

HUMAN INFLUENCE ON THE ENVIRONMENT

HUMAN INFLUENCE

- ✘ We have not adapted to our environment, instead we have changed the environment to suit our needs



HUMAN INFLUENCE

- ✘ As our population increases, our technology must increase to keep up with the demand



HUMAN INFLUENCE

- ✘ Increasing demands are being made on our environment
 - + Food
 - + Materials for homes
 - + Fuel
 - + Space to build
 - + Waste disposal





MODERN AGRICULTURE

MODERN AGRICULTURE

- ✘ Farmers must be stewards of the land
- ✘ Farmers must be able to make a profit



MODERN AGRICULTURE

- ✘ Farmers will try to control the environment in order to maximise crop yield



MODERN AGRICULTURE

- ✘ Adding fertilisers to the soil
- ✘ Ploughing field to break up compaction
- ✘ Adding manure to improve drainage and aeration
- ✘ Controlling pests
- ✘ Irrigation



MODERN AGRICULTURE

- ✘ Corporate farms
- ✘ Overfarming
- ✘ Monoculture



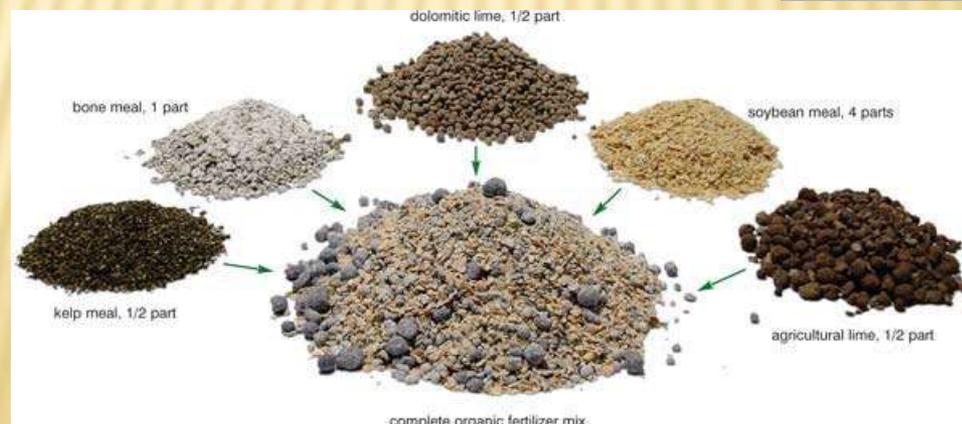
FERTILISATION

- ✘ Fertiliser returns nutrients to growing medium
- ✘ Adequate levels of nutrients increases the health and quality of plants
- ✘ Increases the yield of plant crops



FERTILISATION

- ✘ Helps replenish nutrients taken up by plants



FERTILISATION

✘ Organic

- + Straw
- + Manure
- + Legumes



✘ Inorganic

- + Carefully formulated man-made products



FERTILISATION

- ✘ Those elements which the plant consumes in largest amounts. Primary Nutrients
 - + Nitrogen (N)
 - + Phosphorous(P)
 - + Potassium(K)
- ✘ Most deficient in the soil



FERTILISATION

- ✘ Not used by plants in as large quantity as primary nutrients, Secondary nutrients
- ✘ Not as deficient in soils
- ✘ Calcium
- ✘ Magnesium
- ✘ Sulfur



FERTILISATION

- ✘ Micro nutrients are needed by plants in very small quantities
- ✘ Removed from soils in much smaller amounts
- ✘ Considered trace minerals

| | |
|------------|-----------|
| Iron | Copper |
| Zinc | Boron |
| Molybdenum | Manganese |
| Chlorine | Nickel |

FERTILISATION

- ✘ All elements have specific functions in the growth and development of plants



DETERMINING THE NEED FOR FERTILIZER

- ✘ Visual
 - + Most obvious
 - + Less accurate
 - + Trained eye required
- ✘ Soil/Media testing
 - + Tests soil nutrients
- ✘ Tissue testing
 - + Tests nutrients in plant





PEST CONTROL

- ✘ Pest reduce the yield of crops and animals
- ✘ Cause economic damage to farmers



PEST CONTROL

✘ Chemicals used to control pests are called pesticides

- + Insecticides
- + Herbicides
- + Fungicides
- + Molluscicides



PEST CONTROL

- ✘ Used to control many different types of pests
- ✘ Few side effects, but can persist in the ecosystem (do not degrade)
- ✘ Newer forms of pesticides are biodegradable



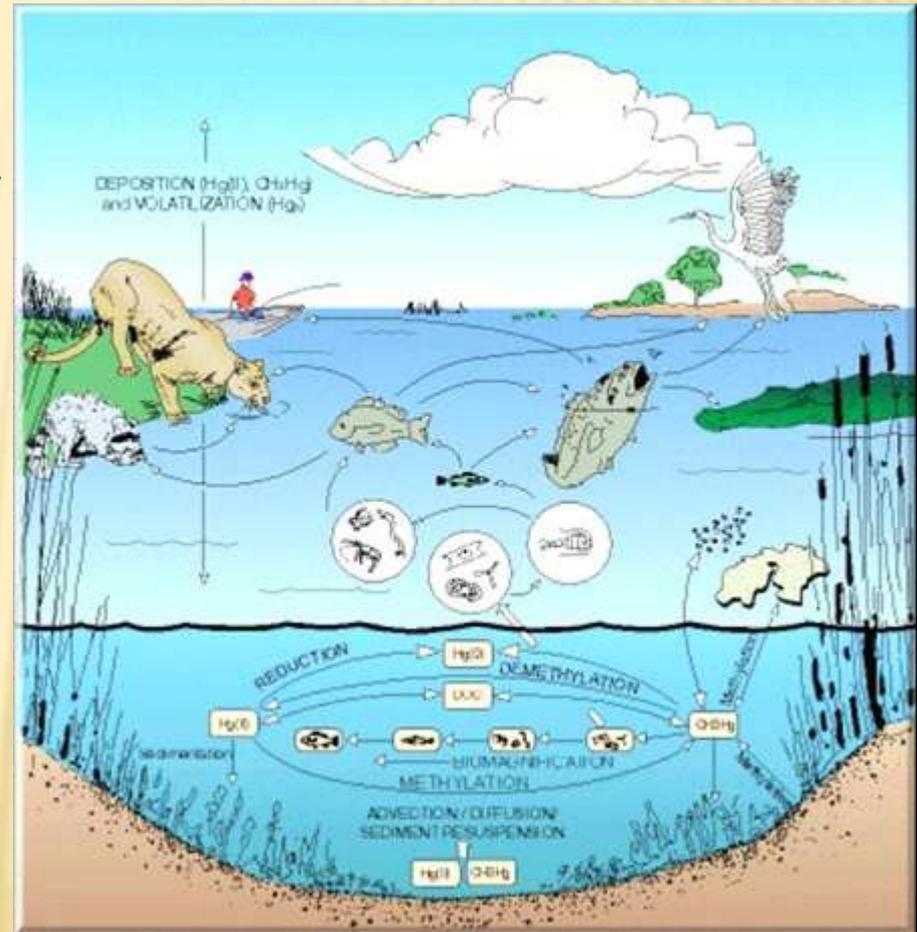
PEST CONTROL

- ✘ Ideal pesticide
 - + Controls pest effectively
 - + Biodegradable
 - + Target specific
 - + Safe to store and transport
 - + Safe and easy to handle



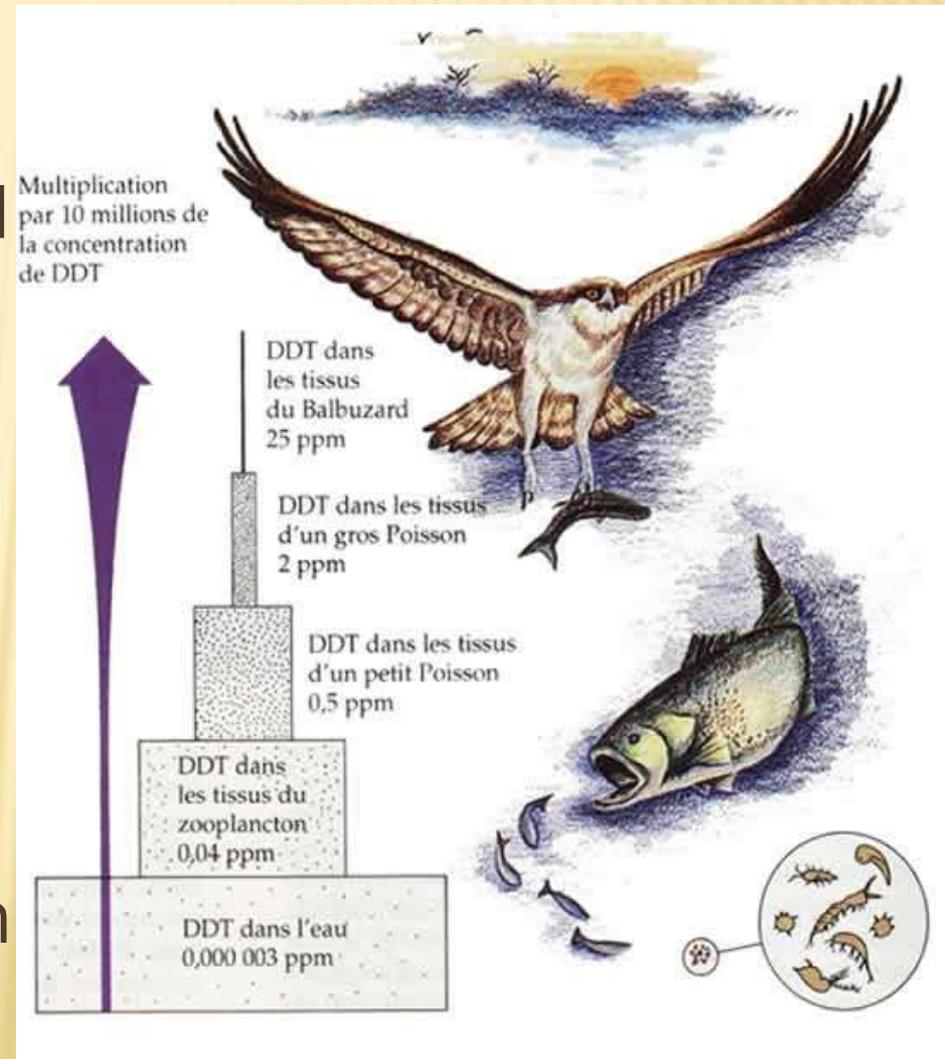
PEST CONTROL

- ✘ A small dose is unlikely to cause any harm
- ✘ Repeated doses can accumulate and store up in fatty tissue (bioaccumulation)



PEST CONTROL

- ✘ Bioaccumulation can be magnified if passed along a food chain.
- ✘ This increase in concentration is called biomagnification
- ✘ The effects are magnified at each stage in the food chain



PEST CONTROL

- ✘ Pesticides not used properly can kill or affect other organisms within the ecosystem.
- ✘ Improper use of pesticides can also create resistant pests.



PEST CONTROL

- ✘ To help the environment farmers try to use pesticides specific for the pest
- ✘ A certain number of pests must be present before the pest is controlled. This is called the **economic threshold**.



PEST CONTROL

- ✘ Biological control is another method
- ✘ This is the use of controlling pest with other organisms rather than toxic chemicals



PEST CONTROL

- ✘ Biological control never eradicates a pest
- ✘ Biological control aims to reduce pest numbers to an economic threshold.



PEST CONTROL

- ✘ Methods of biological control
 - + Introduce a natural predator (ladybirds)
 - + Introduce a herbivore (caterpillars)
 - + Introduce a parasite (wasps)
 - + Introduce a pathogen (fungi)
 - + Introduce sterile males (blow fly)
 - + Use pheromones



GREENHOUSES

- ✘ Greenhouses have man the ability to reproduce plants out of season



GREENHOUSES

- ✘ Extends a plant's growing season
- ✘ Can create a complete microclimate



GREENHOUSES

- ✘ Controlling the environment is easier and more reliable than trying to manipulate all the variables of growing delicate plants outdoors.



GREENHOUSES

- ✘ The sun's energy travels through greenhouse glass easily
- ✘ The radiation emitted by the plants and soil that have absorbed the heat doesn't get out as easily, helping to trap heat inside



GREENHOUSES

- ✘ In March 2001, the Eden Project, a massive environmental center in Cornwall, England.
- ✘ A giant, multi-domed greenhouse, containing plants from around the globe.



GREENHOUSES

- ✘ Provide ideal conditions for crops
 - + Light
 - + Temperature
 - + CO₂
 - + Hydroponics



GREENHOUSES

- ✘ Greenhouse pest control can be a natural biological affair.
- ✘ Ladybirds and tiny wasps are often used in greenhouses to control destructive insects
- ✘ This cuts down on the need for pesticides





POLLUTION

AIR POLLUTION

- ✘ Release of any substance into the environment in amounts that can cause harmful effects and which natural biological process can't easily remove



AIR POLLUTION

- ✘ Carbon dioxide
- ✘ Carbon monoxide
- ✘ Sulphur dioxide
- ✘ Nitrogen oxide
- ✘ Methane
- ✘ CFCs



AIR POLLUTION

✘ Carbon dioxide

- + Increases by 30% over the last 100 years
- + Increases in burning fossil fuels
- + Extensive deforestation



AIR POLLUTION

✘ Global Warming

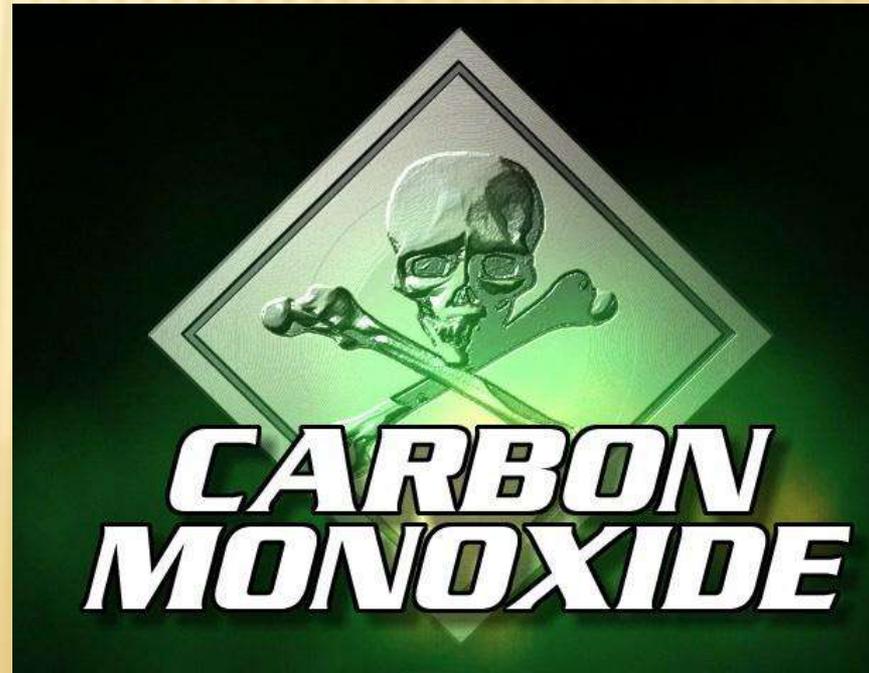
- + Increases in carbon dioxide
- + Changes in ocean currents
- + Polar ice caps melting
- + Change of ecosystems



AIR POLLUTION

✘ Carbon monoxide

- + Produced from motor vehicles
- + Colourless, odourless and tasteless
- + Binds with haemoglobin



AIR POLLUTION

✘ Sulphur dioxide

- + Major constituent of acid rain
- + Formed when fossil fuels are burned



AIR POLLUTION

- ✗ Sulphur dioxide

- + Indicator species can be used to indicate different levels of sulphur dioxide



AIR POLLUTION

- ✘ Nitrogen oxides

- + Constituents of acid rain

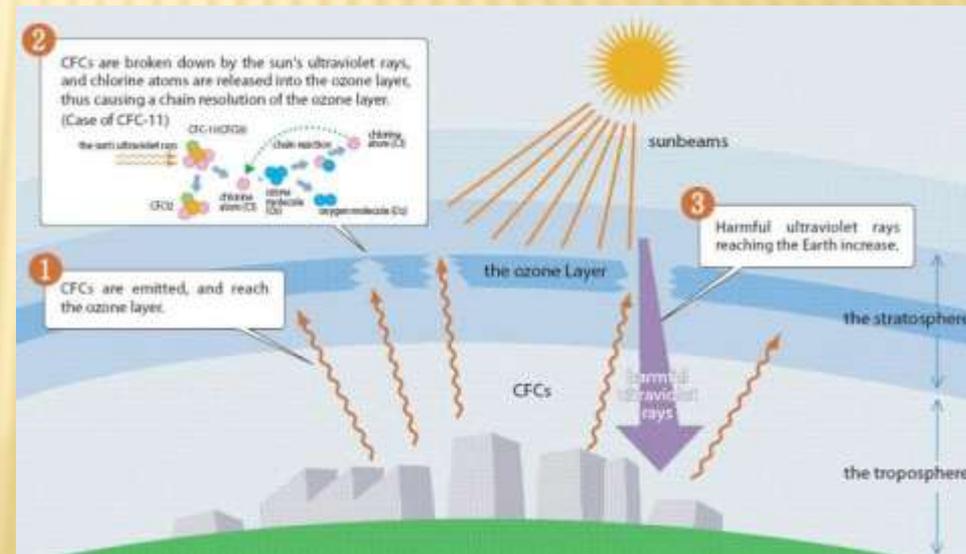
- + Formed when petrol and diesel are burned



AIR POLLUTION

✘ CFCs

- + Chlorofluorocarbon (CFC) is an organic compound that contains carbon, chlorine, and fluorine.
- + Introduce chlorine into the ozone layer.
- + The ultraviolet radiation at this altitude breaks down CFCs, freeing the chlorine.
- + This chlorine has the potential to destroy large amounts of ozone



AIR POLLUTION

✘ Methane

- + Produce when microorganisms ferment
- + Decomposition of waste in landfill
- + Fermentation of manure
- + Fermentation by bacteria in rice paddy fields



FRESHWATER POLLUTION

- ✘ Three major freshwater pollutants
 - + Nitrates
 - + Organic waste
 - + Detergents



FRESHWATER POLLUTION

- ✘ Nitrates from fertilisers
 - + Nitrates are very soluble in water
 - + Easily leached from the soil
 - + Increases rises of nitrates in freshwater causes eutrophication

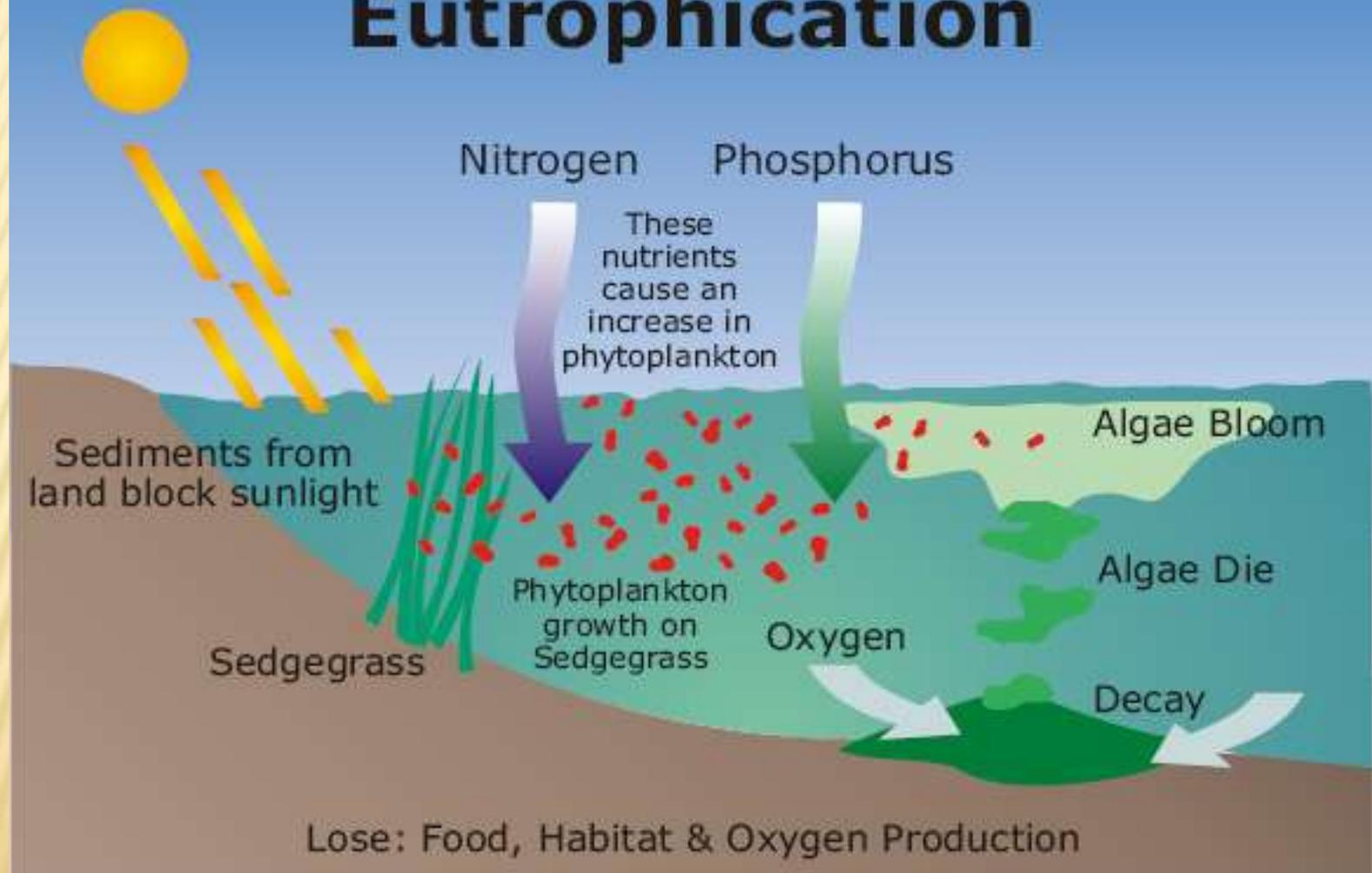


FRESHWATER POLLUTION

× Eutrophication

- + Excess nitrates cause algae to reproduce rapidly
- + An algal bloom is formed
- + Prevents light from penetrating into water
- + Algae die. Bacteria decompose algae and use up oxygen in the water.
- + Water becomes totally anoxic.

Eutrophication



FRESHWATER POLLUTION

- ✘ Freshwater pollution can be monitored by certain “indicator species”
 - + Bloodworm (survive in heavily polluted water)
 - + Caddis fly (survive in some polluted water)
 - + Stone fly (survive only in fresh water)



REDUCING POLLUTION

?????