

# Prey size selection and bottom type influence multiple predator effects in a crab–bivalve system

Melisa C. Wong<sup>1,2,\*</sup>, Charles H. Peterson<sup>1</sup>, Jenessa Kay<sup>1</sup>

<sup>1</sup>Institute of Marine Sciences, University of North Carolina at Chapel Hill, 3431 Arendell St., Morehead City, North Carolina 28557, USA

<sup>2</sup>Present address: Fisheries and Oceans Canada, Bedford Institute of Oceanography, 1 Challenger Dr., Dartmouth, Nova Scotia B2Y 4A2, Canada

\*Email: melisa.wong@dfo-mpo.gc.ca

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## Supplement 1.

Table S1. Results of 1-sample Hotelling's  $T^2$  statistics that compare selection indices for small and medium clam sizes with the index of no selection ( $\alpha = 0.333$ ). Data are cumulative over time for each predator environment. df1: numerator df; df2: denominator df; BC: blue crab; SC: stone crab. Results of  $t$ -tests for predator environments that did not consume medium or large clams: BC + BC on sand:  $t_1 = 4.83$ ,  $p = 0.130$ ; BC on hard bottom:  $t_5 = 266.3$ ,  $p < 0.0001$ ; BC + BC on hard bottom:  $t_5 = 47.8$ ,  $p < 0.0001$ . The selection index for small clams for BC on sand did not vary from 1. Text in **bold** indicates significant results. \*contribution to the significant result

Bottom type	Predator	$T^2$	$F_{df1,df2}$	p	Mean $\pm$ 95% CI
Hard	BC+BC	$9.4 \times 10^4$	$3.8 \times 10^4_{2,4}$	<b>&lt;0.0001</b>	Small: $0.921 \leq 0.978 \leq 1.00^*$ Medium: $0 \leq 0.021 \leq 0.077^*$
	BC+SC	$4.7 \times 10^3$	$2.0 \times 10^3_{2,5}$	<b>&lt;0.0001</b>	Small: $0.657 \leq 0.831 \leq 1.00^*$ Medium: $0 \leq 0.160 \leq 0.331^*$
	SC	89.1	$35.7_{2,4}$	<b>0.002</b>	Small: $0 \leq 0.548 \leq 1.00$ Medium: $0 \leq 0.384 \leq 0.900$
	SC+SC	78.5	$31.4_{2,4}$	<b>0.004</b>	Small: $0.026 \leq 0.431 \leq 0.836$ Medium: $0.169 \leq 0.465 \leq 0.760$
Sand	BC+SC	550.1	$206.3_{2,3}$	<b>0.0006</b>	Small: $0 \leq 0.684 \leq 1.00$ Medium: $0 \leq 0.297 \leq 1.00$
	SC	19.9	$7.95_{2,4}$	<b>0.040</b>	Small: $0 \leq 0.485 \leq 1.00$ Medium: $0 \leq 0.400 \leq 0.971$
	SC+SC	0.598	$0.239_{2,4}$	0.797	Small: $0.139 \leq 0.379 \leq 0.625$ Medium: $0 \leq 0.275 \leq 0.716$

Table S2. Results of ANOVAs for foraging behaviours in the multiple prey-size experiment. Data for the proportion of time spent searching were square root transformed. Post hoc comparisons are ordered according to increasing magnitude of treatment means; those sharing a common underline do not differ significantly. df1: numerator df; df2: denominator df; P: predator treatment; B: bottom type. Units for encounter rate between predators are number of encounters per observation hour. Text in **bold** indicates significant results

Dependent variable	Source of variation	Effect MS	Error MS	$F_{df1,df2}$	p	Post hoc comparisons
Proportion of time spent searching	P	0.007	0.009	$0.85_{4,47}$	0.501	
	B	0.09	0.009	$10.2_{1,47}$	<b>0.003</b>	Sand Hard
	P $\times$ B	0.008	0.009	$0.91_{4,47}$	0.91	
Proportion of time spent handling	P	0.002	0.004	$0.52_{4,47}$	0.732	
	B	0.08	0.004	$20.5_{1,47}$	<b>&lt;0.0001</b>	Sand Hard
	P $\times$ B	0.008	0.004	$2.1_{4,47}$	0.100	
Proportion of time spent foraging (search + handling)	P	0.005	0.007	$0.69_{4,47}$	0.600	
	B	0.118	0.007	$18.0_{1,47}$	<b>0.0001</b>	Sand Hard
	P $\times$ B	0.012	0.007	$1.76_{4,47}$	0.153	
Encounter rate between predators	P	1.949	0.246	$7.94_{2,30}$	<b>0.002</b>	<u>SC+SC</u> <u>BC+SC</u> BC+BC
	B	2.417	0.246	$9.85_{1,30}$	<b>0.004</b>	Sand Hard
	P $\times$ B	0.224	0.246	$0.91_{2,30}$	0.413	

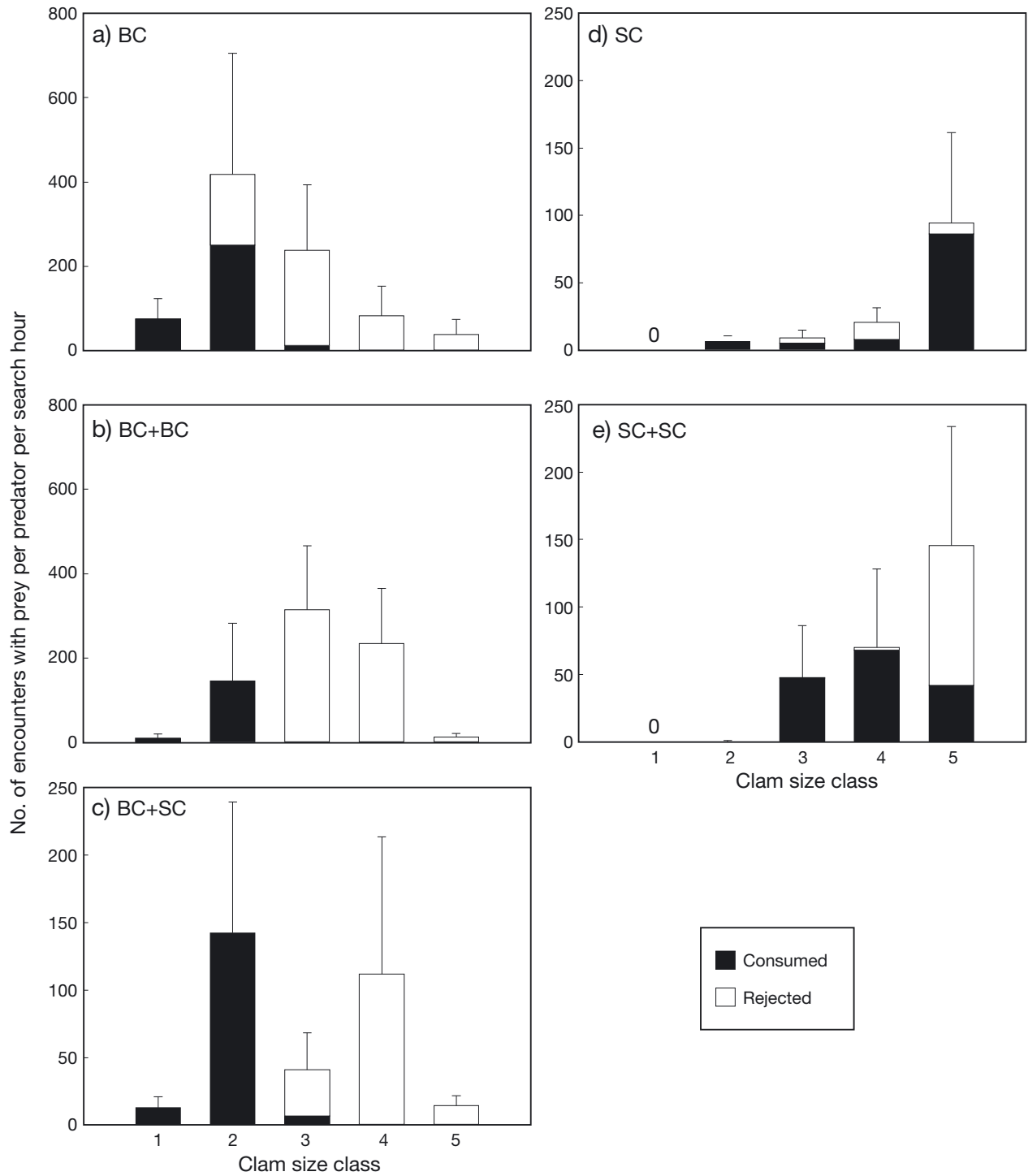


Fig. S1. Encounter rates with prey on hard bottom observed during the multiple prey size experiment. Data for BC + SC are for observations of blue crabs. Clam size classes 1 to 5 were 10–20, 21–30, 31–40, 41–50 and 51–60 mm SL, respectively. BC: blue crab; SC: stone crab. Error bars are + 1 SE, n = 4 to 7