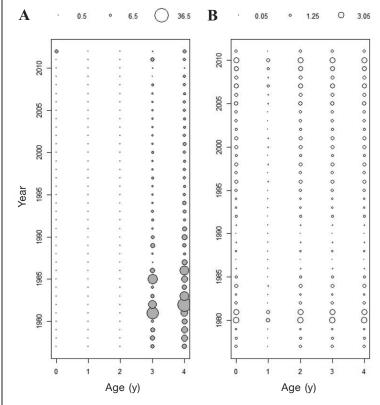**Supplementary Figure 2**

Bubble plot of year-specific percent difference in (**A**) number at age and (**B**) instantaneous annual fishing mortality (*F*) at age between the base model used in the 2012 stock assessment and the base model used in the 2012 stock assessment with the logistic maturity relationship described in this work (proportion of age-1 spawners is 0.68). Open circles indicate an increase in the predicted value and shaded circles indicate that the estimates are less than those predicted in the 2012 stock assessment. The magnitude of percent difference is displayed as the relative size of the circle (note: each panel has a different scale for the circles).

Supplementary Table

Samples sizes of Gulf menhaden (*Brevoortia patronus*) by year for the length-weight relationships estimated from fishery-dependent data for 1964–2014. Samples were reduced in 2010 due to closure of the fishery following the Deepwater Horizon oil spill.

Year	Sample size (n)
1964	12,457
1965	15,819
1966	13,016
1967	14,519
1968	16,499
1969	15,281
1970	10,560
1971	7859
1972	10,030
1973	8958
1974	10,120
1975	9529
1976	13,586
1977	14,918
1978	12,985
1979	11,620
1980	9961
1981	10,408
1982	10,709
1983	14,840
1984	16,000
1985	13,240
1986	16,530
1987	16,529
1988	12,410
1989	13,971
1990	11,686
1991	11,691
1992	15,658
1993	15,735
1994	16,823
1995	14,525
1996	13,558
1997	10,956
1998	10,203
1999	11,933
2000	9794
2001	7462
2002	6720
2003	9364
2004	7672
2005	7292
2006	5800
2007	5170
2008	5941
2009	7501
2010	4611
2011	8350
2012	9491
2013	6941
2014	7281