**Round: 11A**

The following questions deal with the graph below, which presents preliminary stock assessment data for a newly discovered fishable species commonly referred to as the 'Sea Bunny'. Answer the following questions based on the figure below and your knowledge of fisheries management.

1. a) What is the maximum attainable value for any given number of hours of effort for this fishery (in dollars)? *$24,000 (+/- 1000 OK) (3 pts)*

   b) How much fishing effort is required to achieve this yield?

   16,000 hours (+/- 1000 OK) (3 pts)

Sea Bunny Fishery Data
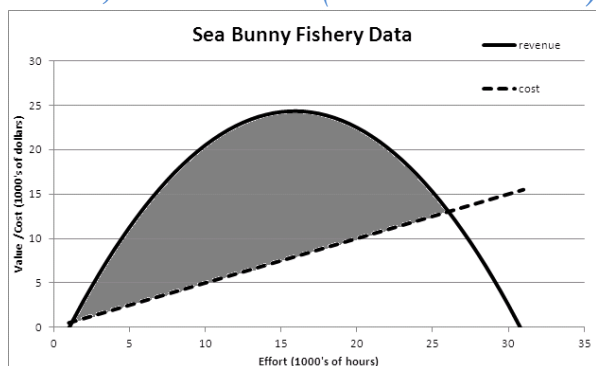
2. a) Shade in the portion of the graph above that represents the profits made by the fishery. *The area between the revenue and cost lines should be shaded (4 pts)*

   b) What level of effort will maximize profits? *Profit is maximized at an effort of 12,000 hours (+/-1,000 for full credit, +/-2,000 for half credit) ALSO ACCEPT where the slope of the revenue curve is the same as the slope of the cost curve (2pts).*

   c) Approximately how much profit does the fishery make at this level of effort? *The profit at this point is approximately 17,000 dollars (23-6). Again, +/- 1,000 for full credit or +/- 2,000 for half credit (2pts maximum).*

3. An unregulated fishery is typically exploited to the point where it is no longer economically beneficial to continue catching fish.

   a) Mark this point with an M on the above graph.

   The M should be at the intersection of the revenue and cost curves (2 pts)

   b) Why do fishermen often continue to fish beyond the level that would bring the most profit for the fishery?

   Fishermen continue to exploit until this point because even though the total profit for the fishery decreases, the <u>individual fisherman stands to make money as long as his cost for catching one more fish is less than the revenue generated by selling it</u> (4pts).

   **Accept for full credit any answer indicating that there is still <u>NET profit to be made by increasing effort</u> or similar. Consider answers approaching but not reaching this concept for partial credit.

REFERENCES: Concept from: Jennings, S., M. Kaiser, and J. D. Reynolds. 2005. Marine Fisheries Ecology. Blackwell, Malden, MA. Data/graph made by J. Krumholz