

Contaminants in Alaska: Is America's Arctic at Risk?



What are Persistent Contaminants?

POPs:

- pesticides: DDT, chlordane, mirex
- industrial chemicals: PCBs, HCB
- industrial waste byproducts: dioxins, furans



Heavy Metals:

- arsenic
- cadmium
- lead
- mercury
- selenium

What are their Characteristics?

- **Travel Long Distances:** Settle out in cold climates
- **Persist:** Don't readily break down in the environment or animals
- **Magnify:** POPs accumulate in fat; heavy metals in organs
- **Cause Adverse Effects:** Sometimes at very Low Levels



What are their Potential Effects?

- **Reproductive:** Reduced ability to conceive and carry offspring
- **Immunological:** Decreased ability to fight disease
- **Neurological:** Impairment of brain function
- **Developmental:** Slowed growth rates and abnormalities
- **Cancer:** A number of POPs are known or suspected carcinogens

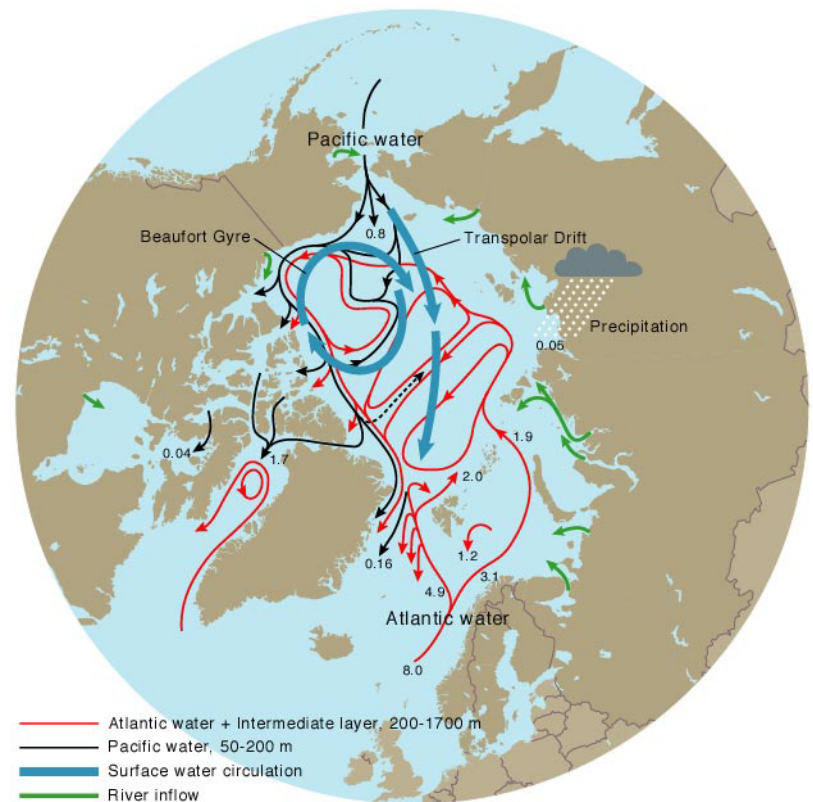


Why is the Arctic Region at Risk?

- Air Currents
- Ocean Currents
- Rivers
- Migratory Species



AMAP



Figures are estimated in- or outflows in Sverdrups

AMAP

What are the Risks to Fish and Wildlife?



- Adak Island Sea Otters have DDT concentrations

36x > otters in SE Alaska

- Some AK Orcas have contaminants = or > St. Lawrence belugas who have decreased survival of young



What are the Risks to Fish and Wildlife?

- Some Peregrine Falcons in the Arctic reveal mercury at levels known to harm reproduction



- Concentrations of the pesticide HCH in Polar Bears in Alaska are among the highest in the Arctic.

What are the Risks to Fish and Wildlife?



- Western Aleutian Bald Eagles have elevated DDT concentrations

- Northern Fur Seal pups with high contaminant levels have decreased immune function



How do Contaminants Affect People?

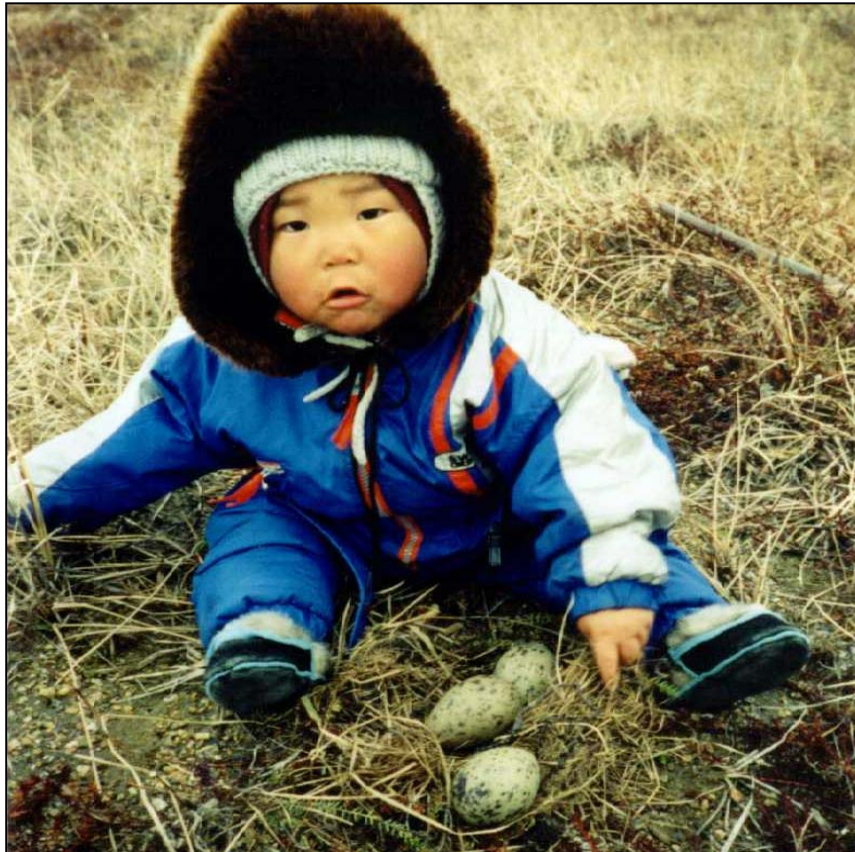
- POPs can concentrate in organisms at 70,000x background levels in soil and water.
- POPs accumulate in fatty tissues. Heavy metals accumulate in organs and muscles.
- Contaminant risks of traditional foods are largely unknown and more studies are needed.

- Native foods have high nutritional value.
- The benefits of eating subsistence foods far outweigh the risks.



What are the Risks to Children?

• Fetuses and nursing babies are most vulnerable to the effects of toxins. The developing brain is especially sensitive.



- POPs move readily through the umbilical cord to the developing fetus and through breast milk to infants.
- Breast milk from Canadian Inuit women have PCB levels 5X> women in southern Canada.
- Mohawk babies with high levels of PCBs performed poorly on tests of face recognition and overall intelligence.

Do POPs Affect the Lower 48?

- Continued POPs contamination from other countries undercuts US environmental laws that have reduced domestic sources of POPs.

- PCB advisories are in effect in 36 states, with the majority issued in the Great Lakes region.

- The Great Lakes region has been greatly affected by POPs.



- Bald eagles have suffered from the thinning of eggshells, reducing the total population. Consumers of large amounts of fish from the Great Lakes can have 2-3 times the amount of contaminants than the general population.

What Can We Do?



- **Educate people** about Arctic contaminants and their impact in the United States.
- **Commit resources** for a long-term cooperative research and monitoring program to assess and track contaminants in Alaska's Arctic ecosystems.

What Can We Do?



- **Strengthen partnerships** between federal and state agencies, universities, Alaska native tribes and organizations, and communities.
- **Reduce exposure** to POPs and heavy metals through an international treaty.