

# Environmental Concerns of Canada



# Environmental Issues in Canada

- 1. Acid Rain
- 2. Pollution of the Great Lakes
- 3. Extraction of Natural Resources on the Canadian Shield
- 4. Timber Industry in Canada



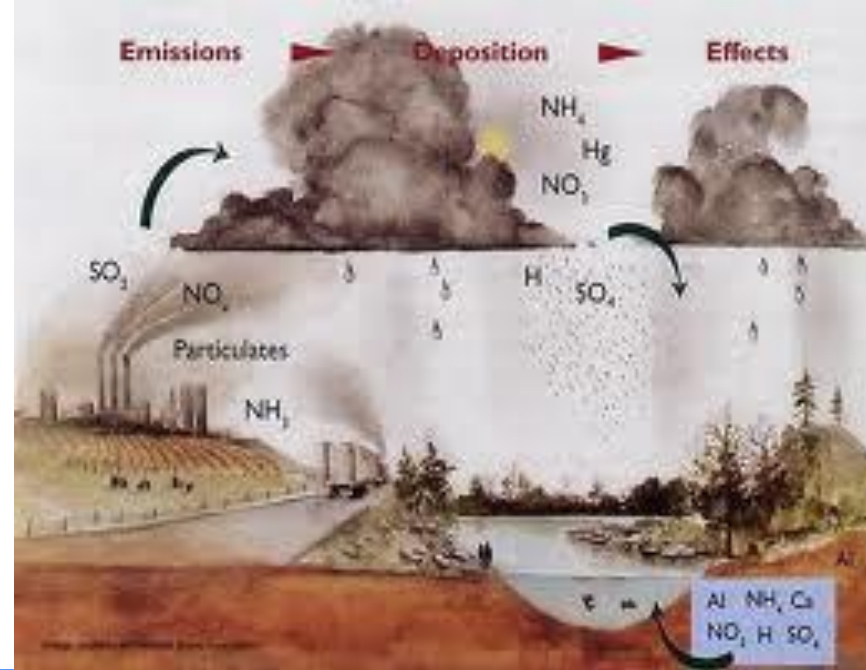
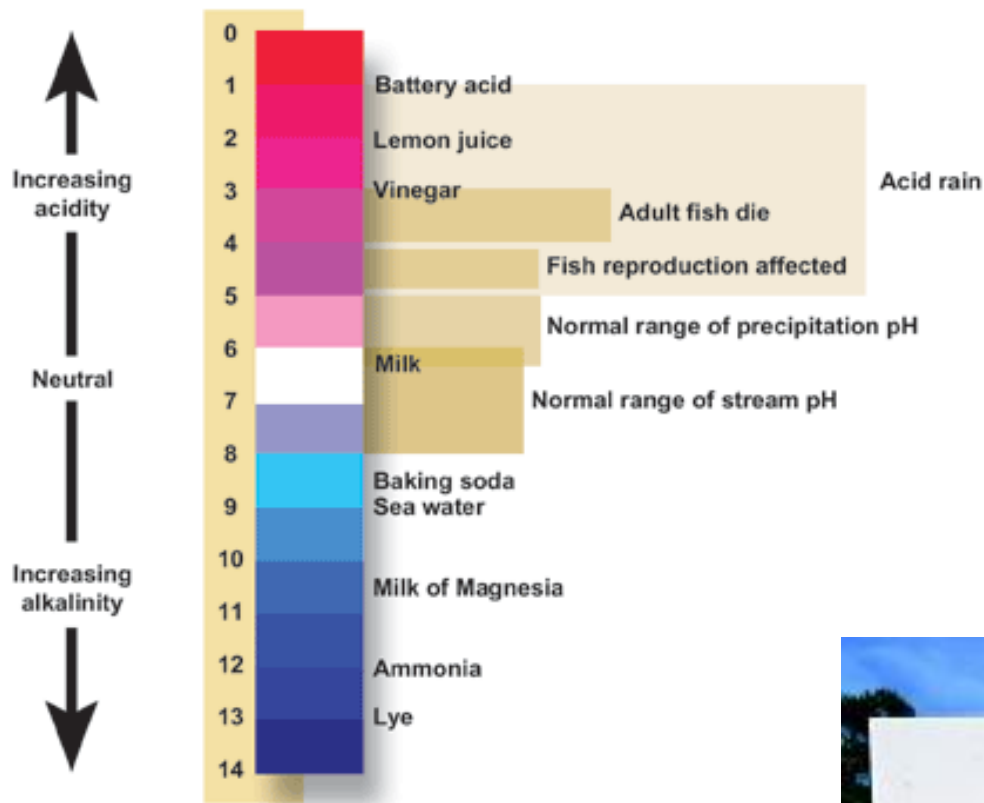


# Acid Rain

- Coal-burning power plants, factories, and vehicles release chemicals that pollute the air
  - The pollutants mix with water molecules in clouds and turn the water acidic
- High levels of acid in rain can damage or kill trees and pollute lakes enough to kill fish
- Houses, buildings, statues can also be damaged







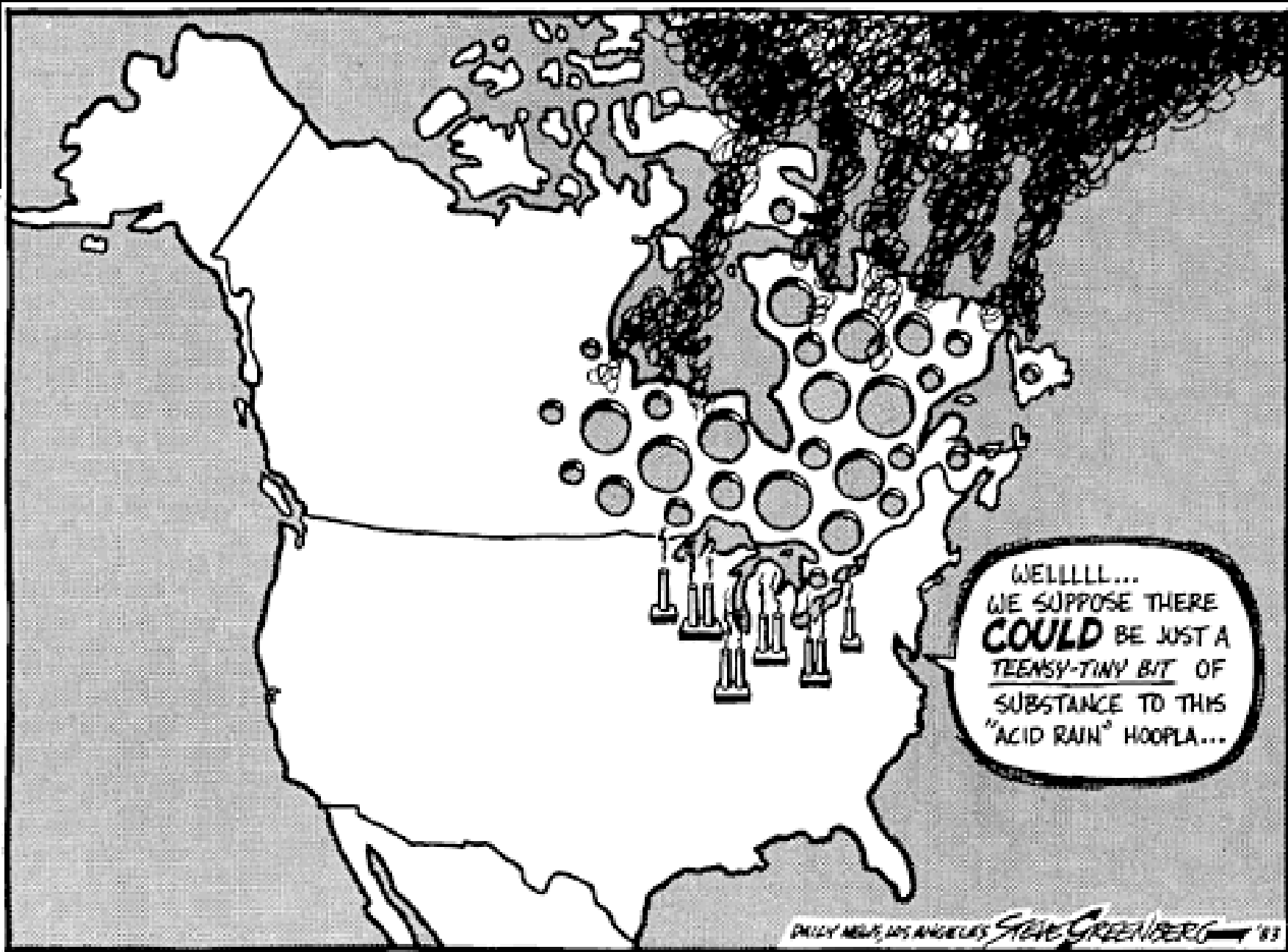
**ACID RAIN KILLS RIVERS**  
**THIS RIVER IS DYING**

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**ATLANTIC SALMON FEDERATION**  
AND THE  
**NOVA SCOTIA SALMON ASSOCIATION**

# Acid Rain

- Southern Canada (near the Great Lakes region) experiences the highest levels of acid rain
- 50-75% of the pollution that causes acid rain actually comes from the US
  - Wind patterns tend to move the pollution from the US north into Canada



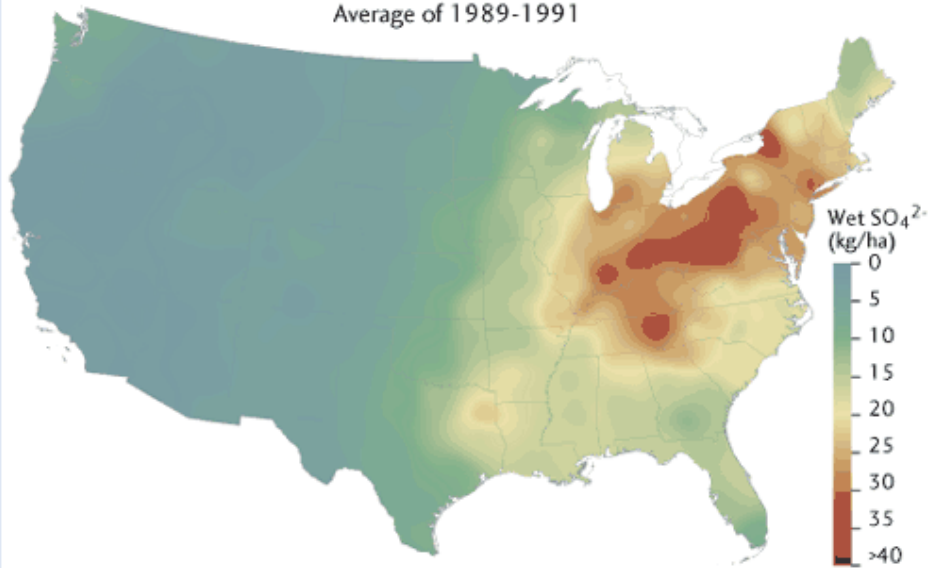


WELL...  
WE SUPPOSE THERE  
**COULD** BE JUST A  
TEENSY-TINY BIT OF  
SUBSTANCE TO THIS  
"ACID RAIN" HOOPLA...

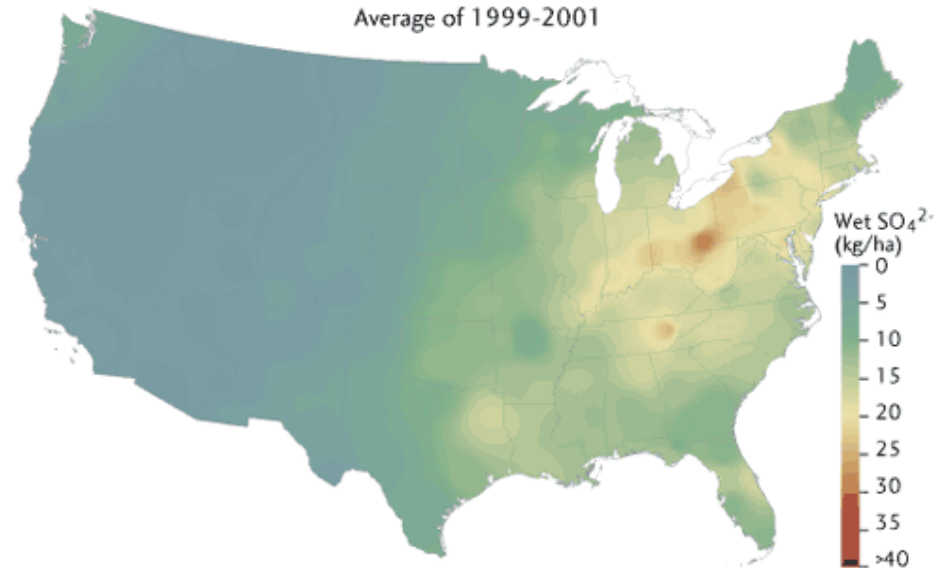


# Exhibit I-6: Wet sulfate deposition, 1989-1991 vs. 1999-2001

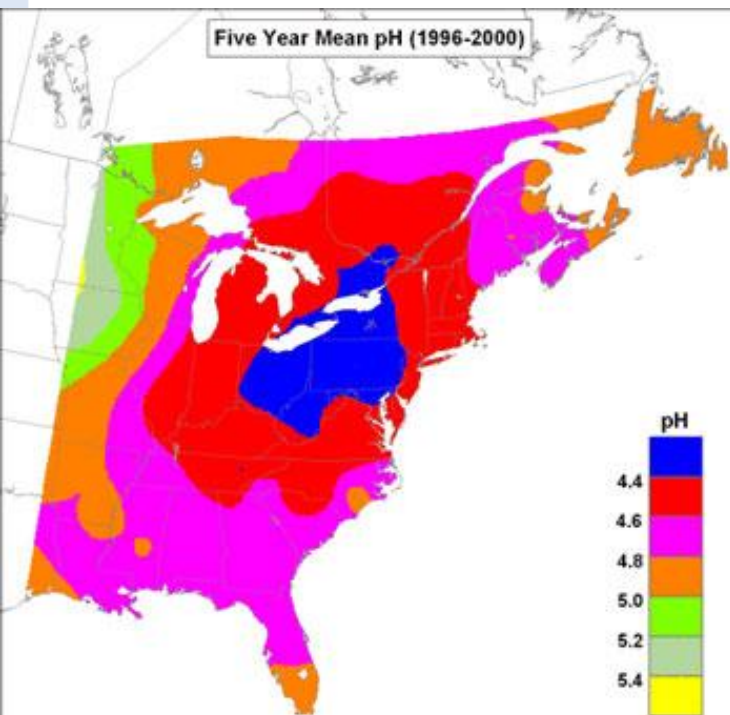
Average of 1989-1991



Average of 1999-2001



Five Year Mean pH (1996-2000)



EPA Acid Rain Program: 2001 Progress Report. November 2002.

# Pollution of the Great Lakes

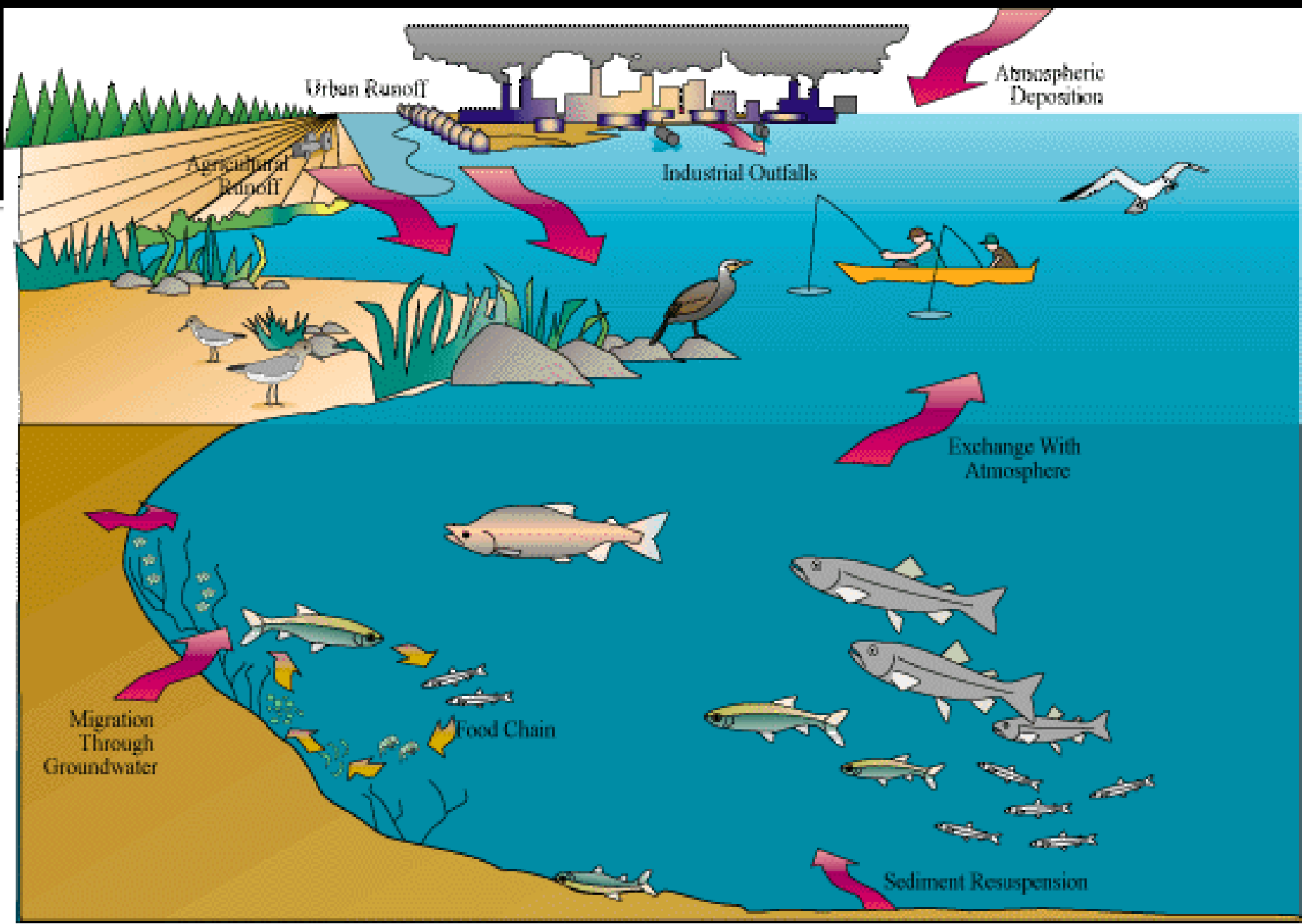
- 1970s: Great Lakes had high levels of water pollution
  - Fishing was unsafe; tons of animals and plants were harmed or killed
  - Factories around the region used the lakes as a place to dump wastes
  - Factories also used the chemical *phosphorus* when producing things like toothpaste, fertilizer, pesticides, detergents, etc.
    - Really bad for lakes because it caused a rapid increase in algae





**Industrial pollution in Indiana Harbor, near Chicago.**

*photo courtesy US Environmental Protection Agency, Region V*



Urban Runoff

Agricultural Runoff

Industrial Outfalls

Atmospheric Deposition

Exchange With Atmosphere

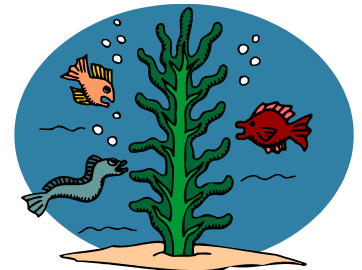
Food Chain

Migration Through Groundwater

Sediment Resuspension

# Pollution of the Great Lakes – The Solution

- **1971: Great Lakes Water Quality Agreement was signed by US and Canada (renewed in 2002)**
- **Goal was to restore the lakes' environment and prevent further damage**
  - Working together to reduce amount of human wastes dumped in lakes
  - Working to make sure that chemicals (like phosphorus) are not put into lakes

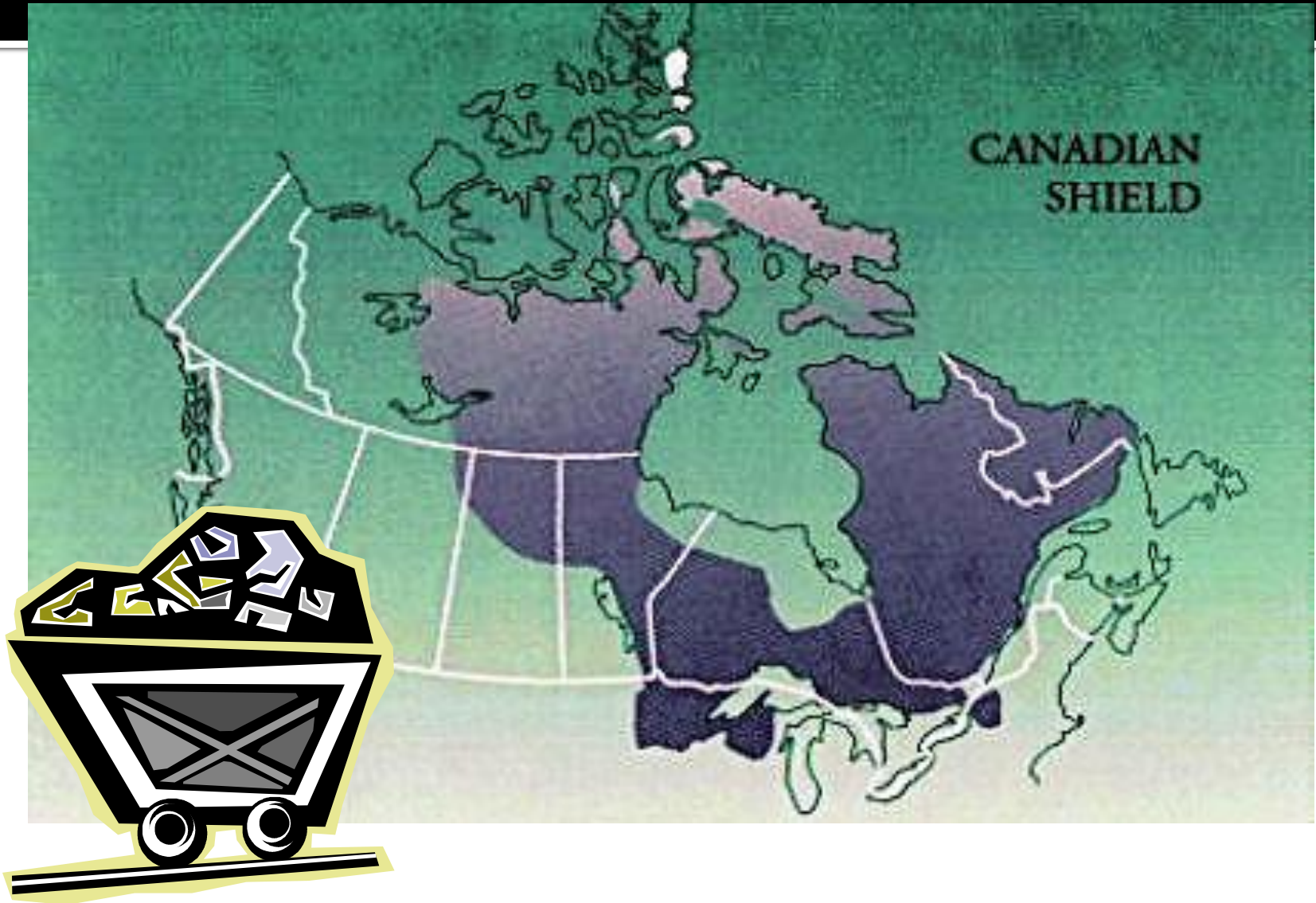


# Natural Resources on the Canadian Shield

- Canadian Shield is a large area of thin, rocky soil that surrounds the Hudson Bay
  - Beneath the soil is one of Canada's most valuable resources: minerals (gold, silver, copper, zinc, lead, iron ore, uranium, & nickel)
- Very important to Canada's economy (mineral deposits and jobs)
  - 1.5 million people make their living in the mining industry in this area



# The Canadian Shield







# Minerals of Canada / Minéraux du Canada



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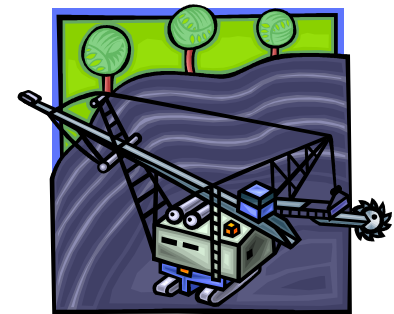






# Extraction and Use of Resources on the Canadian Shield

- Blasting & digging with heavy machinery causes the land around mines to be damaged and the environment is often ruined
- *Slag*, or leftover rock from the smelting process, is often dumped in any convenient place
- Mining processes release harmful chemicals into the air, which causes acid rain





Photograph by Peter Ewert



Alberta Tar Sands





# Extraction of Resources -- The Solution

- Canada's government has made new rules about mining
  - Some rules reduce the amount of pollution allowed in waterways
  - Government hopes to keep its fish alive and safe to eat

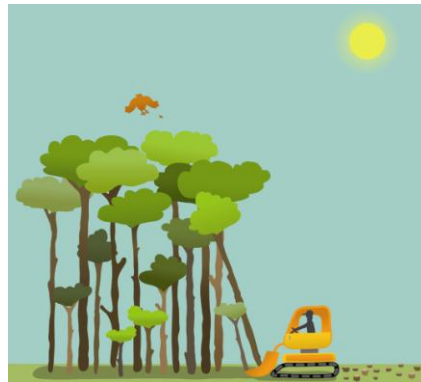
<http://ngm.nationalgeographic.com/2009/03/canadian-oil-sands/essick-photography>

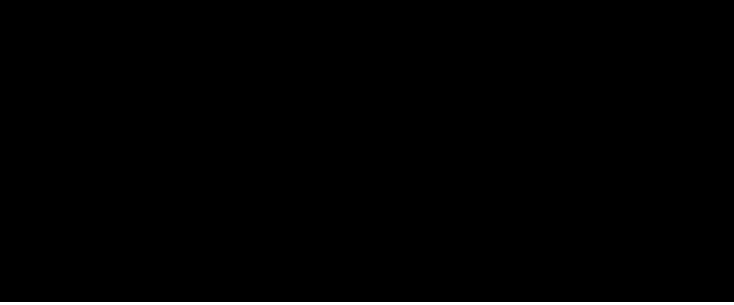




# Timber Industry

- With almost half its land covered in forests, Canada is a leading producer of timber products
  - products include lumber, paper, plywood, and wood pulp
- The major timber-producing provinces include British Columbia, Quebec, and Ontario.

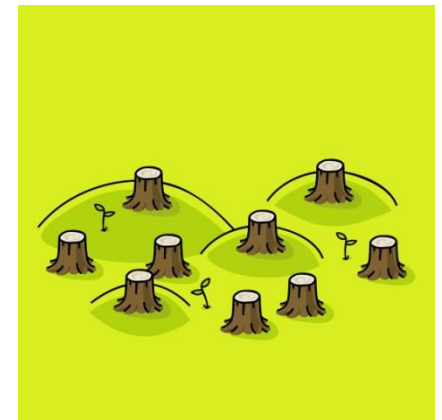




Copyright Forest Elixes

# Timber Industry

- Citizens are concerned that logging is destroying the forests
- Most timber companies cut all the trees in a given area, leaving large treeless gaps in the forest (called *clear-cutting*)
  - Reduces water quality, causes erosion, & kills animals' habitats
- Heavy machinery leaves the forest floor compacted
  - Makes it hard for new growth to start





# Timber Industry – The Solution

- Government and industry are working together to manage use of the forests:
  - Hundreds of millions of seedlings are planted each year
  - Billions of dollars are spent on managing and protecting the forests
  - Over \$100 million is spent each year by the logging industry to protect wildlife & their habitats



# What were the four issues?

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- 2. Pollution of the Great Lakes
- 3. Extraction of Natural Resources on the Canadian Shield
- Timber Industry in Canada