Annotated Resource Set (ARS)

1.Title / Content Area:	Forests and Fish	
2. Developed by:	Carolyn Thomas	LIBRARY OF CONGRESS
3. Grade Level:	7-8	
4. Essential Question:	How do forests affect water quality?	TEACHING *with* PRIMARY SOURCES
5. Contextual Paragraph	Forests, streams, and rivers are intimately connected. The Weeks Act of 1911 authorized the US Department of Agriculture to purchase forest lands in the eastern United States for the conservation of watersheds. Students will examine primary sources and make observations and inferences about changing forests and wate quality. Students will also discuss and question the identification of source material and its use in scientific documentation	

6. **Resource Set**					
National Forests	Gifford Pinchot	Monongahela National Forest, West Virginia : 1970	IN REMOTE WEST VIRGINIA, A CANYON ON THE BRINK	Blackwater Falls Postcard	Brook Trout Restoration
Background for establishment of National Forest	Background bio about first chief of US Forest Service	Map of Monongahela National Forest with discussion of forest and watershed protection	1997 article on need to extend protected forest land	1941 postcard Blackwater Falls	Picture of brook trout caught in Blackwater River (WV) circa 1900
https://www.wvencyclopedia.org/articles/1564	https://www.loc.gov/resource/g3824m.ct008315/?r=0.661,0.019,0.377,0.175,0	https://www.loc.gov/resource/g3892m.ct009438/?r=0.716,0.29,0.154,0.072,0	https://www.washingtonpost.com/archive/opinions/1997/05/25/in-remote-west-virginia-a-canyon-on-the-	https://forestservicemuseum.pastperfectonline.com/webobject/54E1FA2A-333B-4E64-A46E-414973330614	https://www.nature.com/scitable/knowledge/library/brook-trout-restoration-83031062
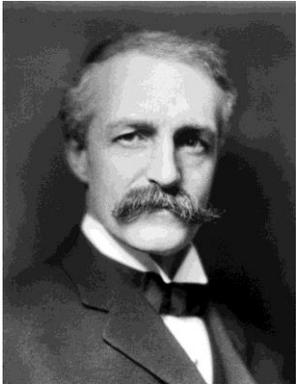
			brink/6d011f66-9930-467e-b393-f800f506d79f/?utm_term=.f14651727047		

Go Native: Brook Trout	Taking out the virgin forest	There were more chestnuts around here than any other timber.	Timbering, siltation and fishing	West Virginia's Big Trees: Setting the Record Straight	Logger, John Hinkle, Posing with a Large Poplar Log Near the Holly River, Webster County, W. Va.
Current average size of native brook trout in WV	Interview with Dennis Dickens about Timbering	Interview with Dennis Dickens about Timbering	Interview with Ray Cottrell	A critical analysis of historic photos of WV trees	Poplar trees are native to WV – compare this photo to others
http://www.wvdnr.gov/Wildlife/BTrout.shtm	https://www.loc.gov/item/cmns001440/	ttps://www.loc.gov/item/cmns001441/	https://www.loc.gov/item/cmns001982/	https://www.fs.fed.us/nrs/pubs/jrnl/2016/nrs_2016_thomas-vangundy_002.pdf	https://wvhistoryonview.org/catalog/3c%2Ff0%2F95%2F8c%2F3cf0958c-5324-48ca-8fc8-299da71296b0

Foundations Annotations

7. Curriculum Connections

Science – History – Reading/Language Arts

8. Curriculum Standards

NGSS Science and Engineering Practices

- Developing and Using Models - The practice of both science and engineering is to use and construct models as helpful tools for representing ideas and explanations. These tools include diagrams, drawings, physical replicas, mathematical representations, analogies, and computer simulations.

- Obtaining, Evaluating, and Communicating Information - Scientists and engineers must be able to communicate clearly and persuasively the ideas and methods they generate. Critiquing and communicating ideas individually and in groups is a critical professional activity.

NGSS

- MS - ESS3-4.   Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

- HS-ESS3-1.   Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

9. Content & Thinking Objectives

Students will:

- Use photographic evidence to predict and calculate measurements (brook trout, cross section area of trees).

- Compare and evaluate photographs of native brook trout and offer possible explanation for historical trends in decreasing size.

- Correlate land cover with stream quality based on written and audio archives.

- Critically evaluate primary sources.

10. Inquiry Activities & Strategies

- Compare photographs

- Evaluate sources

11. Assessment Strategies

- What kind of trees were logged in WV forests? Would you expect to find these
- What was the circumference of the largest trees; what would be the diameter of these trees? Calculate the area of a cross section of at least three trees -- draw a label a diagram showing the area of the cross section $A = \pi r^2$
- Examine photos of WV brook trout in 1900 and 21st century. Estimate their length.
- Conduct research to compare historic photos of WV trees.

Other Resources
12. **Web Resources**
• http://www.patc.us/history/archive/virg_fst.html
13. **Secondary Sources**
14. **Print and Other Media Resources**
• Tumult on the Mountains: Lumbering in West Virginia, 1770-1920. Book by Roy B. Clarkson   • The Last Forest: Tales of the Allegheny Woods . Book by G. D. Douglas McNeill   • Hollows, Peepers, and Highlanders: An Appalachian Mountain Ecology. Book by George Constantz

ARS Component Guide

Phase I Components

1. **Title / Content Area:** Provide the title of the ARS. If the title doesn't explicitly denote the sets theme, please also provide a content area (e.g. Environment, Government, Immigration, War/Military, Women's History, etc.).

2. **Developed by:** Provide your name and any other contributors to the ARS.

3. **Grade Level:** Provide the grade level(s) for which the set is to be taught.

4. **Essential Question:** Provide an essential question that encompasses the set theme and that could be used as a launching point for use in the classroom.

5. **Contextual Paragraph for Resource Set:** Provide a short paragraph explaining the resource set and describing the context in which the set is to be used

6. **Resource Set:** Provide titles, context, thumbnails and addresses for specific resources. It isn't necessary to provide a thumbnail for all resources (e.g. audio and video files). **Important**: Be sure to use a permanent URL and check your hyperlinks for all resources.

Phase II Components

7. **Curriculum Standards:** Provide local, state or national standards that could be addressed through the use of the ARS and subsequent activities

8. **Curriculum Connections:** Provide other curriculum areas to which this set of resources could be applied

9. **Content & Thinking Objectives:** Provide objectives to be met through the use of the ARS and subsequent activities

10. **Inquiry Activities & Strategies:** Provide specific strategies and learning activities which the ARS will be used to support

11. **Assessment Strategies:** Provide assessment methods which will be used to demonstrate student learning after the use of the ARS and subsequent activities

Other Resources

12. **Secondary Sources:** Provide any secondary sources that could be used to supplement the ARS

13. **Web Resources:** Provide links to any additional web resources that could be used to supplement the ARS

14. **Print and Other Media Resources:** Provide other resources that could be used to supplement the ARS