Module 3: Invertebrate zoo

Learning objectives

Students will be able to:

1. Identify local marine fauna
2. Assign typical marine invertebrate species to ecological groups
3. Present regional marine diversity to peers

Time requirements and tasks

- 2-4 hours including group work, presentation or short report

Suggested audience

- This activity is appropriate for **older school classes** and **basic university courses**.

Prior knowledge

- None

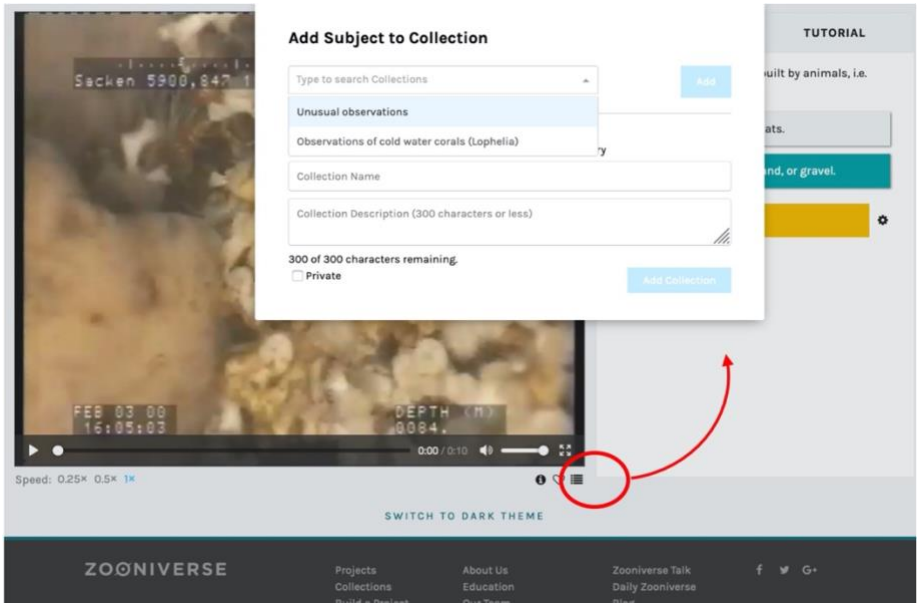
Instructions

This assignment is about creating your own little zoo of animals. Form a team of 2 students. Start identifying species using the “Phylum assignment” and “Species assignment” tasks. Use the species descriptions and the **Field guides** to get help with the identifications. Then start sorting your favorite images in a collection of clips under a specific ecological feature (called *Trait*). Below is a description of how to create your own collection. You can choose from the list of traits in the below tables what the topic of your collection should be. For example, you can choose to create a collection of “Filter feeders” or “Reef building” animals. Try to collect 10-20 different species belonging to the category you chose. Now prepare a presentation of your collection to the other student groups (or a report to your teacher). The presentation/report should include

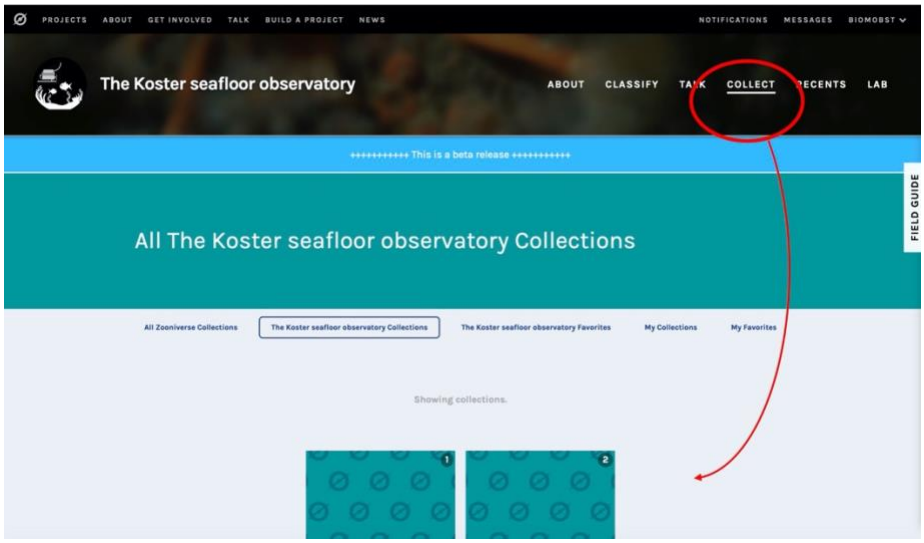
- a list of species in your category, perhaps with photos from the Field guide.
- an explanation of which taxonomic groups these species belong to.
- An explanation of the life style (ecological *trait*) that all these species have in common

How can I create my own collection?

You can organise clips in an existing collection or start a new collection. Once you created a collection or added the clip to an existing one, you can click the tab "Collect" in the main menu and start a conversation around a what you saw.



In the above picture, if you press the link in the red circle, you add this clip to an existing collection (e.g. "unusual observations"), or you can start a new collection.



**In the above picture, if you press the tab "Collect" in the red circle, you can see collections of clips organised by other users. You can comment on the videos, add notes or start discussions.*

List of ecological features (Traits) that you can choose to create a collection

Trait category: Fragility

Trait	*Definition*
Fragile	Likely to break, or crack as a result of physical impact; brittle or friable.
Intermediate	Liable to suffer minor damage, chips or cracks as result of physical impacts.
Robust	Unlikely to be damaged as a result of physical impacts, e.g. hard or tough enough to withstand impact, or leathery or wiry enough to resist impact.

Trait category: Habit

Trait	*Definition*
Attached	Adherent to a substratum.
Bed forming	Forming a dense aggregation that visually dominates the seabed or shore.
Burrow dwelling	Living within a burrow.
Ectoparasitic	Parasitic on the outer surface of its host (adapted from Lincoln *et al.*, 1998).
Encrusting	To cover with a crust or thin coating (OED, 1990).
Erect	Upright.
Free living	Living without attachment or restriction.
Reef building	Forming an elevated structure on the seabed through chemical precipitation or concretion (adapted from Hiscock, 1996).
Tubicolous	Tube dwelling (Barnes *et al.*, 1993).

Trait category: Method of bioturbation (bioturbator)

Trait	*Definition*
Diffusive mixing	Vertical bioturbation as a diffusive transport process resulting from the activities of e.g. free-living polychaetes, subsurface deposit feeders and carnivores, and burrow excavating species such as crustaceans (Pearson, 2001).
Surface deposition	Deposition of particles at the sediment surface resulting from e.g. defecation or egestion (pseudofaeces) by e.g. filter and surface

	deposit feeding tubicolous polychaetes and sedentary bivalves (Pearson, 2001).
Conveyer belt transport	Translocation of sediment from depth within the sediment to the surface during subsurface deposit feeding or burrow excavation (Pearson, 2001).
Reverse conveyer belt transport	The subduction of particles from the surface to some depth by feeding or defecation (Pearson, 2001).

Trait category: Substratum

Preference	*Definition*
Bedrock	Any stable hard substratum, not separated into boulders or smaller sediment units. Includes soft rock-types such as chalk, peat and clay.
Large to very large boulders	>512 mm. Likely to be stable.
Small boulders	256 - 512 mm. May be unstable.
Cobbles, Pebbles, or Gravel	4-256 mm. May be rounded to flat. Substrata that are predominantly cobbles, pebbles, or clean stone or shell gravel, including dead maerl
Sand	Sand
Mud	Mud
Mixed	Mixtures of a variety of sediment types, composed of pebble / gravel / sand / mud. This category includes muddy gravels, muddy sandy gravels, gravelly muds, and muddy gravelly sands.
Algae	Macroalgae surfaces, such as *Laminaria* spp., or fucoids.
Other species	The surface of other species, e.g. shells or carapace.
Biogenic reef	An elevated structure on the seabed built by calcareous or other concretion-forming organisms, or by chemical precipitation (Hiscock, 1996). For example by *Modiolus modiolus* or *Sabellaria alveolata*.
Artificial	E.g. wood, metal or concrete structures.
Water column	Pelagic