**Microplastic pollution** is one of the most pressing environmental issues facing our oceans today. These tiny plastic particles, less than 5 millimeters in size, have spread across the globe.

Microplastics are difficult to remove once they have been released into the environment due to their small size and resistance to degradation.

**They originate from**:

1. Large Plastics fragmented over time

2. Synthetic Fibres

3. Industrial Waste

**Entry into Food chain**:

Filter feeders, such as planktons mistake microplastics for food. When ingested, these particles can accumulate in their bodies, leading to physical damage, toxicity, or reduced feeding efficiency.

**Analysis**:

Using **Neural Networks**, a simulated environment is made.

Here aquatic species in the list below are trained using Reinforcement learning using MLAgents in Unity3D to better show how species eat other species in Food Chain.

Following aquatic species are used for this simulation:

1. Plankton

2. Fishes

3. Snake

4. Shark

5. Humans

**Food chain:**

1. Microplastics come off from fragmented plastics

2. Planktons eats microplastics

3. Fishes eat these planktons

4. Snakes and Shark eat fishes

5. Humans who do fishing catch theses fishes and eat contaminated fishes

**Impact of Microplastics on Aquatic Life:**

1. **Physical Damage**:

Microplastics ingested by fish can cause blockages in their digestive systems, leading to reduced nutrient absorption and starvation.

1. **Toxicity**:

Chemicals adsorbed onto the surface of microplastics, such as heavy metals and persistent organic pollutants, can leach into fish tissues, causing biochemical and physiological stress.

1. **Behavioral Changes**:

Altered feeding patterns, reduced predator avoidance, and impaired reproductive success leading to decline of species.