Supplementary Material

Hydrodynamic characteristics of aquiferous modules in the demosponge *Halichondria panicea*

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Table SI. Data for 5 demosponge species obtained from Ludeman et al. (2017, Tables 1 and 2 therein). *D* = diameter of osculum; *OSA* = osculum-cross sectional area, U_0 = exhalant jet speed; *F* = filtration rate; *V* = volume of sponge, F_V = volume-specific filtration rate, *CC* = choanocyte chamber; *C* = choanocyte.

Species	*n* -	*D* (mm)	*OSA* (mm^2)	U_0 ($cm\ s^{-1}$)	*F* ($ml\ min^{-1}$)	*V* (ml)	F_V (min^{-1})	*CC*s (mm^{-3})	*C*s per *CC* -	*C*-density ($\times 10^6\ mm^{-3}$)
Cliona delitrix	8	22.67	403.50	11.04	184.0	448.8	6.50	35175	50	1.76
Callyspongia vaginalis	10	16.21	206.35	5.93	98.8	39.4	18.83	14358	93	1.34
Tethya californiana	9	8.67	58.98	1.95	32.5	57.3	1.50	14403	99	1.43
Haliclona mollis	10	5.53	23.99	3.04	50.7	22.5	2.17	2684	139	0.37
Neopetrosia problematica	6	3.46	9.42	1.37	22.8	1.9	4.67	9792	80	0.78

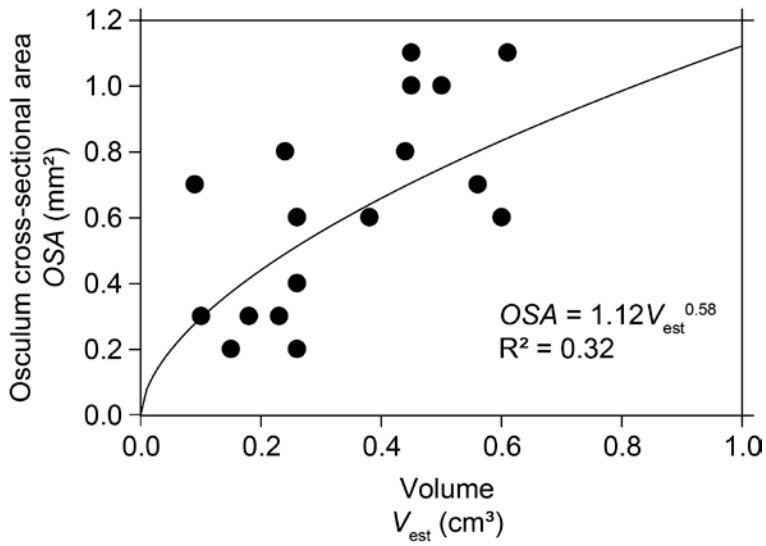

Figure S1. *Halichondria panicea*. Osculum cross-sectional area (*OSA*) as function of the volume (V_{est}) of single-osculum sponge explants. Data from Table 1.

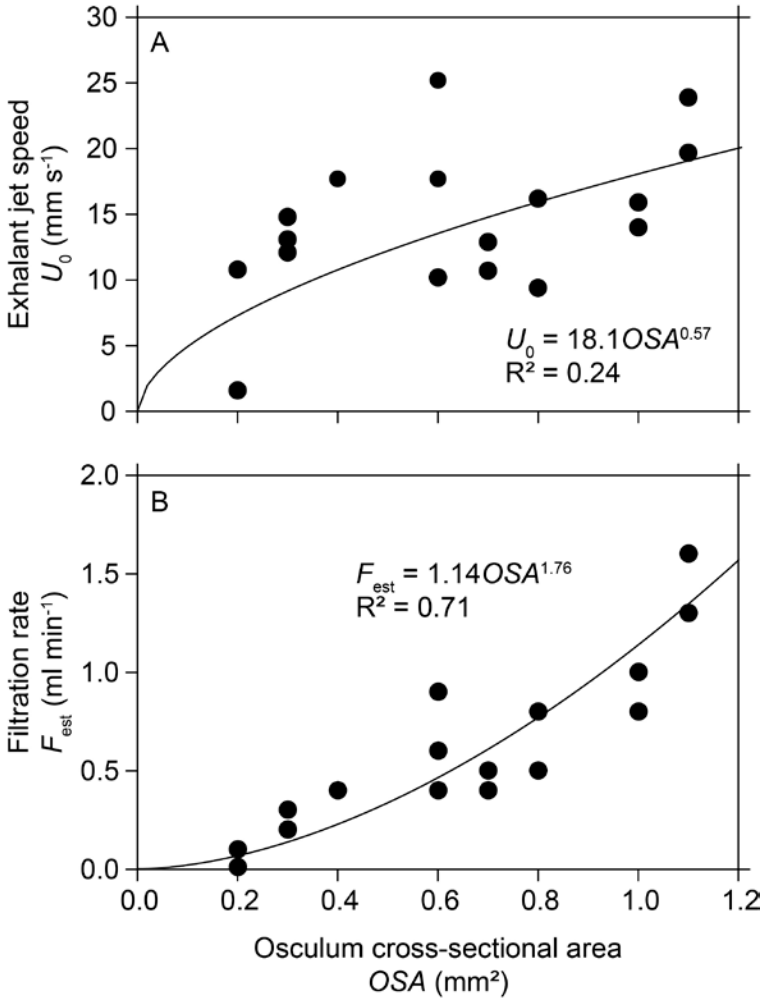

Figure S2. *Halichondria panicea*. (A) Exhalant jet speed (U_0) and (B) estimated filtration rate (F_{est}) as a function of the osculum cross-sectional area (*OSA*) in single-osculum sponge explants. Data from Table 1.

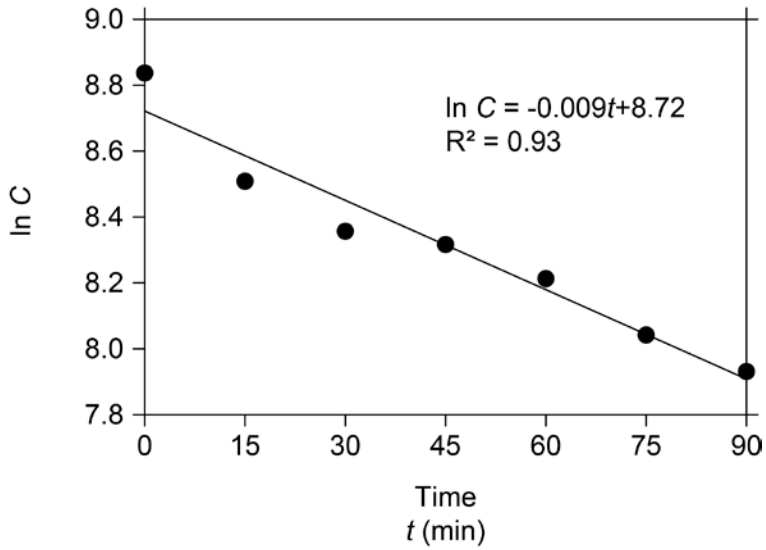

Figure S3. *Halichondria panicea*. Semi-ln plot of reduction in algal (*Rhodomonas salina*) concentration (*C*, cells ml^{-1}) over time in an aquarium (400 ml) with a single-osculum sponge explant.

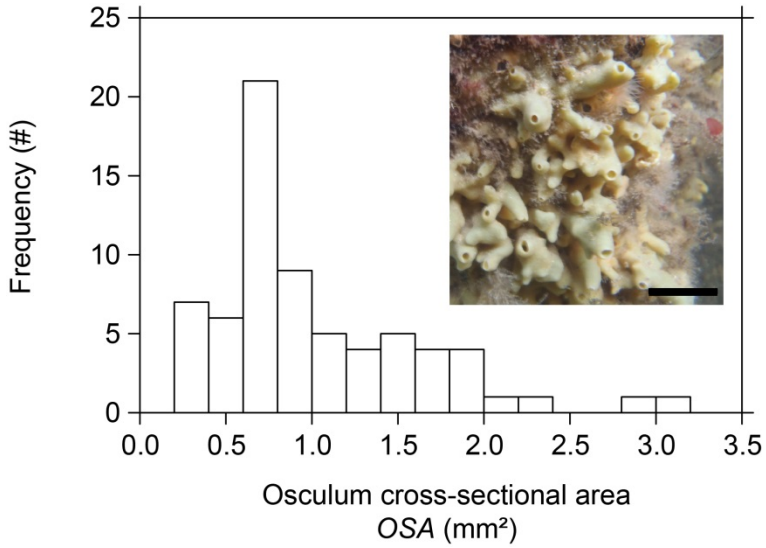

Figure S4. *Halichondria panicea*. Size distribution of osculum cross-sectional area (*OSA*) *in situ* (scale bar: 20 mm).

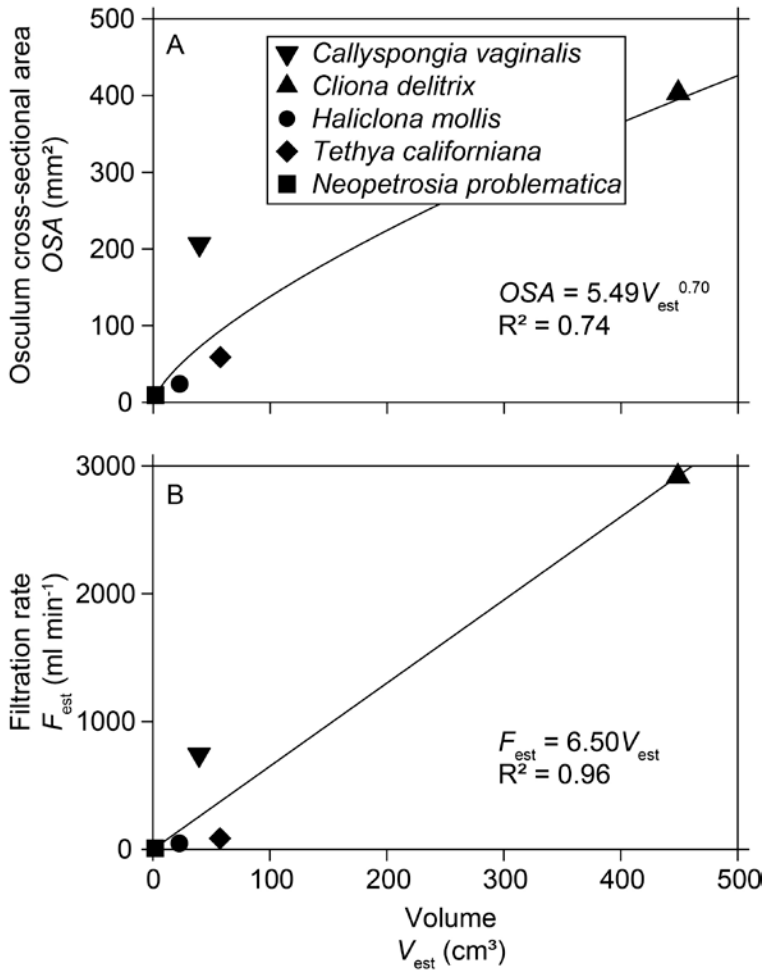

Figure S5. (A) Osculum cross-sectional area (*OSA*) and (B) estimated filtration rate (F_{est}) as function of sponge volume (V_{est}) for different demosponge species. Data from Table SI based on Ludeman et al. (2017).

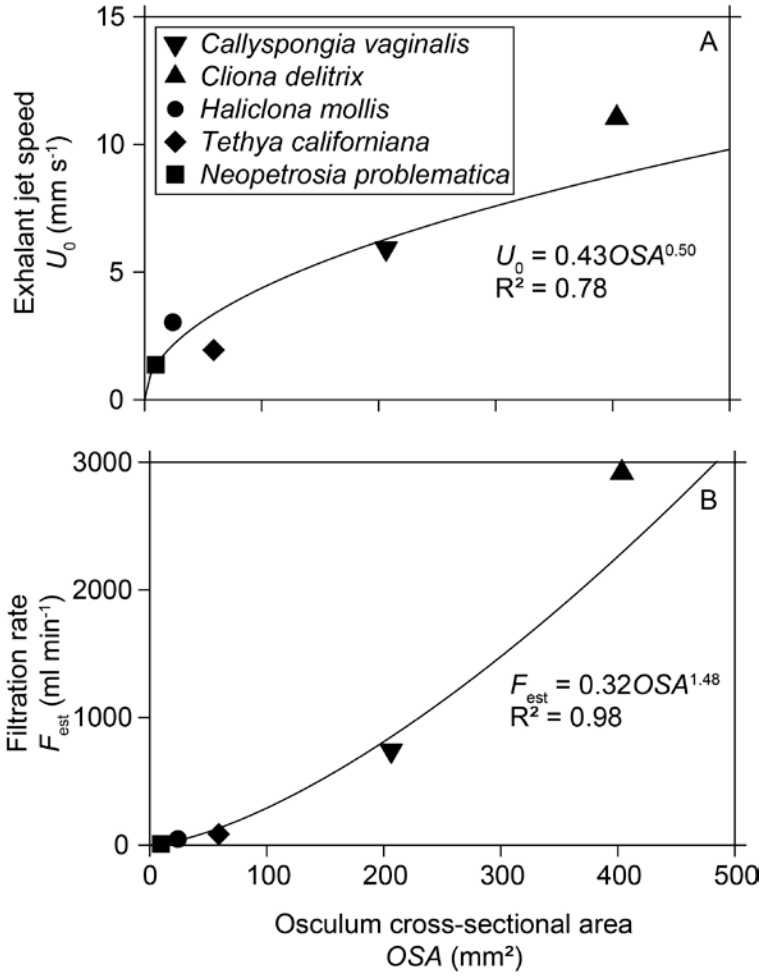

Figure S6. (A) Exhalant jet speed (U_0) and (B) estimated filtration rate (F_{est}) as function of osculum cross-sectional area (*OSA*) for different demosponge species. Data from Table SI based on Ludeman et al. (2017).

Reference

Ludeman DA, Reidenbach MA, Leys SP. 2017. The energetic cost of filtration by demosponges and their behavioural response to ambient currents. J Exp Biol. 220(6):995–1007.