



Corrigendum: Spatial and historic variability of benthic nitrogen cycling in an anthropogenically impacted estuary

Sarah Q. Foster¹ and Robinson W. Fulweiler^{1,2*}

¹ Department of Earth and Environment, Boston University, Boston, MA, USA, ² Department of Biology, Boston University, Boston, MA, USA

Keywords: benthic nitrogen cycling, sediment oxygen demand, net denitrification, Waquoit Bay, historic variability, spatial variability

A corrigendum on

Spatial and historic variability of benthic nitrogen cycling in an anthropogenically impacted estuary

by Foster, S. Q., and Fulweiler, R. W. (2014). *Front. Mar. Sci.* 1:56. doi: 10.3389/fmars.2014.00056

OPEN ACCESS

Edited and reviewed by:

Paul E. Renaud,
Akvaplan-niva AS, Norway

*Correspondence:

Robinson W. Fulweiler
rwf@bu.edu

Specialty section:

This article was submitted to
Global Change and the Future Ocean,
a section of the journal
Frontiers in Marine Science

Received: 02 March 2016

Accepted: 10 March 2016

Published: 23 March 2016

Citation:

Foster SQ and Fulweiler RW (2016)
Corrigendum: Spatial and historic
variability of benthic nitrogen cycling in
an anthropogenically impacted
estuary. *Front. Mar. Sci.* 3:35.
doi: 10.3389/fmars.2016.00035

The authors would like to provide updated sediment porosity values for the four sampling stations included in **Table 1** of the original paper, due to an error in the original calculations. The porosity corrections do not change any of the data interpretations or the text of the manuscript.

For simplicity and clarity, corrections are listed below in **bold and underlined** font. The page number corresponds to the original paper.

• Page 3. Table 1.

- Childs River Estuary (CRE), Sediment Characteristics, Porosity, 0.46 (± 0.02) changes to **0.64** (± 0.02)
- Metoxit Point (MP), Sediment Characteristics, Porosity, 0.56 (± 0.02) changes to **0.83** (± 0.01)
- South Basin (SB), Sediment Characteristics, Porosity, 0.42 (± 0.01) changes to **0.59** (± 0.01)
- Sage Lot Pond (SLP), Sediment Characteristics, Porosity, 0.50 (± 0.01) changes to **0.79** (± 0.01)

AUTHOR CONTRIBUTIONS

Both authors, SQF and RWF discussed the error and agreed to request the correction. The first draft of the Corrigendum text was written by SQF. RWF read and provided comments on the draft and SQF finalized the text.

REFERENCES

- D'Avanzo, C., and Kremer, J. N. (1994). Diel oxygen dynamics and anoxic events in an eutrophic estuary of Waquoit Bay, Massachusetts. *Estuaries* 17, 131–139. doi: 10.2307/1352562
- D'Avanzo, C., Kremer, J., and Wainright, S. C. (1996). Ecosystem production and respiration in response to eutrophication in shallow temperate estuaries. *Mar. Ecol. Prog. Ser.* 141, 263–274. doi: 10.3354/meps141263
- NOAA. (2012). *National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, National Estuarine Research Reserve*

System-wide Monitoring Program. Centralized Data Management Office, Baruch Marine Field Lab, University of South Carolina. Available online at: <http://cdmo.baruch.sc.edu/data/citation.cfm>

Valiela, I., Collins, G., Kremer, J., Lajtha, K., Geist, M., Seely, B., et al. (1997a). Nitrogen loading from coastal watersheds to receiving estuaries: new method and application. *Ecol. Appl.* 7, 358–380. doi: 10.1890/1051-0761(1997)007[0358:NLFCWT]2.0.CO;2

Valiela, I., Geist, M., McClelland, J., and Tomasky, G. (2000). Nitrogen loading from watersheds to estuaries: verification of the Waquoit Bay nitrogen loading model. *Biogeochemistry* 49, 277–293. doi: 10.1023/A:1006345024374

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2016 Foster and Fulweiler. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) or licensor are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

TABLE 1 | Characterization of the four sampling stations in Waquoit Bay, Massachusetts, USA.

Station (Abbr.)	Latitude (°N, min)	Longitude (°W, min)	Mean depth (m)	External N load to Sub-Estuary ^c (kg N km ⁻² year ⁻¹)	Chl a ^a (µg/L)	Bottom water column characteristics			Sediment characteristics			
						Salinity (ppt)	NH ₄ ⁺ (µmol/L)	NO ₂ ⁻ + NO ₃ ⁻ (µmol/L)	Density (g/mL)	Porosity	% C	C:N
Childs River Estuary (CRE)	41° 34.805	70° 31.826	1.3 ^a	41.9 × 10 ³	29.4 (±5.0)	28.3	8.41 (±1.18)	0.48	1.38 (±0.05)	0.64 (±0.02)	1.12 (±0.32)	10.3 (±0.3)
Metoxit Point (MP)	41° 34.134	70° 31.272	2.1 ^a	50.0 × 10 ³	4.5 (±1.1)	30.2	3.76 (±0.93)	0.11 (±0.04)	1.06 (±0.02)	0.83 (±0.01)	6.11 (±0.28)	8.6 (±0.2)
South Basin (SB)	41° 33.404	70° 31.442	1.8 ^b	n.m.	n.m.	30.6	3.08 (±0.83)	0.14 (±0.09)	1.48 (±0.01)	0.59 (±0.01)	1.02 (±0.07)	8.9 (±0.4)
Sage Lot Pond (SLP)	41° 33.270	70° 30.584	1.1 ^a	2.1 × 10 ³	7.5 (±2.9)	29.7	1.78 (±0.95)	< MDL	1.07 (±0.02)	0.79 (±0.01)	5.93 (±0.37)	8.9 (±0.5)

Water column grab samples for chlorophyll a (chl a) analysis were taken on a near monthly basis by staff of the Waquoit Bay National Estuarine Research Reserve (WBNERR). The chl a values represent the mean (± the standard error) of samples collected July–October in 2012 (n = 4 for the three WBNERR stations. Note that samples were not collected by WBNERR in 2011). Bottom water dissolved inorganic nitrogen [ammonium (NH₄⁺) and nitrite plus nitrate (NO₂⁻ + NO₃⁻) samples were collected from our control cores at the start of each incubation. The water in these cores was pumped and filtered (to 0.2 µm pore size) in the field, approximately 20 h before being sampled for inorganic nitrogen concentrations. Concentrations below analytical minimum detection limits (MDL) are noted. Values that were not measured are indicated by n.m. Values are the mean (± the standard error) for incubations conducted July–October 2011 and 2012 [for NH₄⁺, n = 3 (CRE), n = 5 (MP), n = 5 (SB), n = 3 (SLP). And for NO₂⁻ + NO₃⁻, n = 1 (CRE), n = 2 (MP), n = 2 (SB), n = 0 <MDL (SLP)]. Sediment porosity and density samples were taken at the end of incubations from each sediment core. Values below represent the mean of pooled sediment samples taken at 1 cm increments down to 4 cm depth averaged across all cores taken during the study period (July–October 2011 and 2012) [n = 24 (CRE), n = 54 (MP and SB), n = 40 (SLP)]. Sediment samples for percent carbon (% C) and molar carbon to nitrogen ratios (C:N) were collected from sediment cores at the end of incubations in 2011. These values also represent the mean (± standard error) of pooled samples taken at 1 cm increments down to 4 cm depth [n = 4 (CRE), n = 8 (MP, SB and SLP)].

^aNOAA, 2012.
^bMain basin mean depth (D’Avarzo and Kremer, 1994).
^cValiela et al., 1997a, 2000 (watershed N loads) and D’Avarzo et al., 1996 (sub-estuary surface areas).
^dN load for Metoxit Point is estimated from loading rates to the Quashnet River sub-watershed.