

Ocean Plastics Introduction

Litter-free Human Impact is Key

Plastics

- 300 million tons of plastic are made every year!
- It has a variety of applications and can be found in many products
- It is valued because its lightweight, strong, and durable



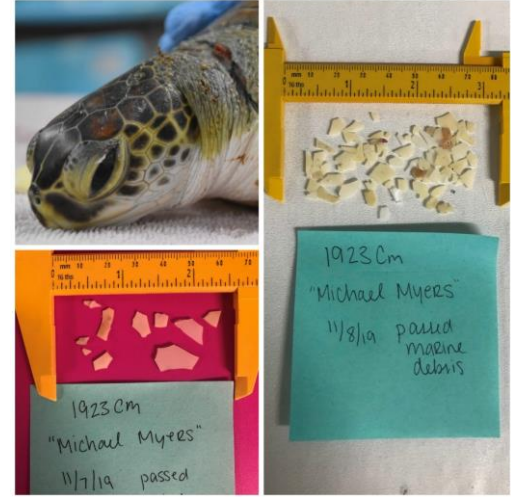
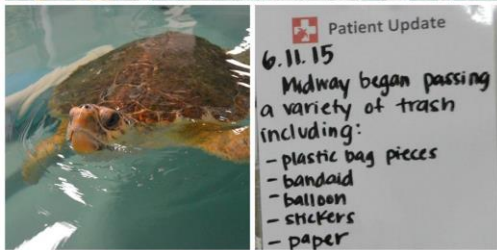
Plastics in the Oceans



- Around 8 million tons of plastic end up in the ocean
- The majority comes from land
- Most common finds are cigarette butts, food wrappers, straws, bottles, and bags

What does this mean for animals?

What does this mean for animals?



Case Study 1 – Why do animals ingest ocean plastic?

- **What does plastic ingestion mean for marine animals?**
- **What impact do these results have on the ocean food chain?**
- **Can this impact us?**

Macroplastics vs Microplastics

- Macroplastics are any pieces of plastic larger than 5mm
 - > **Plastic bags, straws, bottle lids, food wrappers, etc.**
- Microplastics are smaller than 5mm
 - > **Fall in two major categories (primary and secondary)**

Microplastics

Primary

- Manufactured as small beads, balls, or fragments



Secondary

- Results from breakdown of larger plastic debris



Types of Microplastics

- Fragments
- Fibers
- Foam
- Nurdles
- Microbeads

KNOW YOUR MICROPLASTICS

MICROPLASTICS ARE PIECES OF PLASTIC
5 MILLIMETRES OR SMALLER.

5 mm scale

COMMON MICROPLASTICS:

FRAGMENTS  Small pieces of a larger plastic object.	FIBRES  The most common type of microplastic. Plastic strands from clothing.	FOAM  Pieces of food containers and coffee cups.	NURDLES  Plastic pellets usually used in manufacturing.
MICROBEADS  Beads used in soaps and cosmetics. Now labelled "toxic" in Canada, soon to be banned in personal care products. Look for "poly" on the label.			

MACROPLASTICS ARE ANY PLASTICS LARGER THAN 5 MILLIMETRES.
Examples: plastics bags, bottle lids, bottles, food wrappers, etc.

Absorption

- Plastic acts like a sponge and will absorb chemicals/toxins from the environment
- This can negatively impact both animals and humans

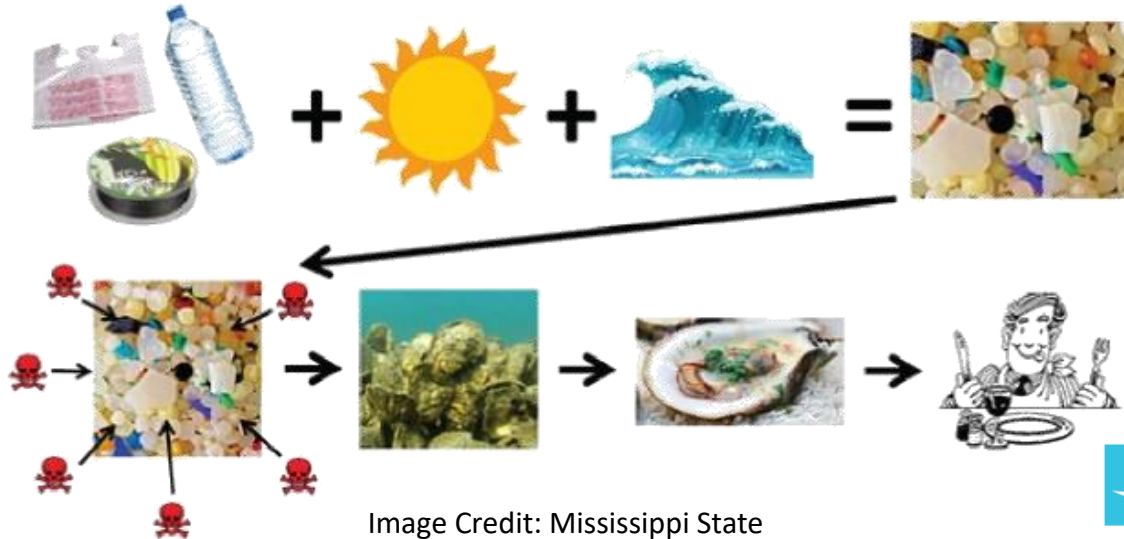
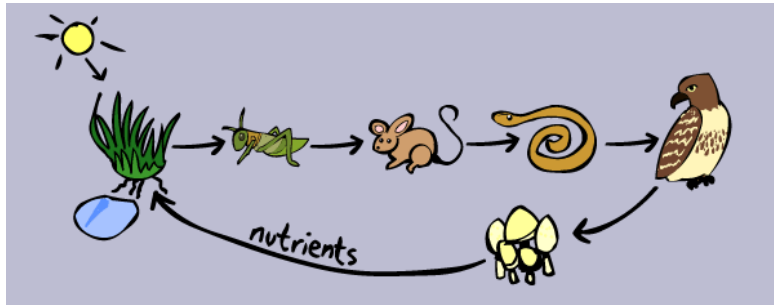


Image Credit: Mississippi State

Food Chain & Web Review

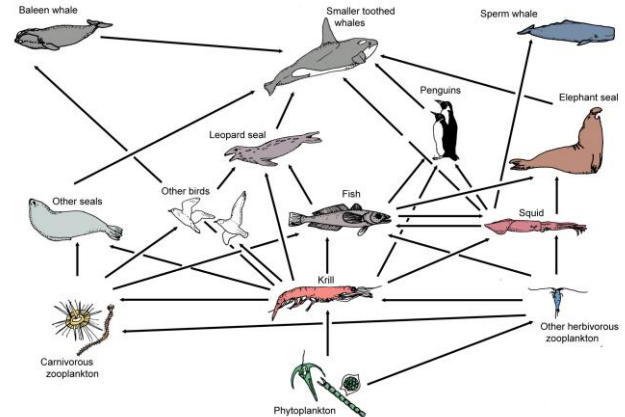
Food Chain

- A simple and linear progression of energy passed to the next trophic level when an organism is eaten



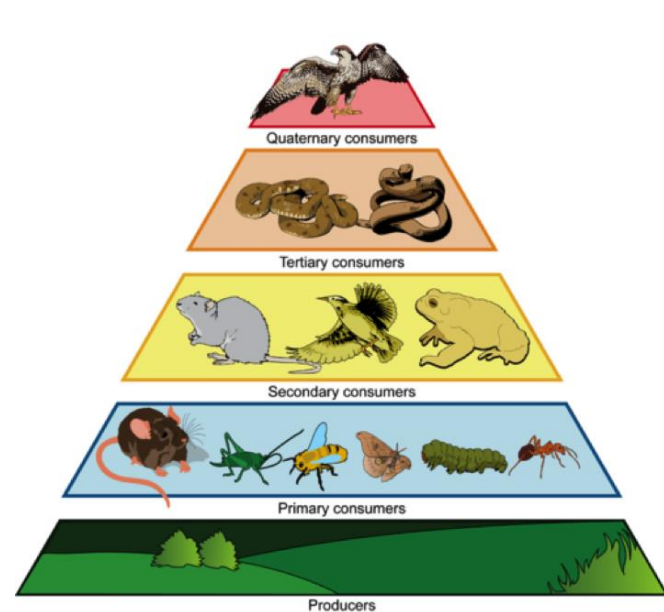
Food Web

- A more complex system when many food chains are interdependent and interrelated



Trophic Levels

- The position an organism occupies within its food chain
- Energy passes from one level to the next
 - > **Producer**
 - > **Primary Consumer**
 - > **Secondary Consumer**
 - > **Tertiary Consumer**



Bioaccumulation and Biomagnification

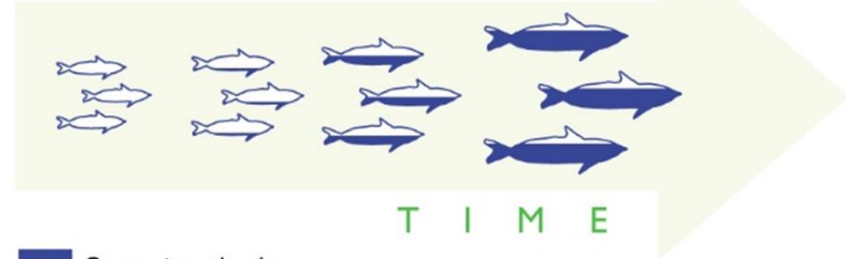
Bioaccumulation

- An individual animal whose pollutant concentration increases over time.

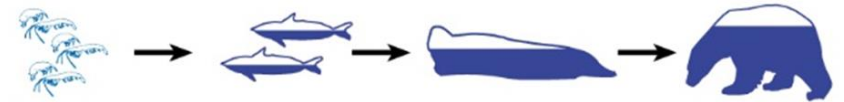
Biomagnification

- Pollutants magnify in strength as they are passed up the food chain.
- Therefore, the apex or top, predator of the food chain carries the heaviest toxin load.

Bioaccumulation



Contaminant levels



Biomagnification

Case Study 2 – Microplastics in our environment

- **What impact do microplastics have on organisms in the ocean?**
- **What about humans?**
- **How does it impact you?**
- **What can we do?**

Now It's Your Turn

- Let's get collecting!

