Follow up Questions...

1. How long did it take for the brine shrimp to hatch? _____
2. How long did it take for the brine shrimp to become fully grown adults? _____
3. Can you see a difference between male and female brine shrimp? _____

   If so, what is the difference?

   _____
4. Did you see female brine shrimp with nauplii or cysts in her egg sack at the base of her tail? _____

   If so, what did it look like?

   _____
5. What was the most interesting thing you saw?

   _____

   _____
6. What made the water green?

   _____
7. Why are brine shrimp important?

   _____

   _____

   _____
8. If a female produces 253 nauplii and then 1 week later has 327 more, how many nauplii total did she produce? _____ nauplii

   *Challenge question: What is the average number of nauplii the female in Question #8 produced? _____

Eared Grebes feed mainly on brine shrimp. They can eat thousands of brine shrimp in a day!

Eared Grebe—Artist: Daniel S. Kilby

Did You Know?

- Brine shrimp have been in Utah for over **600,000 years**!
- **Brine** means salt and these shrimp are the best at living in salty water. That's why they are called **brine shrimp!**
- Brine shrimp have **two pumps** in their body that get rid of salt so they don't pickle.
- Brine shrimp cysts are tiny—about 200 micrometers in diameter. That means about **50** could fit on the head of a **pin**!
- Adult brine shrimp are only ½ **inch** long when fully grown. Males are slightly larger than females and have large **graspers** near their head.
- Brine shrimp feed on **algae** found in Great Salt Lake. When they filter feed, their bodies also absorb toxins that are, unfortunately, in the water too.
- During the freezing winter at Great Salt Lake, all of the brine shrimp die. Cysts that were produced during the fall survive the **cold** and hatch in the spring to **repopulate** the lake.
- **Millions of pounds** of brine shrimp cysts are harvested each year from Great Salt Lake. These are used as **food** to raise fish and prawns that people eat. The industry brings **millions** of dollars and lots of jobs to Utah!
- Every year around **7.5 million birds,** representing 257 species, use Great Salt Lake to rest and refuel. Many **eat brine shrimp** to fatten up for the next leg of their journey.

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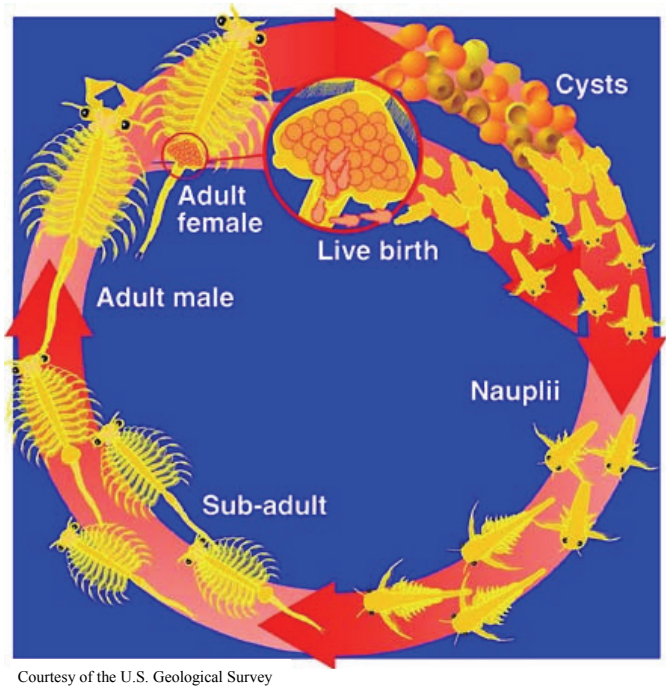
Create your Own Brine Shrimp Ecosphere

UTAH DNR WILDLIFE RESOURCES

Brine Shrimp Life Cycle



Courtesy of the U.S. Geological Survey

- Male and female brine shrimp in Great Salt Lake mate to reproduce.
- Female brine shrimp can produce eggs called "**cysts.**" Cysts can survive extremely tough conditions. They can be frozen, dried, and covered in salt for years at a time and still hatch when conditions improve!
- Brine shrimp can also produce live young. These are called "**nauplii.**"
- If conditions are good, a female brine shrimp can produce around **300 nauplii** or cysts every **four days**. Since she can live as long as **3 months,** that's a lot of young!

Brine Shrimp Ecosphere

Materials:

- Funnel
- A 2-Liter container – a 2 liter soda bottle works great!
- Tap Water – 2 liters
- Table or Rock Salt (must be **non-iodized**) – ½ cup
- Brine Shrimp Eggs (Cysts) – small pinch
- Algae disk, crushed up (from the pet store ~ $5)
- Permanent marker

Procedure:

1. Fill the plastic container with tap or Great Salt Lake water to where the sides start to curve in at the top.
2. If you use tap water, allow it to sit in an open container for 24 hours to remove the chlorine.
3. Mark the top of the water level with the marker.
4. Add salt to the water and shake the container to dissolve. A funnel will make it easier to add the salt without making a mess!
5. Add a really small pinch of the brine shrimp eggs—don't use all that are provided.
6. Add a pinch of crushed up algae disk for the shrimp to eat.
7. Gently invert the container to mix.
8. Place the container in a window with partial sunlight. Leave uncovered and keep the aquarium in a spot that is near room temperature. Save the lid and gently invert the container with the lid on every day or so.
9. The brine shrimp should hatch and be swimming within 48 hours. As brine shrimp feed on the algae the water will become clear. Add a pinch of algae when the water is not cloudy any more. Don't feed them too much!

Keeping them alive:

- When you notice the water level dropping add some tap water (let it stand to remove chlorine) to bring the water level back up to the mark on the bottle. (You don't need to add more salt since only the water has evaporated.)
- The longer the brine shrimp live, the more debris will accumulate at the bottom of your ecosphere. To clean, use anything that will filter out water. A coffee filter works great! Pour most of the water out through the filter. Dump the last inch of water and debris mix out. Use the funnel to wash the shrimp back into the tank with freshly made salt water.
- If your brine shrimp colony dies off over time you have more brine shrimp eggs to start all over.

LOG of Events:

Date Experiment Started: _____

DRAW and write notes:

1-2 days

3-5 days

1-2 weeks

3-4 weeks