Supplemental Table 2. Summary of power law relationships and their ranges of applicability

	Coefficient, b	Exponent, a	Range
Clearance rates for encounter:			
Active encounter, β_A (l/d)	$1.3 \times 10^3 \, \mathrm{l\,d^{-1}cm^{-3}}$ [a]	3 [b]	
Photosynthesis, β_L $(\mathrm{g_C(Wm^2)^{-1}d^{-1}})$	$72 \, \mu\mathrm{g_C(Wm^2)^{-1}d^{-1}cm^{-2}}$ [a]	2 [b]	
Diffusive feeding, β_D (l/d)	$2.5 \times 10^{-3} \, \mathrm{l\,d^{-1}cm^{-1}}$ [a]	1 [b]	
Mobility:			
Cruising velocity; viscous[a] (cm/s)	$1.8 \pm 1.1 \, \mathrm{cm^{0.26}s^{-1}}$	0.74 ± 0.02	$l < 6.6$ cm
Cruising velocity; inertial[a] (cm/s)	$13.4 \pm 1.4 \, \mathrm{cm^{0.55}s^{-1}}$	0.45 ± 0.08	$l > 6.6$ cm
Sensing:			
Hydromechanical sensing [b] (cm)	$1.4 \, \mathrm{cm^{-0.24}}$	1.4	$l < 0.5$ cm
Visual range [b] (cm)	$3.5 \, \mathrm{cm^{-0.75}}$	1.75	$l > 1$ cm
Echolocation (cm)	$0.058 \, \mathrm{cm^{-9/8}}$ [a]	17/8 [b]	

Regression parameters ± one standard deviation for $\log(y) = b + a \log(l)$ where b and a are the coefficient and exponent of the regression and l is the length for the organism. The "range" is given for the cases where a breakdown of the power law relation was identified.
[a]Empiric relation. [b]Theoretic relation.