Channeling
Station 3

Marc Seifert

Time Frame:	Standards:
30-45 Minutes based on age and development level.	The educators implementing this activity will determine appropriate standards based on age and student activity. Idaho standards included as an example http://www.sde.idaho.gov/site/content_standards/

Objectives:

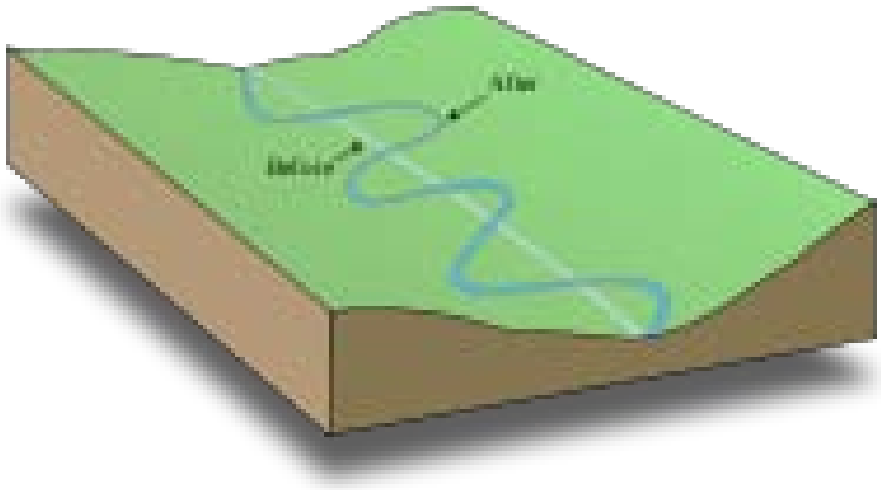
Learn to recognize a River Channeling

Looking at river/stream habitat, students can:

- Identify components of a river or stream habitat channels
- Recognize the effects and signs of erosion
- Recognize how these effects create changes to the habitat and the organisms in the habitat

Background Information:

Water channels are natural products of erosion over time. Land is eroded by water with a dramatic example being the Grand Canyon. Water moving over the land can erode the land over which it flows. Rivers and streams form natural channels that contain the water most of the time. When rivers and streams flood, usually during spring snow melt, the water exceeds the banks and fills the flood plains. Channels tend to meander, or wander across the land instead of straight pathways. This provides varying flows and different depths as the water goes around the corners. Channels of rivers and streams are changing all of the time, constantly changing sediment and scouring and developing different habitat as shown in this example of a hypothetical stream bed following a tilted valley (as shown in Wikipedia).



Channeling
Station 3

Marc Seifert

Materials:

Experts Speaker; Speakers can be drawn from groups such as Henry's Fork Foundation or Department of Water Resources, County Agent, etc.
Handouts on channeling and impacts from erosion. (Typically available from the guest speakers or educators**)**
Science Journal
Colored pencils or crayons
Pencil

Procedure:

Invite the guest speaker to talk to the students and talk about riverbed formation for 10-20 minutes about channeling and show them if these impacts are evident in the habitat where the field trip is being held. The discussions could include demonstrations, discussions and examples of erosion and river bed construction, thus illustrating the idea of geological displacement within the flood plain caused by erosion and flow of water in the environment. Students should develop questions and document their answers in their journals.

Have students brainstorm scenarios that could bring on flooding and the impact of those scenarios. Ideas for discussion might include:

- **Weather-related disasters:** Tropical storms, hurricanes, spring thaw, flooding, and heavy rains
- **New development:** Changes to natural drainage due to new buildings, parking lots, or roads, leaving nowhere for excess water to go
- **Flash floods:** The rapid flowing of water in low-lying area over six hours or less
- **Levees and dams:** While levees can protect against flooding, they can be overtopped or decay over time
- **Spring Thaw:** Melting snow or rainfall that seeps into ground not ready to absorb the fluid due to soil density, frozen ground, or landscaping
- **West Coast Threats:** Rainy season, paired with environmental damage from forest fires put areas of the west coast at risk.

Have students look up and down the river and identify areas that show the impact of flooding. The students could draw a quick stretch of a river habitat that has been flooded and other areas that have not been flooded in their journals.

The students could also compare and contrast the common characteristics, the differences and possible impacts they observed and learned about. Discuss why the flood might have occurred and identify possible damages and the resulting impacts. Leading questions to

foster awareness and student discovery might include:

- Does it look like the river experiences very large changes? Are the high water marks higher than the banks?
- Is the river currently very low?
- Is the river currently very high?
- Is there evidence of erosion along the banks?
- Do the curves show deep and shallow zones?

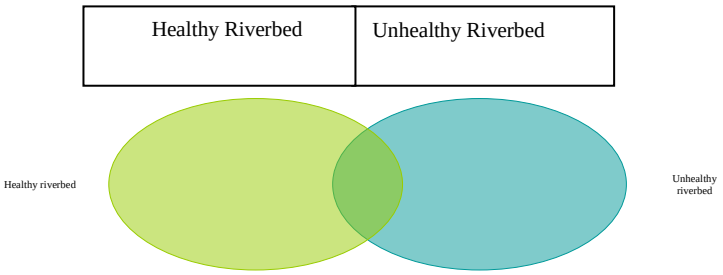
The students in this station will prepare to share their new knowledge with the other teams of students later when they all assemble as part of the Jig-Saw learning process.

Assessment:

Students will share their knowledge of the river or stream channels of the river habitat. The students will demonstrate knowledge of how the channeling supports organism's interactive needs, and develop a poster sketching the channel they learned about.

Students will complete their Journal entries and document what they learned in their field guidebooks in preparation to sharing with the other students in their shared time for the jigsaw cooperation elements.

An optional exercise could be performing a compare and contrast Venn Diagram similar to the following example in their journal.



Additional Content:

http://en.wikipedia.org/wiki/Meander
http://www.slideshare.net/jezbo16/meander-formation

Channeling
Station 3

Marc Seifert

References:

Foundations such as Henry's Fork Foundation, State Department of Water Resources, State Fish and Game Office, etc
The Watercourse 2000, 2002, and 2004. The Watercourse U.S.A. Bozeman Mt. http://projectwet.org/
Project Wet, Bozeman Mt. http://projectwet.org/