





















Table 2. Mean, minimum, and maximum lengths (fork length, inches) of Atlantic menhaden measured from the commercial fisheries, 1991–2021.

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured
1991	6.2	1.9	11.0	3,588
1992	7.0	4.1	76.8	1,832
1993	6.9	3.0	13.8	3,163
1994	7.0	4.3	11.4	1,077
1995	6.5	4.1	12.5	2,045
1996	7.7	3.7	12.9	2201
1997	8.8	3.8	15.6	1,623
1998	8.1	3.4	12.9	1,570
1999	7.4	3.3	14.9	1,702
2000	8.5	4.1	13.5	868
2001	9.6	2.6	15.9	1,266
2002	8.8	4.7	14.0	1,075
2003	9.3	4.4	14.4	621
2004	8.2	3.1	14.2	644
2005	8.5	4.0	13.4	1,197
2006	8.1	3.7	13.7	1,445
2007	8.3	4.3	15.7	1,424
2008	8.0	3.9	12.8	1,063
2009	8.9	3.9	13.5	1,124
2010	8.6	5.8	12.6	210
2011	9.2	3.7	13.7	1,346
2012	8.7	2.8	14.3	705
2013	9.3	5.6	15.2	845
2014	8.8	4.8	12.8	1,477
2015	9.1	4.8	13.7	1,165
2016	8.7	6.3	12.3	760
2017	9.4	5.6	12.4	891
2018	9.3	0.8	12.2	442
2019	8.5	5.6	11.3	179
2020	10.3	6.2	12.7	250
2021	9.9	5.4	12.5	416

## FIGURES

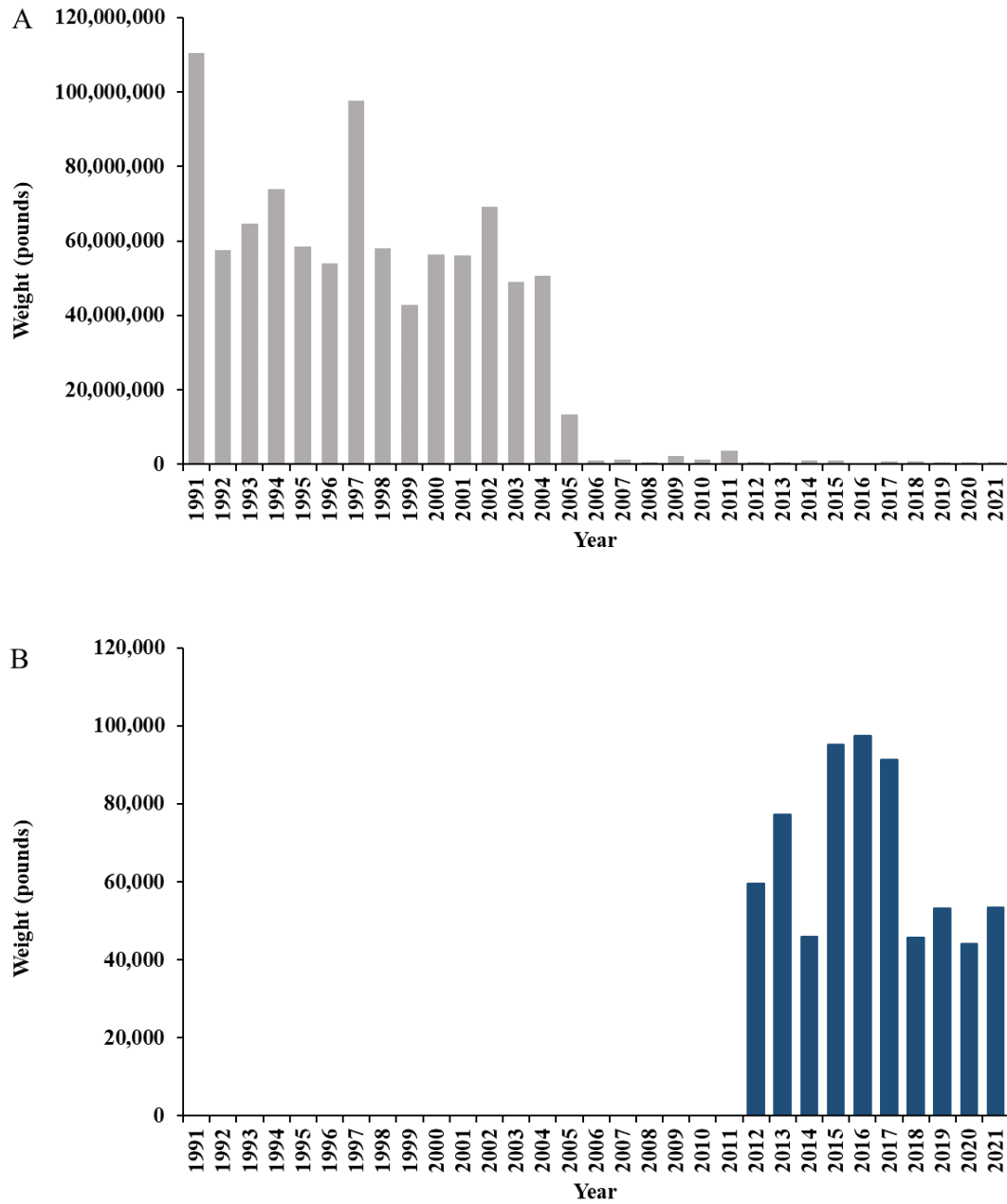


Figure 1. (A) Atlantic menhaden commercial landing (pounds) reported through the North Carolina Trip Ticket Program, 1991–2021, and (B) recreational landings (Type A + B1; pounds) estimated from the North Carolina recreational cast net and seine mail survey, 2012–2021.

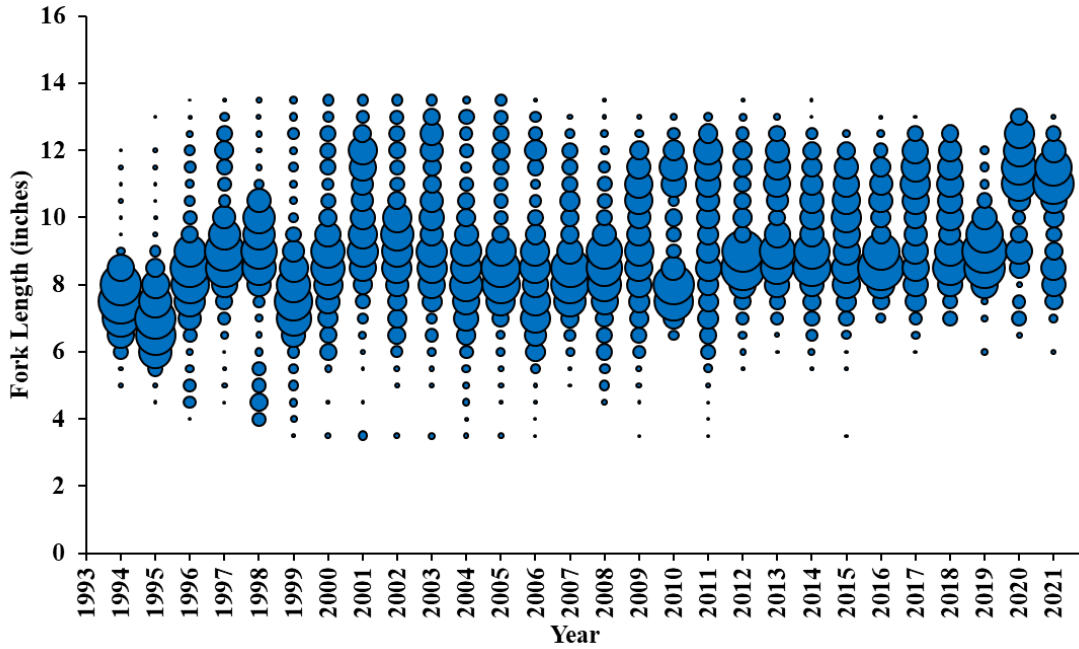


Figure 2. Commercial length frequency (fork length, inches) of Atlantic menhaden harvested from 1994 to 2021. Bubbles represent fish harvested at length and the size of the bubble is equal to the proportion of fish at that length.

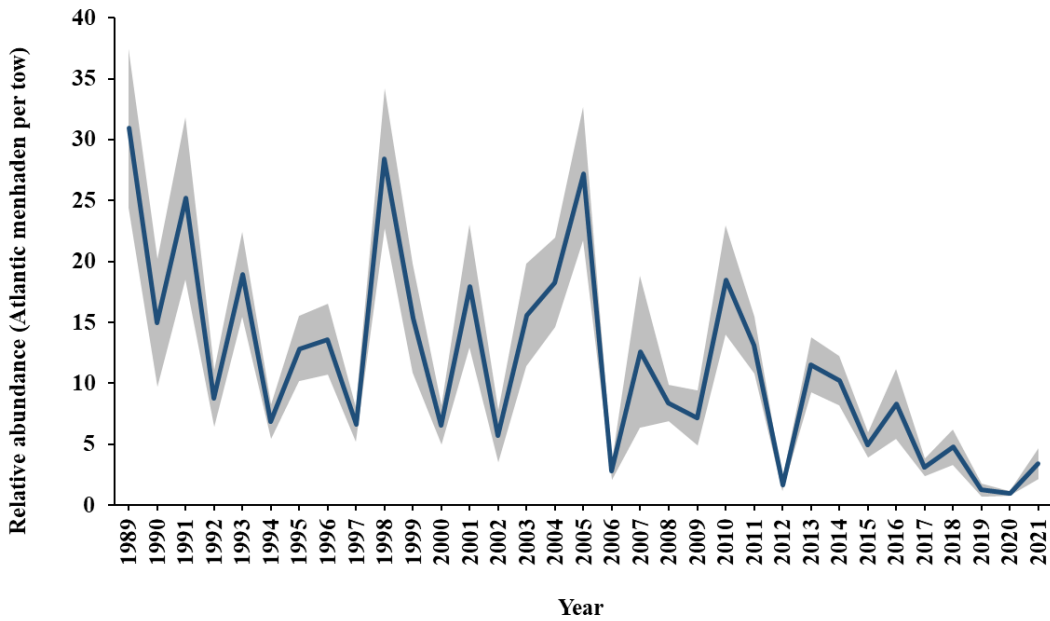


Figure 3. Relative abundance index (fish per tow) of Atlantic menhaden collected from the North Carolina Estuarine Trawl Survey (Program 120) during May and June 1989–2021. Error bars represent  $\pm 1$  standard error.

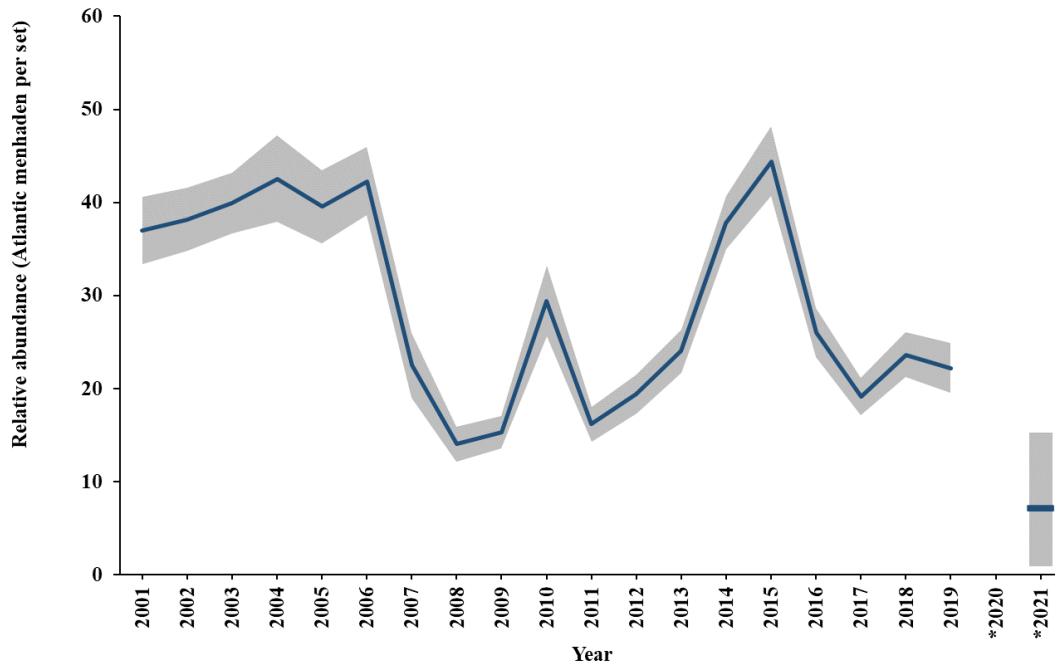


Figure 4. Relative abundance index (fish per set) of Atlantic menhaden collected from the Fishery-Independent Gill Net Survey (Program 915, Pamlico Sound only), 2001–2021. Error bars represent  $\pm 1$  standard error. \*Survey suspended February 20, 2020, through June 30, 2021.