

Dalton, C. M., Mokiao-Lee, A., Sakihara, T. S., Weber, M. G., Roco, C. A., Han, Z., Dudley, B., MacKenzie, R. A. and Hairston Jr., N. G. 2013. Density- and trait-mediated top-down effects modify bottom-up control of a highly endemic tropical aquatic food web. – *Oikos* 122: 790-800.

## Appendix A1

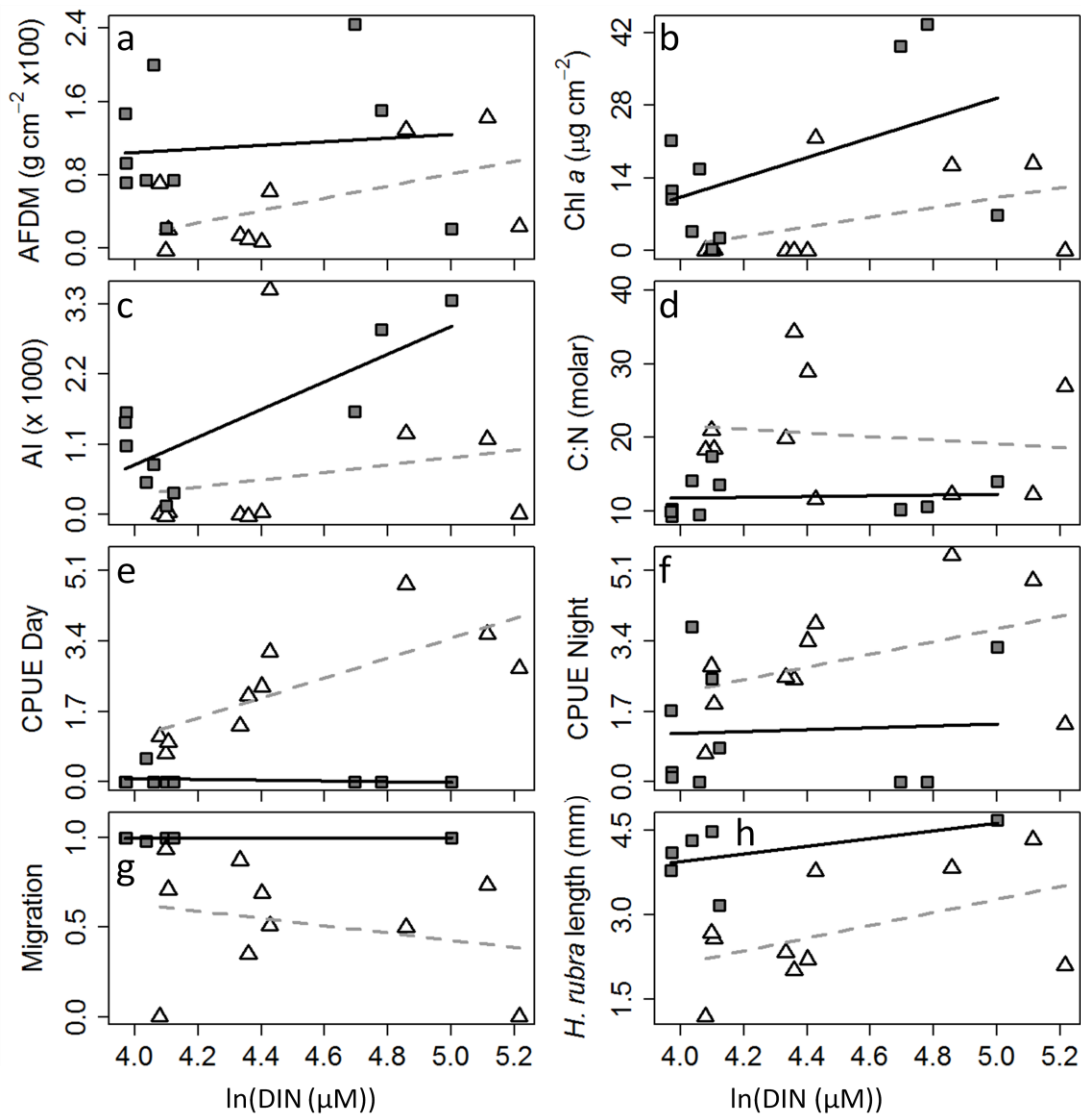
Table A1. ANOVA of linear model for (A) SRP and (B) DIN and fish effects on epilithon and *H. rubra* variables. Statistically significant results ( $p \leq 0.05$ ) are bolded; marginally significant results ( $p \leq 0.10$ ) are italicized. All factors have 1,16 degrees of freedom.

	(A)					(B)						
	Nutrient effect (SRP)		Fish effect		Fish × Nutrient effect (SRP)		Nutrient effect (DIN)		Fish effect		Fish × Nutrient effect (DIN)	
	<u>F</u>	<u>p</u>	<u>F</u>	<u>P</u>	<u>F</u>	<u>p</u>	<u>F</u>	<u>p</u>	<u>F</u>	<u>p</u>	<u>F</u>	<u>p</u>
AFDM ( $\text{g} \times 10^{-2}$ )	<b>5.21</b>	<b>0.04</b>	<b>6.56</b>	<b>0.02</b>	0.08	0.78	0.29	0.60	<b>5.82</b>	<b>0.03</b>	0.40	0.53
Chl <i>a</i> ( $\mu\text{g} \times \text{cm}^{-2}$ )	<b>19.74</b>	<b>0.0004</b>	<b>8.59</b>	<b>0.01</b>	1.14	0.30	2.06	0.17	<b>5.95</b>	<b>0.03</b>	0.53	0.48
AI ( $\times 10^3$ )	<b>14.74</b>	<b>0.001</b>	<b>5.50</b>	<b>0.03</b>	0.00	0.95	<i>3.14</i>	<i>0.09</i>	<b>5.74</b>	<b>0.03</b>	1.98	0.18
C:N	<i>3.98</i>	<i>0.06</i>	<b>16.12</b>	<b>0.001</b>	<i>3.61</i>	<i>0.07</i>	0.37	0.55	<b>9.60</b>	<b>0.01</b>	0.18	0.67
Night CPUE	0.189	0.67	<b>11.68</b>	<b>0.004</b>	<b>5.06</b>	<b>0.04</b>	<i>4.46</i>	<i>0.05</i>	<b>6.58</b>	<b>0.02</b>	1.22	0.28
Migration	0.09	0.76	<b>11.93</b>	<b>0.004</b>	0.01	0.90	<i>4.52</i>	<i>0.05</i>	<b>8.83</b>	<b>0.01</b>	0.33	0.58

Table A2. Model comparison using corrected AIC scores for epilithon AFDM, chlorophyll *a*, AI and C:N. Bolded values indicate the simplest combination of factors that can explain variance in the response variables without significantly compromising the predictive power of the model, based on Chi-square test model comparisons.

AFDM ( $\text{g} \times \text{cm}^{-2}$ )	$r^2$	Adj $r^2$	AICc	$\Delta\text{AICc}$	Rel Like	$w_i$
<b>NH<sub>4</sub><sup>+</sup> + Fish</b>	<b>0.35</b>	<b>0.27</b>	<b>-140.7</b>	<b>0.0</b>	<b>1.00</b>	<b>0.40</b>
Fish	0.21	0.16	-139.9	0.8	0.68	0.27
NH <sub>4</sub> <sup>+</sup>	0.20	0.15	-139.7	1.0	0.61	0.24
NH <sub>4</sub> <sup>+</sup> + Fish + NH <sub>4</sub> <sup>+</sup> :Fish	0.37	0.25	-137.7	3.0	0.22	0.09
Chl <i>a</i> ( $\mu\text{g} \times \text{cm}^{-2}$ )	$r^2$	Adj $r^2$	AICc	$\Delta\text{AICc}$	Rel Like	$w_i$
<b>NH<sub>4</sub><sup>+</sup> + Fish</b>	<b>0.65</b>	<b>0.60</b>	<b>148.5</b>	<b>0.0</b>	<b>1.00</b>	<b>0.52</b>
NH <sub>4</sub> <sup>+</sup>	0.57	0.55	149.1	0.6	0.74	0.39
NH <sub>4</sub> <sup>+</sup> + Fish + NH <sub>4</sub> <sup>+</sup> :Fish	0.65	0.58	152.0	3.5	0.18	0.09
Fish	0.15	0.10	162.9	14.3	0.00	0.00
AI	$r^2$	Adj $r^2$	AICc	$\Delta\text{AICc}$	Rel Like	$w_i$
<b>NH<sub>4</sub><sup>+</sup></b>	<b>0.59</b>	<b>0.57</b>	<b>327.4</b>	<b>0.0</b>	<b>1.00</b>	<b>0.47</b>
NH <sub>4</sub> <sup>+</sup> + Fish	0.64	0.60	327.9	0.6	0.76	0.36
NH <sub>4</sub> <sup>+</sup> + Fish + NH <sub>4</sub> <sup>+</sup> :Fish	0.68	0.62	329.3	1.9	0.38	0.18
Fish	0.12	0.07	342.5	15.2	0.00	0.00
C:N	$r^2$	Adj $r^2$	AICc	$\Delta\text{AICc}$	Rel Like	$w_i$
<b>NH<sub>4</sub><sup>+</sup> + Fish + NH<sub>4</sub><sup>+</sup>:Fish</b>	<b>0.73</b>	<b>0.67</b>	<b>122.4</b>	<b>0.0</b>	<b>1.00</b>	<b>0.94</b>
NH <sub>4</sub> <sup>+</sup> + Fish	0.56	0.51	128.1	5.7	0.06	0.06
Fish	0.38	0.34	132.0	9.6	0.01	0.01
NH <sub>4</sub> <sup>+</sup>	0.28	0.24	135.1	12.6	0.00	0.00

11 Figure A1. Food web measurements and associated linear relationships with log-transformed DIN  
 12 concentration in fish ponds (filled gray squares, solid black line) and no-fish ponds (open triangles,  
 13 dashed gray line) for (A) AFDM per area ( $100 \times \text{g cm}^{-2}$ ), (B) chl *a* per area ( $\mu\text{g cm}^{-2}$ ), (C)  
 14 Autotrophic Index (AI): chl *a* per AFDM ( $\times 10^3$ ), (D) epilithon C:N (molar ratio), (E) *Halocaridina*  
 15 *rubra* daytime abundance (CPUE), (F) *H. rubra* nighttime abundance (CPUE), (G) *H. rubra*  
 16 migration (proportion of night population that leaves pond during the day), and (H) *H. rubra* length  
 17 (mm). Lines are best fit results from linear models with log transformed DIN and presence of fish as  
 18 factors (Table A1).



20 Figure A2. Food web measurements and associated linear relationships with log-transformed SRP  
 21 concentration in fish ponds (filled gray squares, solid black line) and no-fish ponds (open triangles,  
 22 dashed gray line) for (A) AFDM per area ( $100 \times \text{g cm}^{-2}$ ), (B) chl *a* per area ( $\mu\text{g cm}^{-2}$ ), (C)  
 23 Autotrophic Index (AI): chl *a* per AFDM ( $\times 10^3$ ), (D) epilithon C:N (molar ratio), (E) *Halocaridina*  
 24 *rubra* daytime abundance (CPUE), (F) *H. rubra* nighttime abundance (CPUE), (G) *H. rubra*  
 25 migration (proportion of night population that leaves pond during the day), and (H) *H. rubra* length  
 26 (mm). Lines are best fit results from linear models with log transformed SRP and presence of fish as  
 27 factors (Table A1).

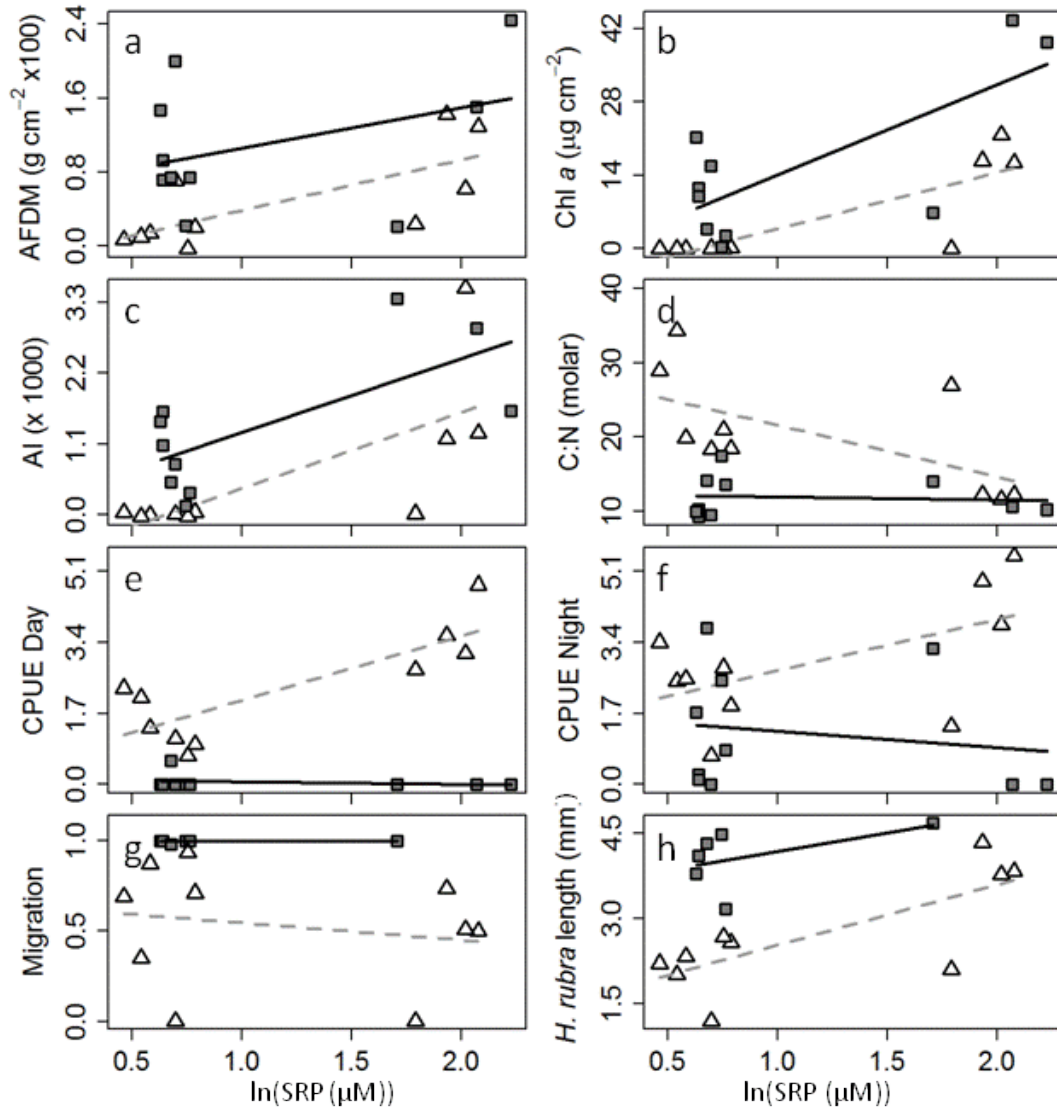


Table A3. Calculations for Cohen's *d*. (A) Means for each of four 'treatment' groups used in calculation. Low and high nutrient categorization made based on composite nutrient index (see Methods for more detail). (B) Differences for planned contrasts. Nutrient only comparison is mean of high nutrient ponds without fish minus mean of low nutrient pond without fish. Fish only comparison is mean of low nutrient fish ponds less mean of low nutrient no-fish ponds. Fish and nutrient comparison is mean of high nutrient fish ponds minus mean of low nutrient no-fish pond. (C) Pooled standard deviation calculation based on figures in Nakagawa and Cuthill (2007). (D) Cohen's *d* effect size measure based on mean difference divided by pooled standard deviation.

	A. Mean				B. Mean Difference			C. Pooled std deviation			D. Cohen's <i>d</i>		
	Low nutr no fish	High nutr no fish	Low nutr with fish	High nutr with fish	+Nutr only	+Fish only	+Nutr and fishh	+Nutr only	+Fish only	+Nutr and fish	+Nutr only	+Fish only	+Nutr and fish
AFDM (g × 10 <sup>-2</sup> )	0.0020	0.0089	0.0097	0.0138	0.0069	0.0078	0.0119	0.0040	0.0047	0.0064	1.7	1.7	1.9
Chl <i>a</i> (ug × cm <sup>-2</sup> )	0.02	13.72	9.26	29.93	13.70	9.24	29.91	5.78	5.62	10.72	2.4	1.6	2.8
AI (× 10 <sup>3</sup> )	0.002	1.496	0.839	2.627	1.495	0.837	2.625	0.899	0.415	0.486	1.7	2.0	5.4
C:N	23.5	15.8	12.1	11.6	-7.7	-11.4	-11.9	6.9	5.0	5.7	-1.1	-2.3	-2.1
Day CPUE	0.018	0.140	0.000	0.000	0.122	-0.018	-0.018	0.065	0.012	0.014	1.9	-1.6	-1.3
Night CPUE	0.061	0.288	0.021	0.021	0.227	-0.040	-0.040	0.151	0.042	0.045	1.5	-0.9	-0.9