

The World Fisheries Conference

Below are suggested adaptations to The World Fisheries Conference (Lawrence Hall of Science GEMS: Only One Ocean 2001) to incorporate information learned from Dr. Jensen's presentation and subsequent discussion.

Possible Recommendations

In Step 2 when you are having the student groups brainstorm recommendations for their fisheries. There is a list of possible recommendations to share with your students after their brainstorm session. We have included some additional options below to add to the list to discuss with your students.

- Study every fishery that is being recreationally harvested.
- Limit the number of fishermen within a fishery.
- Limit the number of days a fisherman can fish in a year.
- Divide the total amount that is allowed to be caught in a year among the fishermen and make sure they each do not go over their limit.
- Pay fishermen more for catching less fish.
- Offer assistance to fishermen that switch for unsustainable to sustainable fisheries.
- Buy fishermen's gear or permits to help them get out of unsustainable fisheries.

Session 3: The World Fisheries Conference—Poster Presentations

1. After all students have completed their assigned posters, have each small group briefly discuss the following pre-conference questions as they relate to its fishery. Assign one member of each group to take notes.

Pre-Conference Questions

- Do current fishing methods take the biology of the animal into account?
- What recommendations would your group propose to better manage the fishery?
- What actions can individual citizens like us take now to ensure this species is around in the future?

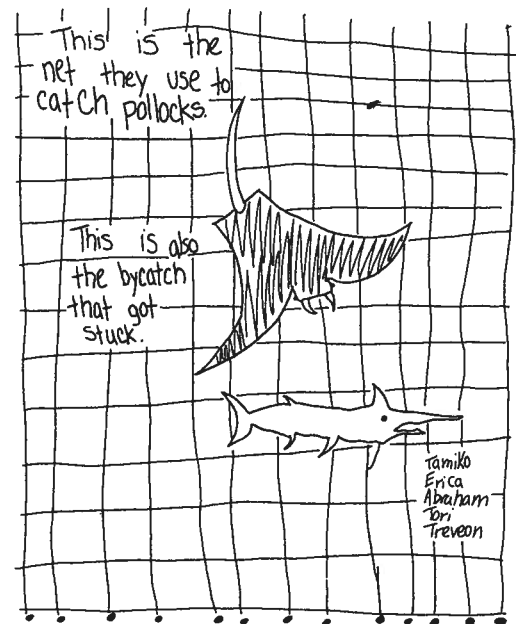
2. Have each group make a presentation to the rest of the class as the “panel of experts” on its fishery, with each member of the group presenting her poster in turn. Each group should end its presentation with a conclusion and discussion of the pre-conference questions, and ask if there are any other questions from the class.

3. After all groups have presented, lead a discussion about what all the fisheries have in common. [Almost all are located in highly productive parts of the ocean: areas of upwelling or near the poles (see sidebar), or in estuaries, where rivers meet the ocean. They’re also nearly all declining, and almost all are poorly managed.]

4. Collect, three-hole punch, and compile all the posters into the *World Fisheries Conference Proceedings*, holding the book together with brads.

Session 4: The World Fisheries Conference—“Big Picture” Recommendations

1. Have the class imagine itself at the closing session of the World Fisheries Conference. The students’ job is to make general recommendations to the nations of the world to help to protect the world’s fisheries, to make sure



The North and South Poles, with their 24 hours of summer sunlight and abundant nutrients in the water, teem with biological productivity.

that 1) there is enough food to feed the world in the future, and 2) the biological health of the ocean is maintained.

2. Have the students work in the same fishery groups as before. Distribute to each group one 8 1/2" x 11" sheet of lined paper on which to record its recommendations. Their suggestions may be new ones, based on what they heard in Session 3 from other groups, or reflect their own poster presentations. Have one member of each group act as recorder, to write down the group's ideas. Several examples of possible recommendations follow, but it's best not to mention these until *after* the students have come up with and recorded their own ideas. You may want to post it during the discussion that follows and chart any areas of overlap.

Possible recommendations:

- Don't catch any fish before they're old enough to reproduce.
- Reduce catch in every fishery by 10 percent.
- Study every fishery species that is being commercially harvested.
- Encourage scientists to work in partnership with fishers, who have great knowledge of the ocean and of their fishery species.
- Decrease the need for seafood by controlling the population of people.
- Develop alternate sources of protein, like soybeans, for feeding people.
- Tax seafood to discourage people from eating it.
- Create more marine reserves that prohibit fishing.
- Don't allow commercial fishing in sensitive habitats; create more international Marine Protected Areas.
- Make laws to punish excessive bycatch.
- Label seafood to show which products use fish caught in environmentally responsible ways.
- Have all nations ratify (accept and pass) the existing treaty that protects fish crossing the borders between countries.
- Stop the growth of fishing fleets.
- Spend more money to learn about what we catch, instead of just trying to catch more.
- Strengthen and enforce environmental laws, including the Clean Water Act, the Endangered Species Act, and the Sustainable Fisheries Act.
- Increase the number of federal "fishery cops," to make sure the laws are being enforced.
- Use fishing gear that doesn't destroy habitats or kill unwanted marine life.

You may wish to make a transparency of this list and have it ready to show on an overhead projector.

Michelle
May 10, 1998

Tuna

America does most of the fishing. America eats most of the catch. Yes, I think El Niño will affect the size of the catch. If there isn't any tuna it effects it. It says tuna swim around, if tuna all swim away there won't be any more and it will effects it. Stop people from fishing so there will be some in the future. Put it on T.V., news, and radio ads ect.

- Discipline fishers who don't use bycatch exclusion techniques such as TEDs, BRDs, and "backing down."
- Offer assistance to fishers who follow rules that limit their catch or require new equipment.

3. List all group recommendations on chart paper or a transparency, putting a star by recommendations made by more than one group. If you post the additional possible recommendations above, the class can discuss areas of overlap with those as well. Each group can add recommendations to its own list as they're added to the class list. When you're finished, add each group's list to the class book, *World Fisheries Conference Proceedings*.

Think, Pair, Share: My Values and Behavior

1. Have the students recall how to do a Think, Pair, Share from Activities 1 and 2. Tell them they'll be asked to think about what they've learned about global fisheries, and to make some decisions about their own personal choices.

2. Distribute a sheet of lined paper to each student. Have students **Think** about, and list on their papers, the names of all five fishery species from the World Fisheries Conference. Next to each species, have them write whether or not they'll choose to eat that seafood in the future. If so, how often and why? If not, why not? (Ask students to clarify which fish they chose not to eat because of personal taste preferences, rather than reasons related to the fishery.)

3. For **Pair** and **Share**, have students discuss and compare their answers with a partner.

4. Continue the sharing with a class discussion; you may want to tally the results by species into a bar graph on chart paper or on the chalkboard. Some students will probably be surprised by other students' personal decisions. For example, some students may decide that they'll never eat shrimp—or that they'll only eat it if they know for sure how it was harvested. Other students may decide they aren't going to worry about shrimp and will eat it whenever they want to, but perhaps decide never to eat swordfish. Discuss whether students believe their personal choices make a difference. Why or why not?

Donald
May 10, 1998

Shrimp

1. Because people want it for food, the population is doing bad because they're all dying off. They also make laws to reproduce shrimp. If I were to do something about what's happening, I would limit it to how many shrimp you can catch.

It's important to stress to students that there are no "right" or "wrong" responses in this discussion. Part of the exercise is learning to accept differing opinions without criticism, and it's likely students will feel freer to express their personal decisions if the discussion is nonjudgmental.



5. Distribute blank paper and colored markers to each student. Students can now design individual **mascots** (symbols or cartoons) or **slogans** (sayings) they think would persuade others to support their viewpoint. Remind them of how powerful these images and sayings can be. (Think of Smoky the Bear for preventing forest fires, or these slogans: "Don't Teach Your Trash to Swim," which refers to keeping litter out of the ocean; "Don't Be a Litterbug"; or "Mind if I smoke? Care if I die?" and "Kick the Habit, not the Bucket," referring to the smoking habit.)

6. Display the completed posters around the room. Have half the students stand by their posters while the other half mingles and asks questions, then have them switch places.

7. In closing the activity, first hold up the Key Concepts from *What's the Catch?*, one at a time, and have one or more students read them aloud. Briefly discuss how these statements review the activity's important ideas.

- **Most large commercial ocean fisheries flourish where the interaction of currents and sunlight provide a productive environment.**
- **Most of the ocean fisheries in the world are severely threatened due to overfishing or habitat loss, and most commercial fishing results in significant "bycatch."**
- **Personal choices about what we eat can influence public policy and the sustainability of fisheries. Scientific information should be used to help make wise choices.**

Finally, review this Key Concept from Activity 1, *Apples and Oceans*, and discuss it in light of what students have learned about fisheries:

- **Most of our planet is covered by ocean, but only a small fraction of the ocean supports large concentrations of life.**

Post all the concepts on the wall for students to revisit.