

Clear Lake Caretakers

Description

Swim up Clear Lake's tributaries, and record Clear Lake hitch survivorship as different threats are introduced into your watershed in this activity. Students can learn about the threats to the hitch, and how they impact hitch populations. Graph the results of your game and compare these results with actual visual hitch surveys. Students will learn about what Tribes, organizations, and agencies are doing to improve watershed health and conditions for the hitch.

Objectives

Student Objectives	Connect students' observations to ongoing real hitch population data.	Key Youth Practice: Youth engage with complex socio ecological systems
	Discover local organizations that are connected to improving watershed health for the hitch.	Core Activity: Share the work and take action
Educator Objectives	Use graphs to facilitate discussions on patterns and potential influences.	Key Educator Practice: Attend to the unexpected

Key Vocabulary

Water diversion/pumping, drought, invasive species, pollution, tributary, spawn

Instructions

Time

1 hour, 30 minutes

Materials

- Whiteboard and markers
- Print enough copies of [the readings](#) for each student.

- Print copies of the [California Department of Fish and Wildlife Save the Hitch](#) flier.
- Print copies of the [Lake County Strong Clear Lake Hitch: Freshwater Species of the Week](#) article if students will do a silent reading.

Getting Ready

- Familiarize yourself with [the readings](#), which include California Takes Important Steps Alongside Tribes to Protect Clear Lake Hitch; California Department of Fish and Wildlife Commitments to Save Clear Lake Hitch; Robinson Racheria and California Department of Fish and Wildlife’s Common Carp and Goldfish Management; Citizens Caring 4 Clear Lake’s Dump Days Instructions

Facilitation

Part One

Read aloud the [Lake County Strong Clear Lake Hitch: Freshwater Species of the Week](#) article, or have students read silently for 10 minutes. As a group, list all the threats to the hitch mentioned in the article on your white board: water diversion and pumping, drought, invasive species, and pollution. If you read this in the [Data Talks](#) activity, you can have the group recall these same threats discussed using the data.

Introduce the game: everyone is going to be a hitch. Each year, or round of the game, the hitch are going to swim up the tributaries to spawn. Their job will be to run from one spot (Clear Lake) to another (your local creek name) safely. Each year, different threats (refer to the list created as a group) will be introduced. Some years, there will be a lot of threats, and other years there will be less threats. For each year, we will record how many Hitch survive until present day.

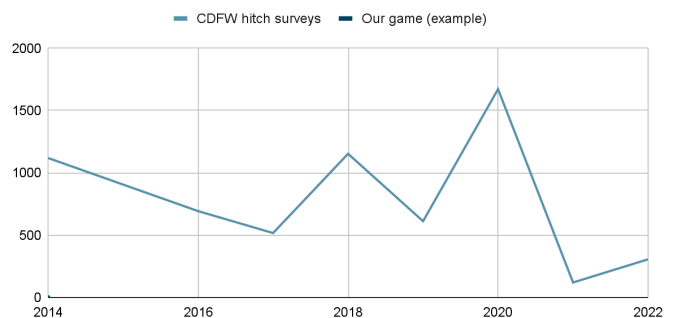
During each round of the game, designate different numbers of students as each of the different threats to be “it.” If a hitch gets tagged by someone who is a threat, then that hitch dies, or is out of the game.

Part Two

On the white board, make a graph of the game (see example Sample Chart)), with each round of the game corresponding to a year 2014-2022 on the x axis, and y axis has the number of fish that survived. Track the hitch survivorship each year, or round of the game. You can also have a student help you do this. After the game, discuss

Sample chart

Comparing real hitch data with our game



what is happening in the graph. Ask the group:

- When was it easiest for the hitch to swim up the tributaries? Answer: when there were a lot of hitch swimming, and there weren't as many threats in the water.
- When was it the hardest for the hitch to swim up the tributaries? Answer: when there were only a few hitch swimming, and there were a lot of threats in the water.
- What is happening to the hitch population over time?

Use data from Table 3 on page 8 of the [California Department of Fish and Wildlife 2023 Clear Lake Hitch Visual Surveys on Clear Lake Tributaries](#) to add to your graph (see example included).

Compare the graph from your game with the graph of visual hitch surveys. What patterns does the group notice? Does the CDFW fish data look the same as our game? Why or why not?

Reflection

Ask students to explain if they think anything is missing from this game that might positively or negatively impact the hitch populations. Highlight how caretakers are addressing each threat – water diversions and pumping, drought, invasive species, and pollution. These are people who are working to remove the threats and help the hitch. They are going to learn about these people and present their work to the group.

Divide the group by people who were tagged by each of the four threats. Have the students work in their groups for 15 minutes to determine how people [in the readings](#) are helping to improve conditions for the hitch:

- Water diversions and pumping (page 1): California Takes Important Steps Alongside Tribes to Protect Clear Lake Hitch
- Drought (page 2-3): California Department of Fish and Wildlife Commitments to Save Clear Lake Hitch
- Invasive species (page 4-5): Robinson Racheria and California Department of Fish and Wildlife's Common Carp and Goldfish Management
- Pollution (page 6-7): Citizens Caring 4 Clear Lake's Dump Days Instructions

Have each small group report back their findings to the whole group. Ask the students to share one thing they think they can do to support the people discussed above who are working to help the hitch. Students can use examples from the [California Department of Fish and Wildlife Save the Hitch](#) flier (either hand out printed copies or project on a screen).

Optional Post-Activity

Use the template on page 6 of the [species list](#) to create a species card for hitch that uses information students learned to share about hitch.