World Materials Forum
"Catch up on plastics packaging waste”

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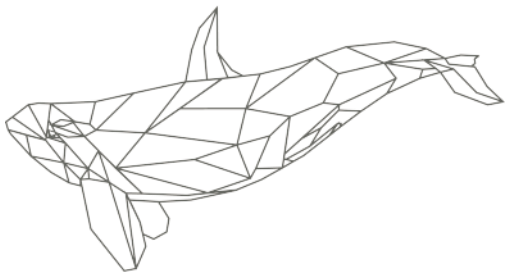
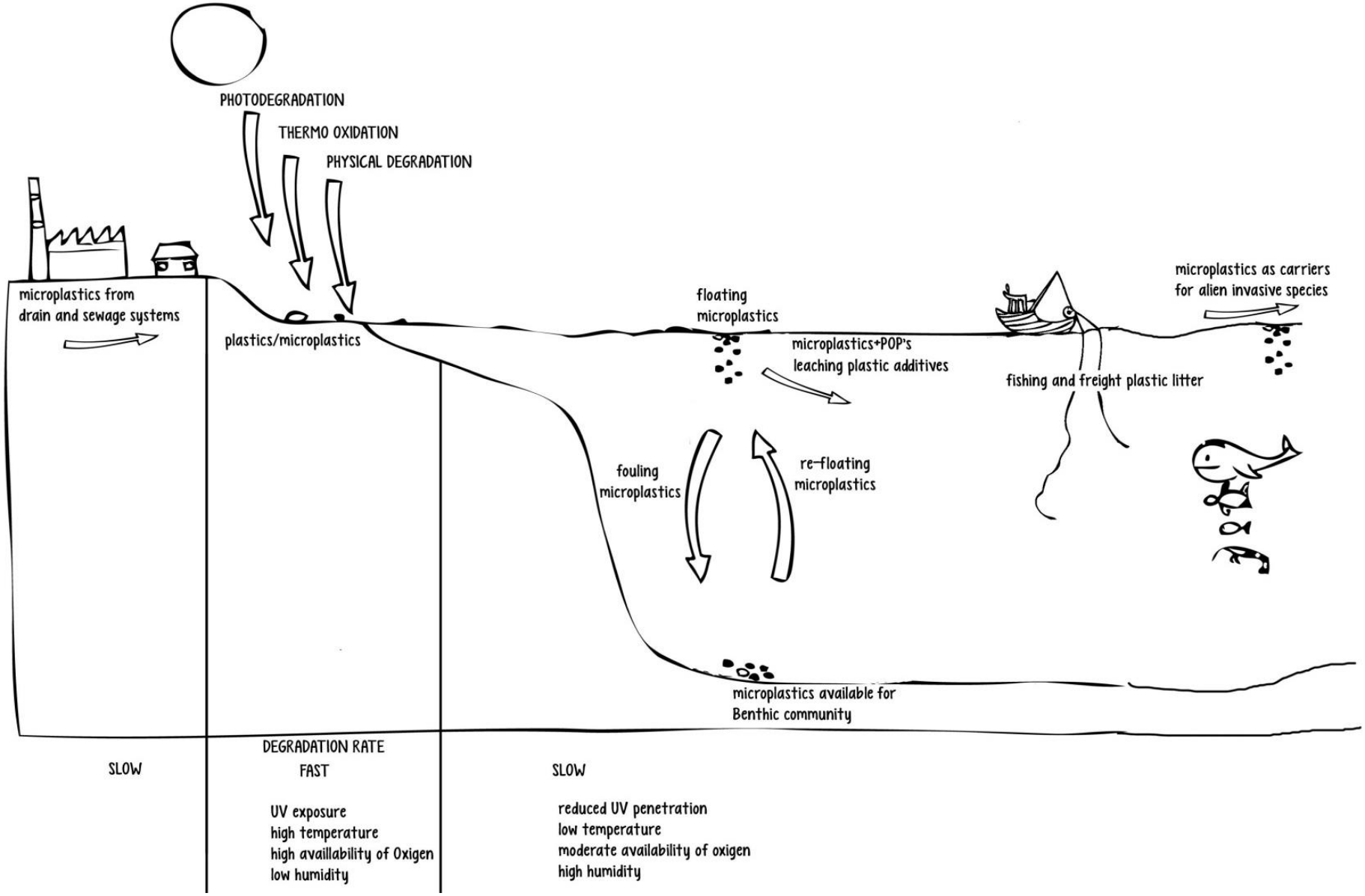
IUCN-International Union for the Conservation of Nature

- Founded in 1948, IUCN is the world's largest global environmental organization
- A unique **democratic** Union with nearly 1,300 State and NGO Member organizations in 160 countries
- The leading provider of the **latest knowledge** about biodiversity, with more than 15,000 experts and scientists.
- The only environmental organization with official **Observer Status** at the **United Nations** General Assembly
- A neutral forum with vast outreach and unique convening power
- Famous for: **The IUCN Red List of Threatened Species™ ,** UNESCO – Natural World Heritage, CITES (Convention on International Trade in Endangered Species) , WWF …



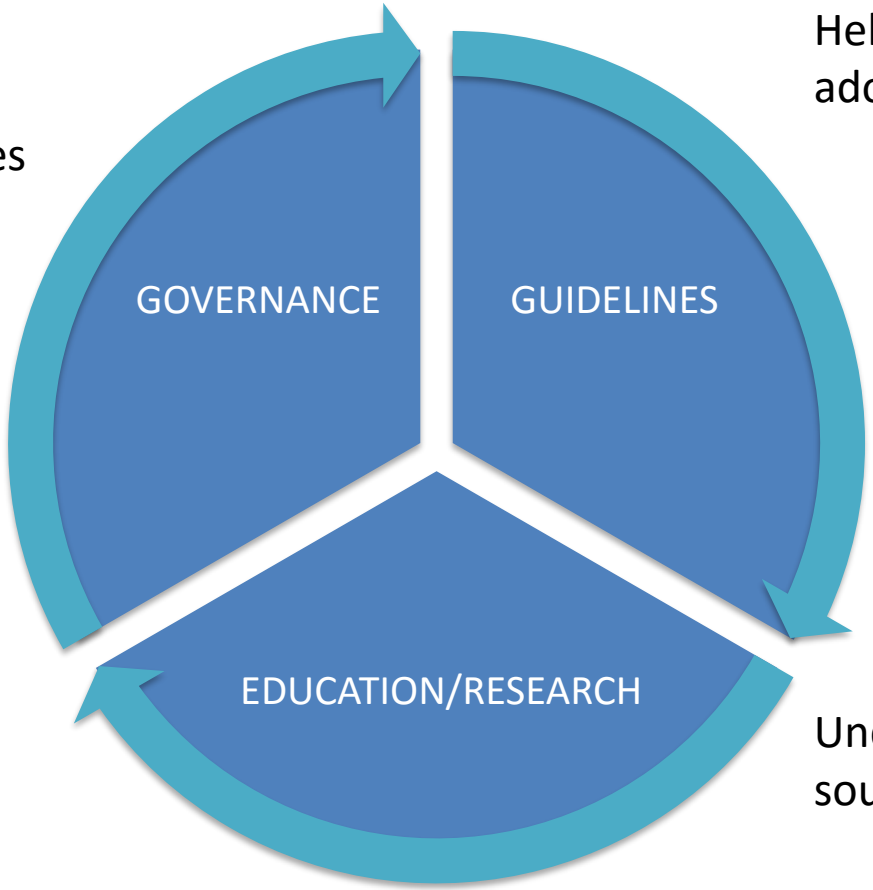
Microplastics Source and Fate in the Marine Environment



Holistic Approach

Support governance structures from developing economies

Help industries to adopt best practices



Set up international standards for best production practices across sectors

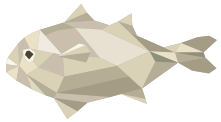
Identify solutions for dealing with collected plastics adapted to local conditions

Understand the main sources of microplastics

Engage the end-user to adapt his plastic disposal behaviour

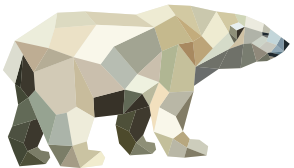
The **MICROPLASTICS IN THE ARCTIC** project's three streams:

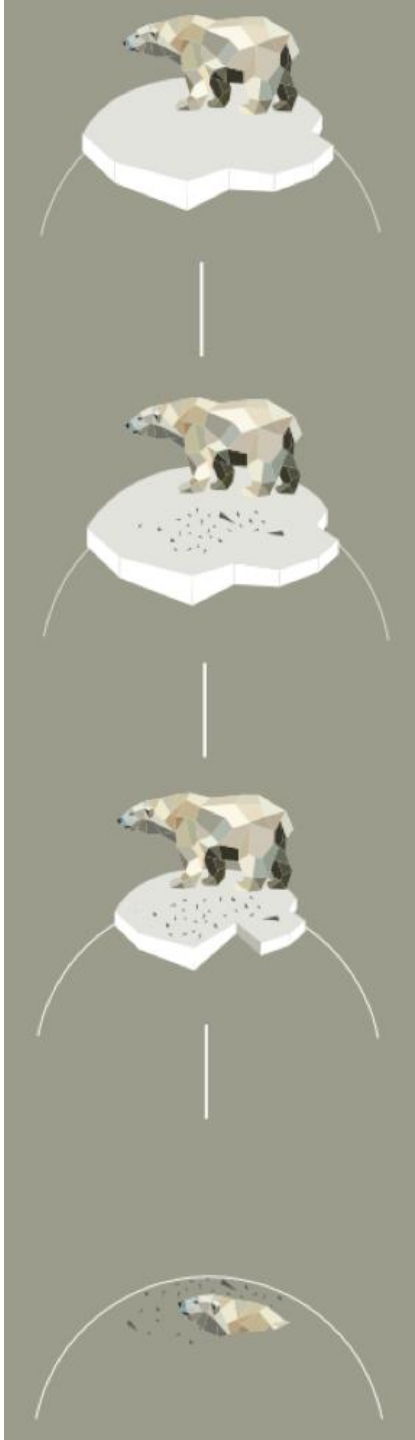
- Quantitative and qualitative analysis of the microplastics in the Arctic
- Study of its origin(s)
- Impacts on biodiversity



- Micro and nanoplastics human health effects
- Food sustainability/security, food contamination
- Toxicity in microplastics

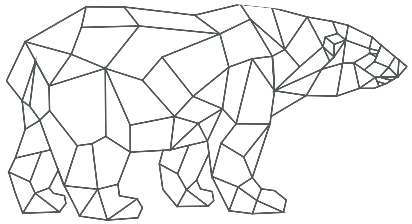
Possible effects of microplastics on the formation and melting of the ice and, subsequently, on climate change

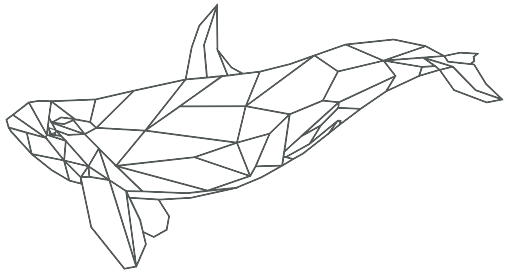




IUCN recommendations

- Establishment of regional panels connecting Governments, NGO´s and private sector
- Extended producer responsibility
- Improved waste water facilities, capability for retaining microplastics/microfibres
- Consumer awareness raising and youth education
- Promotion of the use of organic material for fishing gear and FAD
- Implementation of **regular** coastal clean-ups operations
- Mainstreaming plastic footprint into companies' Annual Reports
- Making plastic an emission under the rule of pollutant release and transfer register





Biodegradability

- Complete biodegradation of plastic occurs when none of the original polymer remains.
- broken down to carbon dioxide, methane and water.
- The process is temperature dependent.
- some plastics labeled as ‘biodegradable’ require the conditions that typically occur in industrial compositing units (with prolonged temperatures of above 50°C) .
- Such conditions are rarely if ever met in the marine environment.

Biodegradability

- non-biodegradable polymers are manufactured with a metal-based additive that results in more rapid fragmentation (oxo-degradable). Increasing the rate of microplastic formation.
- need to separate them from the non-biodegradable waste streams for plastic recycling to avoid compromising the quality of the final product
- they are much more expensive to produce and financial incentives may be required to encourage uptake.
- labeling a product as 'biodegradable' will result in a greater inclination to litter on the part of the public (GESAMP 2015)
- the adoption of plastic products labeled as 'biodegradable' will not bring about a significant decrease either in the quantity of plastic entering the ocean or the risk of physical and chemical impacts on the marine environment, on the balance of current scientific evidence. (UNEP 2015)
- On the balance of the available evidence, biodegradable plastics will not play a significant role in reducing marine litter.

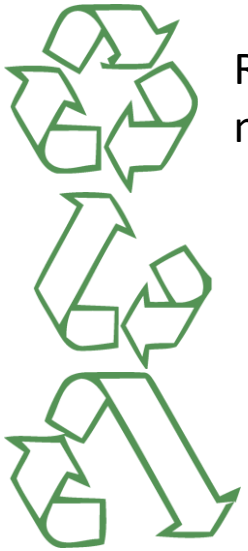
Bioplastic

- **Coca-Cola**'s PlantBottle simply replaces 30 percent of the ethanol in their normal polyethylene terephthalate (PET) plastic bottle with 30 percent plant-derived ethanol.
- This means the bottle is still considered PET and can be recycled even though it's made with some plant material
- but it still won't biodegrade.

But:

- is a good example of how we could do bioplastics correctly given the appropriate infrastructure.
- Since the bottles are still technically PET plastic, they can be regularly recycled, instead of resigning it to a landfill .
- Assuming we can improve the existing recycling infrastructure, replacing virgin plastic with durable bioplastics could drastically reduce the overall demand for virgin polymer.
- specialised polymers will break down more readily in seawater, and they may have useful applications, for example, to reduce the impact of lost or discarded fishing gear

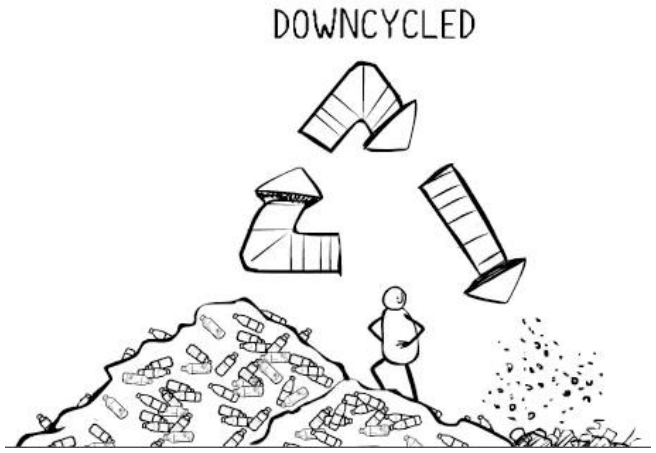
Recycling: Downcycling or Upcycling ?



Recycle - the process to change items considered as waste into new products

Upcycling– converting low-value materials into high-value products

Downcycling – converting valuable products into low-value raw materials




IUCN
Act now, sleep later...

Thank you…

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