

MACROINVERTIBRATE

Explain

Slide 1:

Introduction

Slide 2:

WHAT ARE THEY?

- Arthropods:** are the largest group or phylum of animals and include the insects, arachnids, crustaceans, and other similar creatures.
- Mollusks:** usually have soft bodies and muscular feet like octopus, and squid (not macros.) Some mollusks also have hard shells like oysters, clams, snails, slugs.
- Flatworms:** small worms with no real body cavities and are sometimes parasitic.
- Segmented Worms:** are worms that have bodies divide into sections, like earthworms.

Slide 3:

Hunter vs. Hunted

Predation is a crucial part of the food chain. Organisms, except photosynthetic material, gain their energy from organisms below them in the food chain. This creates what is known as a predator/prey relationship.

-Reference definitions from slide

Slide 4:

Food Pyramid

- Generalizes levels of food web
- Photosynthetic organisms are at base and feed energy up through
- Illustrates impact of organisms on other organisms

Slide 5:

Levels of Organisms

This slide gives outline of levels of food chain.

- Producers get energy from the sun using photosynthesis
- Primary consumers eat plants and photosynthetic organisms for energy (Herbivores)
- Secondary consumers may eat the primary consumers and plants for energy (Omnivores)
- Tertiary consumers eat all types of consumer organisms below them but usually not plants (Carnivores)

Slide 6:

Why Can't Animals Get Along

- Predation keeps populations in check
- Charts show how as prey increases and decreases predator populations do the same
- Also shows how a balance of organisms keeps populations stable

Slide 7:

Metamorphosis

- Complete lifecycles include stages: Egg, Larvae, Pupa and Adult in that order.
- Examples of organisms with complete lifecycles are caddisfly, riffle beetles and water penny
- Incomplete lifecycles include stages: Egg, Nymph and Adult.
- Examples of organisms with incomplete lifecycles are mayfly and stonefly

Slide 8:

Insects

I. PHYLUM ARTHROPODA

- segmented with a hard exoskeleton (explain) and paired legs

A. CLASS INSECTA

- adults have three pairs of legs, three body regions (head, thorax, abdomen) and usually have one pair of wings and antennae

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1. Order Coleoptera-Beetles-

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- Riffle Beetle:** - resemble small "torpedoes"; color usually grayish or black/ length less than 1/2 inch/ found in fast-moving waters, good indicator/ eats algae

Slide 11:

- Water Penny:** - (**larvae**) resemble a leaf on rocks; sucker-like; colored green, black, but usually tan or brown; length usually no more than 1/2 inch./ good indicator/ eats algae and breathes through gills

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2. Order Diptera- True Flies

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- Midges:** – (**larvae**) tiny segmented worms and their pale skin allows their red body fluid to show through, hence, the name "bloodworm"/ they eat dead plant and animal matter/ indicate low oxygen and possibly poor water quality
- Biting Midges:** - (**larvae**) most species are extremely small and thin; worm-like and wiggle intensely when out of water; color varies from gold, brown, green, and tan to black; length is usually less than 1/2 inch./ eats algae and other larvae/ can tolerate pollution and can be an indicator of poor water quality

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-Crane Fly- (larvae) definitely "worm-like"; thick-skinned, and brownish-green with length up to 3'/ Adults: "mosquito hawk" best described as "giant mosquitoes" and possess long legs and plump bodies, but are harmless but helpful in that they eat mosquitoes

Slide 15:

-Fly: - (larvae) predators/ usually indicate poor water quality

-Snipe Fly: - (larvae) female deposits eggs on overhanging vegetation and larvae hatch and drop into water/ predators that commonly found in clean water

-Black Fly: - (larvae) small, worm-like and bulbous at one end/Black flies are found under rocks in swiftly flowing streams/ sometimes indicate too many nutrients (nitrogen and/or phosphorus) in the water.

Slide 16 and 17:

8. Order Ephemeroptera- Mayflies

Mayfly – (nymph) color, size, and appearance can vary/ can stay in nymph form for up to 6 yrs./ adults have one day to mate and die/ usually have three tails

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3. Order Trichoptera- Caddisfly

-Caddisfly: (with cases)- (larvae) can build cases of sticks or stones to live in/ large range for pollution tolerance/ feed on plants and animals

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4. Order Plecoptera- Stoneflies

-Stonefly: - (nymphs) most are predators/ LOW pollution tolerance

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5. Order Megaloptera- Alderflies and Hellgrammites

-Hellgrammite -(larvae) possess two large mandibles and are predators that feed upon other aquatic macroinvertebrates; larvae widely used as fish bait/ important food source for larger game fish/ fairly intolerant to pollution

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6. Order Hemiptera- True Bugs

-**Water Striders:** move along surface tension of water eating other bugs

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7. Ordanta- Drangonflies and Damselies

-**Dragonfly:** - (**nymph**) abdomen unfolds in a large tail like appendage in the adult/ predators, nymphs feed upon other aquatic macroinvertebrates, small fish, and tadpoles/ low tolerance

-**Damselie:** – (**nymph**) Adults possess extremely long abdomens; two pairs of wings that are held upright at rest/ similar to dragon flies/ low tolerance

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B. Class Malacostraca- Crustaceans-include lobsters, crabs, shrimps, and barnacles

1.Order Isopoda- Sowbugs

-**Sowbugs:** resemble their terrestrial cousins pill bugs: seven pairs of legs/ scavengers (live or dead plant or animal debris)/ usually indicates poor water quality

2. Order Decapoda- Crayfish

-Crayfish: resemble miniature "lobsters"; possess four pairs of walking legs and a pair of strong pinchers/ eat plants and animals/ usually not found in polluted waters

3. Order Amphipoda- Scuds

-**Scuds:** somewhat resemble shrimp/ called "side swimmers"/ scavengers

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II. Phylum Mollusca- Includes snails, mussels, clams, (also squid and octopi, which aren't macroinvertebrates)/ usually have soft bodies and muscular feet, head, mantle (hard shell)

A. Class Bivalvia- Clams and Mussels

-Pair of identical shells hinged together/ filter water through their bodies to obtain food like algae

B. Class Gastropoda- snails

-**Snails:** - Coiled or oval shell/ eat algae and bacteria by scraping it of surfaces

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III. PHYLUM PLATYHELMINTHES- FLATWORMS

A. Class Tubellaria- Planaria

Planaria: – flatworm

Slide 27:

IV. PHYLUM ANNELIDA

A. Class Ogliochaeta- Aquatic Worms

-Aquatic Eathworms: - look like earthworms/ like earth worms, they ingest large quantities of mud and filter out organic debris/ indicate poor water quality ---

B. Class Hirudinea- Leeches

-Leeches: - worm-like; flattened lengthwise and possess a sucker at each end/ parasitic/ indicate highly polluted waters

Slide 28:

Thank You