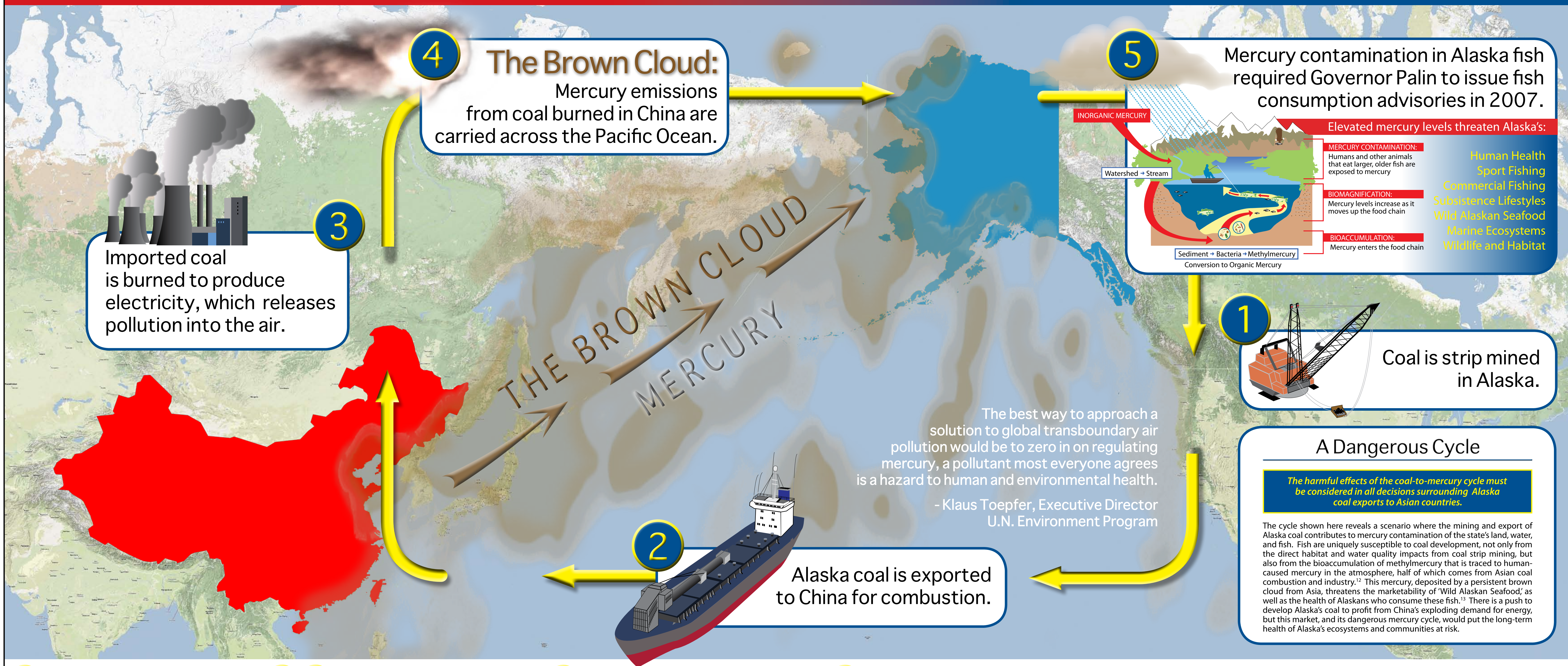




TOXIC TRADE: The Coal-to-Mercury Cycle between Alaska and Asia



1

Coal in Alaska

Alaska has large coal reserves, but coal strip mines destroy important fish and game habitat.

Alaska has roughly half of the total coal in the US, and with high energy prices and demand from Asian markets, there is a push to develop coal resources for export. However, coal strip mining is an inherently destructive land use that will destroy wildlife habitat, cause water pollution and negatively impact commercial, subsistence, and sport hunting and fishing economies.¹

The Usibelli coal mine is the only mine currently operating in the state. It supplies coal to six coal-fired power plants in Alaska and exports coal to Korea and Chile. Several coal mines are currently being proposed such as the Chitna Strip Mine, located on the west side of Cook Inlet, which would destroy up to 30 square miles of fish and game habitat in an area vital to the subsistence lifestyles of the Tyonek and Beluga communities.²

2

3

Coal Powers Asia

China opened one coal-fired power plant each week in 2008.

In 2008, China surpassed the U.S. as the world's largest emitter of greenhouse gases largely due to the combustion of coal. The dirty black rock is burned everywhere, from industrial boilers to home stoves.³ But the Chinese reliance on coal is most visible in the air. Smog cloaks cities, making them practically invisible from the sky. Much of China's air pollution is from coal-fired power plants, producing about 75 percent of its electricity.⁴

China consumes 2.5 billion tons of coal a year—more than double that of the U.S.—and imports are rising. On average, in 2008 China opened one coal-fired plant every week to serve its 1.3 billion people and the industries that manufacture cheap goods, largely for the U.S. and Europe.⁵ And now China's air pollution goes far beyond its cities; it is a global problem, one that increasingly affects the state of Alaska.

4

The Brown Cloud

The brown cloud can cross the Pacific Ocean in a week.

In 2008, Asia (China, Korea, Japan) became the largest source of man-made atmospheric emissions on the planet, contributing over 50% of the total. Part of this pollution, caused largely by the increasing combustion of coal, forms what is called a brown cloud, visible from space, that takes about a week to cross the Pacific Ocean to the western U.S. - including Alaska - where it accounts for as much as 15 percent of total air pollution.⁶

Of major concern is that coal combustion releases mercury into the atmosphere and this dangerous neurotoxin is one of the pollutants carried to Alaska by the brown cloud. At least 20% of the mercury in the state is attributed to Asian coal plants and industry, and it is deposited onto coastal waters and inland where it ends up in the local food chain, threatening the health of the state's wildlife, ecosystems, and human communities.⁷

5

Mercury in Alaska's Fish

Alaska issued its first fish consumption advisories in 2007.

In Alaska, mercury transported by the brown cloud eventually deposits in early spring and drains into rivers and lakes during snowmelt. It settles into sediment where microorganisms change it into methylmercury, a highly toxic form that builds up in fish, shellfish, and animals that eat fish in a process called "bioaccumulation."⁸ It is through this process that nearly all human exposure to methylmercury in the U.S. occurs through eating fish and shellfish.⁹

In 2007, the state determined that certain fish contained mercury levels that met or exceeded limits for unlimited consumption and issued state fish consumption advisories.¹⁰ Health risks of exposure at high levels include harm to the developing nervous system of unborn babies and young children.¹¹ Mercury "exported" to Alaska from China therefore has serious consequences for the health of the state's marine ecosystems, fishing economy, subsistence lifestyles, and human communities.

COAL TO ASIA MEANS MERCURY IN ALASKA'S FISH

Prepared for Cook Inletkeeper by Damion Design. Copyright 2009, All Rights Reserved.



1, 2, 13. The True Cost of Coal, K. Zamzow, Ph.D., Center for Science in Public Participation, Anchorage, Alaska. 3, 5. Clean Cities and Dirty Coal Power—China's Energy Paradox, David Biello, Scientific American, December, 2008. 4, 6. Can Coal and Clean Air Coexist in China?, David Biello, Scientific American, August 4, 2008. 7, 12. Coal and Mercury, K. Zamzow, Ph.D., Center for Science in Public Participation, Anchorage, Alaska. 8, 11. www.epa.gov/hq/abouthtm 9. epa.gov/hq/epaabout.htm 10. Fact Sheet: Fish consumption guidelines for Alaskans, http://hqs.alaska.gov/press/2007/10/1507fish-consumption.htm. Background map and brown cloud are used for illustration purposes only; the brown cloud illustration is based roughly on imagery showing transboundary pollution from China in May, 2003.