

THE 4 LIVING THINGS IN THE GREAT

SALT LAKE Educator- Summary of Lesson Plan 4

Brine Shrimp/ Brine Fly Activity Objectives:

- . **1) Name the four living things in the Great Salt Lake.**
- . **2) Identify what eats the algae in the lake**
- . **3) What role does bacteria play in the Great Salt Lake**
- . **4) Identify the life cycle of the brine shrimp**
- . **5) Identify the life cycle of the brine fly**
- . **6) Identify the differences between male and female brine shrimp.**

Introduction

The Great Salt Lake is so salty that the only living things in the lake are algae, bacteria, brine shrimp and brine flies. Brine is another word for “salt”. There are no fish in the lake because of the salinity. Brine Shrimp go through different life stages. First are the eggs or “cysts”, second are the babies called “nauplii”, the third is a juvenile stage where they look like mini adults, finally the adult stage, where you can identify female and male. The Female shrimp have little egg sacs on the their back, while the male shrimp have two large claws above their heads.

While brine shrimp lay eggs, they can also give birth to live young. The eggs can l ay dormant for up to 25 years until the right conditions arise. (temperature, salinity, etc)

Brine Flies also go through life stages: eggs, larvae, pupa, and adult. The Brine fly spends half of its life in the lake. The eggs are laid in the water and remain until the pupa stage, where they wash up on shore and emerge as adults. Brine Shrimp and

Brine Flies eat the algae that live in the lake, and the birds eat the shrimp. Our brine shrimp and brine flies are the keystone species of the ecosystem of the lake. Without them, we would not have the large population of birds.

THE 4 LIVING THINGS IN THE GREAT SALT LAKE

OBJECTIVES:

- 1) Name the four living things that live in the Great Salt Lake**
- 2) Identify what eats the algae in the lake**
- 3) What role does bacteria play in the Great Salt Lake**
- 4) Identify the life cycle of the Brine Fly**
- 5) Identify the life cycle of the Brine Shrimp**
- 6) Identify the differences between male and female brine shrimp**
- 7) Spend 10-15 minutes in the water to catch a brine shrimp**

LAST STOP-10ish feet from the water

(if there are a lot of brine flies let the kids know that they do not bite and are helping to clean the beach)

- A) The Great Salt Lake is so salty that the only living things in the lake are algae, bacteria, brine shrimp and brine flies.**
- B) Algae is a very small plant and that is the diet of the brine shrimp and brine fly.**
- C) Bacteria is everywhere in the world and also exists in the Great Salt Lake. The bacteria help dispose or get rid of the bio-waste in and around the lake, like**

dead algae and the brine shrimp sheds/molts.

D) Brine flies go through 4 different life stages: (refer to brine fly life cycle in binder)

- 1) Eggs**
- 2) Larvae**
- 3) Pupa**
- 4) Adult**

The adult brine fly will lay eggs in the water. The eggs grow and eventually a fly will hatch and float to the surface of the water in an air bubble and it will live the rest of its adult life on the edge of the lake. There are so many brine flies in the summer on the beach that they look like a black mat. (again they do not bite)

E) Brine shrimp go through 4 different life stages: (refer to brine shrimp life cycle)

- 1) Cysts- also known as the eggs- These cysts/eggs can lay dormant for up to 25 years until the right conditions arise. (temperature, salinity, etc.)**
- 2) Nauplii- the active young baby shrimp**
- 3) Juvenile stage- they look like mini adults at this stage**
- 4) Adults- at this stage you can tell the difference between a male and female brine shrimp (show life cycle- adults picture) The male brine shrimp has two large claws above their head and the female shrimp have small egg sacs on their back.**

5) NOTE- Brine shrimp can give birth to live young as well as lay eggs!**

F) Brine shrimp and Brine flies eat the algae that live in the lake and the birds eat the shrimp. Our brine shrimp and Brine flies are the KEYSTONE SPECIES of the ecosystem of the lake. Without them, we would not have a large population of birds.

G) Divide the kids into groups of two or three and provide each group a plastic cup.

1) Let them know to keep their cups in their hands because you will be collecting them at the end of the activity.

2) Let the kids know not to splash each other because the salt will sting their eyes. Also it is advised not to go into the water any higher than their knees.

3) Have them scoop the water and attempt to catch a brine shrimp. Once they have caught a brine shrimp have them show you and or another adult in the group. Have them return the brine shrimp to the water.

H) Collect the cups and place in your tote bag. Return to pavilion and place in plastic container. Return items to Visitor Center. Thank you! We hope that your students enjoyed their visit here at Antelope Island.

