

Optimal Foraging Effect on Prey-Size Preference in the Sea Star (*Asterias vulgaris*) -- Blue Mussel (*Mytilus edulis*) Predator-Prey Relationship.

Predators will choose prey according to the amount of energy necessary to capture, ingest and digest the prey, and the amount of energy gained from the prey. A net energy gain is ideal. This experiment looked at the prey-size preference of the common sea star, *Asterias vulgaris*, on its preferred prey, the blue mussel, *Mytilus edulis*. Sea stars from three size classes were individually offered three mussels at a time, one from each of three size classes. Consumed mussels were continuously replaced over the course of the experiment. Observations were made of which mussels were being attacked successfully by each sea star over a four-week period. There was a significant interaction between the size classes of sea stars and the size classes of mussels, indicating a preference in prey-size choice.

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