



MĀLAMA OUR STREAMS

How is *lōkahi* (balance, harmony) among native stream plants and animals affected by human activities and what can we do to care for the stream community?

HAWAI'I DOE STANDARD BENCHMARKS

Science 1: The Scientific Process – SCIENTIFIC INVESTIGATION

- S.5.1.2 Formulate and defend conclusions based on evidence.

Science 3: Life and Environmental Sciences - ORGANISMS AND THE ENVIRONMENT

- S.5.3.2 Describe the interdependent relationships among producers, consumers, and decomposers in an ecosystem in terms of the cycles of matter.

Language Arts 4: Writing - CONVENTIONS AND SKILLS

- LA.5.4.1 Write in a variety of grade-appropriate formats for a variety of purposes and audiences.
- LA.5.4.3 Recognize and correct run-on sentences and fragments
- LA.5.4.4 Use a variety of strategies and resources to spell grade-appropriate words



Language Arts 7: Oral Communication - CONVENTIONS AND SKILLS

- LA.5.7.1 Combine ideas from prior knowledge, input from others, and

text resources to elaborate on and support ideas.

GENERAL LEARNER OUTCOMES

GLO 2: Community Contributor

- Cooperate with and help and encourage others in group situations.

GLO 5: Effective Communicator

- Communicate effectively and clearly through speaking, using appropriate forms, conventions, and styles to convey ideas and information for a variety of audiences and purposes.

NĀ HONUA MAULI OLA

- NHMO 15-2 Plan and participate in community service projects.
- NHMO 15-3 Teach others about the concept of *mālama* through example,

KEY CONCEPTS

- *Lōkahi* (balance, harmony) of streams is affected when we:
 - Introduce non-native species that compete with native species for food and space;
 - Remove shade-producing trees from stream banks, causing changes in temperature and dissolved oxygen;



- Add soil or pollutants from human activities.
- We can *mālama* (care for) our streams, by planting trees along stream banks, by preventing the introduction of non-native species, and by reducing soil erosion and pollution.

ACTIVITY AT A GLANCE

Student teams complete a service project that helps to care for their local stream. They present data from their stream investigation in this unit and explain their service projects to others in the community.

ASSESSMENT

Students:

- Gather facts, examples, and other support for the main ideas in the presentation by combining the best ideas from brainstorming prior knowledge on the topic, discussing the topic with peers, and / or researching and reading materials on the subject.
- Work with a team to complete and present a project (including a PSA, song, or computer presentation) that educates others in the community about data they collected and the need for restoring and maintaining *lōkahi* in our streams.
- Write a one-page paper, with correct spelling and punctuation, to describe how the relationships among plants and animals in the stream are affected by human activities, and what students did to *mālama* the stream in their community.

TIME

4 class periods plus service project and *hō'ike* (exhibit) for the community

SKILLS

collaborating, presenting, synthesizing, writing

MATERIALS



Needed:

- ✓ materials for students' presentations (computer, projector, screen, display boards, marking pens, etc.)

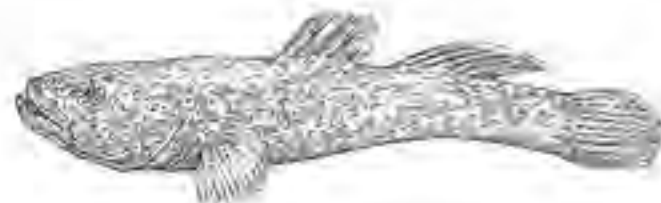
VOCABULARY

hō'ike - exhibit

lōkahi - harmony, balance

mālama - to care for

pollutant - material that contaminates the water (soil and air)



ADVANCE PREPARATION

- Invite students' *'ohana* (family) and others, such as anyone who



- assisted with the stream investigation, to come to a *hō'ike* (exhibit) and view students' presentations.
- Make copies of the culminating activity rubrics to share with students.
 - Look into assistance that is available for student service projects. For assistance with materials for storm drain stenciling or adopting a stream, contact Honolulu City and County, Environmental Services, Storm Water Quality Branch at 692-5208. Their office will provide an on-line toolkit with extensive information.
 - Visit the *Aloha 'Āina* link on Pacific American Foundation (PAF) Web site www.thepaf.org for information on obtaining native plants for service projects.

TEACHING SUGGESTIONS

1. **Review the essential question for the unit (included at the beginning of this lesson and in the Student Assessment Overview) and discuss students' ideas for service projects to care for the stream.**
 - Discuss some ideas for projects and distinguish between those that are proactive and reactive:
 - Proactive Projects**
 - Plant native shade-producing plants along the stream.
 - Conduct an educational campaign to inform others about the need to keep unwanted aquarium plants and animals out of streams.
 - Survey the community to see where soil is eroding into the stream and develop a plan to inform others and reduce the erosion.
 - Work with the Department of Health to paint informative pollution-preventive messages on storm drains.
 - Reactive Projects**
 - Clean up the stream banks (Adopt-a-Stream City and County Program).
2. **Challenge students to decide on a project and develop a plan for implementing it.**
 - Divide up responsibilities for completing the project.
 - Set a timeline and begin.
3. **Review the rubric for students' papers that address the essential question for the unit. As noted in the Student Assessment Overview, their papers should:**
 - Be at least one page in length
 - Include research from two or more sources



- Defend their conclusions from the stream investigation, based on evidence
 - Reflect on how to solve problems related to loss of *lōkahi* in the stream
4. **Discuss plans for the *hō'ike* where students will present what they have learned in this unit to their families.**
 - Review the rubric for the culminating presentation that each *hui* will give at the *hō'ike* (rubric provided in the Unit Introduction).
 - Remind students that their presentations should summarize their data from the stream investigation.
 5. **As a class, students should decide how to present the service project they conducted to care for the stream.** They may decide to put together a PSA, a story, song, or a computer presentation with a message of why it is important to care for and restore *lōkahi* to the streams in our community.
 6. **Allow class time for students to work on their papers and presentations.**
 - Encourage students to gather facts, examples, and other support for the main ideas in their presentations by researching and reading materials on the subject. (See some suggested references for students listed at the end of this lesson.)
 - Facilitate brainstorming sessions with groups to combine the best ideas from prior knowledge on the topic and students' research.
 7. **Practice presentations and then conduct the *hō'ike*.**
 - Review characteristics of good presentations:
 - Making eye contact with audience,
 - Having an interesting introduction
 - Organizing information,
 - Providing a good summary
 - Using appealing and informative visual aids
 8. **Reflect on the *hō'ike* experience.**
 - Ask students to reflect on their presentations and the audience reactions.
 - Celebrate students' successes and congratulate them for their work to express *aloha 'āina* in this unit.

RESOURCES

Ching, Patrick. 1988. *Native Animals of Hawai'i Coloring Book*. The Bess Press, Inc. Honolulu, HI.



Ching, Patrick. 1995. *Endangered Animals of Hawai'i Coloring Book*. The Bess Press, Inc. Honolulu, HI.

O'Connor, Maura. 1994. *Flowing to the Sea*. Moanalua Gardens Foundation. Honolulu, HI.

Orr, K. 1997. *Discover Hawaii's Freshwater Wildlife*. Island Heritage Publishing. Honolulu, HI.

Yamamoto, Mike N. and Annette W. Tagawa. 2000. *Hawai'i's Native and Exotic Freshwater Animals*. Mutual Publishing. Honolulu, HI.

WEB SITES

White Papers / Articles. Stormwater Authority.org

http://www.stormwaterauthority.org/library/view_article.aspx?id=416

(Article describes how Maryknoll School teachers and students reached residents with tips for preventing pollution in storm drains.)

Honolulu Board of Water Supply. Click on Community and Kid's Page for resources for students. <http://www.hbws.org>



