

Biodiversity



Essential Standard 2.2: Understand the impact of human activities on the environment (one generation after the next)

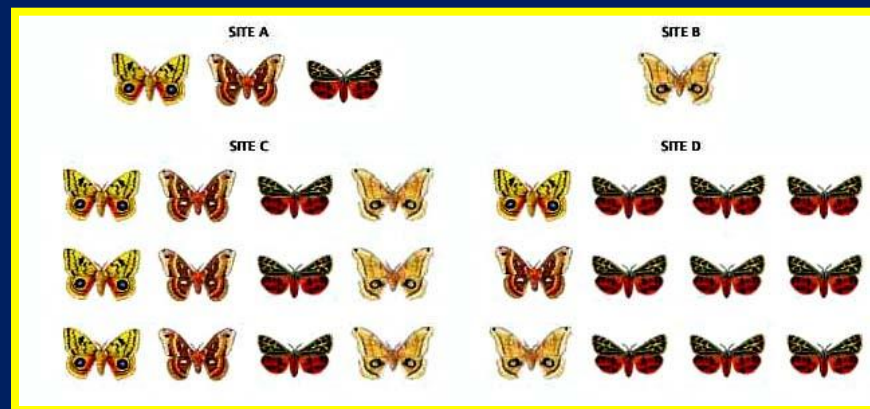
Biodiversity

Biodiversity refers to the variety of organisms in a given area



Species Richness

When measuring biodiversity, the number of different species and the number of individuals in each species is important



Genetic Diversity

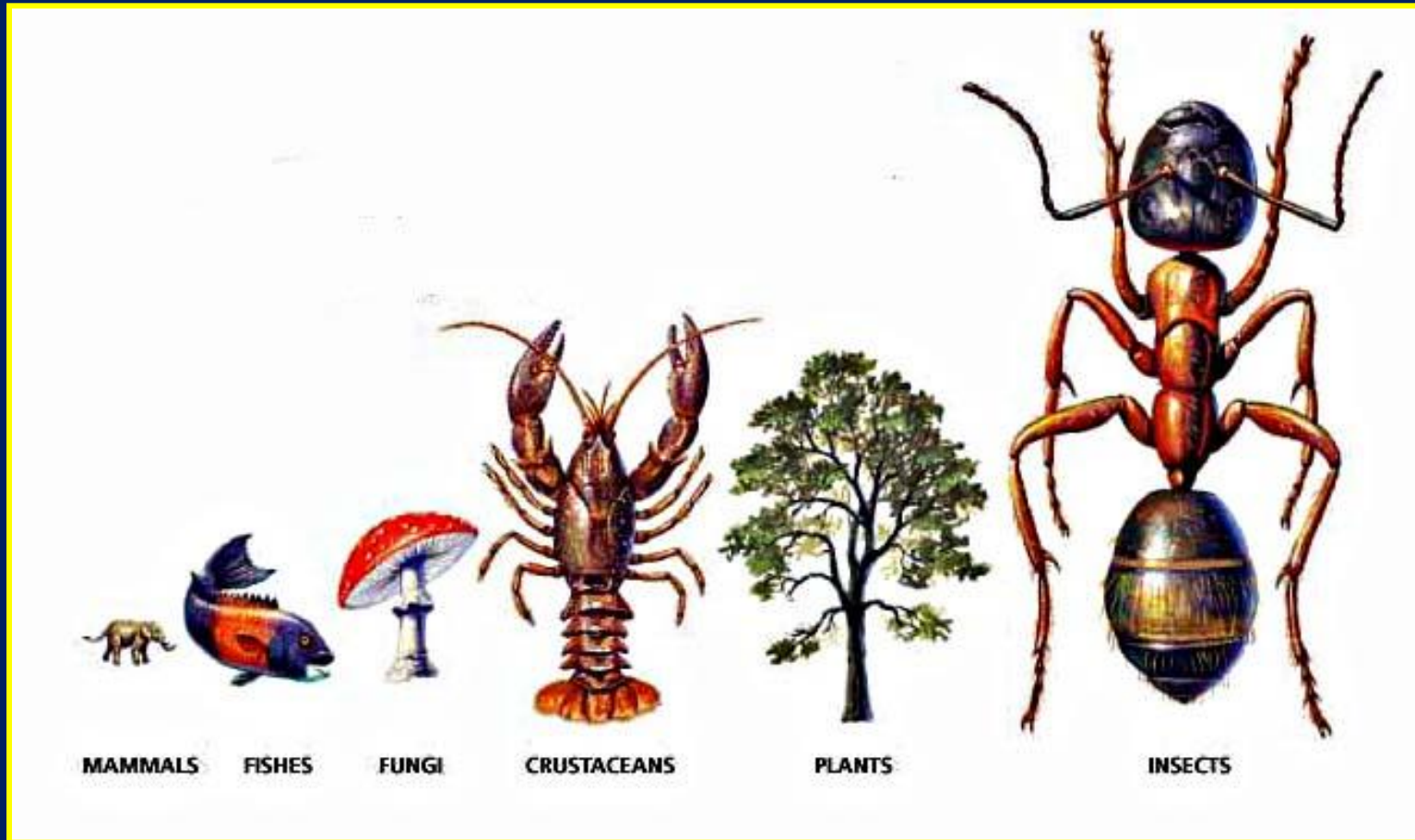


Within species, genetic diversity is also important and signals a healthier population over time

99% identical DNA

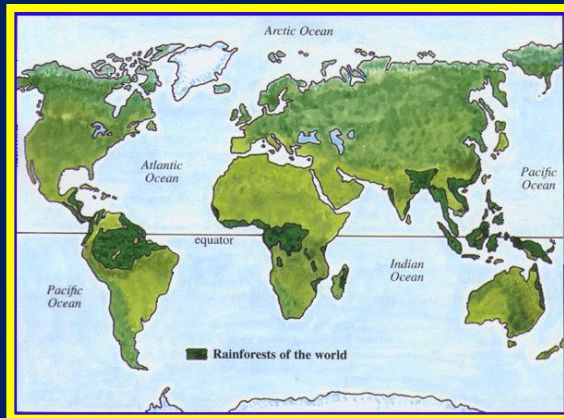
Measuring Earth's Diversity

There are an estimated 10 – 30 million species on Earth with the largest proportion being insects



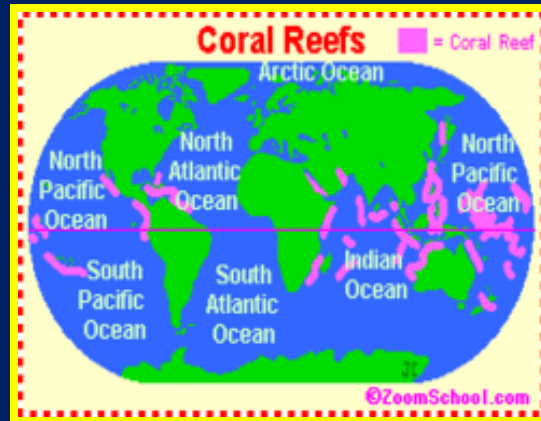
Ecosystem Diversity

Tropical rainforests are the most diverse of all the biomes, containing one-fifth of all species on Earth.



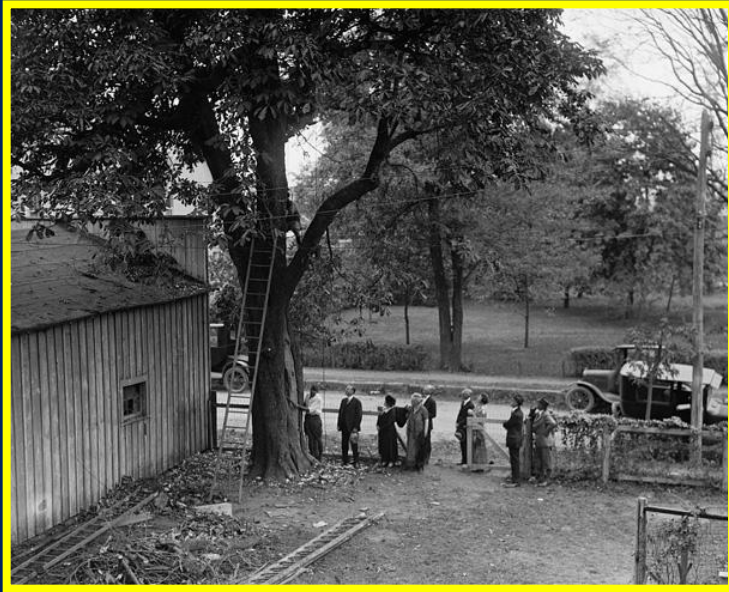
Ecosystem Diversity

Coral Reefs are the most diverse aquatic ecosystems, supporting more than 25% of all marine life.



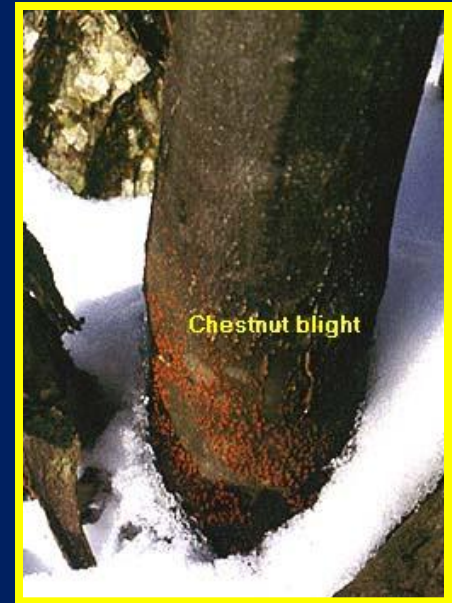
Importance of Biodiversity

The more diverse an ecosystem is, the more likely it will be able to rebound after a disaster.



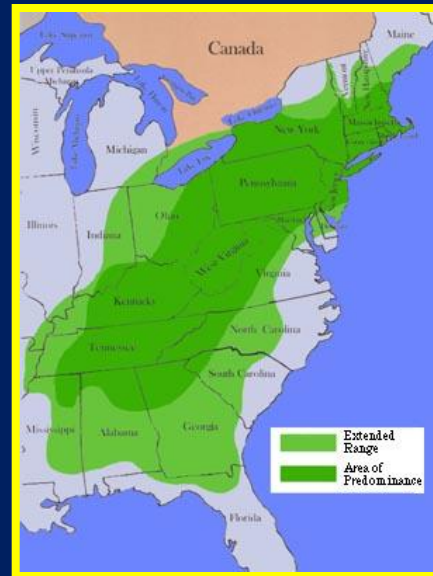
American Chestnut Tree

Once the most common tree in the Appalachian mountains, could grow to over 100 feet tall.



Chestnut Blight

Fungal disease began in 1904 and killed all the chestnut trees in the US by the 1950's.



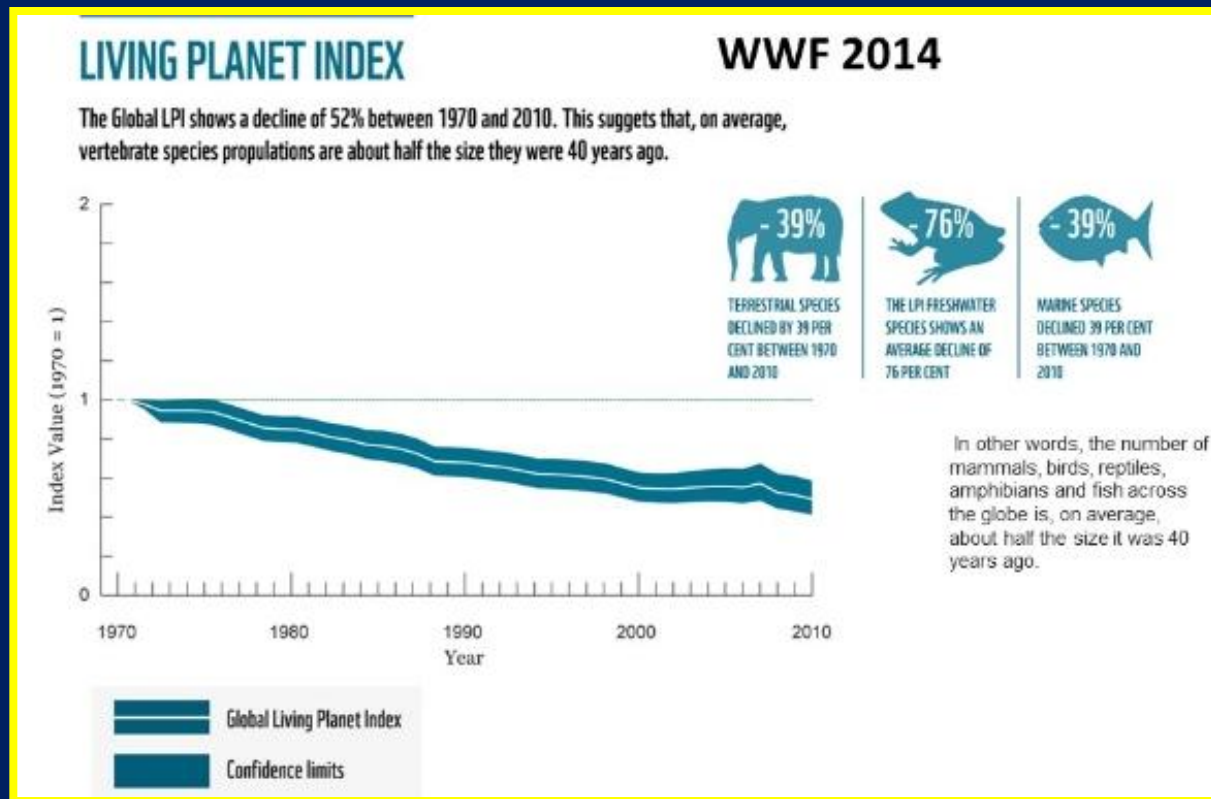
Importance of Biodiversity



Blue Ridge Parkway, 1950's,
after Chestnut Blight

Loss of Biodiversity

Populations of mammals, birds, reptiles, amphibians, and fish have declined worldwide by over 52% since the 1970's.



Threatened, Endangered, Extinct

Threatened species are those in danger of becoming endangered in the future



Endangered species are those on the brink of extinction now

Extinct species are those which can no longer be found in the wild or captivity



Habitat Destruction

The number one threat to biodiversity is habitat destruction



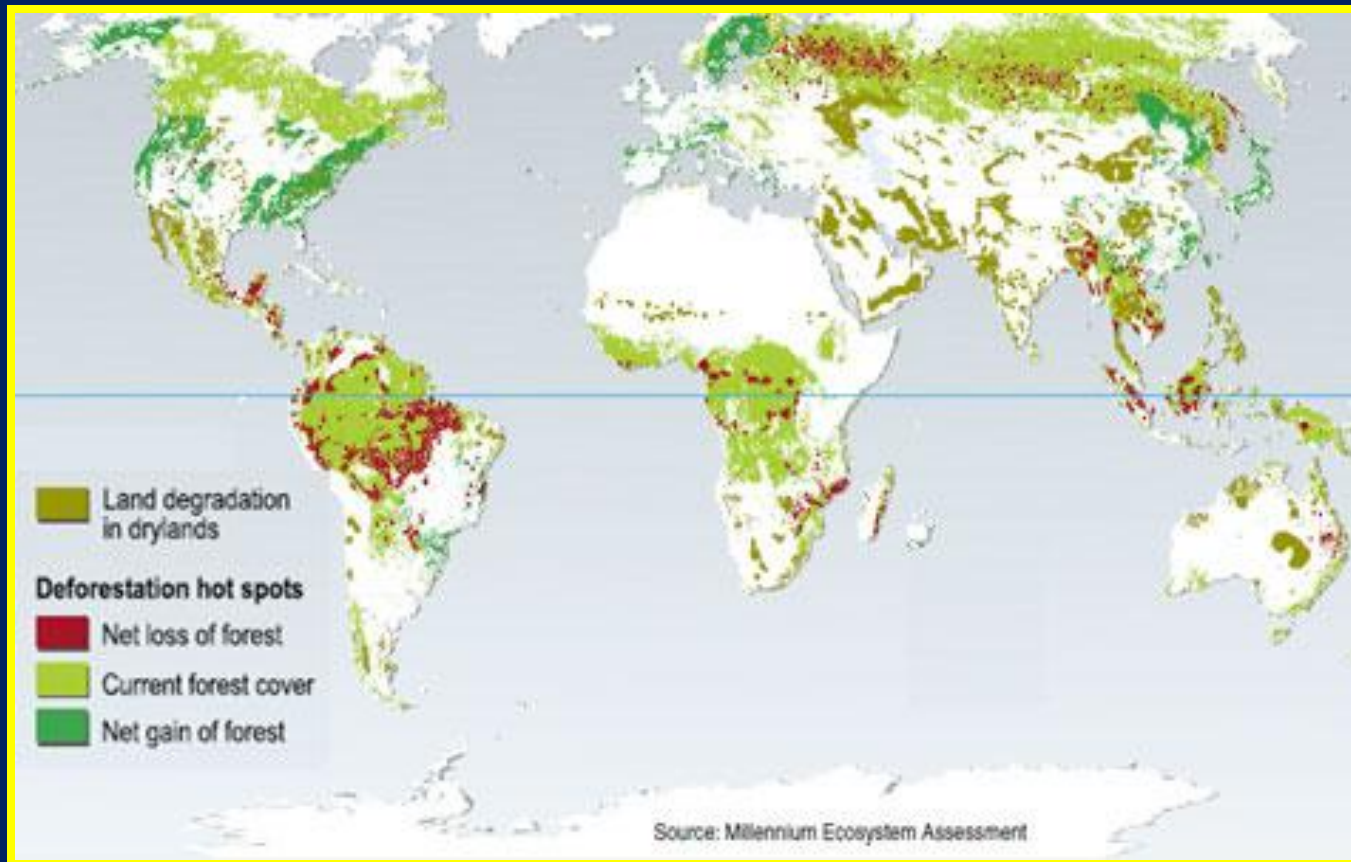
Monocultures

The practice of clearing large areas of diverse forest to plant a single highly productive crop year after year, reduces habitats and impacts our water and soil resources.



Deforestation

Deforestation for logging or agriculture has led to the loss of over 17% of the Amazon rainforest in the past 50 years.



Coral Reef Destruction

One quarter of the world's coral reefs are considered damaged beyond repair with another two-thirds under serious threats.



Coral Bleaching due to warmer sea temperatures



Desertification

In dry climates, the combination of farming, overgrazing, seasonal drought, and climate change can change farmland into desert.



40% of Earth's
lands is
considered at
risk for
desertification

Great Dust Bowl – 1930's

Global Climate Change

A changing global climate is also causing a loss of habitat



In Alaska, the ice sheets are forming later and melting sooner.



Pollution

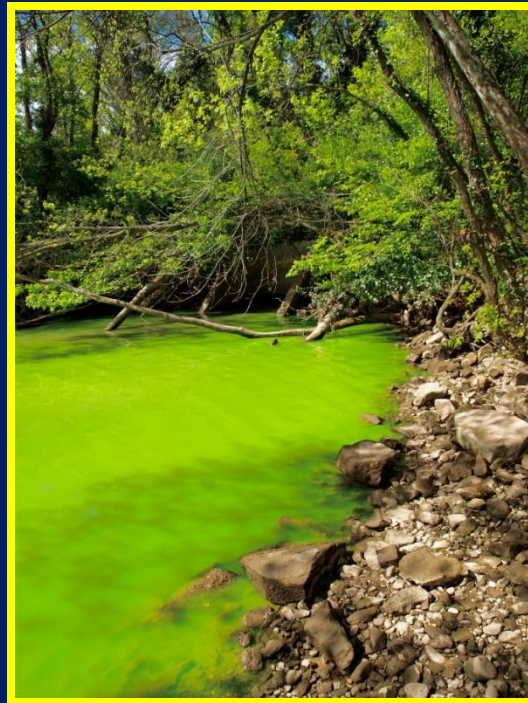
Pollution can either completely destroy a habitat it may degrade a habitat making so it does not support life as well as it once did.



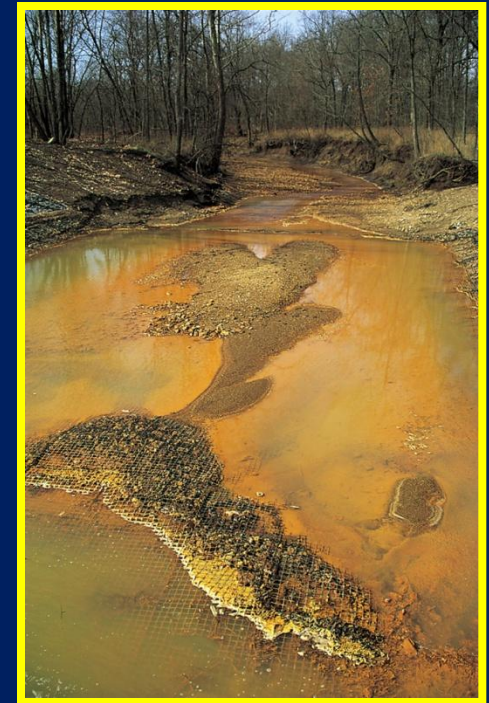
Oil Spill



Industrial Pollution



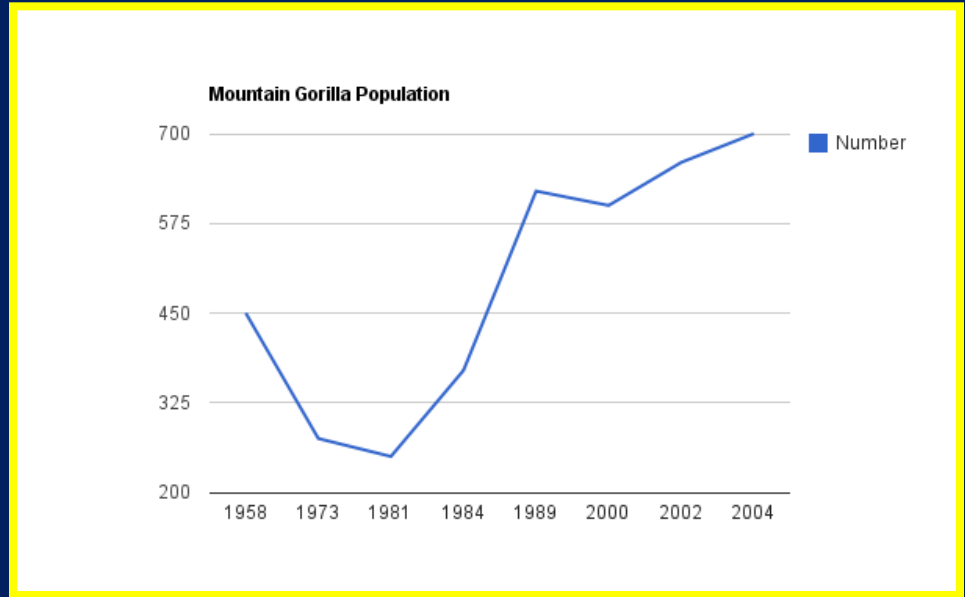
Eutrophication



Acid Mine Drainage

Over-Hunting

Over-hunting has also taken its toll on biodiversity.



Mountain gorillas became known to science in the early 1900's. By the 1960's, they were nearly wiped out. Conservation efforts have increased their numbers to about 880 gorillas, today.

Over-Fishing

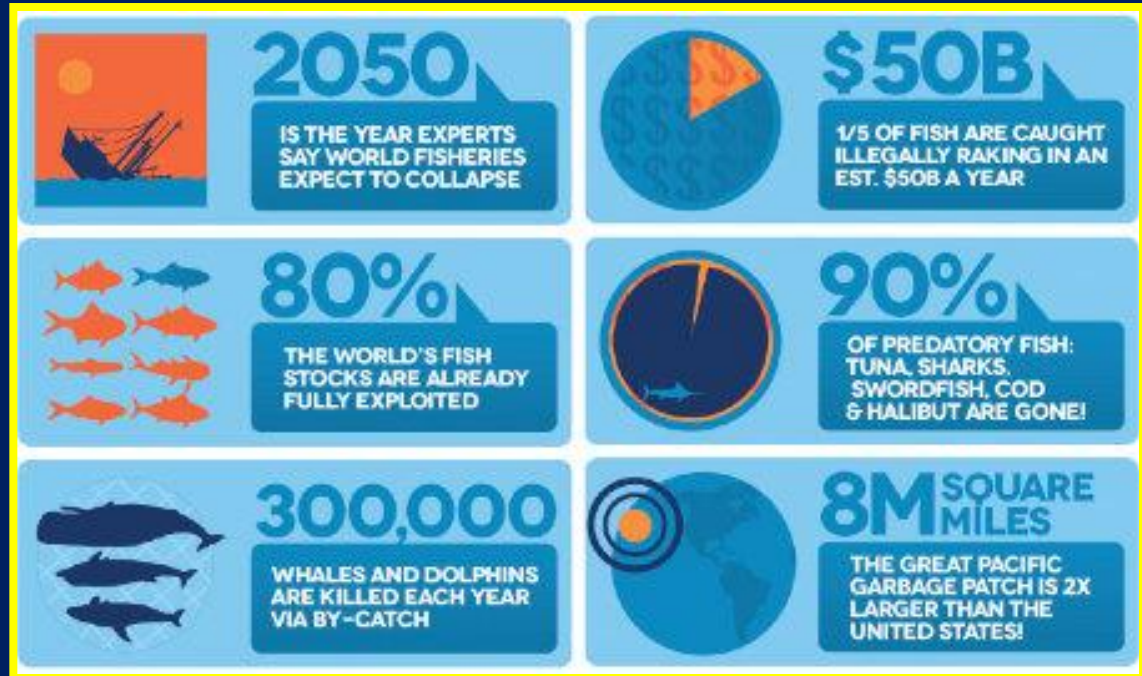
Due to today's fishing techniques, over-fishing has also taken its toll on biodiversity



400 tons of Mackerel



By Catch



Non-Native Invasive Species

Non-native invasive species can outcompete native species and wipe out them out.



Zebra Mussels



Kudzu

Non-Native Invasive Species

Non-native invasive species might also become predators in an ecosystem where the prey have no natural defenses



Brown Tree Snake Guam