



GREENDIVING

Project Green Diving

Module : Impact of litter in natural spaces

BBZ am NOK



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INDEX OF THE COURSE

- Impacts of litter in various aquatic ecosystems
- Different ecosystems
 - Shore
 - Benthic
 - Pelagic
 - Abyssal
 - Freshwater
- Different types of litter
 - Sources
 - Quantities
- Specific Impact
 - Individual animals
 - Food chains
 - ecosystems



Litter in aquatic ecosystems





Landesberufsschule für Fischwirte, BBZ am NOK, Rendsburg



Introduction

- Teacher shows various images of marine life in connection with garbage
 - Stomachs of starving birds full of garbage.
 - Dead animals in ghost nets.
 - Animals trapped in various plastic structures
 - Seaweed full of litter
 - ...
- Such images will create a high level of motivation to deal with this topic
- Selected examples do not depict the entire problem, but attract a lot of attention
- Most students have experienced for themselves the amount of trash on the beach
 - they should be clearly aware of the scope of the problem by now

Practical unit

- students get picture cards showing different animals, ecosystems and types of waste.
- tasks of the students:
 - make meaningful assignments in group-work.
 - name and discuss effects of the respective type of waste on the ecosystem and/ or the animals.
- After this work phase, groups prepare short presentations.



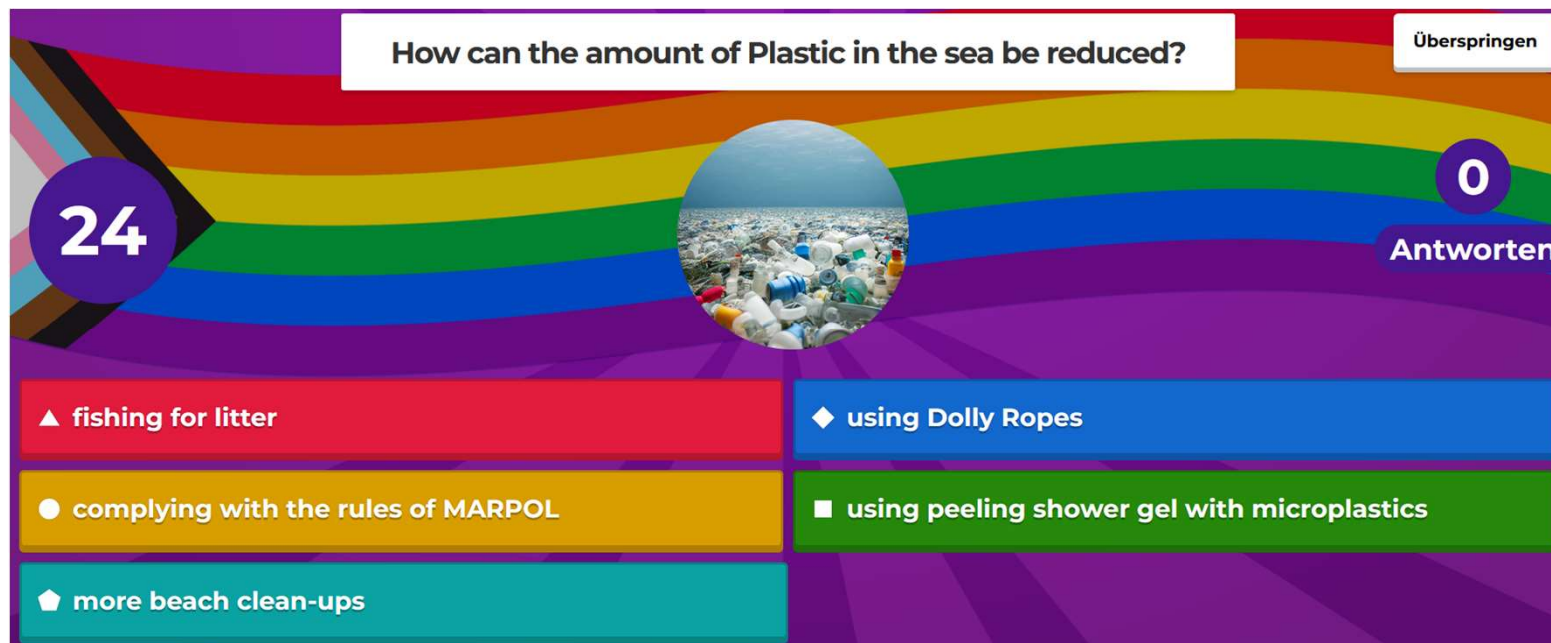
Discussion and conclusion

- At the end of the lesson, students should be able to name the effects of specific types of waste on specific marine organisms.
- This is achieved through short presentations by the students (pictures, graphics, texts are provided to the students).
- Each group of students will focus on a different type of waste.



Evaluation

- Students play an online-kahoot-quiz
- After the quiz students work on further questions and answers that will be incorporated to an extended “quiz 2.0”
- This way the kahoot-quiz is getting bigger and bigger
- Moreover questions and answers can be changed/ deleted/ updated by the students
- This motivates students to active thinking and provides an always updated quiz including current knowledge





References

- <https://www.waddensea-worldheritage.org/visit/denmark>
- <https://www.ospar.org>
- <https://whc.unesco.org/en/list/1314>

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Module : Alternative Fishing gear

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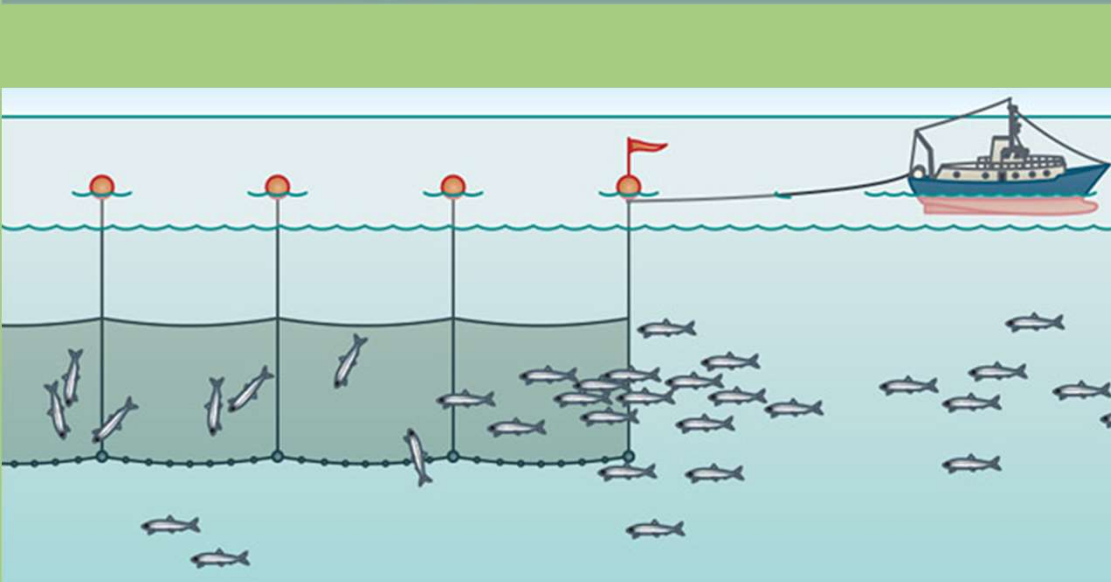
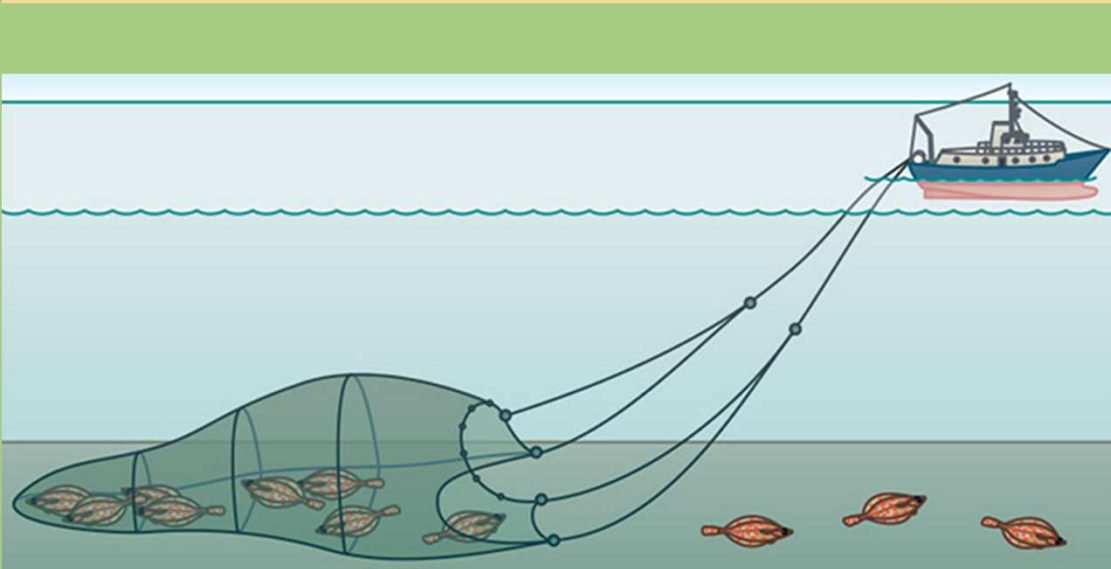
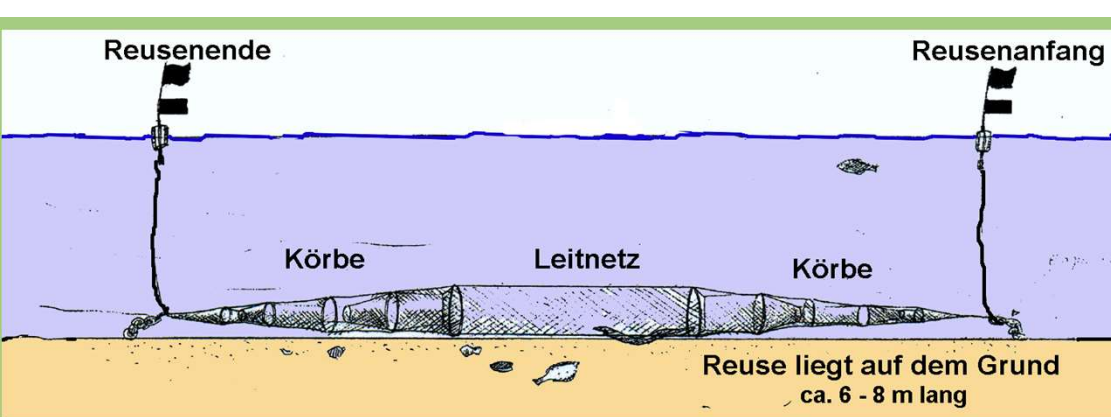


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INDEX OF THE COURSE

- Impacts of fishing gear on the ocean
- Difference between fishing gears concerning
 - Bycatch
 - Selectivity
 - Influence on the bottom
 - Fuel consumption
 - Manpower
 - Production of garbage (plastics,...)





LEARNING OUTCOMES

- Understand different effects of different fishing gear on
 - Specific marine ecosystems
 - Economical situation of fishermen
 - Pollution of the whole ocean system (plastics, etc.)
 - Sustainability of specific fisheries
- Learn about the influence of consumers on the sustainability of various fisheries.



Importance of sustainable fishing gear



Importance of sustainable fishing gear

- A fishery will always have an impact on the marine environment.
- but all people connected to fishing (producers as well as consumers) can try to minimize this impact as much as possible.
- At the same time, fishing must be sustainable not only ecologically but also economically.
- Technical innovations play a prominent role in this.



Importance of sustainable fishing gear

- For students in the fisheries sector it is obviously very important to assess the impact of their fishing gear on the environment.
- BUT: also for students who are not directly involved in fishing, this topic is becoming increasingly important. As consumers, they also have a responsibility to support sustainable fishing.



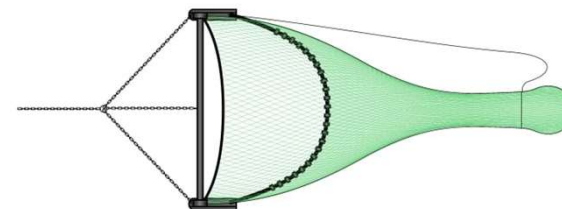
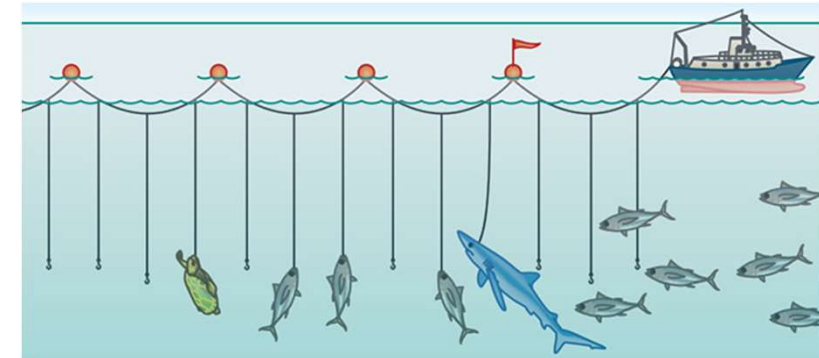
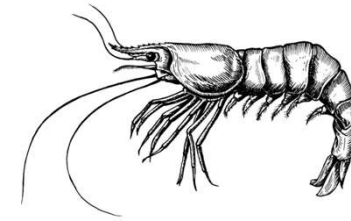
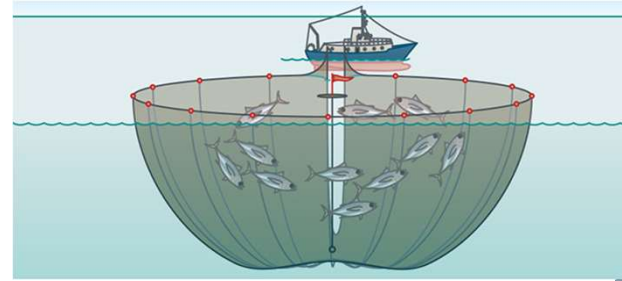
Practical unit

- Introducing the topic through various images of different fishing vessels and fishing gear.
- Prominent examples on the right ->
 - Artisanal octopus-fishery with pots
 - MSC-labelled hand-rod fishery yellowfin tuna
 - Large pelagic freezers (Tuna or similar)
- Impulse question: what is the difference between these fishing methods?



Practical unit

- students get a pile of cards with pictures showing different fishing methods, fishing gear, fishing vessels.
- on another pile, text cards with different advantages and disadvantages are provided
 - fuel consumption, bottom contact, ecological impact, costs, technical requirements in terms of vessel size and equipment, necessary manpower, selectivity/bycatch regarding species, size, shape, behaviour.



Practical unit

- students' task is to make meaningful classifications in group-work.
- The effects of the respective fishing gear on the ecosystem as well as on the economic situation of the fishermen should be named.
- After this work phase, the respective groups prepare short presentations.
 - pictures, graphics, texts are provided.
 - Each group of students will focus on a different type of fishing gear.



REFERENCES

-
- www.thuenen.de/en/institutes/baltic-sea-fisheries/fields-of-activity/research/fisheries-and-survey-technology



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How to reduce footprint in training
and real life: best practices

Ana Rita Rodrigues
Escola do Mar dos Açores



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INDEX OF THE COURSE

- Ecological Footprint
- Biocapacity
- Green skills



Learning Objectives

- Understand the environmental impact that simple daily activities and choices can have in long term
- Introduce simple changes in daily routine to reduce ecological footprint
- Identify non-green skills



Ecological Footprint

To measure an ecological footprint, we need to consider 6 criteria:

- Arable land
- Pastureland
- Fishing grounds
- Forest products
- Carbon
- and built-up areas

Biocapacity

Ability to regenerate resources and absorb carbon dioxide emissions in a finite period



ECOLOGICAL FOOTPRINT

How to reduce the Ecological Footprint

- Reduce single-use, disposable plastic products

Plastic shopping bags, straws, cups

switching to

reusable items



How to reduce the Ecological Footprint

- **Switching to renewable energy**

Renewable energy sources such as solar are simple, affordable, and reduce gas emissions to the atmosphere





Eating less meat

Meat is the main source of greenhouse gas emissions, along with other issues like animal welfare



How to reduce the Ecological Footprint



Helps reducing the amount of waste, thereby reducing air and water pollution



Driving less

How to reduce the Ecological Footprint

- Driving less by using other forms of transportation such as biking, public transportation and walking reduce many pollutants released into the air by cars.

A hand is shown from the bottom, cupping a large, teardrop-shaped water droplet. Inside the droplet, a detailed image of the Earth is visible, showing continents and oceans. The background is a soft, out-of-focus blue with bokeh light effects.

Reducing water waste

How to reduce the Ecological Footprint

Water is precious, and if you manage to reduce water consumption by using economical techniques in your home, you can avoid the unnecessary use of taps

How to reduce the Ecological Footprint

Support local business

You reduce your environmental footprint by reducing the transportation of clothing, food or supplies to their destination

How is the Ecological Footprint of a person calculated?

Activity

You have to determine the impact of your food, home, goods, services and transportation on the planet by using a footprint calculator that you can find on the internet

How is the Ecological Footprint of a person calculated?

Activity

<https://www.footprintcalculator.org/en/quiz/0/food/category>

How is the Ecological Footprint of a person calculated?

Activity

Share your results with the group

Zero Waste Options





References

- Carbon Footprint Calculator
- <https://dashboard.carbify.io/carbon-footprint-calculator>

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