**Great Salt Lake Ecosystem**

Great Salt Lake (Utah, USA) is one of the world's largest hypersaline lakes in the world and is the largest lake west of the Mississippi River. This lake is a critical habitat for migrating birds to feed and grow before the move on, more than 7.5 million birds in 257 species rely upon this unique ecosystem. The ecosystem consists of two weakly linked food webs: one phytoplankton‐based, the other algae‐based.

Over 50 different species of algae live in and around the lake including **Salina red pigment algae**, **blue-green algae, and Phytoplankton**. These plants use sunlight energy to create their own energy source. There are species of **Brine shrimp** (tiny crustaceans) and **Brine flies** which can tolerate the high salt content and feed on the algae. Scientists estimate that there may be billions of brine flies and shrimp swarming around the lake during the summer and are a major food source for migratory birds.

Great Salt Lake is too saline to support fish and most other aquatic species: however, they do occur in Bear River Bay and Farmington Bay when spring runoff brings fresh water into the lake. Some of the common fish would be **Large mouth bass** and **Channel catfish**.

**Northern Leopard frogs** and **Tiger salamanders** feed on brine shrimp and flies and can themselves be eaten by migratory birds and snakes like the **Yellow-tailed Racers**.

Salt Lake has one of America’s largest **pelican** populations. Pelicans eat fish but they nest in Gunnison Island, in the northern arm of the lake because it’s remote and there are no predators on the island. Migrating birds like the **Great Blue Herons** and **Black-necked Sandpipers** can also be seen feeding on brine flies, fish and salamanders and snakes. Predatory birds like the **Prairie falcon** and **Bald eagle** will eat fish and other small rodents including **Jackrabbits**, **Deer mouse** and **Antelope ground squirrels**. **Jackrabbits, Deer mouse** and **Antelope ground squirrels** can be seen feeding on **Rabbitbrush** and **Great Basin wild Saltgrass** that can grow in the salty soil around Great Salt Lake. **Short-tailed weasels** and **Bobcats** are top predators and feed on any number of these rodents as well.

**Bacteria** and **fungus** in the soil will quickly break down all organic material and restore this back into the system for producers to use again.

**THREAT**

The West often goes into drought cycles which, compounded by warming temperatures in Utah, results in less snowpack and precipitation. Salt Lake City also has a growing population which places more demand on water resources causing less water entering Great Salt Lake through rivers. Lower water levels in the Great Salt Lake can reduce the number of Brine shrimp and Brine flies in and around the lake.

**Proficiency Requirements:**

Based upon the information on Great Salt Lake Ecosystem create the following:

* Energy Role List of producers, primary consumers, and secondary consumers
* Food Chains (6 organisms including decomposers)
* Energy Pyramid (organisms, percentages of energy, percentages of heat energy)
* Food Web (8 or more organisms showing the interdependence and relationships among organisms)
* A five sentence paragraph explaining how the “Threat” could affect the food web you have created.