The State of Mercury in Azerbaijan

The Minamata Convention on Mercury is the first global agreement specifically designed to address contamination from a heavy metal. Opened for signature on October 10, 2013 and entered into force on August 16, 2017, the Convention seeks to address issues related to the use and release of mercury in trade and in industrial processes. The treaty also addresses major sources of atmospheric emissions and releases of mercury into the environment, as well as long-term storage and disposal of mercury and mercury compounds.

Under the Minamata Convention, individual countries are charged with protecting human health and the environment from the risks of mercury exposure by systematically controlling mercury emissions and releases, including phasing out the use of mercury in certain products and processes.

In order to assist with preparations for the ratification and implementation of the Convention, the Government of Azerbaijan conducted a Minamata Initial Assessment (MIA). The primary activities of the MIA in Azerbaijan included:

- A review of institutional and capacity needs for implementation of the Convention;
- An assessment of national regulations, policies and legislation to assist with preparations for compliance with the obligations of the Convention; and
- An identification of the primary existing sources of mercury emissions and releases as part of a detailed National Mercury Profile.

The MIA was conducted with financial assistance from the Global Environment Facility and was implemented in collaboration with the United Nations Development Programme (UNDP). This brochure summarizes the major findings of the MIA in Azerbaijan.

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Findings from the Minamata Initial Assessment

What are the Sources of Mercury?

The origin of mercury can be natural (e.g., volcanoes) or anthropogenic (e.g., human-caused releases). The major sources of mercury in Azerbaijan, based on the mercury inventory conducted for the MIA, include the following:

- Oil and gas production (3,065 kg Hg/yr)
- Use and disposal of mercury-added products such as compact fluorescent lamps, electrical switches and relays, thermometers, medical devices etc. (2,469 kg Hg/yr)

As a result of the MIA process, the magnitude and distribution of these anthropogenic releases into air, water, and land are now quantified for Azerbaijan. Based on the MIA findings, oil and gas production is a major source of mercury emissions within the country. Additionally, disposal of mercury-added products into landfills and waste water treatment plants produce significant releases into the environment (land and water). The total amount of mercury calculated as released in Azerbaijan is 6,270 kg/year.

How are People Exposed to Mercury?

Elemental mercury, which is found in manufactured products, is not necessarily toxic to humans. Exceptions may include dental amalgam and cosmetics, but these products are still under scientific investigation, so their potential harm is not yet fully characterized.

Methylmercury, the organic form of mercury, is toxic to humans because it can biomagnify in food webs and bioaccumulate over time in organisms. A neurotoxin, methylmercury can cause physiological harm and behavioral disorders in people.

Fish and other animals from the sea or freshwater systems can be a major source of methylmercury. In general, fish species that are small, short-lived, and forage low in the food web contain less methylmercury, while predatory species that are long-lived and grow larger can contain higher levels of methylmercury.

Many of the fish available in Azerbaijan are safe to eat, although more information is needed about the mercury concentrations to better characterize how mercury is distributed in different species of fish in the waterscape of Azerbaijan.

Seafood with lower mercury levels (<0.22 ppm, ww; *healthier choices*):

- Carp, chub, herring, mullet, oysters*, salmon*, shrimp, snapper*, tilapia*, trout

Seafood with higher mercury levels
(>0.22 ppm, ww; *riskier choices*):

- King mackerel*, many tuna species*, sturgeon, swordfish*

Beluga Sturgeon

**Market fish and shellfish*

How Does Mercury Affect Ecological Health?

The process of methylation, the conversion of mercury to methylmercury, varies widely on the landscape and within the waterscape. Areas that are particularly sensitive to mercury deposition—where methylation rates are highest and biomagnification in the food web is greatest, and where animals experience significant reproductive harm—are called biological mercury hotspots. These areas generally represent aquatic ecosystems or have an aquatic connection within the food web.

Generally, aquatic ecosystems connected to wetlands, either marine (e.g., estuaries) or freshwater (e.g., lakes), are prime areas for high methylation rates. Fish and wildlife predators that live in rivers and lakes, or that forage in a food web associated with these habitats (e.g., beaches or forests), often contain elevated mercury levels. The combination of high methylation rates and longer-lived animals higher in the food web creates the greatest risk.

White-tailed Sea Eagle

Habitats at Greatest Risk:

- Wetlands, lakes, reservoirs, rivers, and aquatic habitats near contaminated sites

Wildlife at Greatest Risk:

- Caspian Tern, Glossy Ibis, Great Cormorant, Great Crested Grebe, Great White Heron, Kingfisher, White Pelican, White-tailed Sea Eagle, and the Caspian Seal

Rivers and Streams

Caspian Sea

Lakes and Reservoirs

What is the State of Mercury in Azerbaijan?

The impacts of mercury pollution can be challenging to identify and reverse. However, strategies to reduce mercury contamination are important because mercury can cause significant adverse effects to human and ecological health.

Findings from the MIA in Azerbaijan indicate the input of mercury into ecosystems may be elevated in some areas, but with effort by the government, key stakeholders, and the general public, those inputs can be further identified and reduced.

Lifecycle management of mercury-containing products also represents a major challenge for Azerbaijan, particularly the proper disposal of products at the end of their use. The adoption of legislation that limits and restricts the importation of such products will be an important first step towards the successful implementation of the Minamata Convention that will help to reduce overall mercury releases in Azerbaijan.

What Can You Do to Help?

- Use your buying power—purchase no- or low-mercury product replacements when possible (See Useful Links on back page for more information).
- Be aware of and support current and new recycling programs for mercury-added products.
- Choose healthier fish options (those with lower mercury levels) as part of your diet.
- Support legislation that helps reduce the impacts of mercury on the environment.

Recommendations from the Azerbaijan Mercury Team

- Create legislation that can help facilitate a framework to comply with the Minamata Convention.
- Reduce the import and use of products that contain mercury by selecting no- or low-mercury product replacements:
  - Replace compact and linear fluorescent lights with LED bulbs;
  - Check the ingredients in skin lightening creams and lotions to avoid products that contain mercury;
  - Choose brands of batteries that do not contain mercury; and
  - Replace outdated medical/measuring devices containing mercury with digital alternatives.
- Properly store waste products with mercury and avoid using landfills by creating proper storage facilities for hazardous waste.
- Generate greater awareness and education through existing outreach programs; oversee the development and distribution of information on mercury to the public, including importers of manufactured products.
- Participate in global mercury database and monitoring programs and coordinate the generation of new mercury data with global efforts organized by BRI, using:
  - Hair samples for people;
  - Muscle samples for fish; and
  - Blood, feather, and egg samples for birds.

BRI's Mercury Work in Azerbaijan

Biodiversity Research Institute (BRI) collaborates with its partners in Azerbaijan to help identify and estimate any major mercury sources in the region. An international advisor on mercury, BRI serves as co-lead of the UN Environment's Mercury Air Transport and Fate Research Partnership Area to assist with the development of a global mercury monitoring and observation system. In addition, BRI serves as an International Technical Expert with the United Nations Development Programme (UNDP) and with UN Environment, and as an Executing Agency for the United Nations Industrial Development Organization (UNIDO).

United Nations Development Programme

On the ground in about 170 countries and territories, UNDP works to eradicate poverty while protecting the planet. UNDP helps countries develop strong policies, skills, partnerships and institutions so they can sustain their progress. Learn more at www.UNDP.org

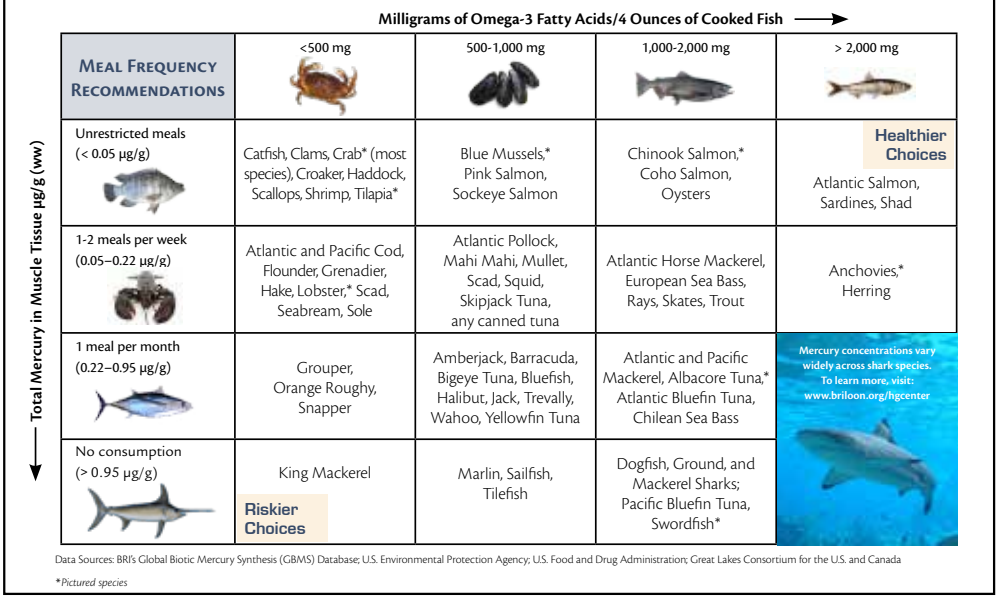
Useful Links

BRI publications on mercury:
www.briloon.org/hgpubs

Minamata Convention:
www.mercuryconvention.org

Ministry of Ecology and Natural Resources:
www.eco.gov.az

Global Health Trade-Off for Mercury and Omega-3 in Seafood



Data Sources: BRI's Global Biotic Mercury Synthesis (GBMS) Database; U.S. Environmental Protection Agency; U.S. Food and Drug Administration; Great Lakes Consortium for the U.S. and Canada

Pictured species

For More Information:

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MIA Stakeholders

- The Ministry of Ecology and Natural Resources
- The Ministry of Health
- The Ministry of Foreign Affairs
- The State Customs Committee
- The Ministry of Economy ("Təmiz Şəhər" OJSC)
- The State Committee for Standardization, Metrology and Patent
- The Ministry of Education
- The Ministry of Emergencies
- The National Parliament (Milli Majlis)
- Hazardous Waste Landfill (HWL)
- The Ministry of Defense Industry
- The Ministry of Agriculture
- SOCAR
- The Ministry of Energy (AzerEnerji OJSC, "Azerİşıq" OJSC)
- Mass Media
- Academic Institutions
- NGO's and the general public
- Private Sector Organizations
- The State Committee of Statistics
- National Academy of Sciences
- Azer Gold LLC
- United Nations Development Programme
- Biodiversity Research Institute

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December 2017