Traditional Foods and Contaminants Curriculum

Additional Resources

Compare Silt in Rivers and Lakes		
Water Body Name	Time	Comparison

Table: Compare Silt in Rivers and Lakes

Mold and Your Home

There are different types of mold and you don't want any of them in your home. Mold can affect your health and, if left to grow, it can rot out your home's structure. This is expensive to fix. Mold is most often found around window frames, bathrooms and kitchens where water is present and humidity increases. House foundations and crawl spaces are also popular places to find mold because of humid air moving up through the foundation and filling your house with humidity. If your home lacks a proper vapor barrier or water cannot drain properly away from the foundation you will find mold.

Mold on wood

Mold has to have moisture to grow and proper ventilation is the answer. Use your bathroom fan, and check your dryer vent often. Make sure that all vents in your home vent to the outside of the house. Check them regularly in case of ice buildup. If you have moisture coming up through the foundation of your home you may need to repair or install a ground vapor barrier (Information Source: University of Alaska Fairbanks Cooperative Extension Service).

Testing Your Home for Radon

"Did you know radon is the second largest cause of lung cancer? The Surgeon General and the EPA recommend all homes be tested for radon and reducing radon in homes that have elevated levels. Radon is a naturally occurring radioactive gas produced by the breakdown of uranium in soil, rock, and water. It cannot be seen, smelt, or tasted. The only way to know if you are at risk of exposure is to have it tested" (Hill: 2007).

"The Cooperative Extension Service makes three-month radon test kits available at the Fairbanks District Office of the Cooperative Extension Service, and at the office of the state specialist at the University of Alaska" (Seifert: 2009).

Alan Dick, Alaska Native Clipart

Credits

Telida Village has developed a series of environmental health brochures to contribute towards keeping the tribal members healthy and the environment clean for future generations, fulfilling the Indian General Assistance Program's objective to reduce the risk to human health and the environment.

Funding

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Information Credits

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Image Credits

Alan Dick, Alaska Native Clipart, California EPA/Air Resources Board, Teresa Hanson,

Environmental Issues in Rural Alaska Housing

Telida Village School, Telida, Alaska

(Photo Courtesy of Teresa Hanson)

Information Brochure By Telida Village

Funded by the Environmental Protection Agency

Environmental Issues in Rural Alaska Housing Brochure Side 1
Image courtesy of Telida Native Village

Environmental Issues In Rural Alaska Housing

In the last several years, there have been a lot of studies that show "that the air within homes and other buildings can be more seriously polluted than the outdoor air, even in the largest and most industrialized cities. Other studies show that people spend about 90 percent of their time indoors." So many people may face greater risks to their health from "air pollution inside their homes than outdoors" (EPA 2010).

History of Rural Alaska Housing

In the past, we built our winter homes in the old style semi-subterranean house called, *nir'yekayik* (in-the ground house). The ground was excavated to a depth of three or four feet and a pole frame was constructed. The frame was covered with a layer of birch bark, or grass, and then covered over with dirt and sod. There was a smoke hole in the middle of the roof.

Old log cabin
Photo: T. Hanson

The Russians brought about several changes in our lives in the Upper Kuskokwim region. We began to live in tents made of canvas. We now had metal axes and saws, so we built Russian style cabins for winter dwellings, replacing the semi-subterranean houses of former years. We needed stoves for the cabins (Source of Information: Collins: 2004).

We built cabins for many years until around the beginning of the 1970's. A couple of events happened: Two lawsuits brought high schools to every village that wanted one, and the Interior Housing Regional Authority (IRHA) was created (Source Information: Hanson: 2000). "IRHA serves the tribes of the Doyon Region which encompasses remote traditional villages and Alaska's second largest city, Fairbanks." IRHA builds houses, Elder and Senior centers, clinics and washeterias in rural Alaska communities (Interior Regional Housing Authority: n.d.).

Wood Smoke

"Smoke from neighborhood wood stoves are a common source of both odor and reduced visibility, and contribute to the air pollution problems people complain about most. There are substantial health-related problems caused by breathing smoke pollutants, and it adds to the health costs of individuals and the community. To be a good neighbor, limit the amount of wood smoke that comes out of your smoke stack" (California/EPA Air Resources Board: 2005).

Wood for Burning Clean

"Start Your Fire With Softwood Kindling - Softwoods (spruce) are generally low in density, ignite easily, burn fast and hot and will heat the firebox and flue quickly. They are ideal for kindling and starting your fires, but form creosote easily due to the high resin (sap) content.

Alan Dick, Alaska Native Clipart

Burn cleaner and longer with Hardwood - Hardwoods (birch, aspen) are denser and take longer to ignite, but burn slower and more evenly, producing less smoke. They also provide more heat energy than softwood logs of the same size.

Burn Only "Seasoned" Firewood - Firewood should dry, or "season" a minimum of 6 to 12 months after splitting. Hardwoods dry more slowly than softwoods and may take over a year to dry. Seasoned firewood by definition contains 20 percent moisture or less by weight. Wood dries faster in a warmer storage area with more air circulation" (California/EPA Air Resources Board: 2005).

Certified Wood Stoves and Boilers

"High levels of smoke pollutants leaking from wood stoves and wood boilers have been measured in some wood burning homes. If you or family members suffer from chronic or repeated respiratory problems like asthma or emphysema, or have heart disease, you should not burn wood at all. If you must burn wood, make sure your wood stove or wood boiler doesn't leak and that you operate it correctly stack" (California/EPA Air Resources Board: 2005).

Because of incomplete combustion, old wood stoves can produce up to 50 grams of particulate per hour. EPA Certified wood stoves and wood boilers are considerably more efficient, producing only 6 grams per hour. If your woodstove or wood boiler is not U.S. EPA certified, you should consider buying a new certified one. A new U.S. EPA certified stove or boiler will increase combustion efficiency, produce far less smoke and creosote buildup, and reduce air pollution. If you want to pollute less and save money on fuel, you should insist on an EPA Certified device, which will be clearly labeled as such (Wooddoctor.net: 2010).

Cal/EPA Air
Resources Board

Mold and Radon

"With the dramatic increase in heating fuel prices, there has been a flurry of activity from homeowners and contractors to improve insulation values and reduce the air loss in homes. This is a good thing. When working on home improvements there are a few issues on indoor air quality that you should be aware of."

"A tighter home may increase humidity levels in the house and it may be necessary to introduce fresh air in places where you never needed to before. Higher humidity levels can create mold in the house. A tighter home can also trap radon gas that may be coming from the earth below the home" (Benesch: 2008).

Environmental Issues in Rural Alaska Housing Brochure Side 2
Image courtesy of Telida Native Village

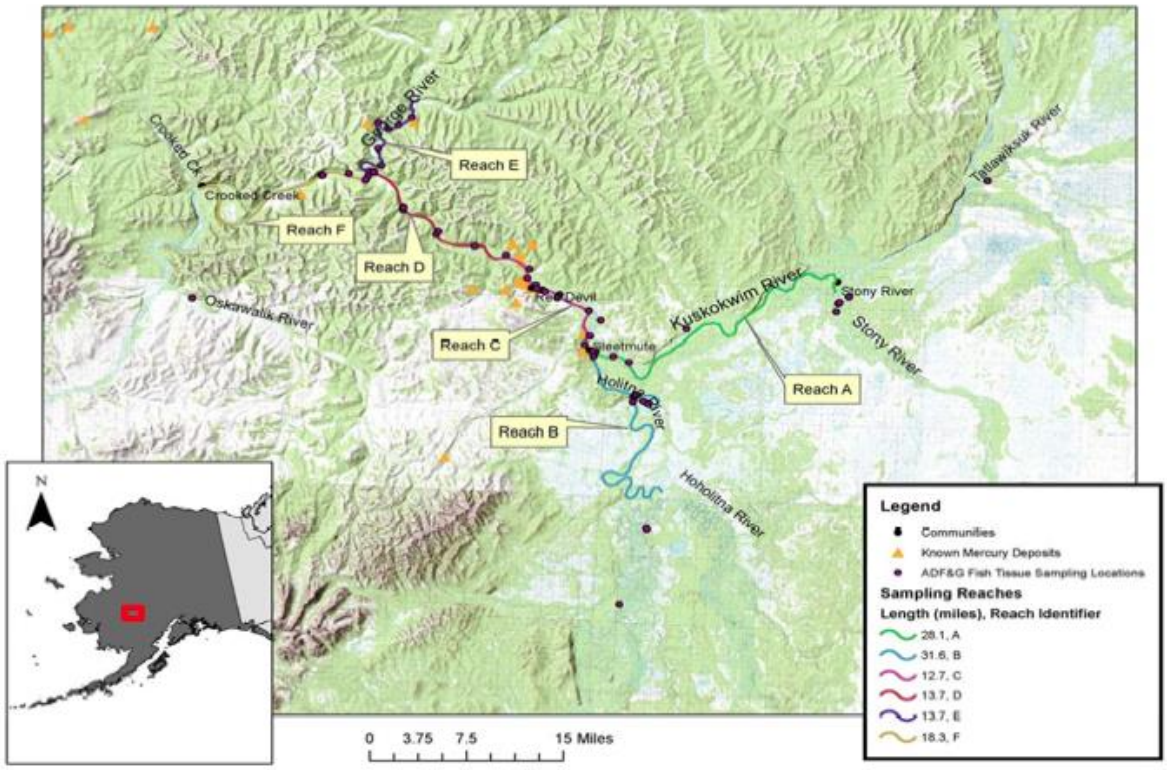

Figure 5. "River" sample reaches for analysis of mercury in aquatic biota from the middle Kuskokwim River, Alaska, in summer, 2010.

River sample reaches for analysis of mercury in aquatic biota from the middle Kuskokwim River, Alaska Handout
Image Courtesy of Bureau of Land Management

Arctic Circle Handout
http://en.wikipedia.org/wiki/File:Arctic_circle.svg
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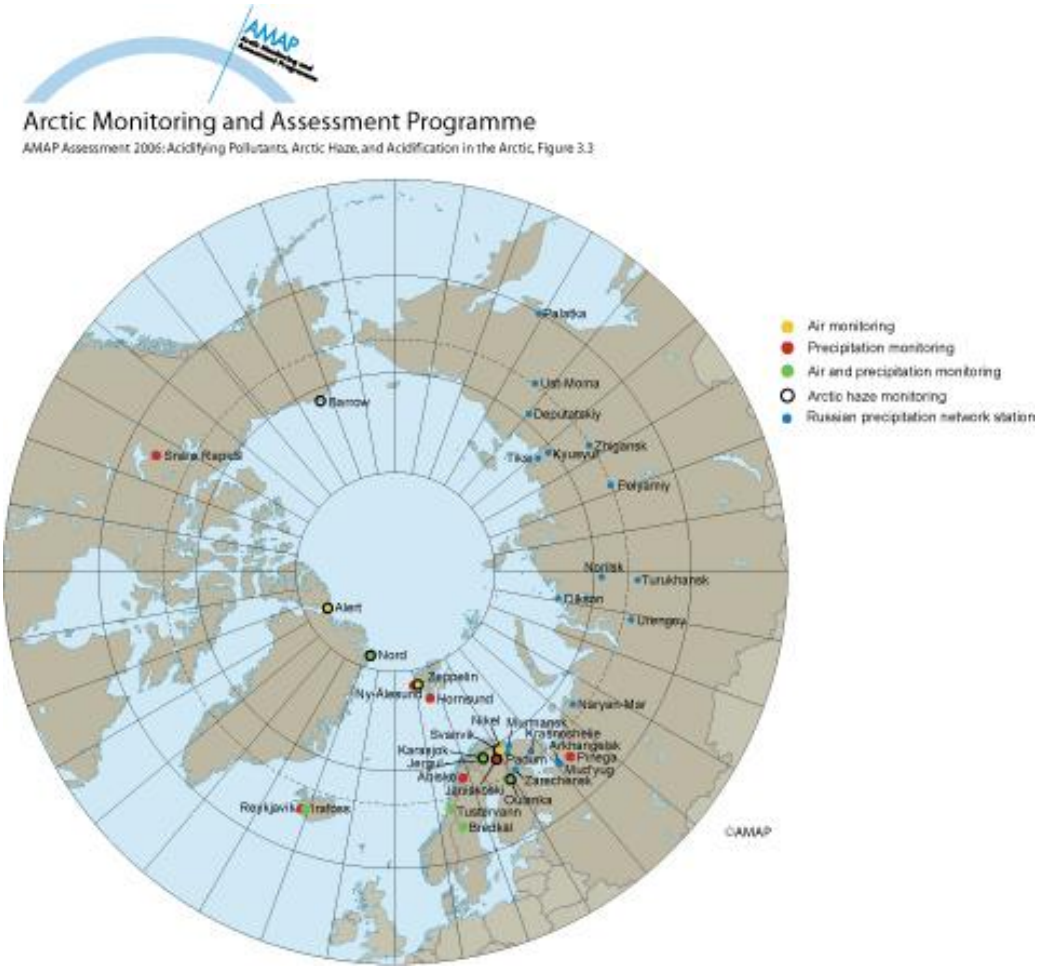

Arctic Air Background Monitoring Stations Handout
Image courtesy of Arctic Monitoring and Assessment Program

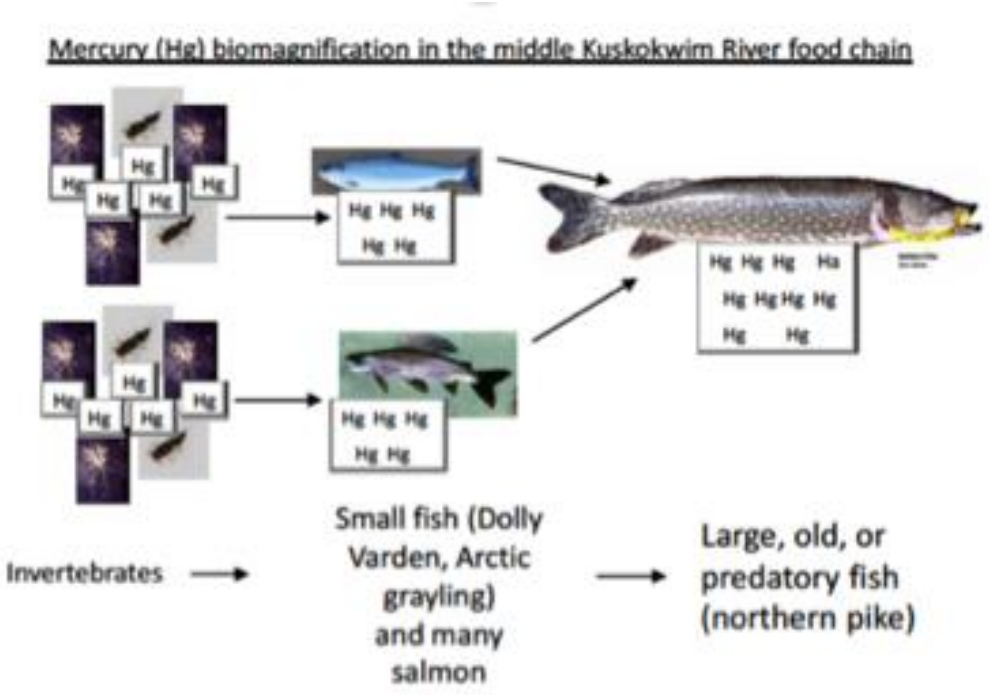

Figure 2. Generalized schematic for mercury biomagnification in the aquatic food chain of the middle Kuskokwim River, Alaska.

Mercury (Hg) Biomagnification in the middle Kuskokwim River food chain
Image courtesy of Bureau of Land Management

Number of fish samples collected from tributaries in middle Kuskokwim River, Alaska
Table courtesy of Bureau of Land Management

Table 2. Number of samples collected by Tributary location and species for a study of trace element dynamics in aquatic biota in the mid-Kuskokwim River, Alaska, 2010 – 2011. Reaches are listed from downstream to upstream. Samples were collected in 2010 unless otherwise indicated.

Tributary	Arctic Grayling	Slimy Sculpin	Dolly Varden	Macroinvertebrates
Egnaty Ck. (2011)		13	2	
Ice Ck.	11	24	7	3
Downey Ck.	4	20	7	6
California Ck.	12	23	2	3
NoName Ck .	12	22	2	1
Fuller Ck .	24	22		5
McCally Ck .		10	22	2
Red Devil Ck.		22	11	3
Red Devil Ck. (2011)	2	24	6	4
Vreeland Ck .	1	23	2	6
Cinnabar Ck. (2011)		25	25	4

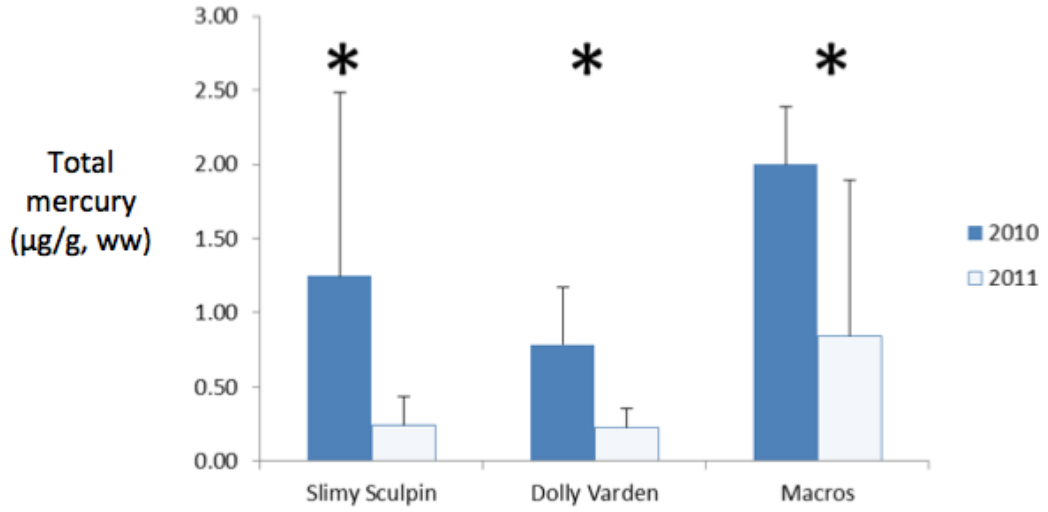

Figure 7. Mean total mercury concentrations (µg/g, ww) (SD) in small fish and macroinvertebrates collected in Red Devil Creek, Alaska, 2010-2011. Asterisks indicate significant differences in mercury concentrations between years; samples were also analyzed at different laboratories each year.

Mean total mercury concentrations in small fish and macroinvertebrates in Red Devil Creek, Alaska, 2010-2011
Image courtesy of Bureau of Land Management

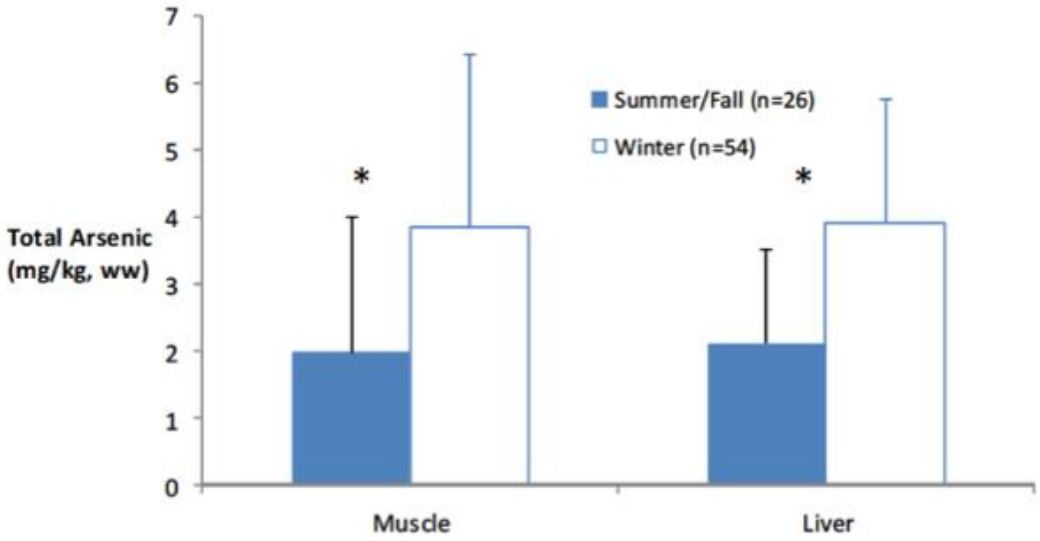

Figure 15. Mean total arsenic concentrations (SD) in burbot (*Lota lota*) also known as lush, tissues collected in June – early October, 2010 (summer/fall) and late November, 2010 – January 2011 (winter) from the mid-Kuskokwim River, Alaska. Asterisks indicate significant differences between the seasons within each tissue.

Mean total arsenic concentrations in burbot (*Lota lota*) also known as lush, tissues collected in the middle Kuskowkwim River, Alaska.

Image courtesy of Bureau of Land Management