# CRITICAL HABITAT INDOOR LAB
# TEACHER'S GUIDE

**Learning Goal:** Students will be able to identify critical habitat types and understand the importance of these areas to the functioning and ecology of lake ecosystems.

**Objectives:**

- Identify critical habitat area types and factors that distinguish them from other habitat areas.
- Apply knowledge of critical habitat areas to animal habitat needs and where animals live.
- Explain why an area of a lake would be designated as a critical habitat area.
- Navigate through a series of websites to find specific information pertaining to critical habitat and research of a specific body of water (*optional add-on exercise*).

1. Introduce the guests in the room and hand out lab manuals.

2. Briefly introduce today's topic. Ask students to define what "critical" means and what the word "habitat" means. As you are discussing these two words and what they mean when combined, have students write down their definitions in the lab book.
    - In this case, the word "critical" is used to describe the importance of something. "Habitat" is a place where an organism lives. For animals, habitats need to provide food, water, shelter, and space that will allow them to grow, survive, and reproduce.
    - When combined, "critical habitat" refers to habitat that is essential to an ecosystem and is an area that is important for plant and animal health.

3. Go over the facts that are on the first page of the Critical Habitat lab packet. Describe the importance of nearshore habitats. Discuss why nearshore habitats are so critical.
    - The shallow water areas provide a habitat where aquatic vegetation can grow. The sunlight still reaches the lake bottom, allowing vegetation to establish.
    - This leads to shelter for macroinvertebrates and fish.
    - Ask students if they know distances for statewide no-wake laws for recreational boating. Wisconsin: 100 feet for water skiing and 200 feet for jet skiing, wake boat developing regulations (as of 2021). Ask students how no-wake laws protect nearshore habitats and the organisms that live there?

4. Hand out the WI DNR critical habitat designation description sheets (referred to below as: WI DNR CH designation sheet). This handout summarizes the importance of each critical habitat, what organisms live there, and how it impacts ecosystems. This document came out of the Wisconsin DNR Critical Habitat Designation program. By acknowledging the importance of these areas, state law allows protection of these critical habitats. The

designation program maps out these areas on lakes. The DNR will also help property owners identify which critical habitats are found on their shoreline and how to protect them.

5. Quickly show the Critical Habitat slideshow presentation (found on the website**). By using the images in the slideshow, students can visualize what the various critical habitats look like in the natural environment. Students can refer to the WI DNR CH designation sheets as they watch the slideshow.

6. Now have students apply what they have learned about critical habitats to Bony Lake (or other local lake you choose). Students will need glue sticks and scissors. There are four handouts:
    a. WI DNR CH designation sheet (previously handed out)
    b. a map of the lake you are studying
    c. that lake's specific critical habitat designations
    d. animal cut-out sheets with descriptions of where each animal prefers to live

7. Assign each group 2-3 critical habitat areas found on the map. Have them write down the numbers in their lab manual. If you have more time, you could have the groups work on the entire lake, instead of a subset of critical habitat areas.

8. Working in groups, students should then identify the specific critical habitat at their first assigned location.
    - Then, students should refer to the WI DNR CH designation sheet to learn more about the habitat type found in their assigned location.
    - Next students should review the animal cut-out page and locate the species that require the critical habitat found in their assigned location (usually multiple species).
    - When they find an animal that would live in the critical habitat area they were assigned, they should cut it out and glue it onto the map in that area. Make sure students have 2-3 different species glued on their maps.

9. Students should repeat this process for any additional locations they were assigned.

10. Be sure to leave enough time so that students have time to answer the summary and critical thinking questions found in the lab manual. Review the importance of nearshore habitats and critical habitat areas and what we would lose if we did not protect these habitats (summary questions 1 and 4).

** This slideshow presentation was developed by WI DNR's Scott Toshner. Scott has been a supporter of the LEEP program since its inception, visiting classrooms to share his knowledge of the WI Critical Habitat program. The goal of this presentation is to increase relevance for students by giving them the chance to visualize habitat diversity and their role in aquatic ecosystems.