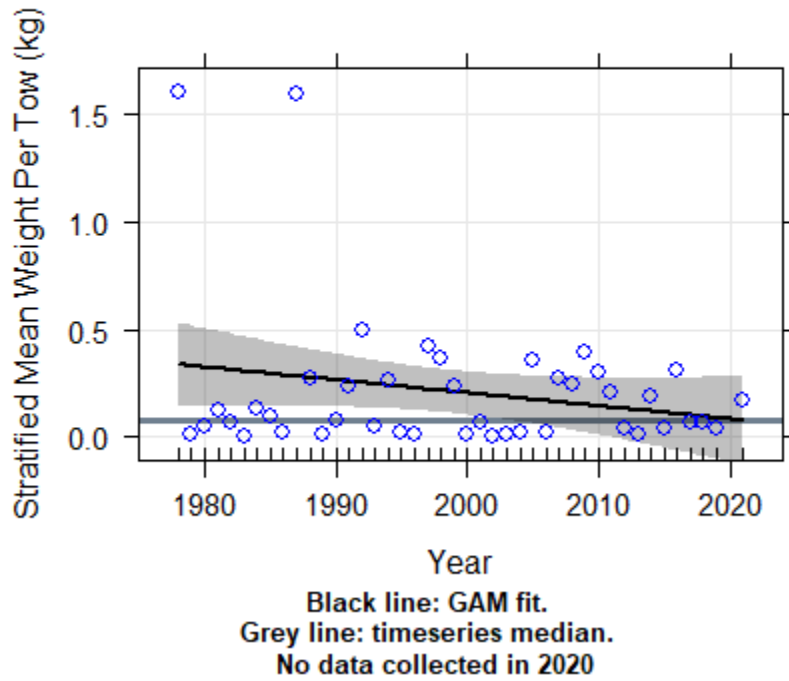
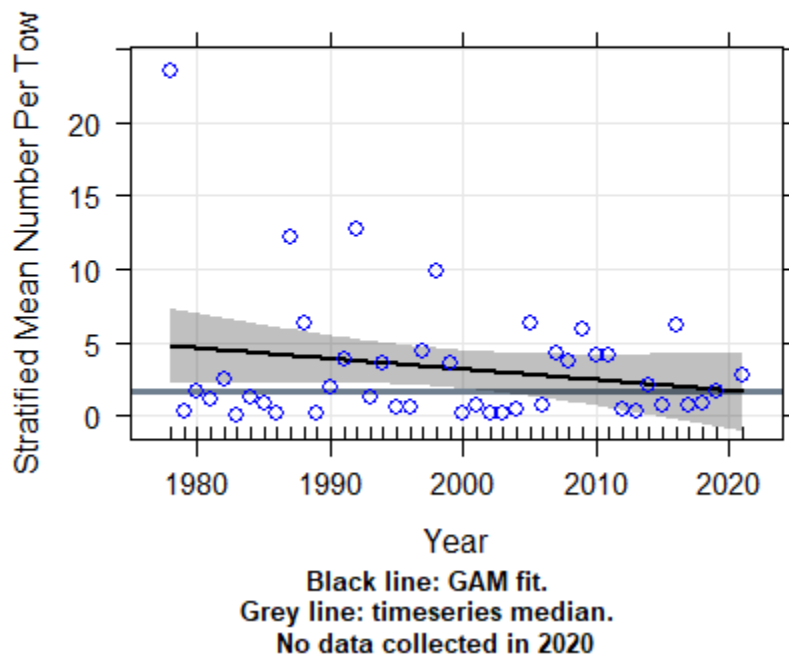


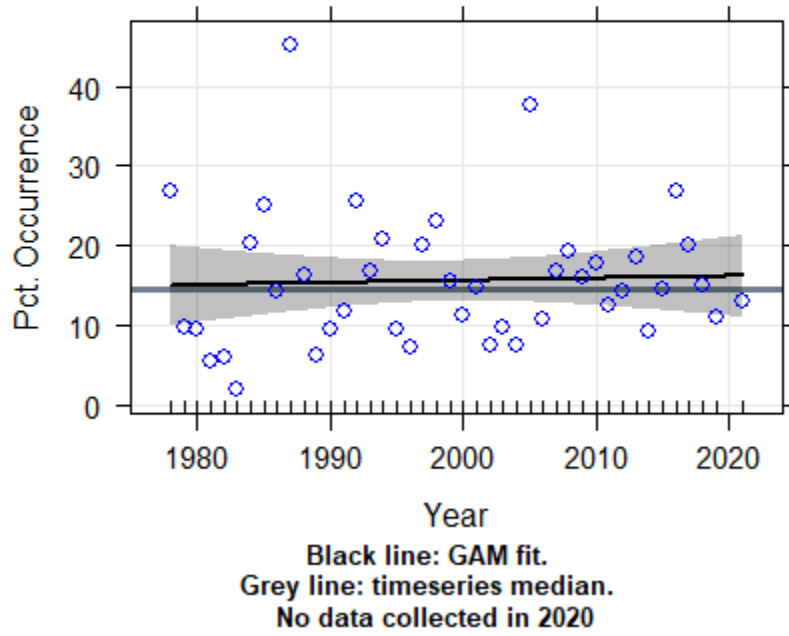
**Alewife Biomass**  
**MDMF Spring Survey, Regions 1-3**  
**B. Bay/V. Sound/N. Sound/East of CC**



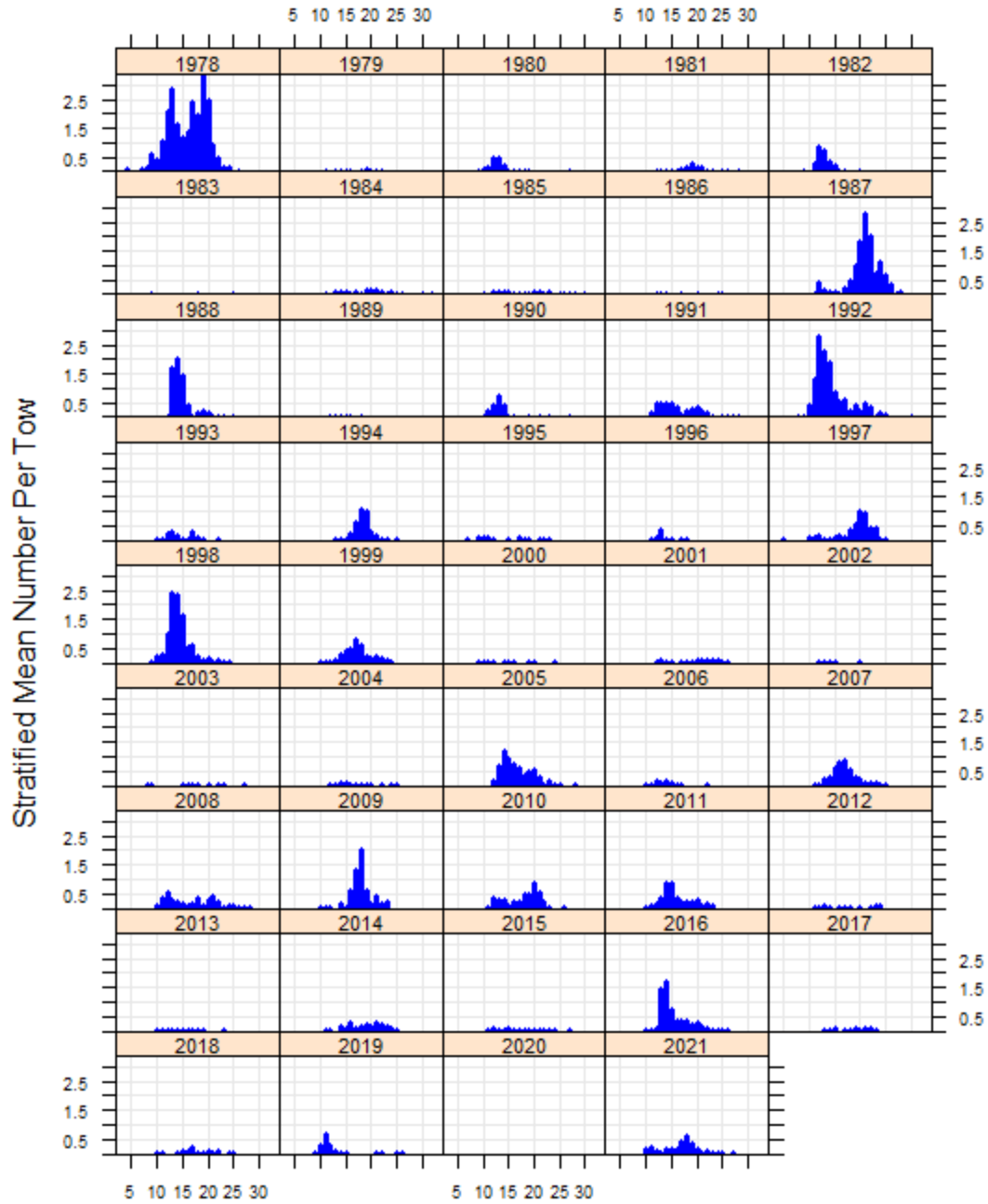
**Alewife Abundance**  
**MDMF Spring Survey, Regions 1-3**  
**B. Bay/V. Sound/N. Sound/East of CC**



**Alewife Occurrence in Survey Stations  
MDMF Spring Survey, Regions 1-3  
B. Bay/V. Sound/N. Sound/East of CC**



**Alewife**  
**MDMF Spring Survey, Regions 1-3**  
**B. Bay/V. Sound/N. Sound/East of CC**



Length in CM  
No data collected in 2020

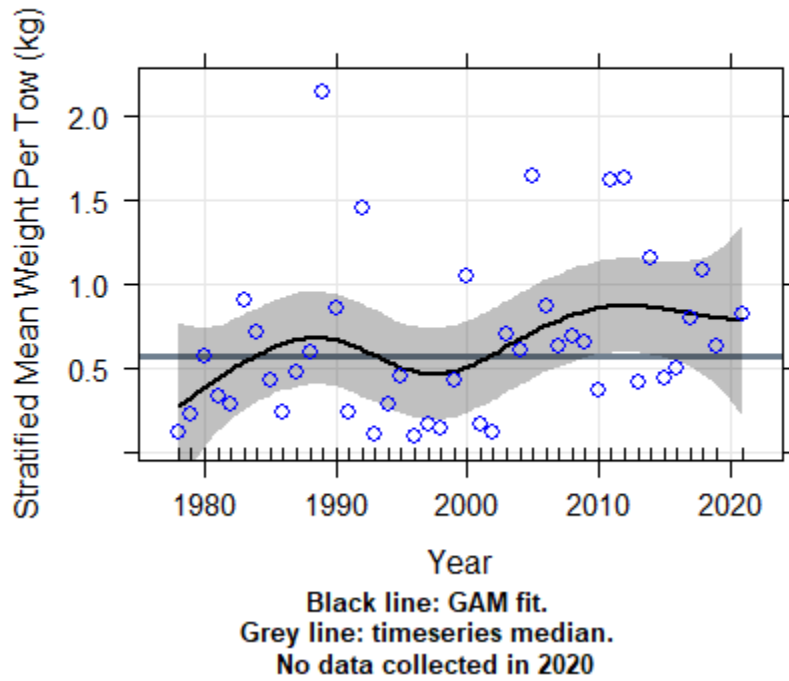
## Alewife

## MDMF Spring Survey, Regions 1-3

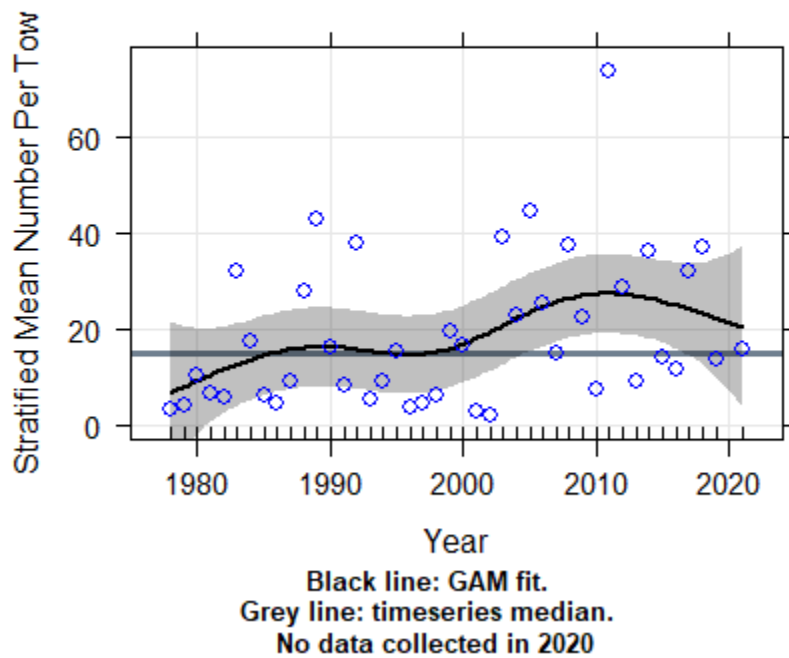
## B. Bay/V. Sound/N. Sound/East of CC

Year	Wt. per tow (kg)	Std.Err.Wt.	Number per tow	Std.Err.N
1978	1.60	1.45	23.44	18.68
1979	0.02	0.01	0.28	0.08
1980	0.05	0.04	1.63	1.42
1981	0.13	0.11	1.14	1.06
1982	0.07	0.06	2.53	2.46
1983	0.00	0.00	0.04	0.04
1984	0.13	0.06	1.22	0.51
1985	0.10	0.05	0.90	0.36
1986	0.02	0.01	0.19	0.06
1987	1.59	0.95	12.25	6.81
1988	0.28	0.19	6.32	5.13
1989	0.01	0.01	0.19	0.13
1990	0.08	0.05	1.91	1.53
1991	0.23	0.13	3.93	2.39
1992	0.50	0.26	12.71	9.31
1993	0.05	0.03	1.28	0.71
1994	0.27	0.19	3.58	2.65
1995	0.03	0.01	0.60	0.30
1996	0.01	0.01	0.61	0.54
1997	0.43	0.32	4.39	2.97
1998	0.37	0.20	9.85	5.48
1999	0.23	0.17	3.63	2.84
2000	0.01	0.01	0.22	0.11
2001	0.07	0.03	0.74	0.38
2002	0.01	0.00	0.13	0.07
2003	0.01	0.01	0.25	0.13
2004	0.02	0.02	0.39	0.34
2005	0.36	0.13	6.39	2.13
2006	0.02	0.02	0.67	0.49
2007	0.28	0.22	4.23	3.45
2008	0.25	0.16	3.77	2.08
2009	0.39	0.36	5.85	5.26
2010	0.30	0.23	4.11	2.77
2011	0.21	0.18	4.07	3.54
2012	0.04	0.03	0.48	0.27
2013	0.02	0.01	0.38	0.13
2014	0.19	0.11	2.05	1.24
2015	0.04	0.02	0.69	0.30
2016	0.31	0.17	6.16	4.34
2017	0.07	0.02	0.77	0.28
2018	0.07	0.04	0.86	0.44
2019	0.05	0.03	1.68	1.54
2020	0.00	0.00	0.00	0.00
2021	0.17	0.01	2.81	0.36

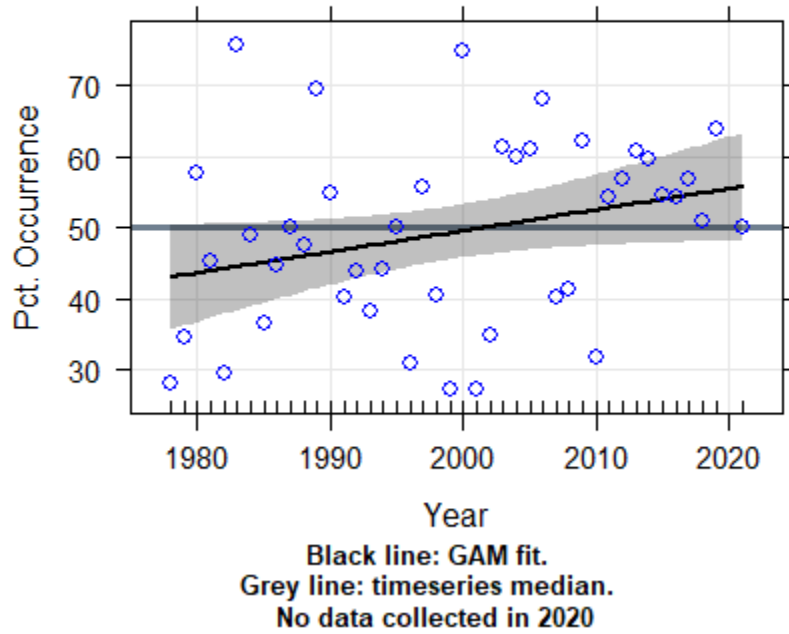
**Alewife Biomass**  
**MDMF Spring Survey, Regions 4-5**  
**Cape Cod Bay/Mass. Bay/Ipswich Bay**



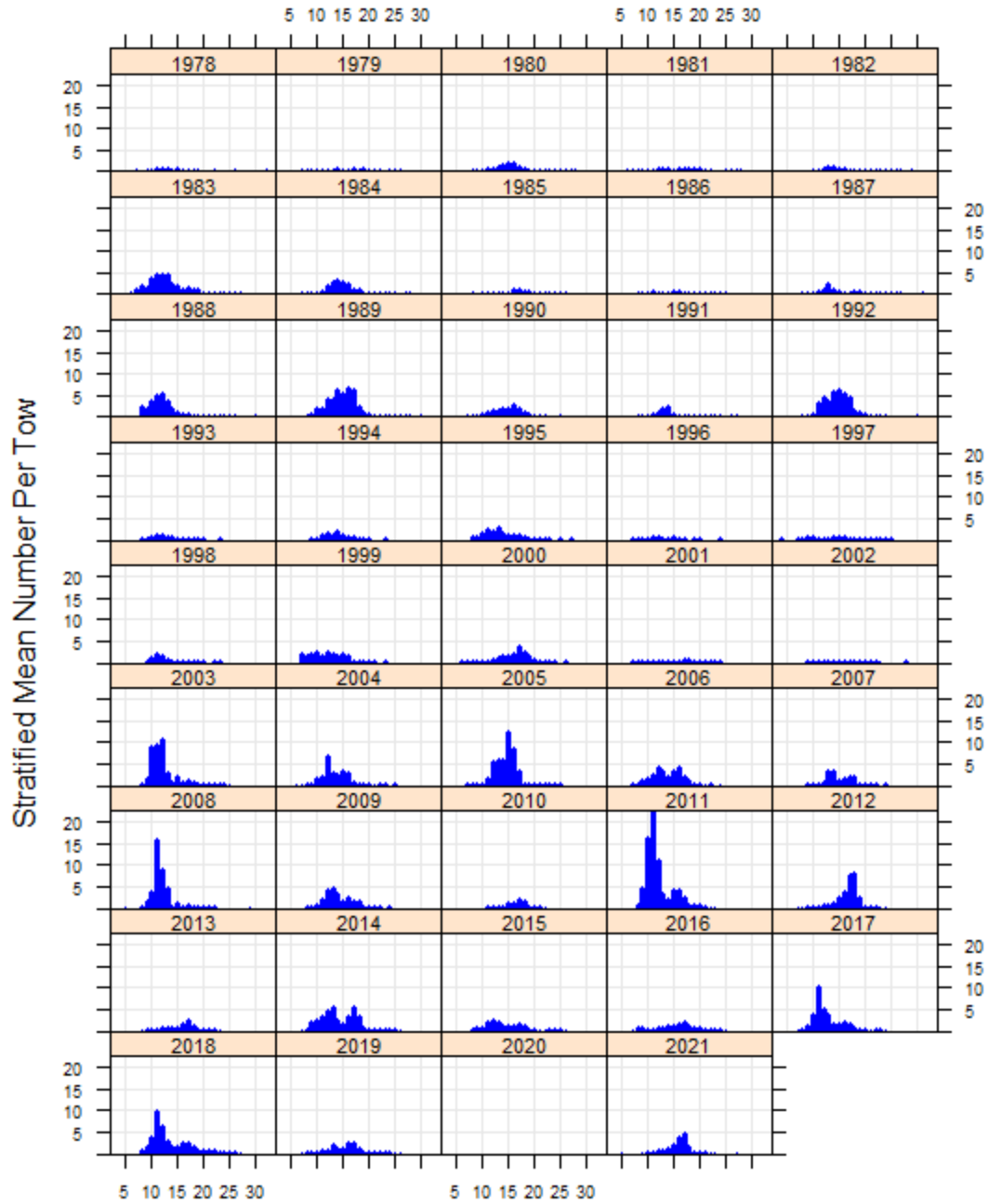
**Alewife Abundance**  
**MDMF Spring Survey, Regions 4-5**  
**Cape Cod Bay/Mass. Bay/Ipswich Bay**



**Alewife Occurrence in Survey Stations  
MDMF Spring Survey, Regions 4-5  
Cape Cod Bay/Mass. Bay/Ipswich Bay**



**Alewife**  
**MDMF Spring Survey, Regions 4-5**  
**Cape Cod Bay/Mass. Bay/Ipswich Bay**



Length in CM  
No data collected in 2020

## Alewife

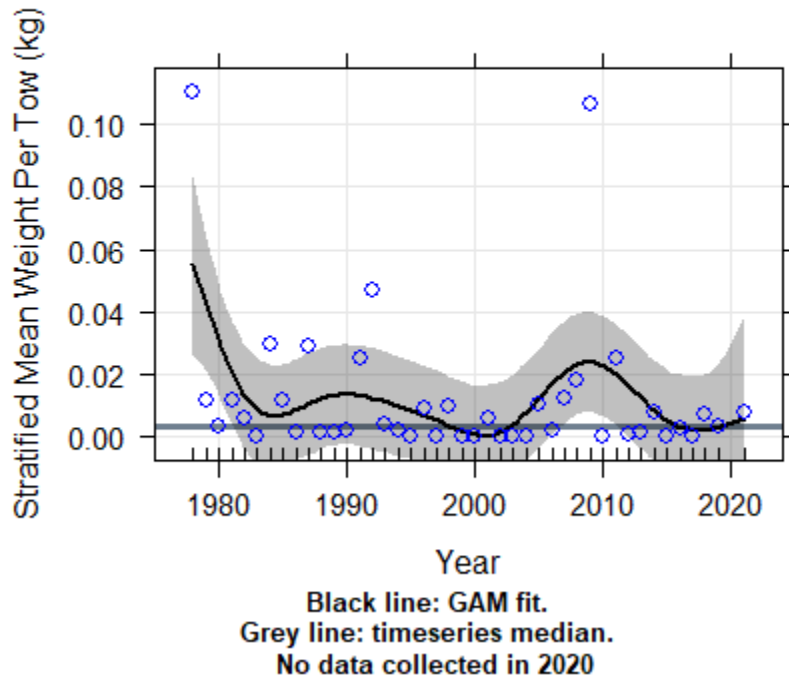
## MDMF Spring Survey, Regions 4-5

## Cape Cod Bay/Mass. Bay/Ipswich Bay

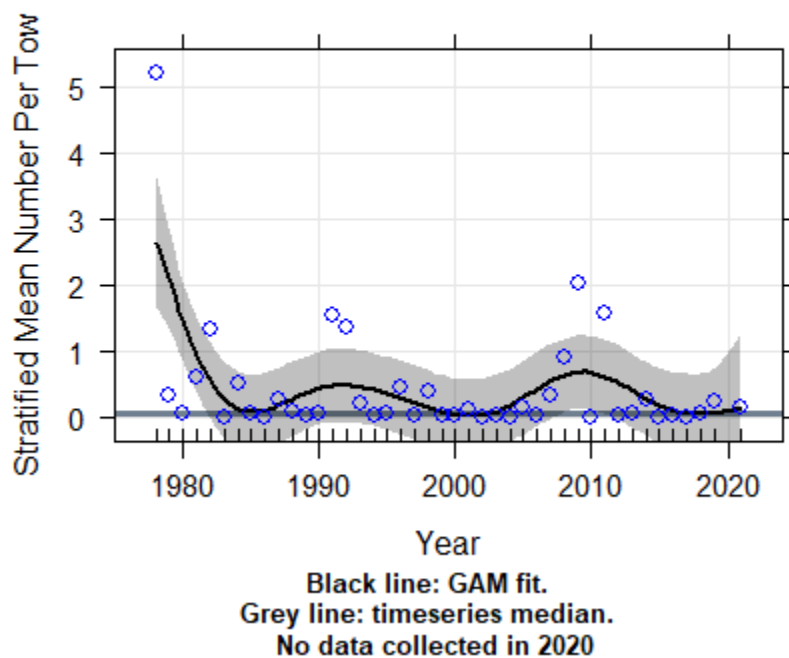
Year	Wt. per tow (kg)	Std.Err.Wt.	Number per tow	Std.Err.N
1978	0.12	0.05	3.34	1.83
1979	0.23	0.07	4.27	1.35
1980	0.58	0.14	10.42	2.57
1981	0.34	0.13	6.43	2.35
1982	0.29	0.15	5.72	3.08
1983	0.91	0.31	31.84	13.64
1984	0.72	0.29	17.41	6.68
1985	0.43	0.16	6.03	1.97
1986	0.24	0.09	4.47	1.48
1987	0.48	0.14	9.11	4.40
1988	0.60	0.28	27.92	19.21
1989	2.14	0.62	42.80	12.66
1990	0.86	0.27	16.14	5.10
1991	0.25	0.09	8.33	3.82
1992	1.46	0.57	37.85	14.34
1993	0.11	0.06	5.31	2.95
1994	0.29	0.13	9.10	3.73
1995	0.46	0.18	15.33	7.03
1996	0.10	0.05	3.83	1.82
1997	0.18	0.04	4.52	0.68
1998	0.15	0.08	6.30	4.30
1999	0.43	0.19	19.73	11.75
2000	1.06	0.35	16.69	4.75
2001	0.17	0.11	2.98	1.84
2002	0.12	0.03	2.01	0.62
2003	0.71	0.36	39.01	27.06
2004	0.61	0.25	22.90	11.16
2005	1.64	0.87	44.39	23.83
2006	0.87	0.35	25.44	10.75
2007	0.64	0.22	14.94	7.26
2008	0.69	0.46	37.27	27.31
2009	0.66	0.23	22.29	9.00
2010	0.37	0.15	7.61	2.92
2011	1.63	0.72	73.46	44.75
2012	1.63	0.75	28.58	12.14
2013	0.43	0.11	9.26	2.38
2014	1.16	0.39	36.15	12.66
2015	0.44	0.10	14.22	3.62
2016	0.51	0.15	11.66	3.64
2017	0.80	0.44	31.99	23.10
2018	1.09	0.31	37.06	12.63
2019	0.64	0.19	13.88	4.04
2020	0.00	0.00	0.00	0.00
2021	0.83	0.28	15.87	5.21



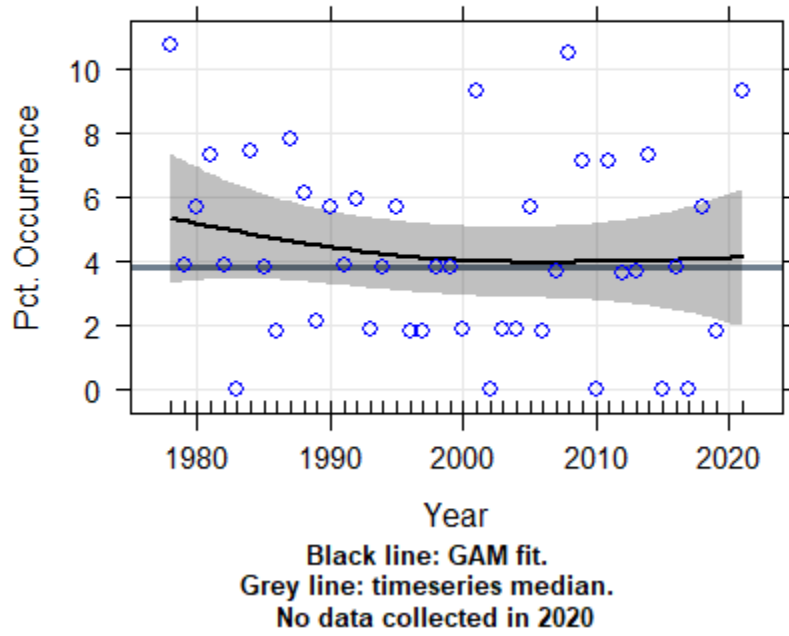
**Blueback Herring Biomass**  
**MDMF Spring Survey, Regions 1-3**  
**B. Bay/V. Sound/N. Sound/East of CC**



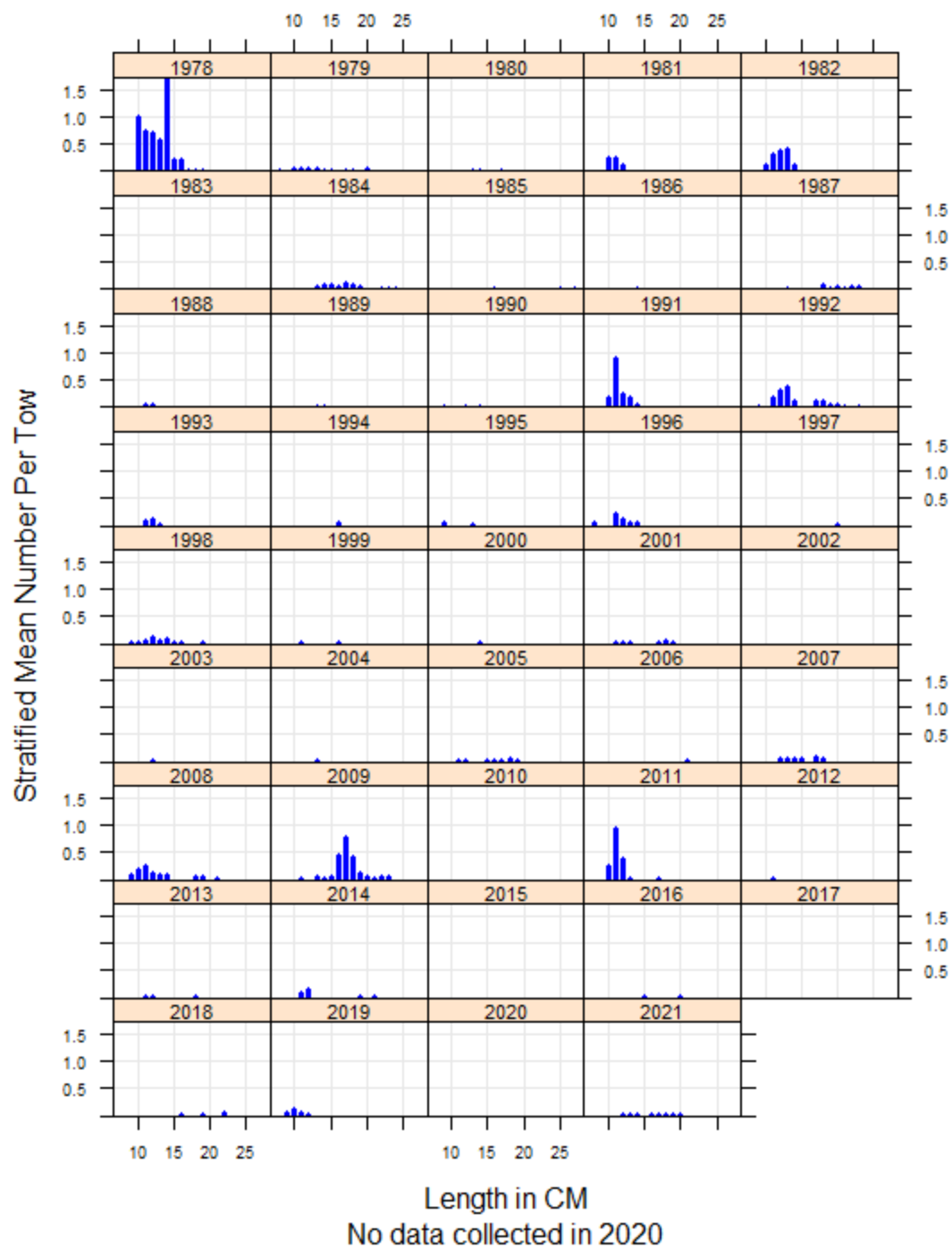
**Blueback Herring Abundance**  
**MDMF Spring Survey, Regions 1-3**  
**B. Bay/V. Sound/N. Sound/East of CC**



**Blueback Herring Occurrence in Survey Stations  
MDMF Spring Survey, Regions 1-3  
B. Bay/V. Sound/N. Sound/East of CC**



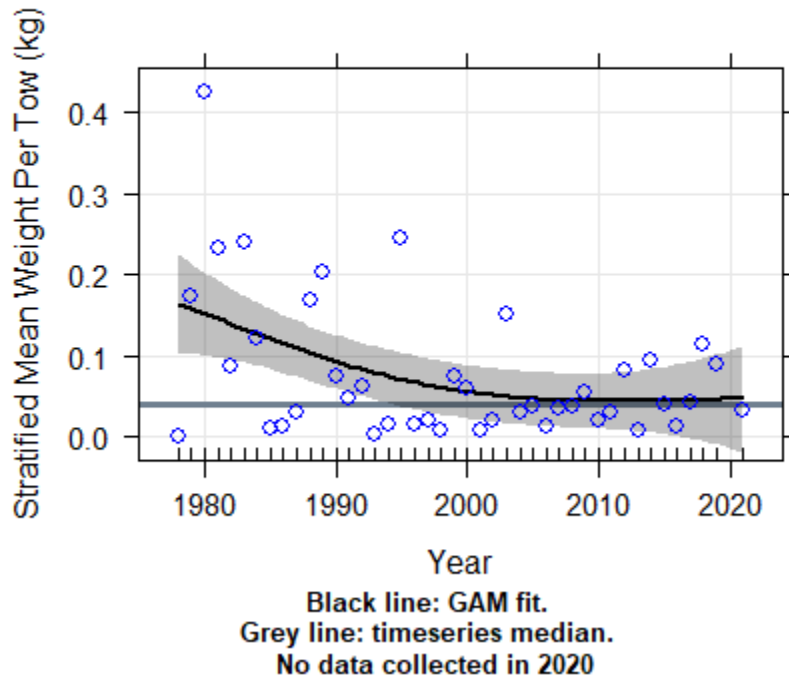
**Blueback Herring**  
**MDMF Spring Survey, Regions 1-3**  
**B. Bay/V. Sound/N. Sound/East of CC**



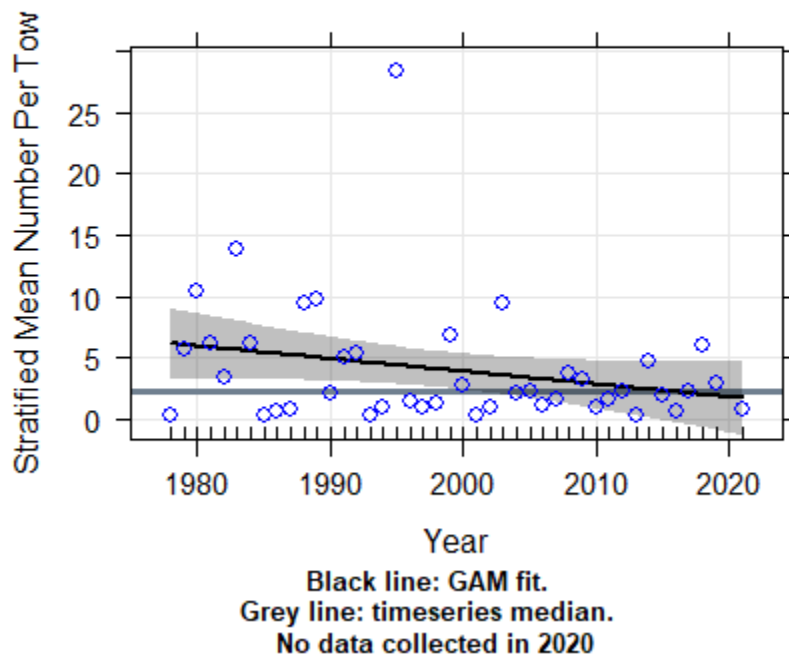
Blueback Herring  
 MDMF Spring Survey, Regions 1-3  
 B. Bay/V. Sound/N. Sound/East of CC

Year	Wt. per tow (kg)	Std.Err.Wt.	Number per tow	Std.Err.N
1978	0.11	0.10	5.19	4.85
1979	0.01	0.01	0.32	0.31
1980	0.00	0.00	0.07	0.05
1981	0.01	0.01	0.61	0.56
1982	0.01	0.01	1.33	1.27
1983	0.00	0.00	0.00	0.00
1984	0.03	0.02	0.51	0.36
1985	0.01	0.01	0.05	0.04
1986	0.00	0.00	0.01	0.01
1987	0.03	0.02	0.27	0.15
1988	0.00	0.00	0.10	0.06
1989	0.00	0.00	0.04	0.04
1990	0.00	0.00	0.05	0.03
1991	0.03	0.03	1.54	1.52
1992	0.05	0.03	1.36	1.05
1993	0.00	0.00	0.22	0.22
1994	0.00	0.00	0.04	0.03
1995	0.00	0.00	0.06	0.03
1996	0.01	0.01	0.46	0.46
1997	0.00	0.00	0.02	0.02
1998	0.01	0.00	0.40	0.10
1999	0.00	0.00	0.04	0.03
2000	0.00	0.00	0.02	0.02
2001	0.01	0.00	0.14	0.05
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.02	0.02
2004	0.00	0.00	0.01	0.01
2005	0.01	0.01	0.15	0.12
2006	0.00	0.00	0.02	0.02
2007	0.01	0.01	0.34	0.30
2008	0.02	0.01	0.92	0.56
2009	0.11	0.09	2.04	1.81
2010	0.00	0.00	0.00	0.00
2011	0.03	0.02	1.57	1.51
2012	0.00	0.00	0.03	0.02
2013	0.00	0.00	0.06	0.05
2014	0.01	0.00	0.27	0.21
2015	0.00	0.00	0.00	0.00
2016	0.00	0.00	0.03	0.02
2017	0.00	0.00	0.00	0.00
2018	0.01	0.00	0.07	0.04
2019	0.00	0.00	0.25	0.25
2020	0.00	0.00	0.00	0.00
2021	0.01	0.00	0.15	0.04

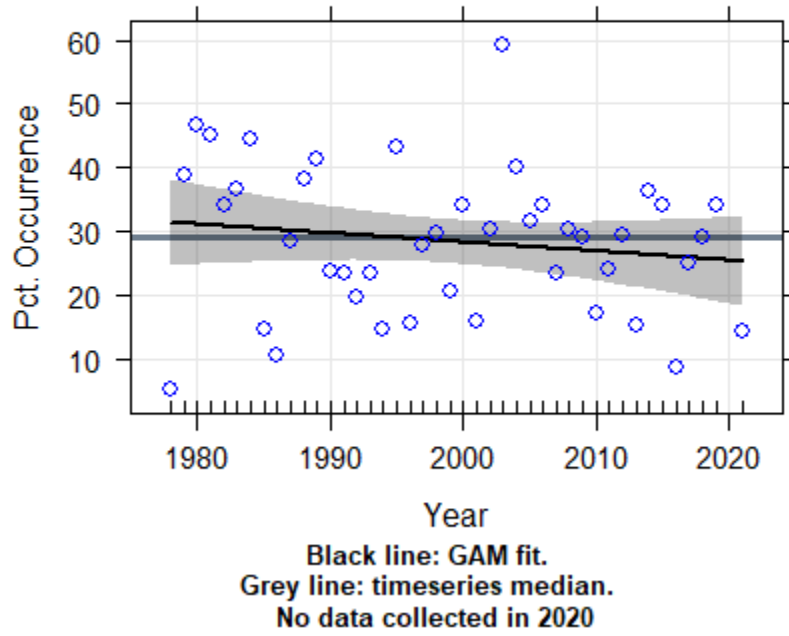
**Blueback Herring Biomass**  
**MDMF Spring Survey, Regions 4-5**  
**Cape Cod Bay/Mass. Bay/Ipswich Bay**



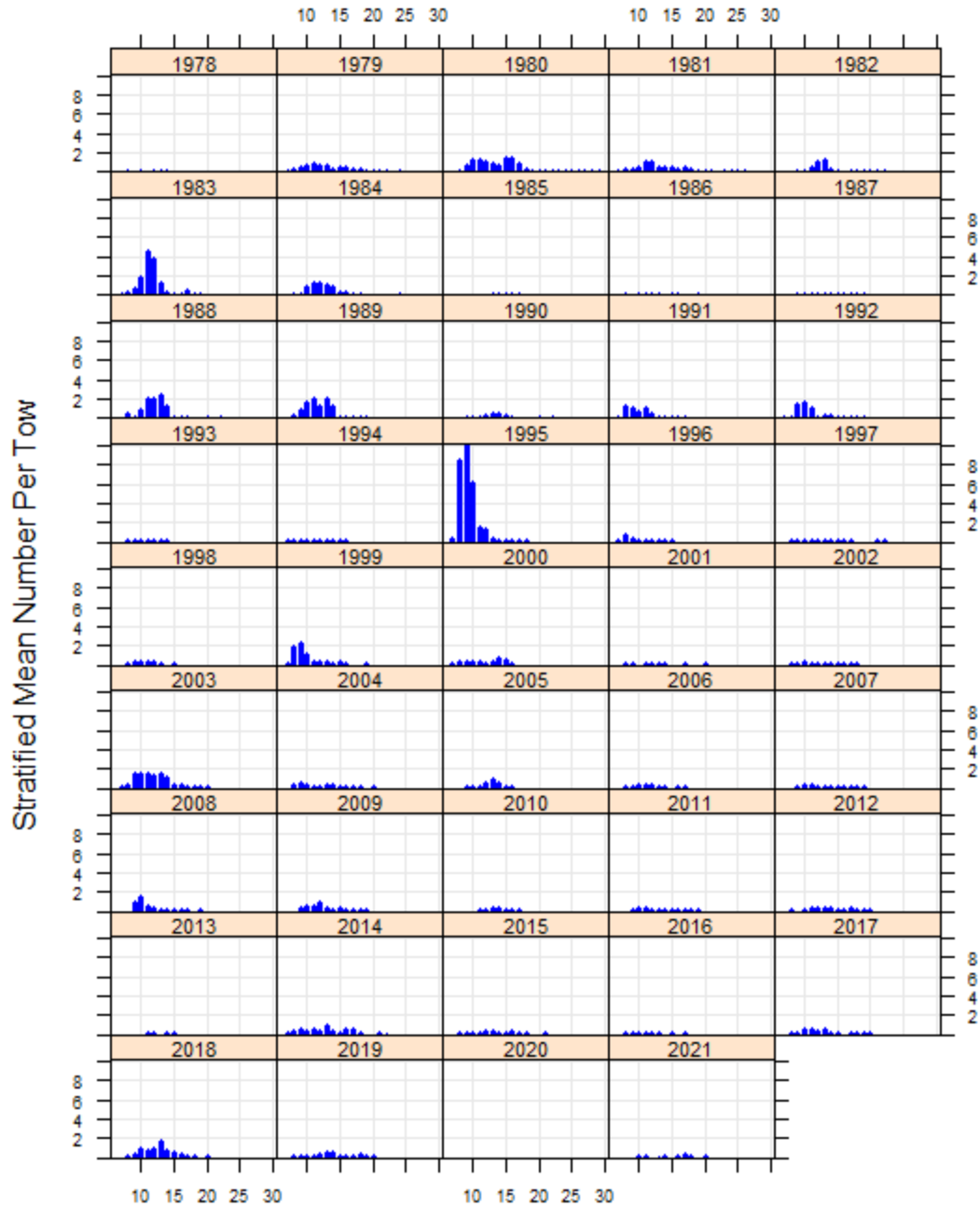
**Blueback Herring Abundance**  
**MDMF Spring Survey, Regions 4-5**  
**Cape Cod Bay/Mass. Bay/Ipswich Bay**



**Blueback Herring Occurrence in Survey Stations  
MDMF Spring Survey, Regions 4-5  
Cape Cod Bay/Mass. Bay/Ipswich Bay**



**Blueback Herring**  
**MDMF Spring Survey, Regions 4-5**  
**Cape Cod Bay/Mass. Bay/Ipswich Bay**



Length in CM  
No data collected in 2020

Blueback Herring  
 MDMF Spring Survey, Regions 4-5  
 Cape Cod Bay/Mass. Bay/Ipswich Bay

Year	Wt. per tow (kg)	Std.Err.Wt.	Number per tow	Std.Err.N
1978	0.00	0.00	0.29	0.26
1979	0.17	0.08	5.62	2.65
1980	0.42	0.12	10.39	3.02
1981	0.23	0.08	6.11	2.80
1982	0.09	0.05	3.32	2.28
1983	0.24	0.16	13.83	11.24
1984	0.12	0.04	6.12	1.52
1985	0.01	0.00	0.24	0.07
1986	0.01	0.01	0.58	0.44
1987	0.03	0.01	0.72	0.22
1988	0.17	0.10	9.37	5.65
1989	0.20	0.12	9.71	5.54
1990	0.07	0.04	2.02	1.12
1991	0.05	0.02	4.94	2.57
1992	0.06	0.03	5.39	3.51
1993	0.00	0.00	0.31	0.10
1994	0.01	0.01	0.83	0.57
1995	0.24	0.13	28.37	15.19
1996	0.01	0.01	1.45	0.89
1997	0.02	0.01	0.94	0.32
1998	0.01	0.00	1.24	0.50
1999	0.07	0.04	6.75	4.05
2000	0.06	0.03	2.76	1.23
2001	0.01	0.00	0.28	0.12
2002	0.02	0.01	0.95	0.33
2003	0.15	0.07	9.40	4.32
2004	0.03	0.01	2.07	0.59
2005	0.04	0.02	2.27	1.20
2006	0.01	0.01	1.10	0.36
2007	0.03	0.01	1.50	0.54
2008	0.04	0.02	3.63	2.11
2009	0.05	0.02	3.17	1.35
2010	0.02	0.01	0.83	0.43
2011	0.03	0.01	1.52	0.70
2012	0.08	0.05	2.29	1.06
2013	0.01	0.00	0.27	0.10
2014	0.09	0.04	4.60	1.99
2015	0.04	0.01	1.82	0.43
2016	0.01	0.01	0.54	0.39
2017	0.04	0.03	2.21	1.52
2018	0.11	0.06	5.99	3.20
2019	0.09	0.03	2.81	0.90
2020	0.00	0.00	0.00	0.00
2021	0.03	0.02	0.72	0.42