

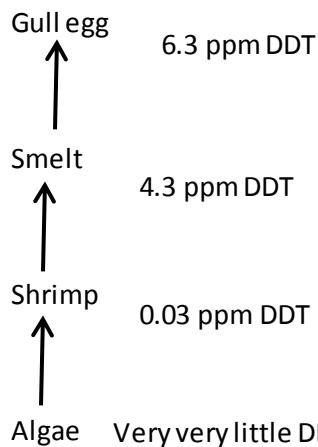
Bioaccumulation (4.5)

Bio = living accumulate == build up

Bioaccumulation = the concentration of a substance, such as a pesticide or toxin, the body of an organism.

DDT, mercury → both toxins that are fat-soluble which means that they do not get removed (by pee) from organism. Instead they accumulate in individual organisms. The more food with DDT/mercury an organism eats, the greater the concentration of the toxin in that body.

Biomagnification/bioamplification = the increase in concentration of a substance, such as a pesticide, as it moves higher up the food web.



There is a great example of a food web with DDT biomagnification on page 137. This food chain is just a part of it.

DDT is a very effective mosquito killer. It was used to spray over tropical jungles (mosquitoes carry malaria) and even North America cities to kill mosquitos; however, it is a toxin and kills animals and makes humans ill. It was completely banned in Canada in 1972 and is almost completely banned world-wide.

Peregrine Falcon – we almost killed off ALL the peregrine falcons due to DDT. Peregrines are the top carnivore in their food web and thus accumulated high concentrations of DDT. This DDT resulted in weak egg shells and when the adult birds sat on their eggs, they broke effectively killing off a large number of the next generation. Fortunately, the population rebounded when DDT was banned in Canada but it took several decades. There is a ‘time lag’ and the peregrines did not instantly increase. It is a *good news* story!!

Mercury – we hear about mercury in our lakes and oceans most often. It magnifies up the foods chain and appears in high concentrations in tuna fish and salmon especially (which humans like to eat). Mercury continues to be released from some industrial smoke stacks.