

Kids Save Shad!
A Choral Readers Theater
By Carol Montgomery

Performance Time = a little over 3 minutes

Readability = grade 1.0 (Experts is the hardest part.)

Cast (3-4+):

Experts

Shad A

Shad B

Students

Note: The experts have the hardest vocabulary: American, special, fishway, polluted, problems, though.

Vocabulary: (see note above)

shad

hatch

ocean

though

buckets

Pilgrims

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Experts: Today's kids are helping solve today's problems. One of those problems is saving our rivers and fish that live there. One kind of fish kids are saving is called American shad.

Shad A: We are shad. We are a big, silver fish. We have a row of dark spots on our sides. But, we won't show them to you now!

Shad B: We hatch from eggs in a river. Then we swim to the ocean. Three to six years later we return to the same river to lay eggs.

Shad A: It is a very hard trip. Some of us get eaten.

Shad B: Yikes!

Shad A: But, not ALL of us get eaten.

Shad B: Oh, good!

Experts: And, that's not the only problem. Shad have had a hard time because of too much fishing and polluted rivers. Plus, dams often blocked their way back home.

Shad A & B: Sad shad. Too bad.

Experts: Students in schools have helped save shad, though. They will share their story now.

Students: First, we were given shad eggs to raise. The eggs looked like pearls. Then, they looked like two eyes and a wiggle.

Shad A & B: Awww...how cute!

Students: We had to keep the water cool and clean. When the baby fish were about five days old we went to the river. We took buckets of baby fish and cups.

Shad A & B: No! Don't tell me you were going to DRINK the baby shad fish!

Students: No, that's silly. We dipped our cups in the buckets of baby fish. And then.....

Shad A & B: No! You didn't plant those babies with corn seeds, did you?

Students: No, Pilgrims planted corn seeds with fish--not us.

Shad A & B: Oh, good.

Students: We dipped our cups in the buckets of baby fish. And then, we set them free in the river!

Shad A & B: Hooray! Freedom!

Experts: And a few years later, those babies came back to the river! The baby fish had special marks on their ear bones. Those marks were seen. The baby shad had grown up and come back to lay their eggs.

Shad A & B: How did the shad get over the dam? Did they learn to fly?

Experts: No. And, they didn't climb the dam either. A fishway was built beside the dam for the big shad to swim over. It's kind of like a freeway for fish. That way they can lay their eggs in the right place of the river.

Shad A & B: Cool!

Students: Kids are still helping save shad and other fish. Kids are still helping clean rivers and streams and more.

Shad A & B: And, shad are still coming back. Coming back, coming back, coming back.

Experts & Students: Clean the river! Save the stream!
Clean the river! Save the stream!
Clean the river! Save the stream!
Yea, shad!

Shad A & B: Yea, shad! We're not bad!
Look out, world! Here we come!

Students: The End.

* Let the River Run Silver Again by Sandy Burk tells the story of the first elementary school in the nation that helped in the restoration effort of the American shad in the Potomac River by Washington D.C.

Background Information:

In the late 1800s eggs from shad were collected and placed in “hatching” jars. Workers put the jars on a train in special fish cars with stands to hold the jars. When the train left Washington D.C., the shad eggs would hatch on the way. The young shad can live off of its egg sac for several days. When the train arrived in San Francisco, California, the shad were ready to be released into local rivers, like the Sacramento River. Thousands of baby shad were released into the Sacramento river between 1888-1889. Since then shad have multiplied in the Pacific Northwest.

Science Information:

Shad food chain =

shad lay eggs

Algae= producer

Brine shrimp= first order consumer. shad fry feed off their yolk sac until released.

Hatcheries feed shad plankton like brine shrimp until fry are released.

Shad fry= second order consumer

Sunfish = third order consumer

anadromous fish = spend most of their adult lives at sea, but come from about every river along the Atlantic (and now Pacific) coast.

Schools from other rivers along the Mid-Atlantic region from NC to NJ have raised shad.

Eagle cams show eagles feeding young. Young need to feed about every 2 hours until they fledge and their primary food is fish--including shad and other herrings for coastal eagles.

NCTC eagle cam: www.fws.gov/nctc/cam

Follow the links to the live feed:

<http://outdoorchannel.com/Conservation/EagleCam.aspx>

I saw two baby eagles, one sleeping and one preening and stretching. Looks like he was getting ready to take off, but didn't know how yet! :)

“Be an eagle biologist for a day.”

Schools in Schools program for shad restoration:

www.livingclassroomsdc.org/shadrestoration.htm

Living Classrooms is a non-profit with the motto Learning By Doing.” They have worked with more than 85 schools in the DC area to raise shad in the classroom each spring.

The latest press release here is about the 2009 program.

Curriculum Links (Valid in 2012):

http://www.growingnative.org/pcgn_gncurr.html

Click on Educational Resources, Growing Native Curriculum (related to the Potomac River watershed). In Section 3, lesson 3.3 you'll find student page 3.3.5 for printable activity flash cards about the food web in the Potomac River.

www.potomacriver.org/cms/wildlifedocs/shad4teachers.pdf

2011 Potomac River.org's excellent PDF on the restoration project. There's something for everyone here. It looks like these were slides to a PowerPoint presentation. LOTS of great photos, including historic photos and photos of big shad. Plenty of educational information for every level (e.g., graphs of different difficulties for both younger and older students). No lesson plans. No questions. A bit technical at the end.

www.potomacriver.org/2012/.../CumminsShadSchools2012.pdf

2012 Potomac River.org's excellent PDF on the restoration project from the local hero of saving the river, Jim Cummins. This is almost identical to the presentation above, but I LIKE IT BETTER FOR TEACHERS and students. It is more to the point for teachers, with LOTS of great photos, including historic photos and photos of big shad. Plenty of educational information for every level (e.g., graphs of different difficulties for both younger and older students). No lesson plans. No questions.

http://www.fws.gov/raleigh/sis_resources_articles_papers_journals.html

U.S. Fish & Wildlife Service page of links on "Shad in Schools--Articles, Reports, Journals, Profiles." The third one in the list "Shad Tank Food Web" includes a nice photo montage done by a student of the food web showing producers and consumers clearly on one page. The next one is a nice picture of the "Life Cycle of a Shad" handwritten in italic font. Many of these articles are on NC shad info, so I didn't read them.

http://www.fws.gov/raleigh/sis_resources.html

"Shad in Schools--Resources" First article, "Just Keep Swimming," is an article on the first shad students in North Carolina by Patty Matteson, USFWS Raleigh Field Office. I used this detailed article to glean lots of information and ideas for student comments.

2nd article: "Fish Farming" is the newspaper article from NC where they adopted the program done in DC.

3rd Article: "Helping the Bay's Rivers Run Silver Again," by Karl Blankenship from the Chesapeake Bay Alliance's Bay Journal.

4th article: River of Hope by Sandy Burk, USFWS Journal, focuses on VA, but has some interesting bald eagle info and great classroom photo showing a classroom shad hatching tank.

5th link starts with The Shad Foundation's Shad Journal, from Feb. 1997 and includes an article entitled "One Night with Shad" by elementary students, an article called "Oceanography of The Pacific Shad Invasion" in 1871, and an article called "The Shad Project" written by one of the first students to participate in the shad restoration pilot program with schools.

<http://www.fws.gov/chesapeakebay/SHAD.HTM>

Chesapeake Bay Field Office page on American Shad. Lots of information, but no pictures. Shares briefly about George Washington's troops being saved from starvation at Valley Forge because of dried shad.

<http://gwpapers.virginia.edu/articles/boyle.html>

"The Valley Forge Fish Story" from the Shad Foundation's Shad Journal. Information re: historical primary sources for this "fish story."

<http://www.dnr.state.md.us/fisheries/fishfacts/americanshad.asp>

Department of Natural Resources page on the American Shad filled with bullet points and a big profile picture.

<http://www.flickr.com/photos/jayparedes/page3/>

Second row of photos, far right, shows an osprey carrying a partially eaten American Shad "back to its nestlings."

<http://www.dgif.virginia.gov/fishing/shad-restoration/>

Virginia's Department of Game and Inland Fisheries page "On the Road to Recovery: American Shad Restoration." Includes info from 2011 and a link to the "Shad Tagging Study."

<http://www.dnr.state.md.us/fisheries/recreational/hatchery/shadrestoration.html>

Maryland's Department of Natural Resources Fisheries page on "Shad Restoration." Lovely photos, plus a You Tube video from a biologist about collecting hickory shad for the hatchery. (4:12) Links to shad identification sheets at the bottom of the page.

http://www.fish.state.pa.us/education/shad_inpa.htm

Pennsylvania's page on "American Shad in Pennsylvania." **Includes link to lesson plan PDFs for grades 3-8:**

"Where Have All The Shad Gone" (Data or Activity)

"Shad Scents" (Activity)

"Dam Design"

"Hooks & Lifts"

"American Shad Restoration Overview"

"Publication and Background Information"

http://fishandboat.com/shad_schu.htm

Pennsylvania's Fish and Boat Commission's page on "Schuylkill River American Shad" restoration showing a map of 4 fishways.

http://www.crwa.org/projects/shad_stocking.html

Massachusetts' Charles River Watershed Association page on their American Shad Restoration Project with 2011 information and photos. (Small print.)

You Tube:

<http://www.youtube.com/watch?v=cdCT7CoJS9Y>

“Seining with Chris Nack for the Sad Restoration Project” for the American shad in the Hudson river. He talks about several fish predators. Not super engaging video, but several still shots mixed in the video. 2:49

<http://www.youtube.com/watch?v=tmLF-MD5OVY>

Here’s a photo slide show with video of students and the Anacostia Watershed Society Education Team from 2010. **Great MOVING video of the shad babies and the students releasing the baby shad fry. Shows the babies from the view of a microscope.** Mostly instrumental background. Well done! 2:43

<http://www.youtube.com/watch?v=tc50aH5QOQY>

“Returning the Silver: American Shad,” an **inspirational documentary** about the restoration of the American Shad to the Potomac River. Amazing video of Great Falls. Shows **Jim Cummins (biologist in our script)**, Native Americans, local watermen, student helpers, **Sandy Burk (author of Let the River Run Silver Again)**, explanation by students of the classroom tank set-up and the process, live photos of catching shad, hatching shad babies, explanation of ammonia levels, shadbush and other plantings, student release of fish, story of student lobbying for fishway ladder through the dam, shad egg sharing, wildlife (including bald eagle and osprey), eagle cam pictures of baby eagles, and **the positive impact that students can have on the world.** Excellent! (Audio a little variable, but that’s minor.) This video matches the scripts perfectly. 23:40

<http://www.youtube.com/watch?v=rPO0bDsUeVc>

“Shad Migrating Up the Susquehanna River. Holtwood Dam. 2009” Shows the “fish lift” for the fish working. Note: A fish lift is kind of like an elevator filled with water and fish. They dump the contents of the elevator (fish and water) over the hydro-electric dam. Odd banjo song in the background that mentions dousing in the story of wanting silver to be rich. Video done at 5 minutes basically, but it goes to 6:12 for the song.