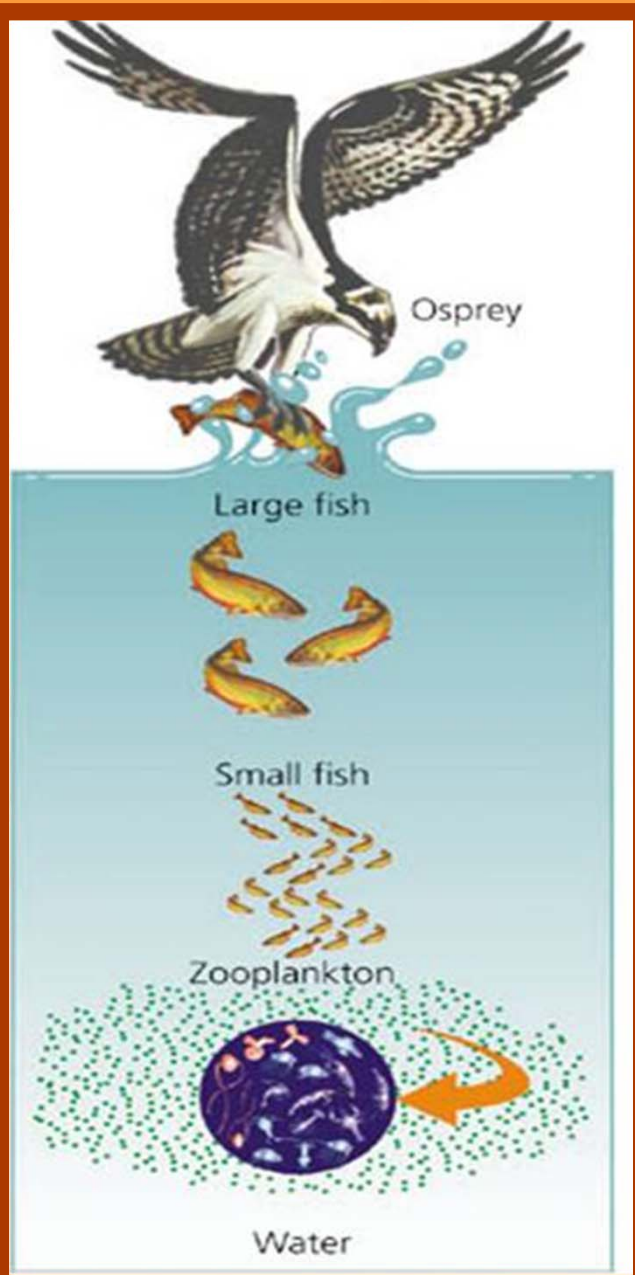


How do Manmade Chemicals Travel through Food Chains and Affect Living Organisms?

“Man has lost all capacity to foresee and
to forestall. He will end by destroying the
Earth”

--Albert Schweitzer



Osprey

↑

Large Fish

↑

Small Fish

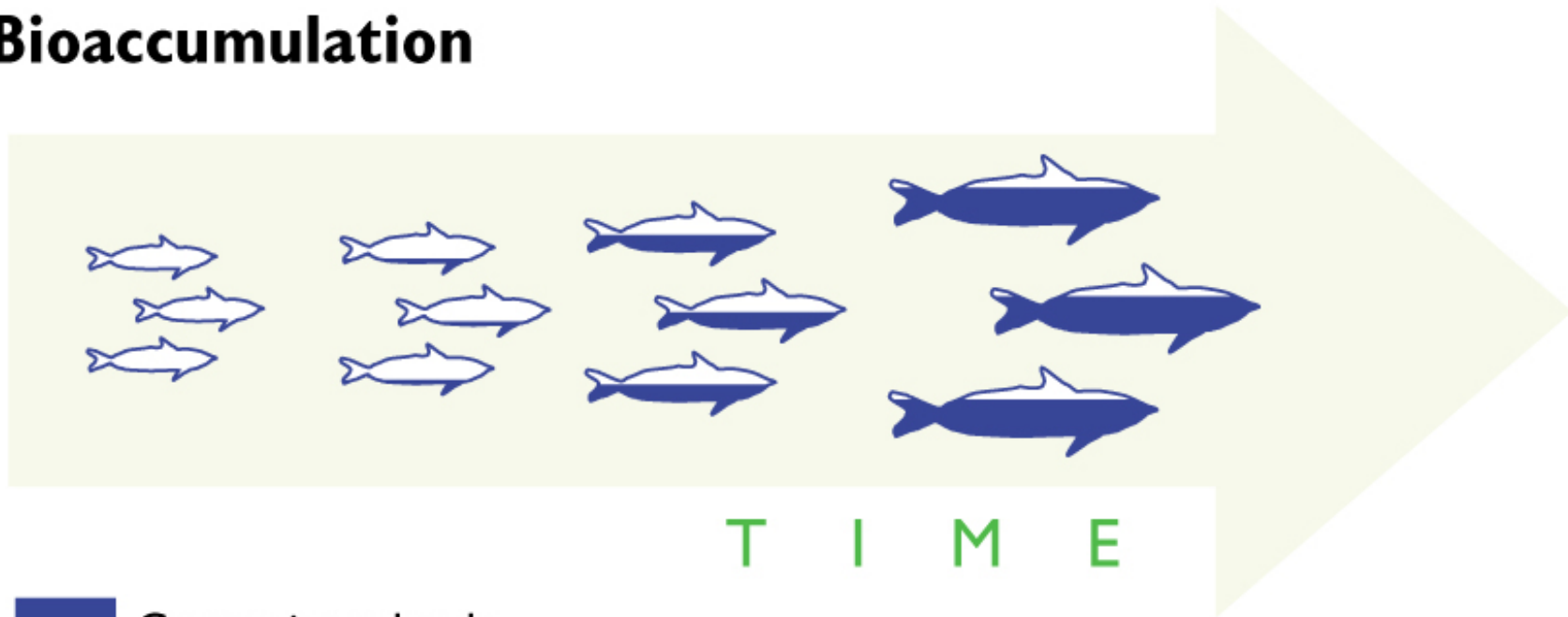
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Zooplankton

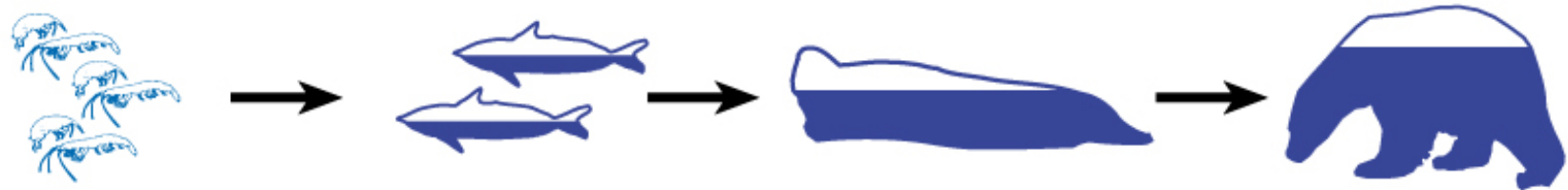
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Phytoplankton

Bioaccumulation



 Contaminant levels



 Contaminant levels

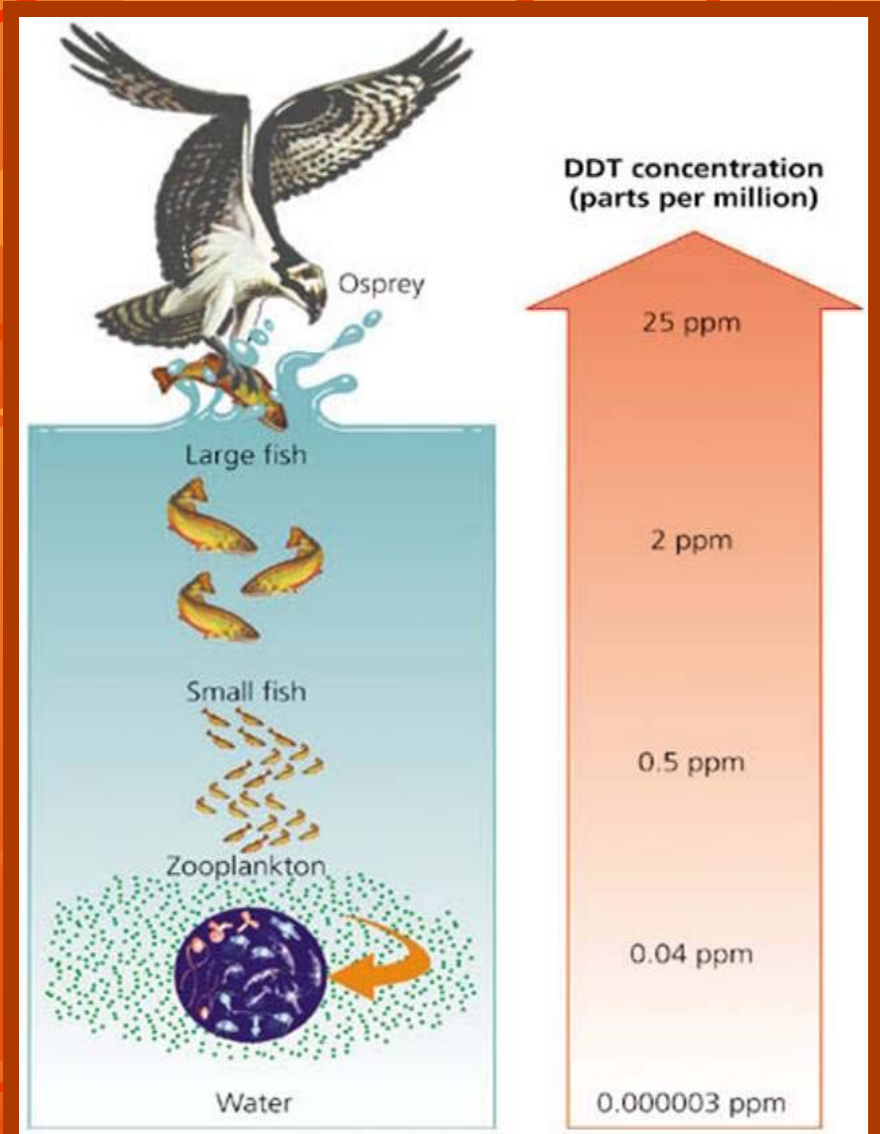
Biomagnification

Definitions

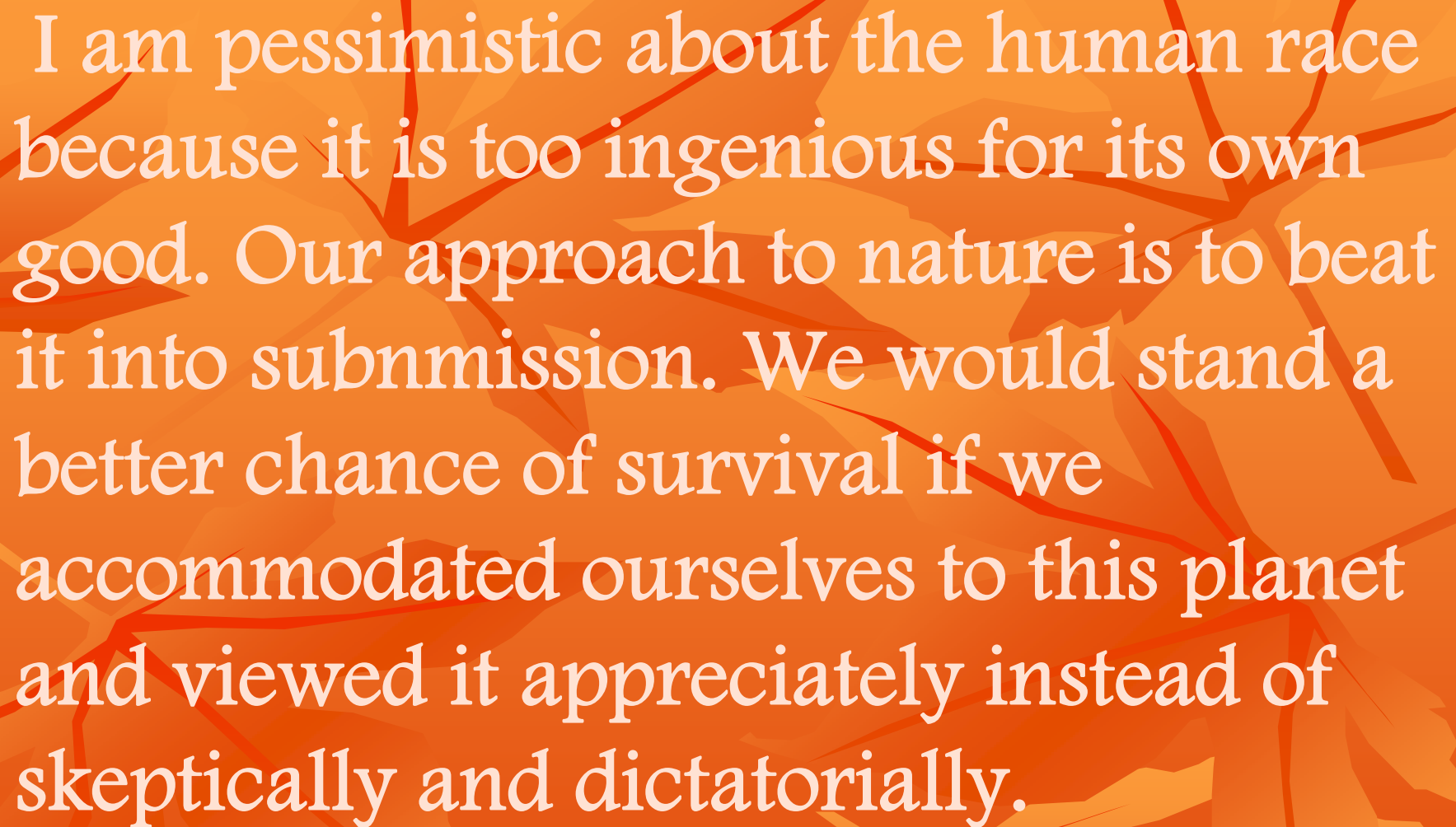
- **Bioaccumulation:** a general term for the accumulation of substances such as toxins in an organism. These substances enter the organism through respiration, food intake, and/or skin contact, resulting in higher concentrations of the substance in the organism than in its surrounding environment.
- **Bioconcentration:** a process that leads to a high concentration of a substance (toxin) in an organism than in the environmental media (water) to which it is exposed.

Biomagnification

- Biomagnification is the increase in concentration of a pollutant from one link in a food chain to another.
- Pesticides, fertilizers, and other pollutants enter aquatic ecosystems as a result of *RUNOFF*.
- These pollutants pass up the food chain, becoming more concentrated at each trophic level.
- The top level consumer has the greatest concentration of pesticide, which can cause a variety of reproductive problems, resulting in a decrease in its population.



DDT



I am pessimistic about the human race because it is too ingenious for its own good. Our approach to nature is to beat it into submission. We would stand a better chance of survival if we accommodated ourselves to this planet and viewed it appreciately instead of skeptically and dictatorially.

~~ E.B. White

Rachel Carson (1907-1964)

- American marine biologist, writer, & ecologist
- A central figure in the start of the environmental movement, Carson challenged the practices of agricultural scientists, business and government in her classic book *Silent Spring* (1962).
- Calling for a change in the way we view the biosphere, Carson faced an outburst of public reaction and backlash from chemical companies.
- She was an informed spokesperson for environmental responsibility and exemplified one person's ability to incite positive change.

