Coral mucus fuels the sponge loop in warm- and cold-water coral reef ecosystems

Laura Rix[1*], Malik S. Naumann[1], Jasper M. de Goeij[2], Christina E. Mueller[3], Ulrich Struck[4], Jack J. Middelburg[5], Fleur C. van Duyl[6], Fuad A. Al-Horani[7], Christian Wild[1,8], Dick van Oevelen[3]

[1]Coral Reef Ecology Group (CORE), Leibniz Center for Tropical Marine Ecology (ZMT), Fahrenheitstr. 6, 28359 Bremen, Germany

[2]Department of Aquatic Environmental Ecology, Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, PO Box 94248, 1090 GE Amsterdam, the Netherlands

[3]Royal Netherlands Institute for Sea Research (NIOZ-Yerseke), PO Box 140, 4400 AC Yerseke, the Netherlands

[4]Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Invalidenstr. 43, 10115 Berlin, Germany

[5]Department of Earth Sciences – Geochemistry, Utrecht University, PO Box 80.021, 3508 TA Utrecht, the Netherlands

[6]Royal Netherlands Institute for Sea Research (NIOZ-Texel), PO Box 59, 1790AB Den Burg, Texel, the Netherlands

[7]The University of Jordan – Aqaba and Marine Science Station (MSS), PO Box 2595, Aqaba 77110, Jordan

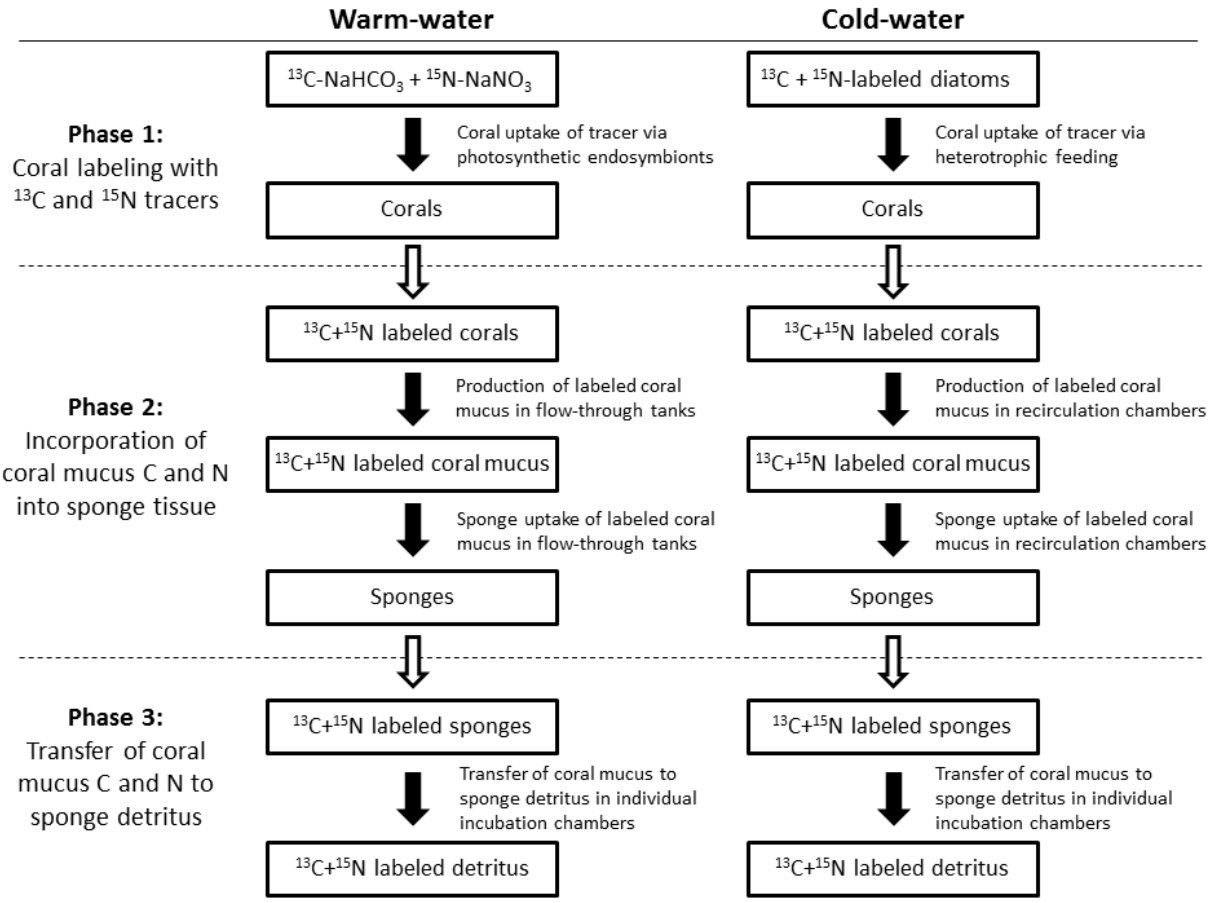
[8]Faculty of Biology and Chemistry (FB 2), University of Bremen, NW 2 / Leobener Str., 28359 Bremen, Germany

*corresponding author, E-mail: laura.n.rix@gmail.com

Supplementary Information:

Supplementary Figures:

Supplementary Figure S1: Flow-chart describing the three phases of the warm-water (WW) and cold-water (CW) stable isotope-tracer experiments. Phase 1 describes the labeling of the WW and CW corals with ^{13}C and ^{15}N tracers, Phase 2 outlines the transfer of coral mucus-derived C and N from the ^{13}C and ^{15}N-labeled corals into the sponge tissues in aquaria flow-through set-ups (WW: n = 3 aquaria replicates each with three sponge specimens per treatment) or a recirculation chamber set-up (CW: n = 1 chamber set-ups with three sponge specimens per treatment), and Phase 3 shows the transfer of coral mucus-derived C and N from the ^{13}C and ^{15}N-labeled sponges to the sponge detritus in individual incubation chambers (WW: n = 9, CW: n = 3).



Supplementary Tables

Supplementary Table S1. Environmental parameters characteristic of warm-water (WW), Red Sea coral reefs and cold-water (CW), north Atlantic *Lophelia pertusa* reefs. Parameters include dissolved inorganic nitrogen (DIN), soluble reactive phosphorus (SRP), dissolved organic carbon (DOC), particulate organic carbon (POC), particulate nitrogen (PN), and chlorophyll a (Chl *a*). [a] indicates the inorganic nutrient supply limiting WW coral growth and [b] the organic nutrient supply limiting CW coral growth.

Parameter	Warm-water Red Sea coral reefs	Cold-water North Atlantic coral reefs
Depth (m)	1 – > 100[1]	50 – > 1000[2]
Temperature (˚C)	21 – 29[3]	6 – 10[2,4,5]
DIN (µmol L^{-1})[a]	0.2 – 1.1[6]	2.2 – 19.1[2]
SRP (µmol L^{-1})[a]	0.04 – 0.1[6]	0.3 – 3.6[2]
DOC (µmol L^{-1})	76 – 87[7]	51 – 73[8]
POC (µmol L^{-1})[b]	6.3 – 10.3[6]	1.2 – 5.2[4,9,10]
POC:PN	7.3– 10.2[6]	5.8 – 9.0[4,9,10]
Chl a (µg L^{-1})	0.1 – 0.2[6]	0.02 – 1.17[2]
Current velocity (cm s^{-1})	0 – 10[3]	0 – 50[2,4,5]
Aragonite saturation (Ω_{arag})	3.7 – 4.4[3]	1.4 – 2.4[2]
pH	8.2 – 8.3[3]	7.92 – 8.19[2]
Salinity	40.5 – 41.0[3]	34.6 – 35.7[2]

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