

<b>CHAPTER 1</b>	<b>Thought Lab 1.2: Energy Fluctuation in an Ecosystem Answer Key</b>	<b>BLM 1.2.13A</b>
<b>ANSWER KEY</b>		

### Answers to Analysis Questions

1. The higher the energy content of the food, the more likely that the sea lion will increase in body size.
2. Small, unhealthy sea lions are less likely to produce healthy offspring, may be less likely to mate, and may be more likely to be consumed by predators or succumb to disease.
3. The sea lion population size is decreasing and fewer pups are being born; pups are not receiving the nourishment they require and are not surviving after birth; malnourishment of female sea lions is decreasing the number of healthy pups brought to term. Other factors such as climate change, increased predation, and getting caught in fishnets could also play a role in the decreased number of pups.
4. Your food web should consist of a main food chain that shows kelp at the first trophic level, sea urchins at the second trophic level, otters at the third trophic level, and orcas at the fourth trophic level. The food web should also have a branch that includes sea lions in the third trophic level, and may include fish, zooplankton, and phytoplankton in the lower trophic levels (optional). All trophic levels or producer/consumer levels should be labelled. Answers must also explain that if orcas change their diet to consume fewer sea lions and more otters, the otter population would decrease, causing an increase in the sea urchin population (that the otters consume). The larger sea urchin population would eat more kelp, and the kelp population would decrease as a result.