Supplementary Material

Figure S1: **The recirculating flume**: a motor A with a propeller thrusts seawater through the return pipe (orange) to the experimental arena C through two flow straighteners, B1 and B2. Flow speed is set using a calibrated controller (not shown) of the motor. Note the presence of the small pipe D, used as a shelter during trials with *P. squamipinnis* and *Neopomacentrus miryae*, replaced with a small coral skeleton for *Dascyllus marginatus*. (Photo credit: Hadar Ella.)

Captions of the Supplementary Video:

Video records of the typical foraging motions of *Pseudanthias squamipinnis* (Ps) under flow speeds of 10 cm/s (left) and 20 cm/s (right), recorded above the flume with a down-looking video camera. The playback speed is X2. The flow direction is from left to right. Note the more narrow orientation of the fish and its lower frequency of turning to the left and right with respect to the direction of the oncoming flow.

The complementary study of *Chromis dimidiata*

The damselfish *Chromis dimidiata* (acronym: *Cd*) (Klunzinger, 1871), Figure S2, was studied using an overlapping yet different ranges of flow speeds and prey densities than those reported in the main text for *Ps*, *Dm*, and *Nm*. Due to this difference, no capture efficiencies were calculated for this species and the results are reported in the Supplementary Material.

Cd is distributed across the Western Indian Ocean and the Red Sea. This site-attached fish is associated with shelters found in rocky substrates and coral heads.

Figure S2. An underwater photo of *Chromis dimidiata* (approximately 4.5 cm in standard length).

Predation rates by *Cd* were measured under two prey densities (210 and 630 prey m^{-3}) and 5 flow speeds (5, 11, 17, 22, and 28 cm/s) using 3 individual fish, each measured under all permutations of the above parameters. Two-way Repeated Measures ANOVA (Table S1) indicated significant effects of both prey density ($P = 0.032$, Figure S3) and flow speed ($F_{1,4} = 13.06$, $P < 0.001$, Figure S4). The interaction between flow speed and prey density was not significant.

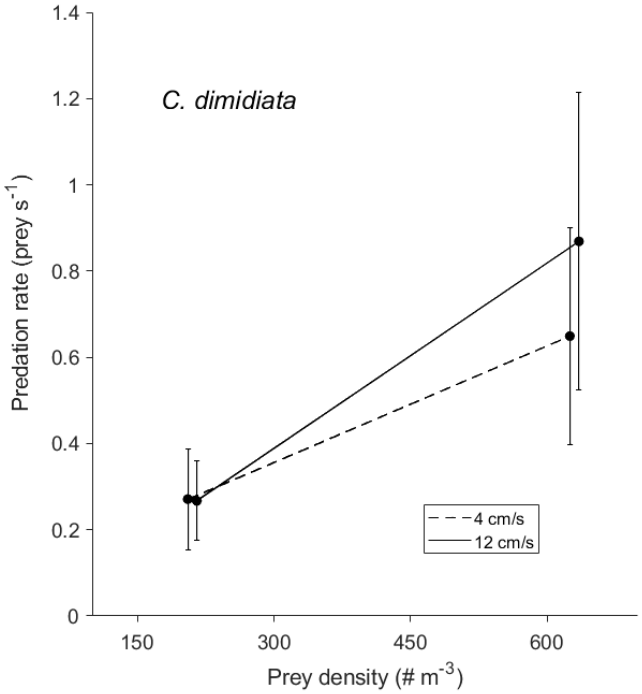

Figure S3. The effect of prey density on mean (±sd) predation rates by *C. dimidiata* at two levels of flow speed (4 and 12 cm/s). See Table S1 for statistics.

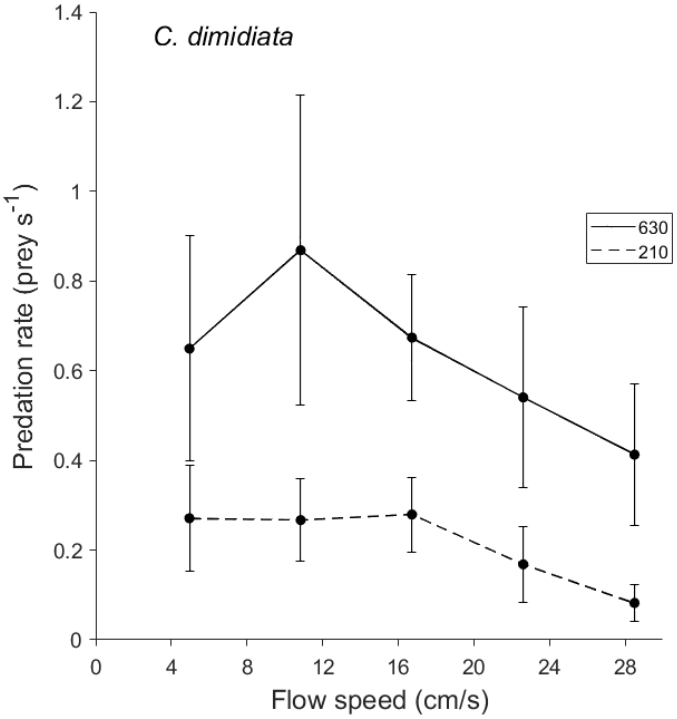

Figure S4. The effect of flow speed on mean (±sd) predation rates by *C. dimidiate* at two levels of prey density (210 and 630 prey m^{-3}). See Table S1 for statistics.

Within the range of flow speeds tested for all species (and two levels of prey density tested for all species (5 – 21 cm/s) predation rates by *Cd* were similar to those of *Ps, Dm,* and *Nm*, except the nearly double feeding rates by *Nm* under conditions of weak flow (< 10 cm/s) (Fig. S5). Due to the different flow speeds examined for Cd and the other species, the significance of this inter-specific comparison was not statistically tested.

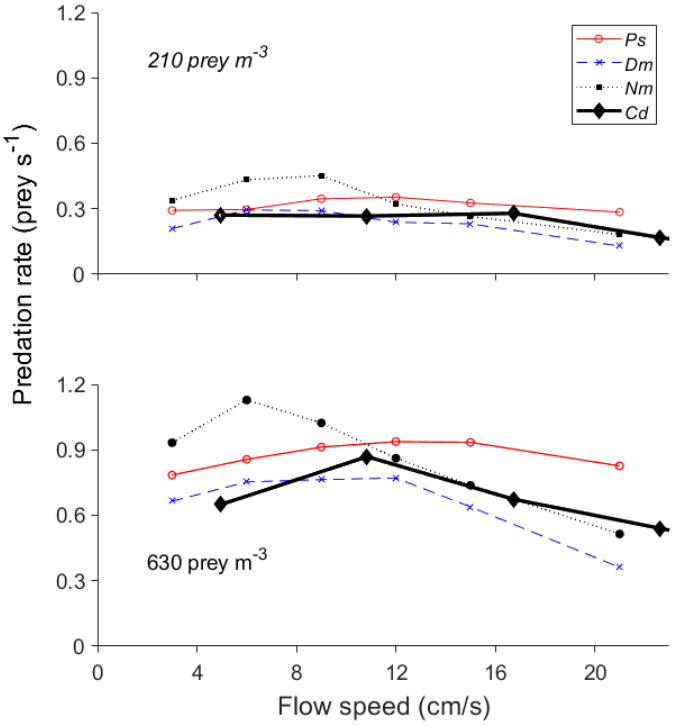

Figure S5. A comparison of predation rates between *C. dimidiata* (thick black line) and the other three species (color coded) under different flow speeds under conditions of two prey densities: 210 prey m-3 (upper panel) and 630 prey m-3 (lower panel). Error bars, shown in Figs. 4 and S4, were omitted in this figure to improve the visual comparison.

The effect of prey flux on predation rates by *Cd* (Fig. S6) was similar to that observed for *Ps*, *Dm*, and *Nm* (main text) in the sense that substantially higher rates were observed for combinations of higher prey density and weaker flows than those observed under the lower prey density and stronger flows.

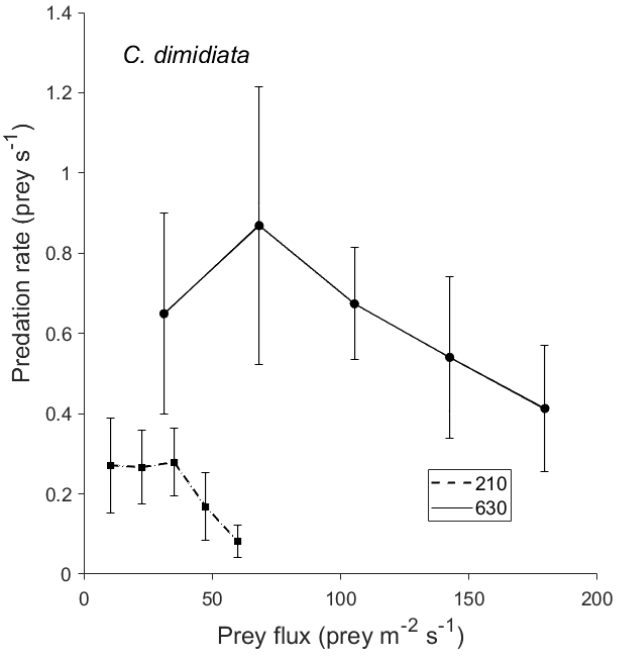

Figure S6. Mean (±sd) rates of predation by *C. dimidiata* under different levels of prey flux measured under two prey densities (210 and 630 prey m^{-3}). Note the range of 30-60 prey m^{-2} s^{-1} where predation rates can be compared under similar fluxes that reflect two different combinations, one with lower and the other with higher, prey densities.

Table S1. Repeated Measures mixed ANOVA testing the effect of flow speed (5 levels; Within-Subjects Effect) and prey density (2 levels; Between Subjects Effect) on predation rates in *C. dimidiata*.

Factor	SS	df	F	*P*
Flow speed	0.364	4	13.06	<0.001
prey * flow	0.068	4	2.46	NS
Prey density	1.295	1	10.37	0.032
Error (prey)	.111	16		