

Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

In late May to early September 2001 the impact of Green Crab (*Carcinus Maenas* L.) predation on soft-shell clams (*Mya arenaria*) was investigated with caging experiment carried out on an estuarine mudflat in Pomquet Harbour, Nova Scotia. Cages were constructed of plastic-coated wire, with a square mesh opening of 1×1 cm. Six replicate cages (0.83 m²) were set up for each cage type. Cage types were as follows: (1) enclosure cages with no predators added, (2) control cages with 20×70 cm portions of each side removed allowing for unrestricted predator movement, (3) undisturbed mudflat 0.83 m² area adjacent to the cage matrix used as an uncaged control, (4) low-predator-density cages with 1 crab added, and (5) high-predator-density cages with 5 crabs added. The low predator density (1.2 crabs/m²) and high predator density (6.1 crabs/m²) were chosen to reflect densities estimated by previous researchers.

To reduce the potential impact of environmental heterogeneity, cages were grouped in 6 rows oriented perpendicular to the slope of the mudflat. One of each cage type was randomly assigned to a position in each row with 1 m between the cages. The fifth “cage type” (open mudflat controls) was located adjacent to each row of cages. All 5 cage types were present in each row.

Green crabs trapped the previous day were added to the appropriate cages by cutting a small flap in the cage, adding crabs, and closing the flap with plastic cable ties. Approximately 3 months after deployment the cages were removed from the substratum. All sediment inside the cages was excavated to a depth of 30 cm and sieved to collect soft-shell clams. The undisturbed mudflat control plots were subjected to the same sampling regimen. Clams were counted separately as large (>17 mm in length) or small (<17 mm). The crabs prey upon the smaller clams, so this was the variable of interest.

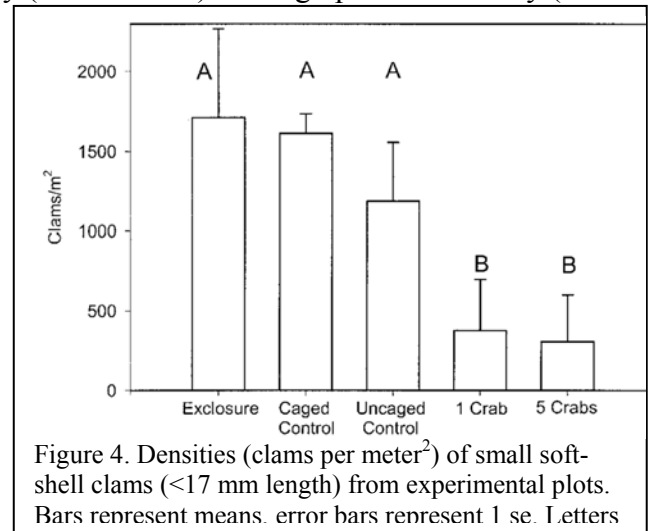


Figure 4. Densities (clams per meter²) of small soft-shell clams (<17 mm length) from experimental plots. Bars represent means. error bars represent 1 se. Letters

Answer choices:	(A) small clam number	(B) row	(C) estuarine mudflat
	(D) a cage	(E) Green crabs	(F) cage type

Name _____ Quiz Number _____ Date _____ / _____ / 2012

Circle the appropriate letter for each question.

- 1) What is the experimental unit for this experiment? A B C D E F
- 2) What is the sampling unit for this experiment? A B C D E F
- 3) What is the dependent variable for this experiment? A B C D E F
- 4) What is the treatment variable for this experiment? A B C D E F
- 5) If the design is RBD, what are the blocks? A B C D E F NA
- 6) Does it seem more likely that the treatments are fixed or random? (A) fixed (B) random
- 7) What is the treatment arrangement for this experiment? (A) single factor (B) factorial (C) nested
- 8) What is the experimental design? (A) CRD (B) RBD (C) LSD (D) Split-plot (E) Repeated Measures
- 9) The treatment degrees of freedom are _____ .
- 10) The degrees of freedom for the error used for testing treatments are _____ .