0.34	0.15
2012	336	128	38.1	469	0.33	0.35	0.13
2013	294	100	34.0	821	0.66	0.61	0.18
2014	306	142	46.4	872	0.67	0.64	0.19
2015	329	108	32.8	537	0.39	0.36	0.16
2016	330	163	49.4	1340	0.96	0.65	0.14
2017	293	132	45.1	1050	0.85	0.64	0.21
2018	228	114	50.0	557	0.58	0.41	0.14
2019	258	127	49.2	1305	1.2	0.9	0.15
2020	-	-	-	-	-	-	-
2021	112	50	44.6	300	0.63	0.89	0.28
2022	279	108	38.7	581	0.49	0.86	0.16
2023	177	53	29.9	179	0.24	0.45	0.27
2024	143	87	60.8	503	0.83	1.7	0.17
2025	155	50	32.3	275	0.42	0.74	0.25