



Interactive game to learn more about the variety of marine ecosystems and how interconnected and vulnerable they are.



Learning
experience



Topics

Fauna



30-40
minutes

(Marine) Ecosystems

To understand how interconnected marine ecosystems are and how impacts can be really significant



Participants

- know about the variety of animals and plants that live in the marine environment
- understand how inter-connected wildlife is and how they depend on each other
 - understand the vulnerability of the web of life



Suitable for outdoor
sport instructors
(and course
participants)



Practical sessions
Theoretical lessons



Outdoor F2F
Indoor F2F



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Materials needed

- Resources provided below –“what they eat”
 - Sticky labels
 - Wool



Preparation

Have the “What they eat” resource printed out and put up on a wall so that people can see it clearly. If any of the animals or plants are unknown they can search for them online to understand what they look like.

Have the sticky labels printed out with the names of species on them.

Have a ball of wool (that can be easily broken).

Activity instruction

Explain that the exercise is about helping participants to understand interdependence of species within ecosystems. Then explain that each person will have a sticker placed on their forehead with the name of a species on it and their task is to find out what that is. They cannot look at it and must ask questions of others to find out “who” they are. Others can only answer yes or no to these questions.

Once they know who they are – then they need to look at the “what they eat” poster to find out who they eat. They can also look up their animal on the internet to see what it looks like (if they don't already know) and get more information.

When everybody knows who they are and what they eat, bring the group together and use the wool to connect up those who eat others. This will create a very obvious food web.

This web can be used to show how vulnerable the ecosystem is for modern threats e.g. micro plastics. When all animals that are “filter feeders” and filter microscopic plants and animals out



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of the water as their food now start to also filtering (and eating) micro plastics, it sums up in the food web and you can demonstrate who is affected.

The web is also affected when some species die out, e.g. due to a diseases or because the living conditions change (e.g. the ocean getting more acid due to climate change).

To end the activity, remove the plankton and the plants from the ecosystem and see what happens to the food web (it should entirely break down!)

Reflection and discussion

Think about how any impacts we have might have larger repercussions than anticipated. Discuss if the exercise helps inspire participants to:

- Learn more about the species in the area in which they are operating
- Be stronger advocates for the protection of the marine environment and ecosystem
- Take action to reduce the impact on marine ecosystems (e.g. by reducing plastic waste and therefore micro plastics in the water or by lowering CO2 emissions e.g. due to mobility)



Potential Variations

Can be adapted for other habitats / ecosystems (forests / mountains / rivers / lakes)



Background knowledge

Good knowledge of marine biology is an advantage but not essential.

Marine and coastal species face many threats in our rapidly changing world. A significant group of the animals are "filter feeders" and filter microscopic plants and animals out of the water as their food. They are also now filtering micro plastics and other pollutants including mercury and



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polychlorinated biphenyls. As other animals feed on these filter feeders and the food chain grows – the micro plastics and pollutants build up in the larger and predatory species.

An Orca found dead off the West Coast of Scotland had 950mg of PCB's in her blubber – more than 100 times above the limit of 9mg known to cause damage to marine life. It probably made her infertile.

Another major issue for ocean health is acidification. Oceans can absorb huge quantities of CO₂ but this causes the ocean itself to become more acidic. This slightly more acidic water then can start to dissolve the shells of many of our sea creatures making them vulnerable to disease, or unable to develop their protective shells in the first place. Increased acidity has also been shown to impact on chemical communication, reproduction, and growth.



Key words

#web of life
#biodiversity
#fauna
#marine sports
#watersports
#microplastics



Source

- <https://www.mcsuk.org/ocean-emergency/ocean-pollution/>
- <https://hwdt.org/news/2017/lulu-pcbs>
- <https://oceanliteracy.unesco.org/plastic-pollution-ocean/>



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Materials

What they eat

Zoo plankton	<p>Filter feeder</p> <p>Eats Phyto plankton but can also eat zoo plankton</p>
Gammarus Shrimp	<p>Scavenger</p> <p>Eats bits of dead animals and plants</p>
Limpet	<p>Herbivore</p> <p>Eats algae (sea weeds)</p>
Prawn	<p>Scavenger</p> <p>Eats bits of dead animals and plants</p>
Edible crab	<p>Scavenger</p> <p>Eats bits of dead animals and plants</p>



Top shell	Herbivore Eats algae (sea weeds)
Mussel	Filter feeder Eats plankton
Snakelocks anemone	Carnivore Eats small fish and prawns
Grey sea slug	Carnivore Eats sea anemones
Rockling (fish)	Carnivore Eats small fish and shrimps
Squid	Carnivore Eats small fish, shrimps and crabs



<p>Mackerel</p>	<p>Carnivore Eats smaller fish</p>
<p>Sand eel</p>	<p>Scavenger / filter feeder Mainly eats plankton</p>
<p>Heron</p>	<p>Carnivore Eats small fish, shrimps and crabs</p>
<p>Basking shark</p>	<p>Filter feeder Mainly eats plankton</p>
<p>Phyto (plant) plankton</p>	<p>Makes food by photosynthesis</p>
<p>Oar weed</p>	<p>Makes food by photosynthesis</p>



Periwinkle	Herbivore Scrapes slime and algae (seaweed)
Squat lobster	Scavenger Eats bits of dead animals and plants
Spider crab	Scavenger Eats bits of dead animals and plants
Dog whelk	Carnivore Eats barnacles and periwinkle
Starfish	Carnivore Eats mussels and periwinkle
Sunstar	Carnivore Eats other starfish



Brittle star	Filter feeder Mainly eats plankton
Bullhead (fish)	Carnivore Eats small fish and shrimps
Octopus	Carnivore Eats small fish, shrimps and crabs
Sprat (fish)	Carnivore Eats small fish
Guillemot	Carnivore Eats small fish
Oyster catcher	Carnivore Eats mussels, worms and periwinkles



Grey seal	Carnivore Eats fish
Bladder wrack	Makes food by photosynthesis
Serrated wrack	Makes food by photosynthesis
Flat periwinkle	Herbivore Eats algae (sea weeds)
Shore crab	Scavenger / carnivore Eats dead / decaying material but also small fish / prawns
Velvet swimming crab	Scavenger / carnivore Eats dead / decaying material but also small fish / prawns



Common whelk	Carnivore Eats barnacles and periwinkles
Beadlet anemone	Carnivore Eats small fish and shrimps
Barnacle	Filter feeder Eats plankton
Blenny (fish)	Carnivore Eats small fish and shrimps
Butterfish	Carnivore Eats small fish and shrimps
Wrasse	Carnivore Eats shrimps and other invertebrates



Herring	Carnivore Eats small fish and shrimps
Puffin	Carnivore Eats small fish and sand eels
Gannet	Carnivore Eats fish
Common dolphin	Carnivore Eats fish