AQUARIUM WORLD

2. WEEK: AQUARIUM WORLD: TO BE A FISH

WEEKLY TOPICS (CONTENT)

1. Week	Why there is an interest on aquarium? Introduction and motivation
2. Week	Aquarium world: To be a fish
3. Week	Aquarium world: Biodiversity
4. Week	Popular aquarium invertebrates
5. Week	Popular aquarium fishes: Freshwater and brackish-water species
6. Week	Popular aquarium fish: Marine species
7. Week	Public aquariums: Aquarium world
8. Week	Personal hobby aquarium: Aquarium world.
9. Week	Species selection
10. Week	World aquarium sector
11. Week	Cleaning an aquarium, main principles
12. Week	Education: Aquarium world
13. Week	General evaluation and discussion: About species exhibited in public aquariums
14. Week	How to keep an aquarium fish healthy

Fish are the gill-bearing aquatic craniate animals that lack limbs with digits. They form a sister group to the tunicates, together forming the olfactores. Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups. Tetrapods emerged within lobe-finned fishes, so cladistically they are fish as well. However, traditionally fish are rendered paraphyletic by excluding the tetrapods (i.e., the amphibians, reptiles, birds and mammals which all descended from within the same ancestry). Because in this manner the term "fish" is defined negatively as a paraphyletic group, it is not considered a formal taxonomic grouping in systematic biology. The traditional term pisces (also ichthyes) is considered a typological, but not a phylogenetic classification.

https://en.wikipedia.org/wiki/Fish

A limbless cold-blooded vertebrate animal with gills and fins living wholly in water.

‘the huge lakes are now devoid of fish’

https://en.oxforddictionaries.com/definition/fish

An aquatic animal —usually used in combination starfish cuttlefish

Any of numerous cold-blooded strictly aquatic craniate vertebrates that include the bony fishes and usually the cartilaginous and jawless fishes and that have typically an elongated somewhat spindle-shaped body terminating in a broad caudal (see caudal 2) fin, limbs in the form of fins when present at all, and a 2-chambered heart by which blood is sent through thoracic gills to be oxygenated freshwater fish tropical fish.

https://www.merriam-webster.com/dictionary/fish

Osmoregulation is the process of maintaining an internal balance of salt and water in a fish's body. A fish is, after all, a collection of fluids floating in a fluid environment, with only a thin skin to separate the two.

There is always a difference between the salinity of a fish's environment and the inside of its body, whether the fish is freshwater or marine. Since the fish's skin is so thin, especially around places like the gills, external water constantly tries to invade the fish's body by osmosis and diffusion.

https://www.petmd.com/fish/care/evr_fi_osmoregulation

Freshwater Fish

In fresh water, the inside of a fish's body has a higher concentration of salt than the external environment. Consequently, there is a tendency to lose salt and absorb water.

To combat this, freshwater fish have very efficient kidneys that excrete water quickly. They also reabsorb salt from their urine before it is ejected to minimize losses and actively take salt from their environment using special cells in the gills.

https://www.petmd.com/fish/care/evr_fi_osmoregulation

Marine Fish

In marine environments, fishes face the opposite problem -- there's relatively more salt and less water outside their bodies. Consequently, there is a tendency to take on salt and lose water.

To combat this, marine fishes drink vast amounts of water and urinate little. Salt is a more complicated problem: special cells in the gills actively eliminate salt at the cost of extra energy and these fishes do not absorb any salt from the water they drink.

https://www.petmd.com/fish/care/evr_fi_osmoregulation

References

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