

Supplemental materials for:

**Aspects of the Population Dynamics and Biology of the Daubed Shanny (*Leptoclinus maculatus*) in the Gulf of Maine**

**Authors:**

Gary A. Nelson<sup>\*1</sup>, Kara L. Duprey<sup>2</sup>, and Scott Elzey<sup>2</sup>

<sup>1</sup>Massachusetts Division of Marine Fisheries

92 Fort Avenue, Salem MA, 01970 ([gary.nelson@mass.gov](mailto:gary.nelson@mass.gov))

<sup>2</sup> Massachusetts Division of Marine Fisheries

30 Emerson Avenue, Gloucester, MA 01930

([kara.l.duprey@mass.gov](mailto:kara.l.duprey@mass.gov); [scott.elzey@mass.gov](mailto:scott.elzey@mass.gov))

\*Corresponding Author

Table SA. Gear/tow condition codes used to extract acceptable standardized tows from survey datasets.

Survey	Year(s)	Gear Code	Value(s)
NEFSC	1963-2008	SHG	$\leq 136$
	2009-2022	TOGA	$\leq 1324$
MADMF	1978-2023	SHG	$\leq 136$
MEDMR	2000-2023	Tow_Type	R

Table SB. Spring stratified mean number per tow ( $\log(x+1)$ ), standard error (SE), coefficient of variation (CV: SE/Mean), number of fish caught (nfish), number of positive tows (npos), number of tows (n) and proportion of positive tows (pp) for Daubed Shanny in the inshore and offshore regions of the Northeast Fisheries Science Center bottom trawl survey.

Year	Inshore							Offshore						
	Mean	SE	CV	nfish	npos	n	pp	Mean	SE	CV	nfish	npos	n	pp
1963														
1964														
1965														
1966														
1967														
1968								0.073	0.037	0.50	11	5	68	0.07
1969								0.212	0.089	0.42	68	8	67	0.12
1970								0.165	0.038	0.23	318	11	73	0.15
1971								0.108	0.030	0.27	69	10	77	0.13
1972								0.437	0.098	0.23	368	20	75	0.27
1973								0.230	0.040	0.18	173	10	68	0.15
1974								0.305	0.040	0.13	247	17	66	0.26
1975								0.000	0.000	0.00	0	0	64	0.00
1976								0.053	0.022	0.42	245	6	80	0.08
1977								0.050	0.017	0.35	90	9	88	0.10
1978								0.053	0.022	0.41	13	6	93	0.06
1979	0.000	0.000	0.00	0	0	7	0.00	0.034	0.013	0.40	19	6	98	0.06
1980	0.000	0.000	0.00	0	0	11	0.00	0.086	0.025	0.29	29	6	68	0.09
1981	0.000	0.000	0.00	0	0	10	0.00	0.000	0.000	0.00	0	0	68	0.00
1982	0.000	0.000	0.00	0	0	9	0.00	0.104	0.046	0.44	301	4	72	0.06
1983	0.128	0.062	0.49	2	2	11	0.18	0.169	0.046	0.27	332	7	71	0.10
1984	0.833	0.399	0.48	133	3	10	0.30	0.051	0.036	0.70	27	3	66	0.05
1985	0.410	0.284	0.69	12	3	10	0.30	0.000	0.000	0.00	0	0	64	0.00
1986	0.000	0.000	0.00	0	0	9	0.00	0.000	0.000	0.00	0	0	70	0.00
1987	0.078	0.078	0.99	1	1	9	0.11	0.099	0.036	0.37	25	6	64	0.09
1988	0.694	0.504	0.73	83	3	9	0.33	0.064	0.030	0.47	33	4	71	0.06
1989	-	-	-	-	-	-	-	0.037	0.037	1.00	6	1	65	0.02
1990	0.156	0.000	0.00	1	1	7	0.14	0.028	0.008	0.28	4	3	70	0.04
1991	0.583	0.185	0.32	13	3	9	0.33	0.085	0.029	0.34	35	5	67	0.07
1992	1.085	0.097	0.09	102	3	8	0.38	0.141	0.049	0.35	57	8	61	0.13
1993	0.000	0.000	0.00	0	0	11	0.00	0.022	0.013	0.59	3	3	67	0.04
1994	0.000	0.000	0.00	0	0	10	0.00	0.012	0.012	1.00	3	1	70	0.01
1995	0.613	0.057	0.09	17	5	10	0.50	0.110	0.047	0.43	179	7	71	0.10
1996	0.000	0.000	0.00	0	0	10	0.00	0.006	0.006	1.00	1	1	64	0.02
1997	0.000	0.000	0.00	0	0	11	0.00	0.056	0.023	0.41	14	6	71	0.08
1998	0.079	0.055	0.70	2	2	15	0.13	0.056	0.023	0.42	54	7	96	0.07
1999	0.319	0.207	0.65	11	3	11	0.27	0.018	0.013	0.71	2	2	64	0.03
2000	0.965	0.000	0.00	41	4	8	0.50	0.020	0.003	0.16	4	3	69	0.04
2001	0.000	0.000	0.00	0	0	11	0.00	0.018	0.018	1.00	7	1	70	0.01

Table SB cont.

Year	Inshore							Offshore						
	Mean	SE	CV	nfish	npos	n	pp	Mean	SE	CV	nfish	npos	n	pp
2002	0.334	0.148	0.44	8	3	10	0.30	0.037	0.019	0.52	12	6	72	0.08
2003	0.401	0.226	0.56	59	2	11	0.18	0.011	0.011	1.00	3	1	70	0.01
2004	0.961	0.277	0.29	64	5	11	0.45	0.012	0.012	1.00	3	1	68	0.01
2005	0.065	0.000	0.00	1	1	11	0.09	0.058	0.035	0.60	17	3	69	0.04
2006	0.088	0.087	0.99	2	1	12	0.08	0.000	0.000	0.00	0	0	76	0.00
2007	0.897	0.256	0.29	29	7	11	0.64	0.073	0.051	0.71	432	4	68	0.06
2008	0.991	0.226	0.23	184	4	11	0.36	0.020	0.012	0.59	3	3	69	0.04
2009	0.046	0.045	0.99	1	1	16	0.06	0.004	0.004	1.00	1	1	87	0.01
2010	0.000	0.000	0.00	0	0	17	0.00	0.005	0.005	1.00	1	1	83	0.01
2011	0.000	0.000	0.00	0	0	14	0.00	0.000	0.000	0.000	0	0	70	0.00
2012	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.000	0	0	90	0.00
2013	0.239	0.134	0.56	9	2	19	0.11	0.000	0.000	0.000	0	0	85	0.00
2014	0.147	0.145	0.99	6	1	18	0.06	0.000	0.000	0.000	0	0	77	0.00
2015	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.000	0	0	85	0.00
2016	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.000	0	0	85	0.00
2017	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.000	0	0	68	0.00
2018	0.000	0.000	0.00	0	0	13	0.00	0.000	0.000	0.000	0	0	38	0.00
2019	0.000	0.000	0.00	0	0	17	0.00	0.000	0.000	0.000	0	0	80	0.00
2020	No survey							No survey						
2021	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.000	0	0	79	0.00
2022	0.000	0.000	0.00	0	0	19	0.00	0.000	0.000	0.000	0	0	77	0.00

Table SC. Fall stratified mean number per tow ( $\log(x+1)$ ), standard error (SE), coefficient of variation (CV: SE/Mean), number of fish (nfish), number of positive tows (npos), total number of tows (n), and proportion of positive tows for Daubed Shanny in the inshore and offshore regions of the Northeast Fisheries Science Center bottom trawl survey.

Year	Inshore							Offshore						
	Mean	SE	CV	nfish	npos	n	pp	Mean	SE	CV	nfish	npos	n	pp
1963								0.000	0.000	0.00	0	0	77	0.00
1964								0.012	0.011	1.00	2	1	67	0.01
1965								0.012	0.012	1.00	1	1	67	0.01
1966								0.131	0.035	1.00	81	8	62	0.13
1967								0.020	0.013	1.00	4	3	66	0.05
1968								0.000	0.000	0.00	0	0	67	0.00
1969								0.028	0.017	1.00	3	3	68	0.04
1970								0.020	0.014	1.00	4	2	73	0.03
1971								0.198	0.065	1.00	50	11	75	0.15
1972								0.432	0.127	1.00	686	17	75	0.23
1973								0.063	0.037	1.00	19	4	72	0.06
1974								0.028	0.020	1.00	3	2	77	0.03
1975								0.007	0.006	1.00	2	2	87	0.02
1976								0.000	0.000	0.00	0	0	71	0.00
1977								0.005	0.005	1.00	1	1	93	0.01
1978								0.004	0.003	1.00	2	2	158	0.01
1979	0.000	0.000	0.00	0	0	9	0.00	0.000	0.000	0.00	0	0	162	0.00
1980	0.000	0.000	0.00	0	0	10	0.00	0.000	0.000	0.00	0	0	70	0.00
1981	0.000	0.000	0.00	0	0	7	0.00	0.000	0.000	0.00	0	0	73	0.00
1982	0.000	0.000	0.00	0	0	8	0.00	0.033	0.017	1.00	4	3	75	0.04
1983	0.000	0.000	0.00	0	0	9	0.00	0.015	0.015	1.00	1	1	63	0.02
1984	0.000	0.000	0.00	0	0	7	0.00	0.000	0.000	0.00	0	0	71	0.00
1985	0.000	0.000	0.00	0	0	13	0.00	0.009	0.009	1.00	1	1	68	0.01
1986	0.000	0.000	0.00	0	0	8	0.00	0.000	0.000	0.00	0	0	73	0.00
1987	0.000	0.000	0.00	0	0	12	0.00	0.093	0.046	1.00	15	6	69	0.09
1988	0.000	0.000	0.00	0	0	9	0.00	0.000	0.000	0.00	0	0	69	0.00
1989	0.000	0.000	0.00	0	0	5	0.00	0.000	0.000	0.00	0	0	69	0.00
1990	0.000	0.000	0.00	0	0	7	0.00	0.009	0.009	1.00	1	1	70	0.01
1991	0.000	0.000	0.00	0	0	9	0.00	0.027	0.019	1.00	2	2	71	0.03
1992	0.000	0.000	0.00	0	0	11	0.00	0.064	0.045	1.00	10	2	68	0.03
1993	0.000	0.000	0.00	0	0	9	0.00	0.013	0.009	1.00	2	2	69	0.03
1994	0.052	0.052	1.00	1	1	11	0.09	0.242	0.082	1.00	63	11	69	0.16
1995	0.000	0.000	0.00	0	0	4	0.00	0.075	0.048	1.00	11	4	75	0.05
1996	0.000	0.000	0.00	0	0	11	0.00	0.015	0.015	1.00	2	1	67	0.01
1997	0.000	0.000	0.00	0	0	9	0.00	0.000	0.000	0.00	0	0	70	0.00
1998	0.000	0.000	0.00	0	0	11	0.00	0.038	0.015	1.00	9	7	84	0.08
1999	0.063	0.063	1.00	1	1	11	0.09	0.099	0.035	1.00	50	10	87	0.11
2000	0.000	0.000	0.00	0	0	11	0.00	0.009	0.009	1.00	1	1	70	0.01
2001	0.000	0.000	0.00	0	0	11	0.00	0.028	0.018	1.00	3	3	71	0.04

Table SC cont.

Year	Inshore							Offshore						
	Mean	SE	CV	nfish	npos	n	pp	Mean	SE	CV	nfish	npos	n	pp
2002	0.000	0.000	0.00	0	0	9	0.00	0.068	0.041	1.00	9	3	66	0.05
2003	0.000	0.000	0.00	0	0	7	0.00	0.088	0.053	1.00	13	4	69	0.06
2004	0.000	0.000	0.00	0	0	8	0.00	0.210	0.099	1.00	83	6	65	0.09
2005	0.046	0.046	1.00	1	1	11	0.09	0.117	0.052	1.00	18	7	67	0.10
2006	0.000	0.000	0.00	0	0	14	0.00	0.000	0.000	0.00	0	0	75	0.00
2007	0.000	0.000	0.00	0	0	10	0.00	0.045	0.021	1.00	4	3	71	0.04
2008	0.000	0.000	0.00	0	0	10	0.00	0.130	0.083	1.00	93	4	71	0.06
2009	0.000	0.000	0.00	0	0	14	0.00	0.031	0.031	1.00	8	1	66	0.02
2010	0.000	0.000	0.00	0	0	6	0.00	0.000	0.000	0.00	0	0	62	0.00
2011	0.000	0.000	0.00	0	0	15	0.00	0.004	0.004	1.00	1	1	56	0.02
2012	0.000	0.000	0.00	0	0	17	0.00	0.000	0.000	0.00	0	0	78	0.00
2013	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.00	0	0	75	0.00
2014	0.000	0.000	0.00	0	0	17	0.00	0.000	0.000	0.00	0	0	75	0.00
2015	0.000	0.000	0.00	0	0	19	0.00	0.000	0.000	0.00	0	0	86	0.00
2016	0.000	0.000	0.00	0	0	18	0.00	0.000	0.000	0.00	0	0	85	0.00
2017	0.000	0.000	0.00	0	0	7	0.00	0.000	0.000	0.00	0	0	65	0.00
2018	0.000	0.000	0.00	0	0	16	0.00	0.000	0.000	0.00	0	0	46	0.00
2019	0.000	0.000	0.00	0	0	15	0.00	0.000	0.000	0.00	0	0	68	0.00
2020			No survey							No survey	0			
2021	0.000	0.000	0.00	0	0	13	0.00	0.000	0.000	0.00	0	0	74	
2022	0.000	0.000	0.00	0	0	14	0.00	0.000	0.000	0.00	0	0	52	0.00

Table SD. Spring and fall stratified mean number per tow ( $\log(x+1)$ ), standard error (SE), coefficient of variation (CV: SE/Mean), number of fish caught ( $n_{\text{fish}}$ ), number of positive tows ( $n_{\text{pos}}$ ), total number of tows (n), and proportion of positive tows (pp) for Daubed Shanny in Massachusetts Division of Marine Fisheries bottom trawl survey.

Year	Spring							Fall						
	Mean	SE	CV	n <sub>fish</sub>	n <sub>pos</sub>	n	pp	Mean	SE	CV	n <sub>fish</sub>	n <sub>pos</sub>	n	pp
1978	0.196	0.087	0.45	33	3	39	0.08	0.000	0.000	0.00	0	0	42	0.00
1979	0.679	0.099	0.15	385	16	49	0.33	0.000	0.000	0.00	0	0	48	0.00
1980	0.590	0.079	0.13	493	10	45	0.22	0.000	0.000	0.00	0	0	42	0.00
1981	0.219	0.100	0.46	57	5	42	0.12	0.000	0.000	0.00	0	0	40	0.00
1982	0.231	0.042	0.18	59	8	44	0.18	0.016	0.016	0.97	1	1	43	0.02
1983	0.635	0.106	0.17	516	13	41	0.32	0.182	0.072	0.40	42	5	41	0.12
1984	0.999	0.083	0.08	606	19	45	0.42	0.134	0.046	0.34	15	6	41	0.15
1985	0.896	0.104	0.12	490	12	41	0.29	0.075	0.031	0.41	10	5	43	0.12
1986	0.703	0.081	0.12	583	12	38	0.32	0.073	0.025	0.34	9	5	41	0.12
1987	0.644	0.106	0.16	355	11	46	0.24	0.129	0.046	0.36	20	5	35	0.14
1988	0.874	0.166	0.19	1160	12	42	0.29	0.081	0.036	0.44	9	4	24	0.17
1989	1.145	0.140	0.12	1255	15	46	0.33	0.044	0.016	0.36	6	3	21	0.14
1990	0.493	0.149	0.30	297	8	42	0.19	0.014	0.014	0.97	1	1	37	0.03
1991	0.273	0.087	0.32	155	8	47	0.17	0.000	0.000	0.00	0	0	35	0.00
1992	0.390	0.068	0.17	261	8	41	0.20	0.000	0.000	0.00	0	0	31	0.00
1993	0.517	0.085	0.16	257	8	34	0.24	0.035	0.027	0.77	3	2	38	0.05
1994	0.451	0.104	0.23	137	7	34	0.21	0.067	0.034	0.51	4	4	43	0.09
1995	0.401	0.074	0.18	124	10	44	0.23	0.000	0.000	0.00	0	0	41	0.00
1996	0.367	0.078	0.21	128	8	45	0.18	0.055	0.041	0.74	5	2	44	0.05
1997	0.660	0.121	0.18	233	11	43	0.26	0.018	0.018	0.98	1	1	36	0.03
1998	0.299	0.090	0.30	45	7	37	0.19	0.000	0.000	0.00	0	0	35	0.00
1999	0.212	0.053	0.25	48	7	44	0.16	0.016	0.016	0.97	1	1	44	0.02
2000	0.187	0.038	0.20	22	7	44	0.16	0.000	0.000	0.00	0	0	44	0.00
2001	0.047	0.030	0.62	3	2	44	0.05	0.000	0.000	0.00	0	0	46	0.00
2002	0.159	0.053	0.33	22	5	46	0.11	0.000	0.000	0.00	0	0	41	0.00
2003	0.766	0.128	0.17	264	18	44	0.41	0.010	0.009	0.95	1	1	40	0.03
2004	1.199	0.153	0.13	506	21	45	0.47	0.000	0.000	0.00	0	0	39	0.00
2005	0.941	0.112	0.12	307	15	41	0.37	0.017	0.017	0.97	1	1	46	0.02
2006	0.620	0.108	0.17	179	14	44	0.32	0.000	0.000	0.00	0	0	42	0.00
2007	0.564	0.119	0.21	131	12	47	0.26	0.017	0.017	0.97	1	1	48	0.02
2008	0.364	0.082	0.23	45	11	46	0.24	0.000	0.000	0.00	0	0	44	0.00
2009	0.572	0.065	0.11	81	14	45	0.31	0.023	0.023	0.98	1	1	45	0.02
2010	0.252	0.049	0.20	28	8	47	0.17	0.027	0.019	0.69	2	2	43	0.05
2011	0.162	0.067	0.41	18	6	46	0.13	0.012	0.011	0.96	1	1	41	0.02
2012	0.067	0.012	0.18	6	2	44	0.05	0.000	0.000	0.00	0	0	40	0.00

Table SD cont.

Year	Spring							Fall						
	Mean	SE	CV	nfish	npos	n	pp	Mean	SE	CV	nfish	npos	n	pp
2013	0.070	0.021	0.29	5	4	46	0.09	0.000	0.000	0.00	0	0	44	0.00
2014	0.267	0.072	0.27	88	7	47	0.15	0.012	0.011	0.96	1	1	46	0.02
2015	0.154	0.058	0.38	14	5	44	0.11	0.000	0.000	0.00	0	0	41	0.00
2016	0.143	0.065	0.46	16	4	46	0.09	0.000	0.000	0.00	0	0	38	0.00
2017	0.034	0.000	0.00	2	2	44	0.05	0.000	0.000	0.00	0	0	43	0.00
2018	0.024	0.023	0.97	2	1	45	0.02	0.000	0.000	0.00	0	0	41	0.00
2019	0.017	0.017	0.97	1	1	47	0.02	0.000	0.000	0.00	0	0	40	0.00
2020	No Survey							No Survey						
2021	0.047	0.033	0.70	3	2	42	0.05	0.000	0.000	0.00	0	0	41	0.00
2022	0.027	0.026	0.97	2	1	46	0.02	0.000	0.000	0.00	0	0	47	0.00
2023	0.000	0.000	0.00	0	0	47	0.00	0.000	0.000	0.00	0	0	47	0.00



Table SE. Spring and fall stratified mean number per tow ( $\log(x+1)$ ), standard error (SE), coefficient of variation (CV: SE/Mean), number of fish caught (nfish), number of positive tows (npos), total number of tows (n), and proportion of positive tows (pp) for Daubed Shanny in the Maine Department of Marine Resources bottom trawl survey.

Year	Spring							Fall						
	Mean	SE	CV	nfish	npos	n	pp	Mean	SE	CV	nfish	npos	n	pp
2003	0.017	0.017	1.00	1	1	52	0.02	0.000	0.000	0.00	0	0	33	0.00
2004	0.193	0.050	0.26	30	6	50	0.12	0.000	0.000	0.00	0	0	39	0.00
2005	0.349	0.066	0.19	72	9	51	0.18	0.000	0.000	0.00	0	0	33	0.00
2006	0.251	0.047	0.19	64	19	77	0.25	0.010	0.010	0.99	1	1	60	0.02
2007	0.180	0.052	0.29	54	15	84	0.18	0.000	0.000	0.00	0	0	68	0.00
2008	0.155	0.029	0.19	29	18	89	0.20	0.000	0.000	0.00	0	0	53	0.00
2009	0.285	0.058	0.20	81	17	82	0.21	0.000	0.000	0.00	0	0	65	0.00
2010	0.216	0.049	0.23	47	16	85	0.19	0.000	0.000	0.00	0	0	63	0.00
2011	0.107	0.031	0.29	20	9	86	0.10	0.000	0.000	0.00	0	0	49	0.00
2012	0.069	0.040	0.59	10	4	82	0.05	0.000	0.000	0.00	0	0	76	0.00
2013	0.006	0.006	0.99	1	1	77	0.01	0.000	0.000	0.00	0	0	77	0.00
2014	0.064	0.035	0.55	13	4	78	0.05	0.000	0.000	0.00	0	0	85	0.00
2015	0.088	0.025	0.28	26	10	113	0.09	0.000	0.000	0.00	0	0	74	0.00
2016	0.008	0.008	0.99	1	1	98	0.01	0.000	0.000	0.00	0	0	65	0.00
2017	0.006	0.006	0.99	1	1	102	0.01	0.000	0.000	0.00	0	0	87	0.00
2018	0.000	0.000	0.00	0	0	98	0.00	0.006	0.006	0.99	1	1	76	0.01
2019	0.005	0.005	0.99	1	1	100	0.01	0.000	0.000	0.00	0	0	88	0.00
2020			No survey					0.000	0.000	0.00	0	0	74	0.00
2021	0.000	0.000	0.00	0	0	97	0.00	0.000	0.000	0.00	0	0	87	0.00
2022	0.000	0.000	0.00	0	0	93	0.00	0.000	0.000	0.00	0	0	74	0.00
2023	0.000	0.000	0.00	0	0	86	0.00	0.000	0.000	0.00	0	0	71	0.00

Table SF. Mean temperature, standard deviation (SD), number of fish (nfish), number of positive tows (npos) and total number of tows (n) for fish and survey data from the NEFSC spring survey by region and depth interval.

Fish					Survey			
Depth (m)	Temp (oC)	SD	nfish	npos	Depth (m)	Temp (oC)	SD	n
<u>NEFSC Inshore Spring</u>					<u>NEFSC Inshore Spring</u>			
15					15	5.8	1.85	29
25					25	5.8	1.71	84
35	3.9	0.31	309	12	35	5.1	1.36	149
45	3.7	0.44	56	9	45	4.7	0.98	99
55	4.2	0.99	148	22	55	4.3	1.15	89
65	3.6	0.54	166	8	65	4.3	0.88	44
75					75	4.2	0.66	12
85					85	5.0	0.92	6
<u>NEFSC Offshore Spring</u>					<u>NEFSC Offshore Spring</u>			
25					25	5.0	1.36	7
35					35	4.4	1.27	23
45					45	5.0	1.39	14
55					55	4.1	0.86	26
65	4.3	0.40	835	13	65	4.1	0.88	63
75	4.1	0.58	353	21	75	4.3	1.00	123
85	4.6	1.01	737	33	85	4.3	1.03	160
95	3.8	0.34	336	31	95	4.3	0.93	190
105	4.4	0.32	440	29	105	4.6	1.07	168
115	4.0	0.80	122	22	115	4.6	1.05	156
125	3.6	0.80	149	14	125	5.0	1.17	139
135	5.0	0.91	44	9	135	5.4	1.21	165
145	5.1	0.50	14	5	145	5.4	1.12	156
155					155	5.8	1.21	205
165					165	6.1	1.14	228
175					175	6.5	1.17	297
185					185	6.7	1.35	310
195					195	7.0	1.11	284
205					205	7.0	1.28	261
215					215	7.6	1.27	201
225					225	7.6	1.13	174
235					235	7.6	1.28	125
245					245	7.7	1.33	129
255					255	7.7	1.19	58
265					265	7.7	0.89	39
275					275	7.9	1.28	35
285					285	7.7	1.17	25
295					295	7.9	0.79	35
305					305	7.7	0.60	16
315					315	8.0	0.93	25
325					325	7.6	1.60	22
335					335	8.0	1.05	23
345					345	7.6	0.92	23
355					355	7.3	1.36	13
365					365	8.6	0.47	8

Table SG. Mean temperature, standard deviation (SD), number of fish (nfish), number of positive tows (npos) and total number of tows (n) for fish and survey data from the MADMF and MEDMR spring surveys by depth interval.

Fish					Survey			
Depth (m)	Temp (oC)	SD	nfish	npos	Depth (m)	Temp (oC)	SD	n
<u>MADMF Spring</u>					<u>MADMF Spring</u>			
5					5	8.7	1.95	227
15					15	8.1	1.85	391
25	5.8	0.65	226	20	25	6.6	1.69	392
35	4.5	1.18	123	34	35	5.9	1.44	358
45	4.3	1.32	1542	93	45	5.3	1.26	244
55	4.1	1.22	2627	111	55	4.9	1.31	203
65	4.2	1.29	2871	64	65	4.7	1.12	82
75	4.5	0.94	1881	44	75	4.6	0.95	54
85	4.3	0.55	145	10	85	4.7	0.76	13
<u>MEDMR Spring</u>					<u>MEDMR Spring</u>			
5					5	6.7	0.96	7
15					15	6.9	1.52	83
25					25	6.5	1.47	167
35	5.7	0.40	17	6	35	6.2	1.29	139
45	4.8	0.70	48	12	45	5.7	1.20	106
55	4.7	0.93	97	19	55	5.7	1.38	116
65	4.1	0.96	116	18	65	5.7	1.13	162
75	4.2	0.96	45	12	75	5.8	1.20	100
85	4.0	0.94	64	24	85	5.4	1.16	201
95	4.3	0.61	34	22	95	5.4	1.04	161
105	4.3	0.60	20	13	105	5.5	1.12	127
115					115	5.4	1.20	75
125					125	5.3	1.12	78
135					135	5.5	1.14	63
145					145	5.7	1.26	42
155					155	5.7	1.10	17
165					165	6.7	1.88	7
175					175	8.0	0.23	5
185					185	7.5	1.08	6
195					195	7.4	1.33	7
205					205	7.7	0.72	4
215					215	8.3	0.63	4

Table SH. Mean temperature, standard deviation (SD), number of fish (nfish), number of positive tows (npos) and total number of tows (n) for fish and survey data from the NEFSC offshore fall survey by depth interval.

Fish					Survey			
Depth (m)	Temp (oC)	SD	nfish	npos	Depth (m)	Temp (oC)	SD	n
<u>NEFSC Offshore Fall</u>					<u>NEFSC Offshore Fall</u>			
22.5					22.5	10.2	1.10	10
37.5					37.5	10.1	1.63	28
52.5					52.5	9.6	1.19	50
67.5	8.6	0.78	24	5	67.5	9.3	1.46	135
82.5	5.3	1.73	92	16	82.5	8.8	1.61	290
97.5	8.4	1.98	19	9	97.5	9.0	1.72	285
112.5	6.4	0.82	53	10	112.5	8.6	1.69	277
127.5	6.0	0.72	686	12	127.5	8.2	1.87	212
142.5	5.6	1.31	156	13	142.5	7.7	1.87	303
157.5	6.5	0.71	56	21	157.5	7.3	1.71	375
172.5	6.7	0.71	40	15	172.5	7.3	1.45	489
187.5	7.0	0.53	53	13	187.5	7.5	1.42	482
202.5	7.3	0.72	25	10	202.5	7.7	1.35	443
217.5	7.2	0.53	28	8	217.5	8.0	1.25	320
232.5					232.5	7.8	1.23	219
247.5					247.5	7.8	1.27	136
262.5					262.5	8.1	0.86	65
277.5					277.5	8.0	1.12	57
292.5					292.5	8.0	1.00	45
307.5					307.5	8.3	0.78	40
322.5					322.5	8.2	0.90	37
337.5					337.5	8.1	0.91	41
352.5					352.5	8.1	1.11	14
367.5					367.5	8.5	0.10	5
382.5					382.5			
412.5					412.5	7.6	NA	1

Table SI. Percent occurrence of daubed shanny in stomachs of fish predators from the NEFSC food habits database, 1973-2022<sup>1</sup>. Northeast Fisheries Science Center Food Habits Database: <https://www.fisheries.noaa.gov/inport/item/8083>. Frequency data can be accessed via <https://fwdp.shinyapps.io/tm2020/>

Species	Frequency	N <sub>stomachs</sub>	% Occurrence
Atlantic cod ( <i>Gadus morhua</i> )	24	22,420	0.107
Atlantic halibut ( <i>Hippoglossus hippoglossus</i> )	1	848	0.118
Little skate ( <i>Leucoraja erinacea</i> )	3	37,736	0.008
Longhorn sculpin ( <i>Myoxocephalus octodecemspinosus</i> )	8	15,960	0.050
Monkfish ( <i>Lophius americanus</i> )	1	17,231	0.006
Red hake ( <i>Urophycis chuss</i> )	6	23,687	0.025
Sea raven ( <i>Hemitripterus americanus</i> )	5	9,900	0.050
Silver hake ( <i>Merluccius bilinearis</i> )	7	62,312	0.011
Spiny dogfish ( <i>Squalus acanthias</i> )	5	74,802	0.007
Thorny Skate ( <i>Amblyraja radiata</i> )	7	4,933	0.142
White hake ( <i>Urophycis tenuis</i> )	9	17,779	0.051
Winter skate ( <i>Leucoraja ocellata</i> )	1	22,083	0.004

<sup>1</sup> see Smith, B. E. and Link, J. S. MS 2010. The trophic dynamics of 50 finfish and 2 squid species on the Northeast US continental shelf. NOAA Technical Memorandum NMFS-NE-216 (<https://repository.library.noaa.gov/view/noaa/3755>) for details.

Table SJ. Spring mean length (cm), standard error (SE), standard deviation of lengths, minimum length (Min), maximum length (Max), number of fish caught (nfish) and number of positive tows (npos) for Daubed Shanny in the inshore and offshore regions of the Northeast Fisheries Science Center bottom trawl survey.

Year	Inshore							Offshore						
	Mean	SE	SD	Min	Max	nfish	npos	Mean	SE	SD	Min	Max	nfish	npos
1963														
1964														
1965														
1966														
1967														
1968								10.7	0.14	2.22	9	13	11	5
1969								10.3	0.07	1.98	8	13	68	8
1970								9.0	0.03	0.71	7	20	318	11
1971								9.8	0.05	1.41	7	12	69	10
1972								9.5	0.01	1.16	7	13	368	20
1973								10.0	0.02	1.19	7	14	173	10
1974								9.4	0.05	1.37	6	16	247	17
1975								0.0	0.00	0.00	0	0	0	0
1976								13.0	0.15	2.05	9	20	245	6
1977								13.2	0.11	2.54	9	21	90	9
1978								11.7	3.83	19.90	9	21	13	6
1979	0.00	0.00	0.00	0	0	0	0	11.8	0.29	2.36	10	17	19	6
1980	0.00	0.00	0.00	0	0	0	0	11.7	0.14	1.29	8	14	29	6
1981	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1982	0.00	0.00	0.00	0	0	0	0	11.7	0.38	3.95	8	17	301	4
1983	10.0	0.00	0.00	10	10	2	2	10.3	0.03	1.64	8	15	332	7
1984	11.7	0.04	1.47	9	14	133	3	9.7	0.11	2.52	8	15	27	3
1985	10.5	0.44	1.98	9	15	12	3	0.0	0.00	0.00	0	0	0	0
1986	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1987	14.0	0.00	0.00	14	14	1	1	12.5	0.19	3.26	10	19	25	6
1988	10.3	0.01	1.12	9	14	83	3	10.1	0.00	0.34	9	11	33	4
1989								11.3	0.00	3.47	9	13	6	1
1990	12.0	0.00	0.00	12	12	1	1	12.3	0.38	1.58	11	14	4	3
1991	9.8	0.01	0.80	9	11	13	3	10.9	0.09	2.88	8	14	35	5
1992	10.6	0.10	1.51	8	15	102	3	10.3	0.01	3.48	8	22	57	8
1993	0.00	0.00	0.00	0	0	0	0	11.7	0.30	1.33	11	13	3	3
1994	0.00	0.00	0.00	0	0	0	0	13.7	0.00	1.33	13	15	3	1
1995	11.1	0.12	1.39	10	15	17	5	10.9	0.20	3.07	5	16	179	7
1996	0.00	0.00	0.00	0	0	0	0	11.0	0.00	0.00	11	11	1	1
1997	0.00	0.00	0.00	0	0	0	0	12.0	0.57	2.77	10	15	14	6
1998	9.0	0.48	1.41	8	10	2	2	11.3	0.13	1.56	9	14	54	7
1999	10.9	1.77	1.92	8	15	11	3	13.5	1.13	4.50	12	15	2	2
2000	11.5	0.02	0.92	10	14	41	4	11.0	0.30	1.00	10	12	3	2

Table SJ cont.

Year	Inshore							Offshore						
	Mean	SE	SD	Min	Max	nfish	npos	Mean	SE	SD	Min	Max	nfish	npos
2001	0.00	0.00	0.00	0	0	0	0	12.4	0.00	0.62	12	14	7	1
2002	11.3	0.14	0.71	10	12	8	3	11.3	0.14	0.79	11	14	12	6
2003	11.5	0.04	1.12	9	14	59	2	12.3	0.00	0.33	12	13	3	1
2004	10.9	0.06	1.11	9	15	64	5	10.3	0.00	0.33	10	11	3	1
2005	11.0	0.00	0.00	11	11	1	1	10.1	0.00	0.49	9	12	17	3
2006	10.0	0.00	0.00	10	10	2	1	0.0	0.00	0.00	0	0	0	0
2007	11.9	0.14	1.57	9	16	29	7	12.3	0.09	1.51	10	16	432	4
2008	11.4	0.09	1.56	5	15	184	4	11.3	0.08	0.33	11	12	3	3
2009	14.0	0.00	0.00	14	14	1	1	14.0	0.00	0.00	14	14	1	1
2010	0.00	0.00	0.00	0	0	0	0	10.0	0.00	0.00	10	10	1	1
2011	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2012	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2013	13.3	0.01	1.41	11	15	9	2	0.0	0.00	0.00	0	0	0	0
2014	12.2	0.00	1.17	11	14	6	1	0.0	0.00	0.00	0	0	0	0
2015	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2016	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2017	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2018	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2019	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2020														
2021	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2022	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2023	0.00	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0

Table SK. Fall mean length (cm), standard error (SE), standard deviation of lengths, minimum length (Min), maximum length (Max), number of fish caught (nfish) and number of positive tows (npos) for Daubed Shanny in the inshore and offshore regions of the Northeast Fisheries Science Center bottom trawl survey.

Year	Inshore							Offshore						
	Mean	SE	SD	Min	Max	nfish	npos	Mean	SE	SD	Min	Max	nfish	npos
1963								0.0	0.00	0.00	0	0	0	0
1964								8.0	0.00	8.00	6	10	2	1
1965								11.0	0.00	0.00	11	11	1	1
1966								10.3	0.02	0.58	8	12	81	8
1967								11.5	0.10	6.33	9	15	4	3
1968								0.0	0.00	0.00	0	0	0	0
1969								8.3	0.07	0.33	8	9	3	3
1970								9.5	0.60	1.00	8	10	4	2
1971								8.3	0.05	0.92	7	11	50	11
1972								7.8	0.02	0.49	5	12	686	17
1973								9.2	1.35	4.14	5	12	19	4
1974								8.0	0.00	0.00	8	8	3	2
1975								11.0	0.00	0.00	11	11	2	2
1976								0.0	0.00	0.00	0	0	0	0
1977								7.0	0.00	0.00	7	7	1	1
1978								8.5	0.13	0.50	8	9	2	2
1979	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1980	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1981	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1982	0.0	0.00	0.00	0	0	0	0	9.0	0.00	0.67	8	10	4	3
1983	0.0	0.00	0.00	0	0	0	0	10.0	0.00	0.00	10	10	1	1
1984	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1985	0.0	0.00	0.00	0	0	0	0	8.0	0.00	0.00	8	8	1	1
1986	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1987	0.0	0.00	0.00	0	0	0	0	8.1	0.03	0.35	7	9	15	6
1988	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1989								0.0	0.00	0.00	0	0	0	0
1990	0.0	0.00	0.00	0	0	0	0	8.0	0.00	0.00	8	8	1	1
1991	0.0	0.00	0.00	0	0	0	0	9.0	0.00	0.00	9	9	2	2
1992	0.0	0.00	0.00	0	0	0	0	8.1	0.06	0.99	6	9	10	2
1993	0.0	0.00	0.00	0	0	0	0	10.5	0.12	0.50	10	11	2	2
1994	13.0	0.00	0.00	13	13	1	1	8.2	0.01	0.52	7	10	63	11
1995	0.0	0.00	0.00	0	0	0	0	8.5	0.29	0.87	8	11	11	4
1996	0.0	0.00	0.00	0	0	0	0	8.0	0.00	0.00	8	8	2	1
1997	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
1998	0.0	0.00	0.00	0	0	0	0	9.0	2.69	21.00	6	21	9	7
1999	8.0	0.00	0.00	8	8	1	1	8.6	0.02	0.56	7	10	50	10
2000	0.0	0.00	0.00	0	0	0	0	8.0	0.00	0.00	8	8	1	1



Table SK cont.

Year	Inshore							Offshore						
	Mean	SE	SD	Min	Max	nfish	npos	Mean	SE	SD	Min	Max	nfish	npos
2001	0.0	0.00	0.00	0	0	0	0	9.3	0.50	2.33	8	11	3	3
2002	0.0	0.00	0.00	0	0	0	0	8.7	0.03	0.25	8	9	9	3
2003	0.0	0.00	0.00	0	0	0	0	8.3	0.08	0.23	8	9	13	4
2004	0.0	0.00	0.00	0	0	0	0	8.4	0.01	0.27	7	9	83	6
2005	0.0	0.00	0.00	0	0	0	0	8.4	0.01	0.25	8	9	18	7
2006	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2007	0.0	0.00	0.00	0	0	0	0	9.0	0.00	0.00	9	9	4	3
2008	0.0	0.00	0.00	0	0	0	0	8.1	0.00	0.27	7	9	93	4
2009	0.0	0.00	0.00	0	0	0	0	8.3	0.00	0.21	8	9	8	1
2010	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2011	0.0	0.00	0.00	0	0	0	0	8.0	0.00	0.00	8	8	1	1
2012	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2013	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2014	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2015	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2016	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2017	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2018	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2019	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2020														
2021	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2022	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2023	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0

Table SL. Spring and fall mean length (cm), standard error (SE), standard deviation of lengths, minimum length (Min), maximum length (Max), number of fish caught (nfish) and number of positive tows (npos) for Daubed Shanny in the Massachusetts Division of Marine Fisheries survey.

Year	Spring							Fall						
	Mean	SE	SD	Min	Max	nfish	npos	Mean	SE	SD	Min	Max	nfish	npos
1978	11.2	0.04	3.82	8	16	33	3	0.0	0.00	0.00	0	0	0	0
1979	11.4	0.02	2.15	7	16	385	16	0.0	0.00	0.00	0	0	0	0
1980	11.9	0.17	3.67	8	22	493	10	0.0	0.00	0.00	0	0	0	0
1981	11.9	0.40	4.91	8	16	57	5	0.0	0.00	0.00	0	0	0	0
1982	11.8	0.11	3.73	7	18	59	8	15.0	0.00	0.00	15	15	1	1
1983	10.8	0.19	2.57	8	17	516	13	11.1	0.01	0.41	9	12	42	5
1984	11.9	0.07	2.70	7	17	606	19	10.9	0.15	2.84	9	16	15	6
1985	11.5	0.25	2.92	9	19	490	12	12.9	0.16	0.99	12	15	10	5
1986	11.7	0.03	1.59	10	22	583	12	12.1	0.08	0.61	11	13	9	5
1987	12.5	0.05	1.91	9	17	355	11	12.4	0.27	2.03	11	16	20	5
1988	11.9	0.05	2.57	9	22	1160	12	11.2	0.55	2.94	7	13	9	4
1989	11.9	0.09	2.77	8	18	1255	15	12.2	0.10	1.37	11	14	6	3
1990	13.8	0.26	2.54	9	17	297	8	4.0	0.00	0.00	4	4	1	1
1991	12.5	0.06	5.90	9	21	155	8	0.0	0.00	0.00	0	0	0	0
1992	12.5	0.93	4.93	8	20	261	8	0.0	0.00	0.00	0	0	0	0
1993	11.9	0.05	3.16	9	19	257	8	14.3	0.03	0.33	14	15	3	2
1994	12.5	0.13	2.65	8	17	137	7	11.0	0.91	4.67	8	13	4	4
1995	11.6	0.08	2.91	8	19	124	10	0.0	0.00	0.00	0	0	0	0
1996	12.1	0.22	2.25	9	16	128	8	12.2	0.31	0.70	11	13	5	2
1997	11.3	0.11	2.63	7	18	233	11	11.0	0.00	0.00	11	11	1	1
1998	13.3	0.23	2.31	10	16	45	7	0.0	0.00	0.00	0	0	0	0
1999	11.6	0.28	2.96	10	16	48	7	12.0	0.00	0.00	12	12	1	1
2000	12.8	0.28	2.56	10	17	22	7	0.0	0.00	0.00	0	0	0	0
2001	13.3	0.03	0.33	13	14	3	2	0.0	0.00	0.00	0	0	0	0
2002	11.7	0.04	0.61	11	14	22	5	0.0	0.00	0.00	0	0	0	0
2003	6.8	1.55	10.87	4	17	264	18	12.0	0.00	0.00	12	12	1	1
2004	11.1	0.02	1.64	5	16	506	21	0.0	0.00	0.00	0	0	0	0
2005	12.0	0.05	2.18	6	15	307	15	11.0	0.00	0.00	11	11	1	1
2006	11.0	0.01	1.48	8	17	179	14	0.0	0.00	0.00	0	0	0	0
2007	11.9	0.18	2.38	9	17	131	12	11.0	0.00	0.00	11	11	1	1
2008	10.2	0.99	8.97	5	15	45	11	0.0	0.00	0.00	0	0	0	0
2009	11.6	0.07	3.32	6	17	81	14	10.0	0.00	0.00	10	10	1	1
2010	12.0	0.13	1.67	10	14	28	8	11.5	0.12	0.50	11	12	2	2
2011	12.6	0.13	1.91	10	15	18	6	13.0	0.00	0.00	13	13	1	1
2012	11.7	0.40	1.07	10	13	6	2	0.0	0.00	0.00	0	0	0	0
2013	12.6	0.13	0.80	12	14	5	4	0.0	0.00	0.00	0	0	0	0
2014	11.8	0.10	1.11	9	15	88	7	14.0	0.00	0.00	14	14	1	1
2015	13.7	0.10	3.14	10	17	14	5	0.0	0.00	0.00	0	0	0	0
2016	11.6	0.32	1.45	11	15	16	4	0.0	0.00	0.00	0	0	0	0
2017	13.0	0.00	0.00	13	13	2	2	0.0	0.00	0.00	0	0	0	0
2018	11.5	0.00	0.50	11	12	2	1	0.0	0.00	0.00	0	0	0	0
2019	12.0	0.00	0.00	12	12	1	1	0.0	0.00	0.00	0	0	0	0
2020														
2021	13.7	0.03	0.33	13	14	3	2	0.0	0.00	0.00	0	0	0	0
2022	14.0	0.00	2.00	13	15	2	1	0.0	0.00	0.00	0	0	0	0
2023	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0

Table SM. Spring and fall mean length (cm), standard error (SE), standard deviation of lengths, minimum length (Min), maximum length (Max), number of fish caught (nfish) and number of positive tows (npos) for Daubed Shanny in the Maine Department of Marine Resources survey.

Year	Spring							Fall						
	Mean	SE	SD	Min	Max	nfish	npos	Mean	SE	SD	Min	Max	nfish	npos
2003	12.0	0.00	0.00	12	12	1	1	0.0	0.00	0.00	0	0	0	0
2004	12.6	0.29	4.39	9	18	30	6	0.0	0.00	0.00	0	0	0	0
2005	12.2	0.25	4.91	9	22	72	9	0.0	0.00	0.00	0	0	0	0
2006	11.8	0.03	1.15	10	15	64	19	13.0	0.00	0.00	13	13	1	1
2007	11.6	0.09	1.76	9	17	54	15	0.0	0.00	0.00	0	0	0	0
2008	11.3	0.10	1.78	10	15	29	18	0.0	0.00	0.00	0	0	0	0
2009	12.0	0.14	2.61	9	18	79	17	0.0	0.00	0.00	0	0	0	0
2010	11.5	0.08	2.25	8	15	46	16	0.0	0.00	0.00	0	0	0	0
2011	11.3	0.14	1.46	9	13	20	9	0.0	0.00	0.00	0	0	0	0
2012	13.5	0.62	2.57	11	16	8	4	0.0	0.00	0.00	0	0	0	0
2013	13.0	0.00	0.00	13	13	1	1	0.0	0.00	0.00	0	0	0	0
2014	11.9	0.24	1.90	10	15	12	4	0.0	0.00	0.00	0	0	0	0
2015	12.4	0.05	1.69	9	15	26	10	0.0	0.00	0.00	0	0	0	0
2016	11.0	0.00	0.00	11	11	1	1	0.0	0.00	0.00	0	0	0	0
2017	16.0	0.00	0.00	16	16	1	1	0.0	0.00	0.00	0	0	0	0
2018	0.0	0.00	0.00	0	0	0	0	15.0	0.00	0.00	15	15	1	1
2019	9.0	0.00	0.00	9	9	1	1	0.0	0.00	0.00	0	0	0	0
2020								0.0	0.00	0.00	0	0	0	0
2021	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2022	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0
2023	0.0	0.00	0.00	0	0	0	0	0.0	0.00	0.00	0	0	0	0

Table SN. Spring mean length (cm) of Daubed Shanny by 10-m depth interval for each survey in spring. n is the number of fish

Depth (m)	NEFSC Inshore Spring			NEFSC Offshore Spring			MADMF Spring			MEDMR Spring		
	n	Mean Length (cm)	Min/Max	n	Mean Length (cm)	Min/Max	n	Mean Length (cm)	Min/Max	n	Mean Length (cm)	Min/Max
5							2	6.5	6/7			
15	10	10.2	8/11				5	7.2	5/11			
25	2	10.0	10/10				226	5.6	4/19	3	15.0	14/16
35	309	11.5	5/16	6	13.0	12/14	123	11.1	4/16	17	11.9	10/14
45	56	11.1	9/15	67	9.8	7/13	1542	11.9	6/22	48	12.2	9/18
55	147	11.2	8/15	69	10.3	7/14	2627	12.3	7/22	94	12.3	9/16
65	151	10.9	8/15	834	12.1	5/16	2871	11.8	8/22	115	11.9	9/17
75	90	10.4	9/15	353	10.9	8/19	1881	11.2	7/19	45	11.3	9/15
85				737	10.6	6/17	145	11.4	9/16	63	12.0	9/22
95				335	10.7	8/22				34	11.2	8/14
105				439	9.4	7/17				20	12.5	10/18
115				122	10.4	7/20				2	10.0	9/11
125				149	9.7	7/16				3	11.0	10/12
135				44	10.0	7/21						
145				7	13.0	9/21				1	11.0	11/11
155				14	10.2	9/14						
165				7	9.6	9/10						
175				7	10.3	8/12						
185				5	10.8	9/13						
195				4	12.8	9/20						
205				6	9.0	8/10						
235				1	10.0	10/10						

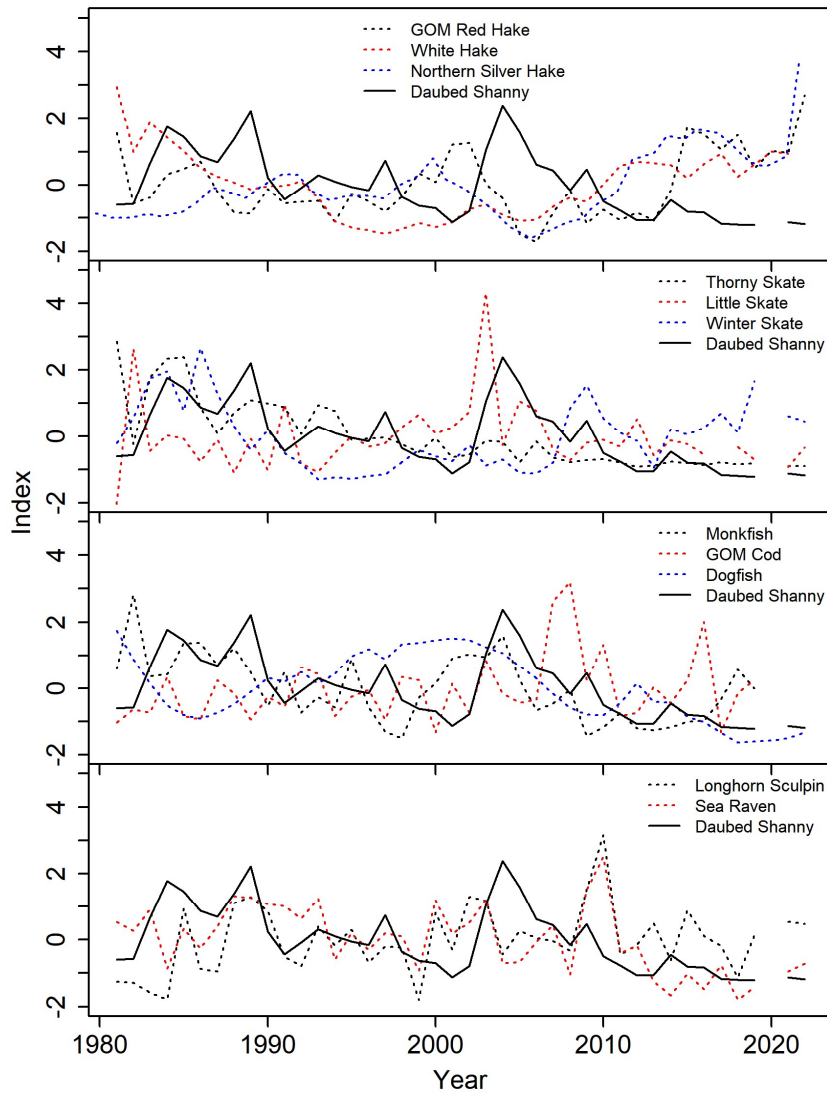


Figure SA. Z-transformed  $((x-\text{mean})/\text{sd})$  time series of biomass or biomass per tow for twelve species of fish identified as predators of daubed shanny. Most data came from up-to-date stock assessment documents available at <https://apps-nefsc.fisheries.noaa.gov/saw/sasi.php> except where noted below. Gulf of Maine Red Hake – mean of spring-fall biomass-per-tow-indices converted to Bigelow units (2023 assessment); White Hake – Jan-1 biomass estimates from ASAP model (2022 assessment); Gulf of Maine Cod - spring biomass-per-tow (2021 assessment); Thorny Skate – fall minimum swept area biomass (2023 assessment); Little Skate - fall minimum swept area biomass (2023 assessment); Winter Skate - fall minimum swept area biomass (2023 assessment); North Monkfish – spring biomass-per-tow (2020 assessment); Spiny dogfish – Jan-1 total biomass from Stock Synthesis model (2023 assessment); Northern Silver Hake – three-year mean biomass of fall trawl index (2023 assessment). The time series for daubed shanny is the MADMF survey index. Indices for longhorn sculpin and sea raven were derived following methods used for daubed shanny and represent numbers-per-tow for the Gulf of Maine offshore region in spring.

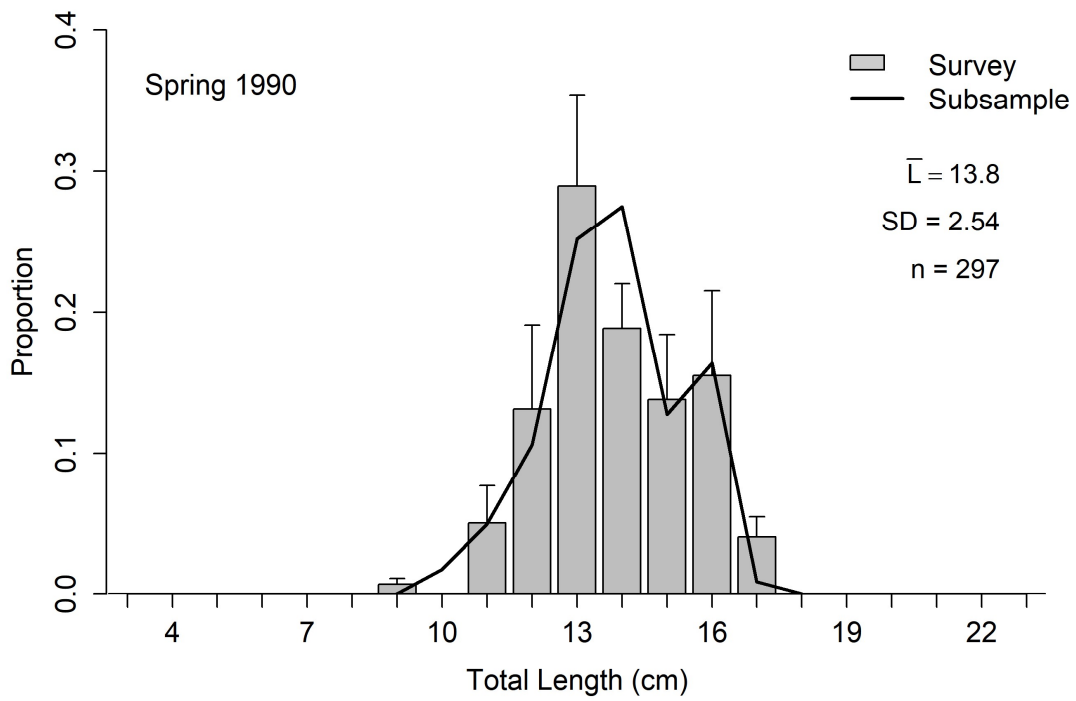


Figure SB. Comparison of the survey proportions-at-length and estimated weighted proportions from the 101 fish subsample.

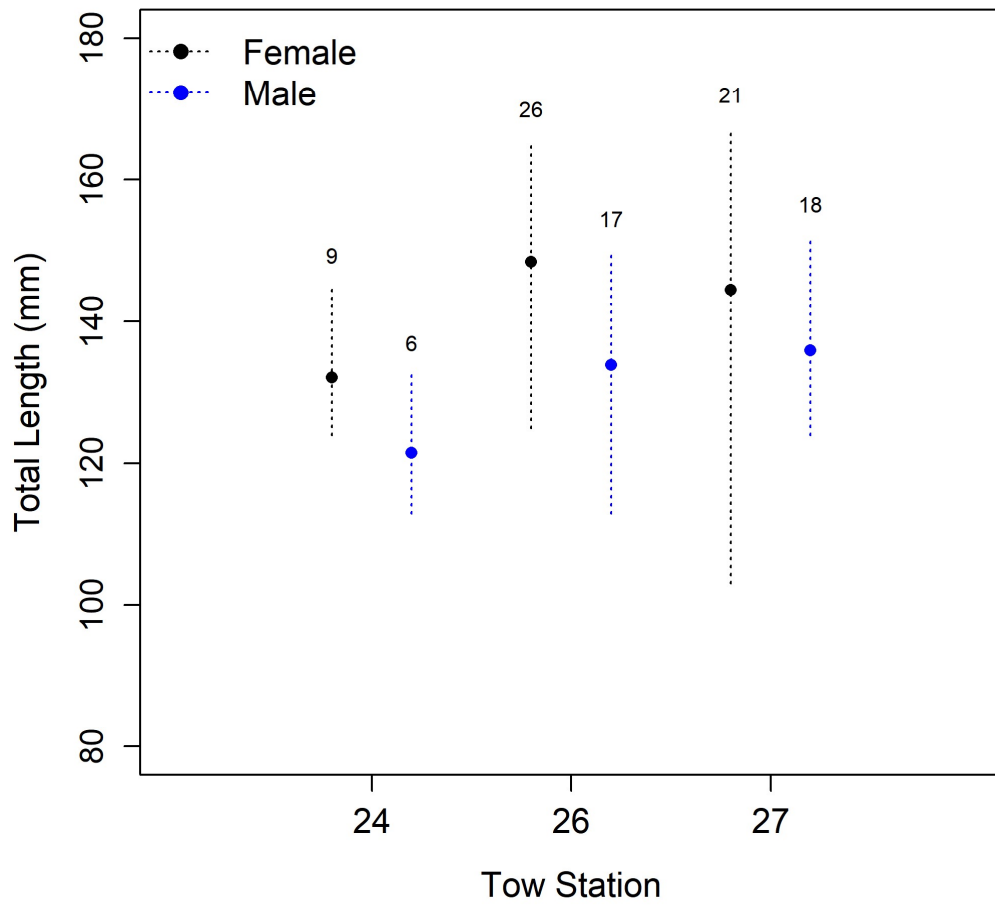
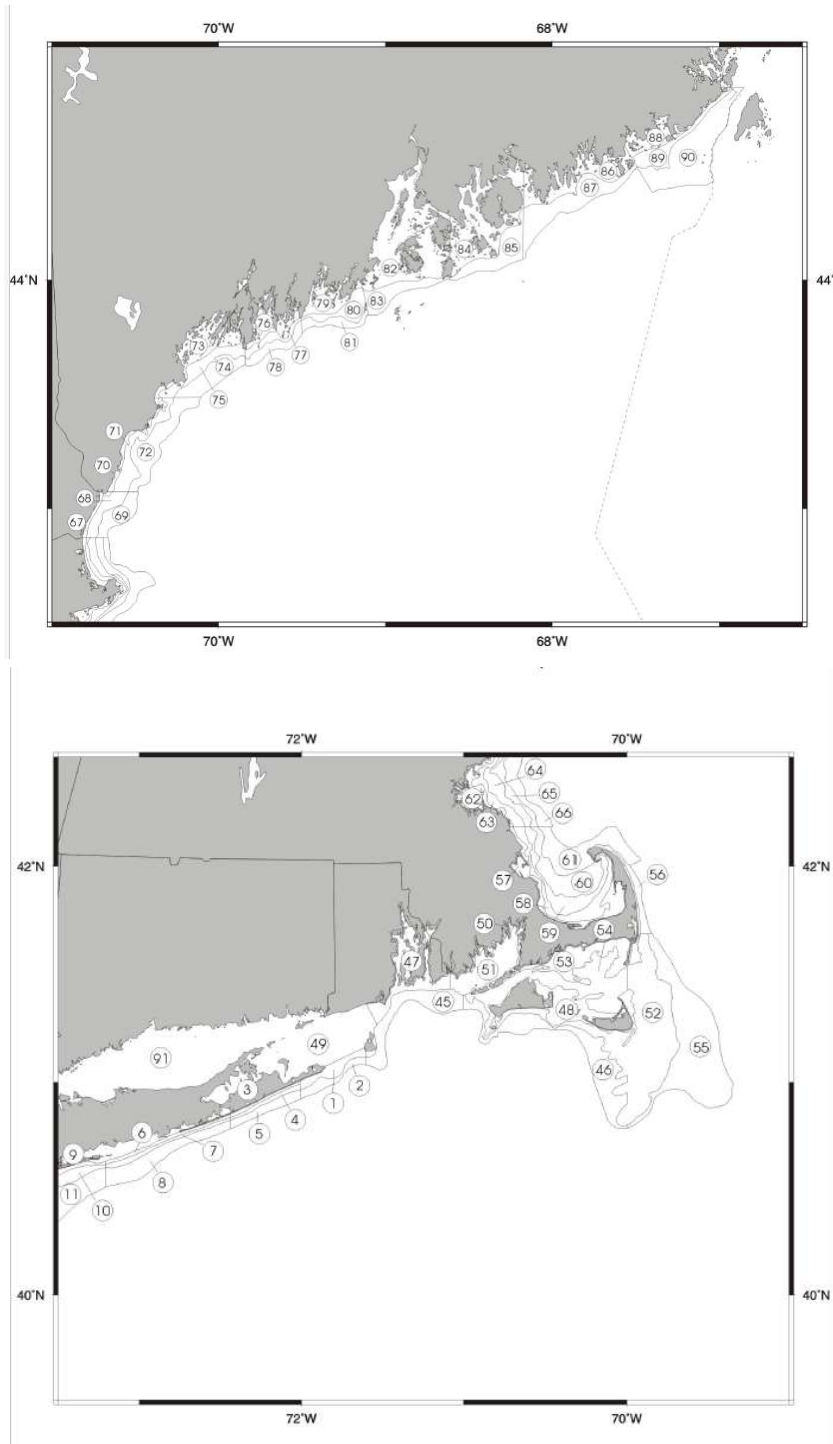


Figure SC. Mean (dot) and range (vertical dotted line) of lengths of fish subsampled in each tow by sex. Sample sizes are shown above the vertical lines.

Appendix SA. Spatial maps of Gulf of Maine strata boundaries in the NEFSC bottom trawl survey (Politis, P. J., Galbraith, J. K., Kostovick, P., and Brown, R. W. MS 2014. Northeast Fisheries Science Center bottom trawl survey protocols for the NOAA ship Henry B. Bigelow. Northeast Fisheries Science Center Reference Document 14-06, 15 p. <https://dx.doi.org/10.7289/V5C53HVS>; see document for associated depths ranges).

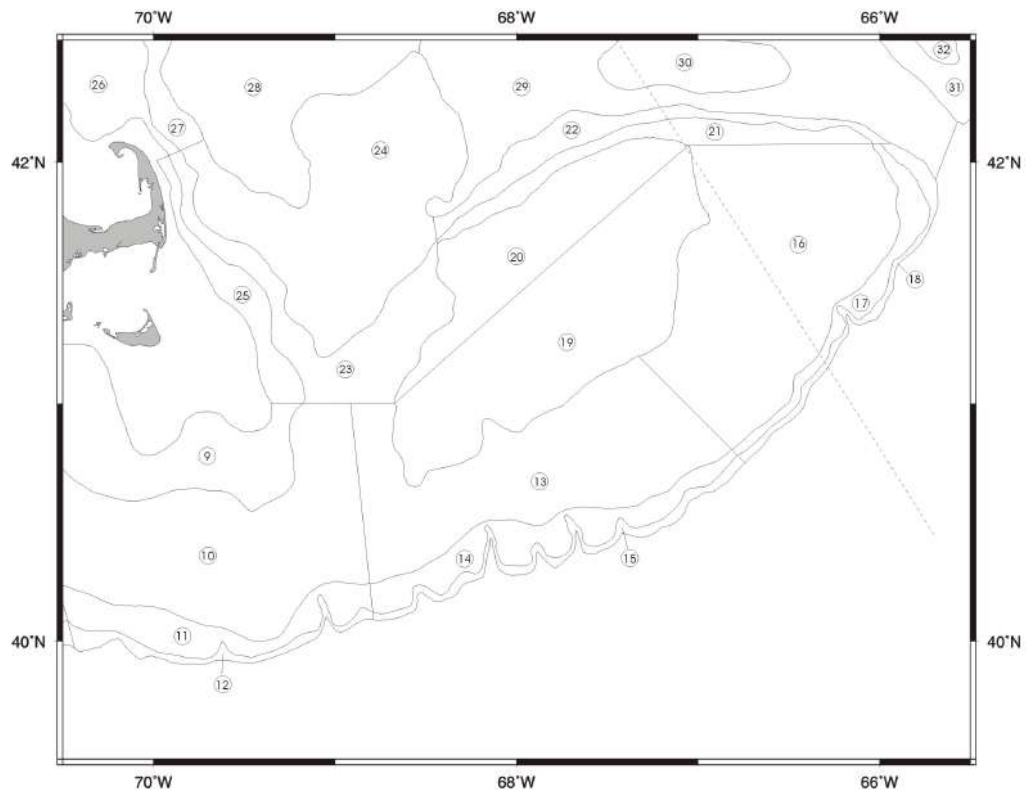
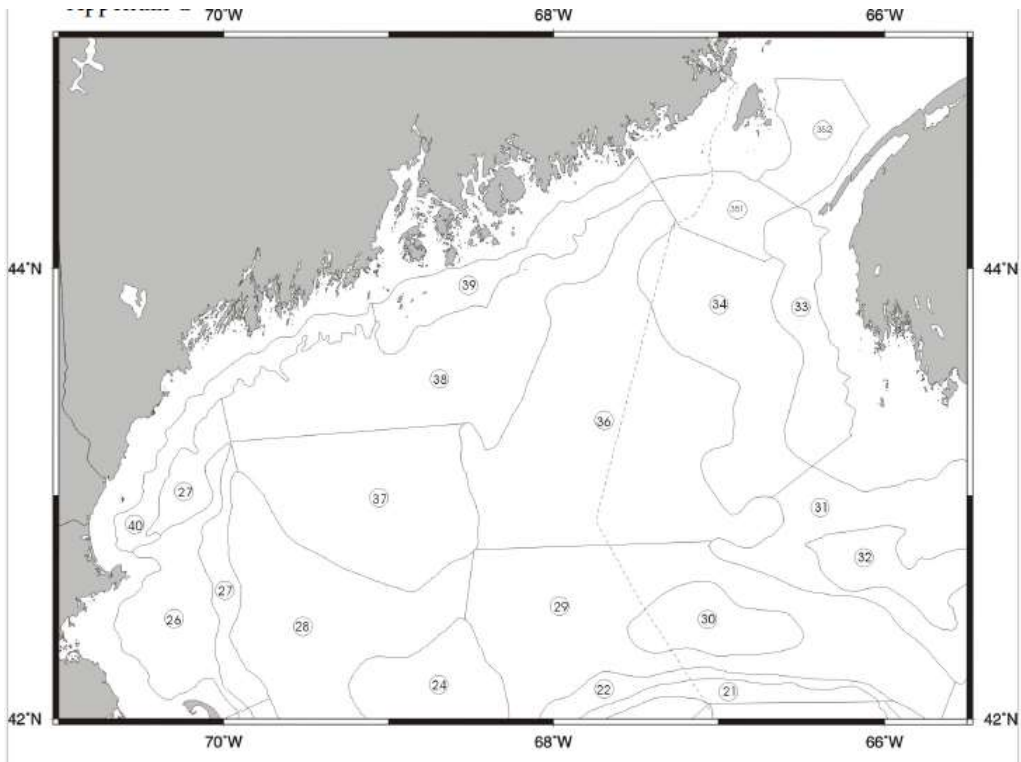
**Inshore Strata (57-90)**



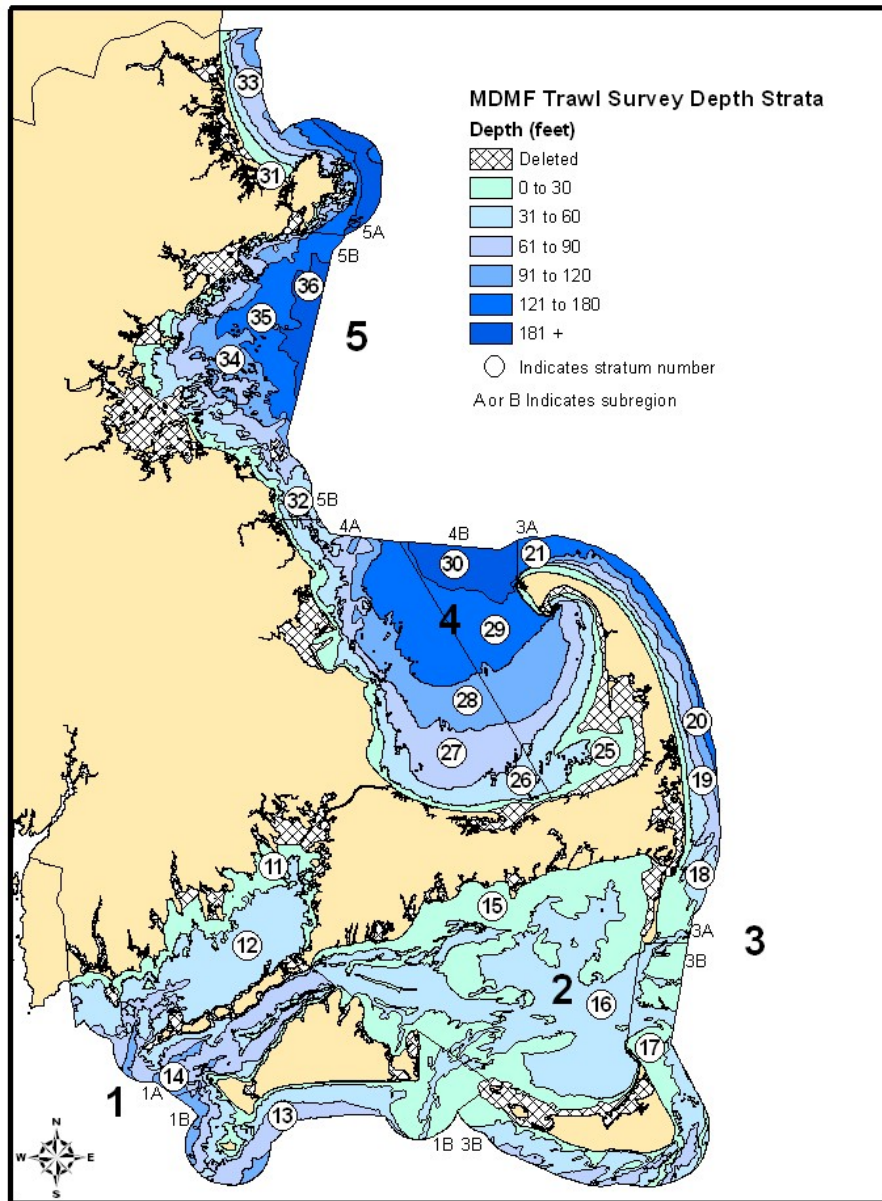


Appendix SA cont.

**Offshore Strata (24, 26-40)**



Appendix SB. Map of strata boundaries in Massachusetts Division of Marine Fisheries bottom trawl survey.



Appendix SC. Map of Maine Department of Marine Resources bottom trawl survey.

