

Table S2: Characteristics of four substrate types.

Substrate	$\bar{z}_o$ (cm)	$C_D$	$s_{u_*}$
Natural reef	1.5	0.019	0.114
Oyster shell	0.3	0.008	0.075
Whelk shell	1.7	0.011	0.119
Mud	0.4	0.009	0.082

Average roughness height  $\bar{z}_o$ , drag coefficient  $C_D$ , and shear velocity scale factor  $s_{u_*}$  for velocity profiles used in the hitting-distance model. Measurements described in [12].