

12.1 – POLLUTION

D4.2.8 Eutrophication of aquatic and marine ecosystems due to leaching

D4.2.9 Biomagnification of pollutants in natural ecosystems

D4.2.10 Effects of microplastic and microplastic pollution of the oceans

D4.2.19 Release of carbon dioxide into the atmosphere during combustion of biomass, peat, coal, oil and natural gas

POLLUTANTS

Identify four consequences of the increased production of anthropogenic pollutants

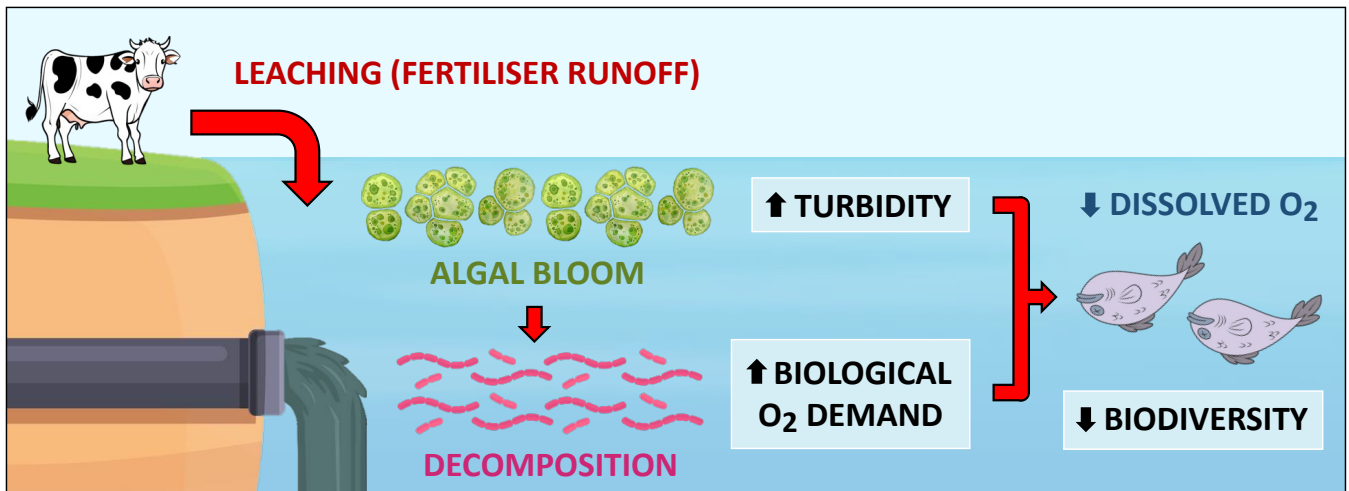
1. _____
2. _____
3. _____
4. _____

EUTROPHICATION

Describe the role of nitrogen and phosphate fertilisers in agriculture

Outline the effects of the leaching of fertilisers into waterways around agricultural lands

Include: Eutrophication, algal bloom, ↑ biological oxygen demand (BOD), ↓ dissolved oxygen, turbidity



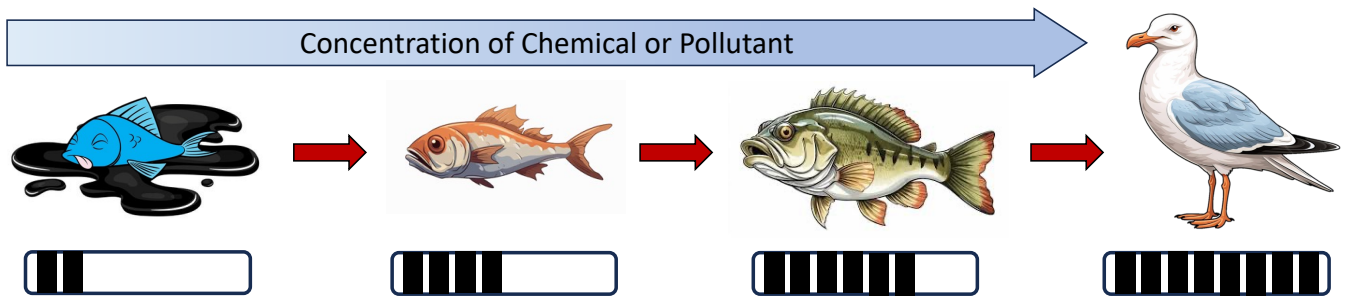
BIOMAGNIFICATION

Define biomagnification and explain why pollutants may accumulate in tissues of higher order consumers

Describe two examples of biomagnification

1.

2.



PLASTIC POLLUTION

Describe the effects of plastic pollution in the oceans (both macroplastics and microplastics)

FOSSIL FUELS

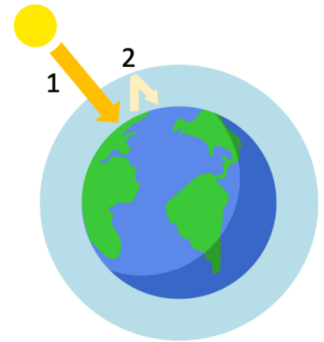
Explain how the combustion of fossil fuels releases carbon dioxide into the atmosphere

12.2 – CLIMATE CHANGE

- D4.3.1** Anthropogenic causes of climate change
- D4.3.2** Positive feedback cycles in global warming
- D4.3.3** Change from net carbon accumulation to net loss in boreal forests as an example of a tipping point
- D4.3.4** Melting of landfast ice and sea ice as examples of polar habitat change
- D4.3.5** Changes in ocean currents altering the timing and extent of nutrient upwelling
- D4.3.6** Poleward and upslope range shifts of temperate species
- D4.3.7** Threats to coral reefs as an example of potential ecosystem collapse
- D4.3.8** Afforestation, forest regeneration and restoration of peat-forming wetlands as approaches to carbon sequestration

GREENHOUSE EFFECT

Explain how greenhouse gases naturally contribute to the greenhouse effect



1 = 2 =

Identify three different ways humans are contributing to an enhanced (anthropogenic) greenhouse effect

1.

2.

3.

POSITIVE FEEDBACK

Identify four positive feedback cycles contributing to global warming

1.

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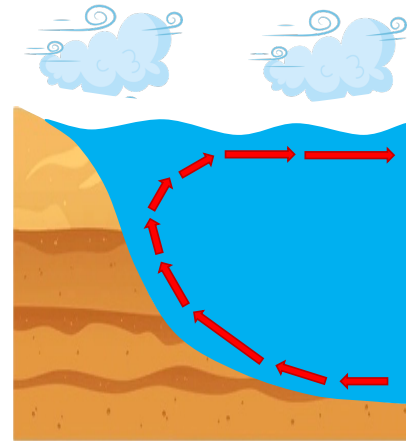
4.

CLIMATE CHANGE IMPACTS

Outline the impact of the melting of landfast ice and sea ice on polar habitats

Emperor Penguin Breeding Grounds	Arctic Walrus Sea Ice Habitats
	

Explain how changes in ocean currents are altering nutrient upwelling



Outline how global warming is allowing temperate species to occupy colder habitats (range shift)

North American Tree Species:

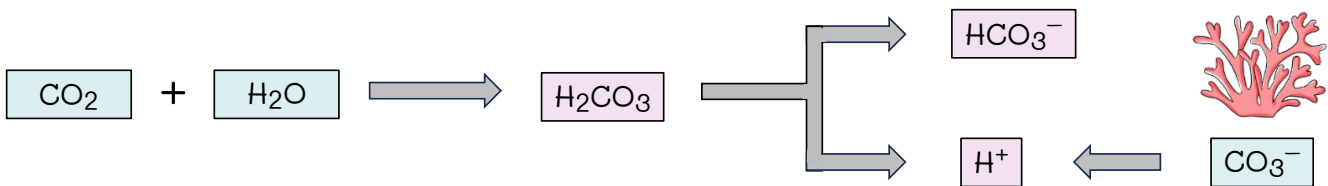
Montane Birds:

TIPPING POINT

Identify the causes and consequences of a net change from carbon accumulation to carbon loss in taigas

ECOSYSTEM COLLAPSE

Outline the effect of increased carbon dioxide concentrations on the suppression of calcification in corals



Outline the effect of increased water temperatures on coral bleaching

SEQUESTRATION

Explain the purpose of carbon sequestration and outline three specific approaches to achieving this

1.

2.

3.
