

# AP Biology



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

# AP Biology

## Impacts of Deforestation:

- Can degrade carbon storage
- Throws off the regulation of water balance and river flow
- Can cause regional climate patterns to change drastically over time
- increase effect of infectious diseases



---

---

---

---

---

---

---

---

## Rainforests:

- Rainforests are home to two-thirds of all the living animal and plant species on Earth.
- Rainforests cover only a small part of the earth's surface - about 6%, yet they are home to over half the species of plants and animals in the world.
- Deforestation and the Global Carbon Cycle
- Deforestation and Biodiversity



---

---

---

---

---

---

---

---

## How to save

### rainforests and stop the deforestation

- Addressing deforestation
- Restoring and rehabilitating ecosystems
- Funding rainforest conservation efforts
- Expand protected areas



---

---

---

---

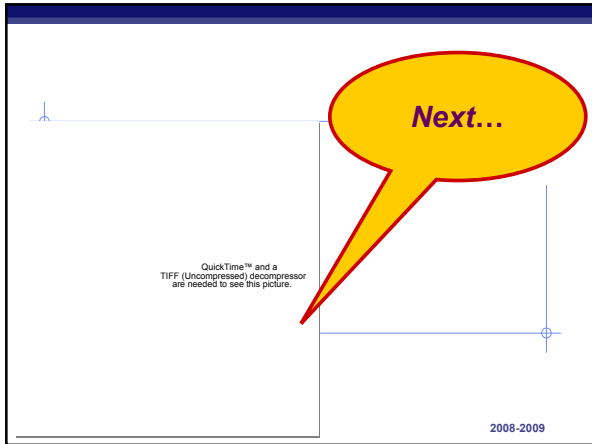
---

---

---

---

# AP Biology



---

---

---

---

---

---

---

---

## Acid Precipitation

- What is Acid Rain?
  - Term used to describe ways that acid falls from the atmosphere.
  - Two Types of Acid Deposition:
    - Wet Deposition
    - Dry Deposition

Wet Deposition~ Acid that falls in the form of rain, fog and snow.  
Dry Deposition~ Acid that is present in dust or smoke and sticks to the ground, cars, buildings, and trees.

---

---

---

---

---

---

---

---

## Acid Precipitation

- What Causes Acid Rain?
  - Natural Causes: Volcanoes and decaying vegetation.
  - Human Causes: Factories and other productions using fossil fuels.

What is in Acid Rain?

- Acid Rain consist of gasses such as sulfur dioxide(SO2) and nitrogen oxide (NO).
- These gasses react in atmosphere with water, oxygen and other chemicals to form various acidic compounds.
- These compounds can travel sometimes hundred of miles from prevailing winds.

---

---

---

---


---

---

---

---

# AP Biology



## Effect on Life

- **Plants:**
  - Roots become damaged from the acidic rainfall.
  - Acid rain can cause the growth of the plant to be killed or stunted.
  - Nutrients in the soil can be destroyed, limiting the resources for the plants to take in.
  - Waxy Layer-Cuticle can be reduced, allowing the plant to dry out and be susceptible to disease.
- **Animals:**
  - Acid Rain and other populations can hurt a food web.
  - All organisms are interdependent on each other for energy.
  - If one organism is effected, everything above is effected.

---

---

---

---

---

---

---

---

---

---

## Solutions

1. Reducing Acidic Lakes & other bodies of Water
  - Adding large quantities of alkaline substances.

**Clean Coal Technology:** promises to dramatically reduce the contaminants and pollutants that are problematic for burning coal. Over time as power plants switch to clean coal tech, we can help reduce pollution and reduce our dependence on foreign oil.

2. In your home:
  - Only run dishwasher/washing machine with full load.
  - Turn off lights in empty rooms or when you will be away from home.
  - Turn down heat at night and when will not be at home at night.
  - Don't use your air condition often.
3. In the Yard:
  - Keep pool covered when your not using it.

---

---

---

---

---

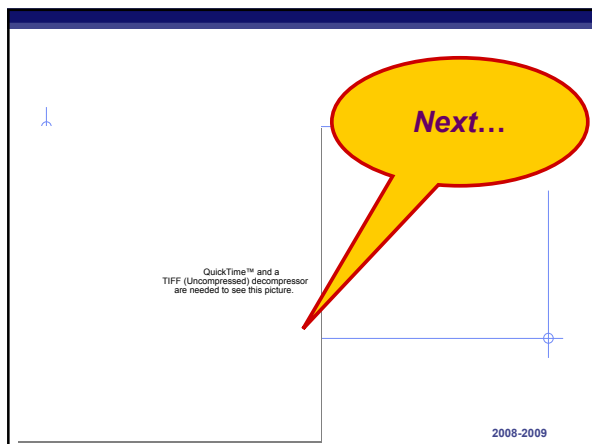
---

---

---

---

---



QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

2008-2009

---

---

---

---

---

---

---

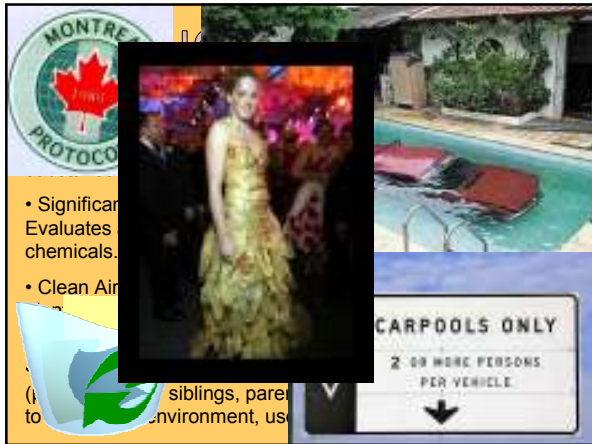
---

---

---



# AP Biology



• Significant  
Evaluates  
chemicals.

• Clean Air

siblings, pare  
environment, us

CARPools ONLY  
2 OR MORE PERSONS  
PER VEHICLE

---

---

---

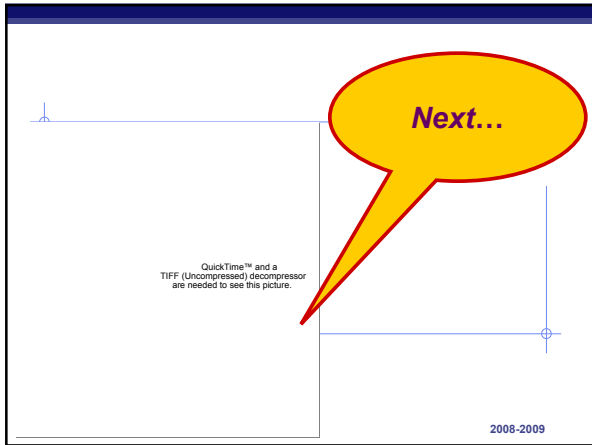
---

---

---

---

---



Next...

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

2008-2009

---

---

---

---

---

---

---

---

Loss of Biodiversity/Endangered Species  
(Loss of Habitat and Fragmented Habitat)



Elena Veronin & Gabby Griffing

---

---

---

---

---


---

---


---

# AP Biology

## Description



- Biodiversity: variation of life forms, or species
- Endangered Species: species that are close to extinction.
  - Example: 1/8 of all plant species are endangered, and some estimates put 140,000 species extinct per year
- The Long Island Sound's ecosystem is being disturbed by pollution and fishing.
- Causes: H.I.P.P.O.
  - H: habitat destruction
  - I: invasive species
  - P: Pollution
  - P: human overpopulation
  - O: overharvesting




---

---

---

---

---

---

---

---



---

---

## Ecological Impact

March 1987

- Loss of biodiversity causes instability in ecosystems
- The destruction of habitats and introduction of invasive species puts the native species at risk for extinction.
  - In Latimer Reef, a foreign species was introduced, and has grown exponentially.
- Impact on Humans:
  - Medicines in rainforests are being destroyed
    - Ex: rosy periwinkle, used in anti-cancer medication.
- Economic Impact:
  - Food supplies are shrinking
  - Number of fish species is shrinking

May 2006

---

---

---

---

---

---

---

---

---

---

## What Can You Do?

Reliance upon modern varieties of rice has caused more than 1,500 local rice varieties in Indonesia to become extinct

Humans now rely upon just 14 species of mammals and birds to supply 90% of all animal-derived foods





❖ Keep pets indoors    ❖ Choose tap over bottled water    ❖ Adjust two degrees




❖ Choose green energy

-To help out locally and globally you can also volunteer or donate to the American Museum of Natural History's Center for Biodiversity and Conservation

---

---

---

---

---

---

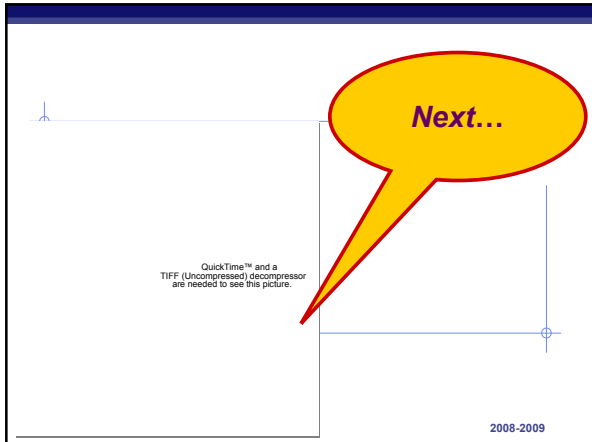
---

---

---

---

# AP Biology




---

---

---

---

---

---

---

---

## global warming


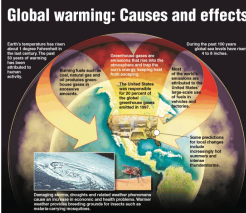
✓ An average increase in the Earth's temperature, which in turn causes changes in climate resulting in

Changes in rainfall patterns

A rise in sea level

A wide range of impacts on

- Plants
- Wildlife
- Humans


---

---

---

---

---

---

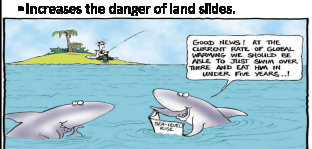
---

---

## World Wide

The temperature could rise between 2.4 and 4.5 degrees Fahrenheit.

- Leading to the extinction of about 20 to 30 percent of the world's species.
- Water temperatures will continuously rise.
- Coral Reefs will bleaching out and die.
- Permafrost in mountainous regions and at high latitudes is warming.
- Increases the danger of land slides.



## Ecological Impact

### Locally – New York

Glacial lakes are increasing in both size and number.

- Deadly Floods
- River currents are affected by melting glaciers and ice.
- Dangerously speeding up during the spring.
- Springtime is starting earlier.
- Plants bloom earlier
- Changes the migrations of birds

---

---

---

---

---

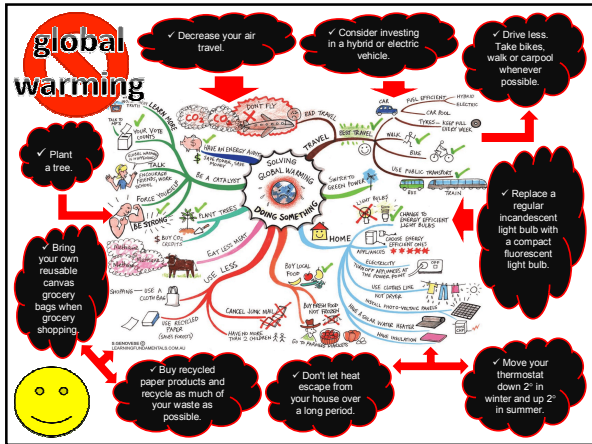
---

---

---



# AP Biology




---

---

---

---

---

---

---

---




---

---

---

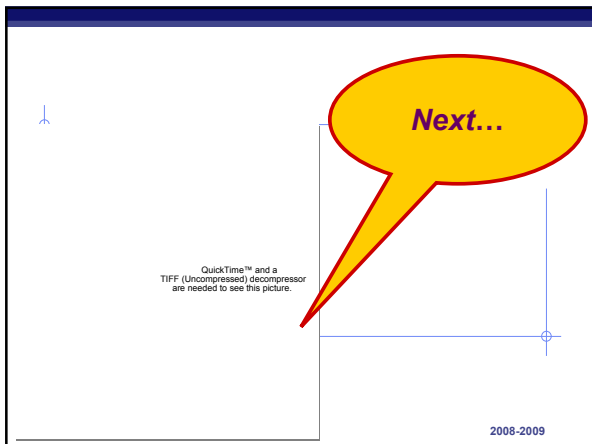
---

---

---

---

---




---

---

---

---

---

---

---

---

# AP Biology

## DESTRUCTION OF WETLANDS

- ✗ A wetland is an area of land that is either saturated or flooded and supports vegetation.
- ✗ With the loss of wetlands has come...
  - 1) the loss of valuable habitat for native species.
  - 2) flooding and decreased quality of water in lakes, rivers, and tributaries.
  - 3) and the extinction or endangerment of many species.
- ✗ A local example of this destruction is the Hudson River Valley.
- ✗ The River Valley is home to abandon factories and industrial waste.



---

---

---

---

---

---

---

---

## ECOLOGICAL IMPACT

- ✗ Wetlands are essential to an ecosystem for...
  - promoting biodiversity,
  - flood control,
  - and Climate control.
- ✗ These waterlogged areas contain an estimated 771 billion tonnes of greenhouse gases (CO2 and methane)
- ✗ Wetlands also absorb excess water and clean the chemicals, sediments, and excess nutrients from the water.
- ✗ Without wetlands none of these functions could occur.
- ✗ The loss of wetlands has caused several floodings in the town of Bethlehem, NY.



---

---

---

---

---

---

---

---

## ACTIONS NEEDED

- ✗ Of the original 215 million acres of wetlands existing 200 years ago in the United States
- ✗ less than 100 million acres remain.
- ✗ Agricultural development was responsible for about 87 percent of this loss.
- ✗ To stop this wetland conservation programs need to be set up to help keep the areas safe and unaltered.
- ✗ Individuals like us can join “adapt a wetland program” as offered by *Concerned Friends of Fernandina*.
- ✗ This program is being offered like several others right here in Nassau county.



---

---

---

---

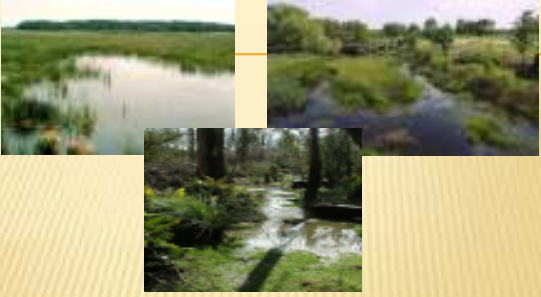
---

---

---

---

# AP Biology



BY: STEPHEN FARLEY AND IVANNAH CHUA

---

---

---

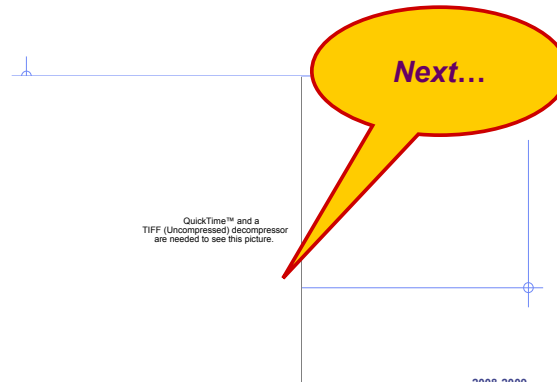
---

---

---

---

---



Next...

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

2008-2009

---

---

---

---

---


---

---

---

## Water Pollution

A deadly killer



By Patrick Blatt and Kailey McGarvey

---

---

---

---

---

---

---

---

# AP Biology

## Water Pollution is...

- The contamination of water bodies such as lakes, oceans, rivers and groundwater.
- Caused by Human activities.
- Harmful to organisms and plants which live in/near these water bodies.
- Detrimental to the health and lives of humans as well.



---

---

---

---

---

---

---

---

## Local Examples...

- There are a multitude causes for water pollution.
- Many factories leak wastes into rivers and/or oceans.
- When water runoff occurs, the water may pick up pollutants from the body of water it flows into.
- Vehicular traffic and the burning of fossil fuels are also major causes of water pollution.

This picture shows raw sewage and industrial wastes flowing into the US from Mexico via the New River



---

---

---

---

---

---

---

---

## Ecological Impact...

- Aquatic Ecosystems are disturbed by water pollution.
- Polluted water kills plants.
- Ocean Acidification- There is an ongoing pH decrease of Earth's Oceans.
- Polluted water harms the health of humans and animals that drink it.
- Economic Impact: Polluted water has a negative effect on crop yields, amount of healthy livestock and fish. All of which decrease the amount of profit of an industry.



---

---

---

---

---

---

---

---

# AP Biology

## Actions that need to be taken:

- Remove the pollutants before the water returns to the environment.
- Collect the water by a system of underground pipes-- sewers-- which carry it to one or more central treatment facilities.
- Most of these are located near bodies of water into which the treated wastewater is discharged.
- Smaller sized farms tend conserve water and apply and fertilizer to fields more responsibly, minimizing their impact on local water systems, rather than large industrial farms which do not pay close attention to their water supplies and use of fertilizer.

•This picture shows a water pollution treatment facility in Sweden



---

---

---

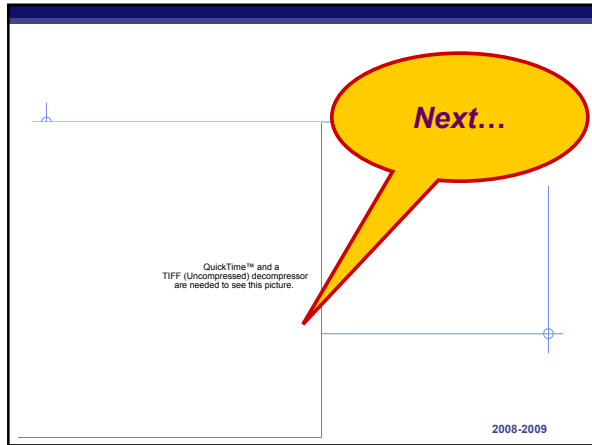
---

---

---

---

---



---

---

---

---

---

---

---

---

## Biomagnification

Erin Hogan  
Umar Qazi

---

---

---

---

---

---

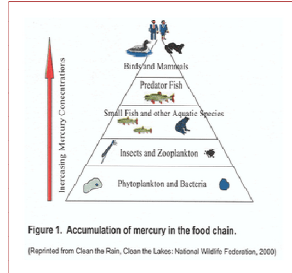
---

---

# AP Biology

## What is Biomagnification?

- Biomagnification is the increase in the concentration of a substance
- Occurs throughout a food chain, not an organism
- Chemical must be
  - Long-lived
  - Mobile
  - Soluble in fats
  - Biologically active



---

---

---

---

---

---

---

---

## Impact

- Some of the increasing levels include mercury and DDT, chemicals that harm organisms
- Organisms higher on the food chain absorb more toxins since they eat more
- Examples: bald eagle, polar bear
- Humans who eat meat can also be affected by the chemicals



---

---

---

---

---

---

---

---

## Solving the Problem

- Unfortunately, scientists don't know all of the chemicals that cause biomagnification
- Chemicals discovered to be harmful are taken off the market, but it might be too late
- The only way to eliminate the chemical completely from a food chain is to ban the product and wait.

---

---

---

---

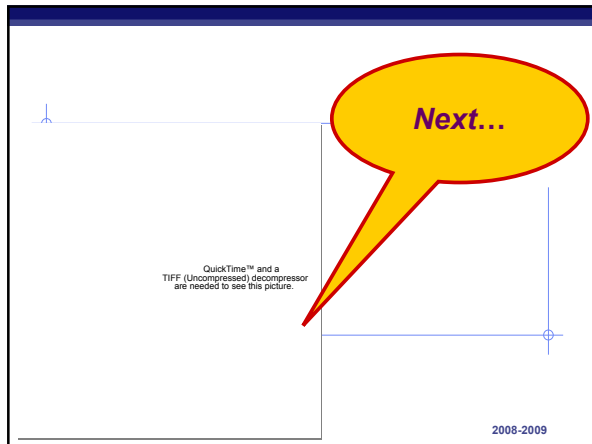
---

---

---

---

# AP Biology



---

---

---

---

---

---

---

---

## Over-Exploitation

-Over-exploitation is the excessive hunting or fishing of specific species that causes their populations to drastically decline.



Over-exploitation of species causes the loss of genetic diversity and the loss in the relative species abundance in an ecosystem.

---

---

---

---

---

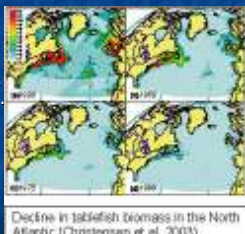

---

---

---

## Examples

- North Atlantic region commercial fishing has been a problem.
  - In the 1980's cod were over fished commercially
  - by 1992 the population was less than 1% of its original population.
- Other species such as blue fin tuna have experienced a 90% population decline as well as the swordfish.



---

---

---

---

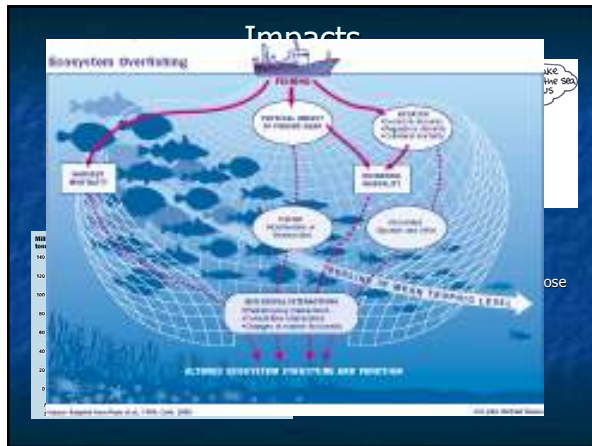
---

---

---

---

# AP Biology




---

---

---

---

---

---

---

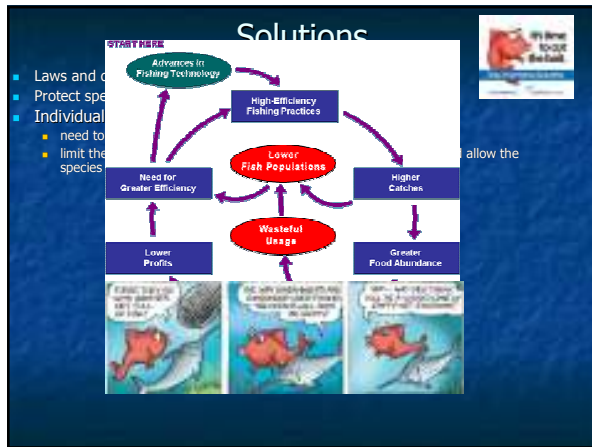
---

---

---

---

---




---

---

---

---

---

---

---

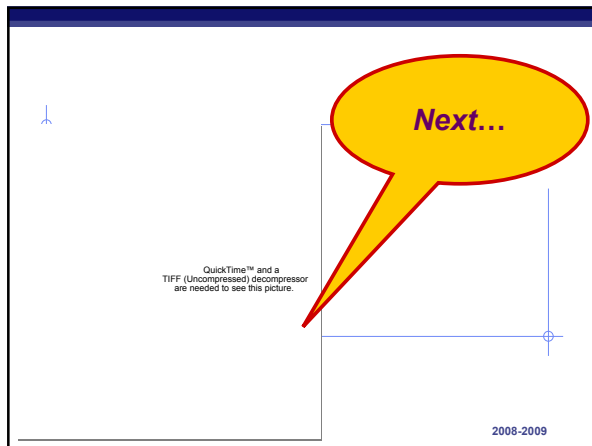
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

---

---