

Supplementary materials

Evaluation of Nitrogen and Carbon Stable Isotopes in Filter Feeding Bivalves and Surficial Sediment for Assessing Aquatic Condition in Lakes and Estuaries

James L. Lake ^{1,*}, Jonathan R. Serbst ¹, Anne Kuhn ¹, Michael Charpentier ² and Nathan J. Smucker ³

¹ US Environmental Protection Agency, Office of Research and Development, 27 Tarzwell Drive, Narragansett, RI, 02882, USA

² General Dynamics Information Technology, 27 Tarzwell Drive, Narragansett, RI, 02882, USA

³ US Environmental Protection Agency, Office of Research and Development, 26 Martin Luther King Drive W., Cincinnati, OH, 45268, USA

* Correspondence: lake.jim@epa.gov

Table S1. Location data for study lakes and watershed size (ha) for lakes and estuaries.

Lake Name	Lake Lat.	Lake Long.	Watershed size (ha) with water removed
51 Lakes			
Alton	41.443162	-71.718536	22570
Asa	41.459212	-71.513120	310
Ashville	41.500854	-71.756127	70
Belleville	41.563214	-71.480517	910
Boone	41.583003	-71.673801	570
Bowdish	41.923120	-71.774661	650
Breakheart	41.598387	-71.701314	1590
Browning Mill	41.558071	-71.689525	1410
Burlingame	41.909663	-71.745370	480
Carbuncle	41.697874	-71.773378	450
Chapman	41.380264	-71.794961	1840
Deep	41.391267	-71.662400	20
Eisenhower	41.620902	-71.716280	840
GilbertS	41.635722	-71.556017	1230
Gorton	41.705270	-71.458830	300
Hundred	41.500151	-71.542055	2360
Indian	41.480009	-71.468058	210
Jamestown	41.531310	-71.372326	80
JL Curran	41.752465	-71.549023	210
Keech	41.879793	-71.687589	1540
Larkin	41.469520	-71.558576	30
Little	41.705795	-71.406844	50
Locustville	41.516659	-71.721313	3270
Lower Beach	41.571233	-71.784443	160
Meadowbrook	41.440659	-71.690722	1590
Mishnock	41.653108	-71.588596	60
Nonquint	41.564006	-71.195182	1710
OakSwamp	41.827830	-71.540068	180
Pasquisett	41.426073	-71.631182	1190
Quidnick	41.679780	-71.678483	560
Schoolhouse	41.400973	-71.668023	410
Secret	41.554608	-71.478145	620
Simmons Mill	41.539929	-71.148572	380
Spring Green	41.735011	-71.409398	160
Stafford	41.640217	-71.156126	400
Tarbox	41.635157	-71.569088	410
Tiogue	41.678282	-71.550350	630
Tucker	41.422160	-71.551828	230
Turner	41.837815	-71.339272	13640
Upper Dam	41.705572	-71.552801	80

UpperSlatersville	41.989944	-71.596890	5030
Wakefield	41.963128	-71.792426	390
Wallum	42.001032	-71.765288	490
Warwick	41.723752	-71.412675	380
Watchaug	41.384054	-71.691207	1660
Waterman	41.876649	-71.586161	1980
Wilson	41.969313	-71.726221	2870
Wincheck	41.515939	-71.771544	1030
Worden's	41.439087	-71.574914	6210
Wyoming	41.519497	-71.697449	15000
Yawgoo	41.511071	-71.573107	400
Nine Estuaries ¹			
Bass River			3830
Great Island			7320
Great Pond			4960
Little Pond			620
Mill Creek			1100
Narragansett Bay (RI + MA)			275000
Ninigret Pond			3650
Sage Lot Pond			250
Three Bays			6000

¹ Sample site locations for estuaries are in Supplemental Table 3

Table S2. Number, size data, $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ for Mussels (UN) from 26 Lakes.

	Number	Mean	Minimum	Maximum	Mean	Mean
Lake	collected	length mm	Length mm	Length mm	$\delta^{15}\text{N}_{\text{UN}} \text{‰}$	$\delta^{13}\text{C}_{\text{UN}} \text{‰}$
Alton	6	70	53	83	8.2	-32.8
Belleville	6	89	64	110	9.3	-30.9
Browning Mill	4	86	78	94	6	-32.4
Chapman	2	75	72	78	9.4	-31.3
Eisenhower	10	85	65	100	4.5	-31.5
Gorton	4	84	78	92	12.1	-28.6
Hundred Acre	4	83	78	90	7.6	-33.3
Larkin	4	74	70	75	7.7	-26.6
Little	6	75	58	85	8.3	-26
Locustville	4	65	56	72	7	-33.2
Meadowbrook	6	71	56	89	7.5	-30.8
Mishnock	5	79	67	84	9.1	-32.3
Nonquint	9	68	60	87	8.4	-28
OakSwamp	5	69	55	80	7.8	-28.7
Pasquissett	3	54	49	61	5.8	-32.9
Quidnick	6	81	78	86	5.3	-30.5
School House	4	60	50	68	3.4	-29.1
Stafford	4	71	56	90	7	-24.3
Tiogue	4	75	68	81	12.2	-26.7
Tucker	12	66	50	85	3.8	-29.3
Turner	2	90	90	90	15.5	-29.9
Upper Dam	4	73	60	86	11.6	-29.9
Upper Slatersville	20	73	63	87	9.6	-31.8
Wordens	5	51	47	56	6.8	-30.5
Wyoming	5	91	75	100	8	-31.6
Yawgoo	4	68	66	69	5.5	-28.9

Table S3. Number, size data, $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ and sample site locations for *Mercenaria mercenaria* from a total of Estuaries 28 stations from nine Estuaries.

Estuary	Sample Site	Number Collected	Minimum length mm	Maximum length mm	Mean length mm	Mean $\delta^{15}\text{N}_{\text{MM}} \text{‰}$	Mean $\delta^{13}\text{C}_{\text{MM}} \text{‰}$	Site LAT	Site LON
BassRiver	Freydis	3	56	87	74	9.8	-18.2	41.699613	-70.166836
BassRiver	Thorwold	4	46	95	75	9.6	-18.1	41.700126	-70.167413
BassRiver	LEricson	4	46	108	77	9.7	-18	41.700682	-70.167941
BassRiver	Norseman	4	64	94	84	9.3	-17.6	41.701101	-70.168411
GreatPond	GPmassa	5	41	65	54	9.9	-17.6	41.550954	-70.585121
GreatPond	GPhiawa	6	42	55	51	10	-17.7	41.553172	-70.585372
GreatPond	GPcypress	4	57	68	63	10	-17.8	41.559225	-70.585828
LittlePond	LPoutlet	2	57	60	59	11.9	-17.2	41.54678	-70.788767
LittlePond	LPmassa	4	56	88	71	11.9	-17.1	41.550561	-70.588091
LittlePond	LPhiawa	3	60	80	73	12.2	-17.3	41.552684	-70.589049
MillCreek	MCsite 1	2	82	82	82	13.4	-19.1	41.585727	-71.449188
NarrBay	FtGetty	6	46	65	55	13	-17.4	41.700126	-70.167413
Ninigret	Nini1	4	45	64	54	7.4	-17.8	41.34572	-71.686952
Ninigret	Nini2	4	65	83	72	8.3	-18.1	41.34667	-71.684967
Ninigret	Nini3	4	38	80	56	7.5	-18.8	41.347637	-71.681362
PtJudithPond	GalBoatRamp	1	52	52	52	10.6	-18.3	41.383207	-71.507196
PtJudithPond	BasinDrive	6	37	68	52	11.5	-18.5	41.385583	-71.509218
PtJudithPond	EShoreDr	3	39	55	47	11.7	-17.6	41.389817	-71.499707
PtJudithPond	FranksNeck	1	85	85	85	10.7	-18.5	41.393099	-71.498307
SageLot	sage1	4	52	80	64	7.9	-18.4	41.551785	-70.509256
SageLot	sage2	3	62	80	69	7.5	-18.8	41.552302	-70.507121
SageLot	sage3	5	50	78	63	7	-18.7	41.552484	-70.507857
ThreeBays	Seaview	2	60	65	63	9.6	-19.6	41.609017	-70.39992
ThreeBays	Cross	1	73	73	73	9.2	-19.6	41.609327	-70.434881
ThreeBays	CotuitTD	1	68	68	68	9.3	-18.5	41.616451	-70.43343
ThreeBays	Ropes	2	60	62	61	9.2	-19.7	41.62049	-70.433126
ThreeBays	BridgeSt	2	64	67	66	9.2	-18.3	41.622095	-70.393327
ThreeBays	BaySt	5	41	84	62	9.3	-18.7	41.628009	-70.395847