

Diversity of Fish

Biodiversity; is most commonly used to replace the more clearly defined as; species diversity and species richness.

Biologists most often define biodiversity as the; totality of genes, species, and ecosystems of a region.

Species diversity is the effective number of different species that are represented in a collection of individuals.

Fish species diversity is divided equally between marine and freshwater ecosystems. Coral reefs in the Indo-Pacific constitute the centre of diversity for marine fishes, whereas continental freshwater fishes are most diverse in large river basins of tropical rainforests, especially the Amazon, Congo, and Mekong basins. Exceptionally rich sites in the Amazon basin, such as Cantão State Park, can contain more freshwater fish species than occur in all of Europe.

Fish are widely diverse and can be categorized in many ways;

1- Species

1.1Jawless fish (Agnatha)

Jawless fish are the most primitive fish. Surviving jawless fish are lamprey and hagfish. There are more than 115 species of jawless fish.

1.2Cartilaginous fish (Chondrichthyes)

There are over 1000 species of cartilaginous fish. They include sharks, skates, rays and chimaera.

1.3Bony fish (Osteichthyes)

Bony fish include the lobe finned fish and the ray finned fish. The lobe finned fish is consisting of lungfish, and coelacanths.

There are three types of ray finned fishes; the chondrosteans, holosteans, and teleosts. With over 30,000 species, covering about 96% of all living fish species.

2- Habitat

There are 10, 000 times more saltwater in the oceans than freshwater in the lakes and rivers, of which 41% of species live in fresh water, 58% in sea water, and 1% (anadromous) move between fresh water and the sea during their life cycles. Fish are found in nearly all-natural aquatic environments.

Most fish, whether by species count or abundance, live in warmer environments with relatively stable temperatures. However, some species survive temperatures up to 44.6 °C, while others cope with colder waters; there are over 200 finfish species south of the Antarctic Convergence. Some fish species tolerate salinities over 10%.

Geographically, the highest diversities are found in the tropics. The Indo-West Pacific area that includes the western Pacific and Indian oceans and the Red Sea has the highest diversity for a marine area, whereas South America, Africa, and Southeast Asia, in that order, contain the most freshwater fishes.

2.1 Blue Shark;

They are marine fish spread over massive areas, such as the blue shark that can live in all oceans.

2.2Cave fish;

Cave fish are confined to single, small living spaces, such as the isolated cave fish in the Bahamas, Cuba and Oman.

2.3 Death Valley Pupfish;

Equally isolated desert pupfish, like the Death Valley pupfish, live in small desert spring systems in Mexico and the southwest United States.

2.4 Stone loach;

The Tibetan lives at altitudes over 5,200 meters in the Himalayas. The record for unheated waters is Lake Titicaca in northern South America, where pupfish live at an altitude of 3812 meters.

2.5Cusk eel;

The world's deepest living fish is a species of cusk eel, lives in the Puerto Rico Trench at a depth of 8,372 meters.

2.6 Bythitidvent fish;

The bythitid vent fish, lives around thermal vents 2,400 metres deep.

3-Life span

3.1 Seven-figure pygmy goby;

The seven-figure pygmy goby is a tiny coral reef-dwelling fish, has the shortest lifespan for a vertebrate. This species can only live for 59 days, which is the shortest lifespan for any vertebrate.

3.2 Ram cichlid;

Short lived fish have particular value in genetic studies on aging. In particular, the ram cichlid is used in laboratory studies because of its ease of breeding and predictable aging pattern.

3.3 Rough eye rock fish;

Among rockfish are some of the longest living fishes with the rough eye rockfish living up to 205 years, found off shore in the North Pacific at 25–900 metres.

3.4 Orange roughy;

The orange roughy may be the longest-lived commercial fish with a maximum reported age of 149 years.

3.5 Koi;

There are stories about Japanese koi goldfish passed from generation to generation for 300 years. The maximum reliably reported age for a goldfish is 41 years.

3.6 Atlantic tarpon;

One of the longest living sport fish is the Atlantic tarpon, with a reported age of 55 years.

3.7 Green sturgeon;

Some of the longest living fish are living fossils, such as the green sturgeon, with a reported age of 60 years. They are also among the largest fish species found in freshwater, with a maximum reported length of 2.5 meters.

3.8 Australian lungfish;

Another living fossil is the Australian lungfish. One individual has lived in an aquarium for at least 75 years.

3.9 Greenland Shark;

The Greenland shark has a life span of 392 ± 120 years. This is the longest known life span of all vertebrate species.

4- Size

4.1 Minnow species;

Minnow species is a type of minnow, is the smallest of all fish species. It lives in the dark-coloured peat swamps of the Indonesian island of Sumatra. The females of this species have a standard length of 7.9 mm at maturity. Until recently, this was the smallest of all known vertebrates. However, recently a **minute Papua New Guinea frog** with a standard length of 7.7 mm was discovered. The slender Indonesian fish may still be the smallest vertebrate by weight.

4.2 Anglerfish species;

Male individuals of the anglerfish species are 6.2-7.3 mm long at maturity, and thus could be claimed as an even smaller species. However, these males do not survive on their own merits but only by sexual parasitism on the larger female.

4.3 Stout infantfish;

The stout infant fish, a type of goby, is the second smallest known fish. Females grow to a length of 8.4 millimetres and males are mature at 7 mm.

4.4 Sinarapan;

According to the Guinness Book of World Records, the sinarapan, also a goby, is the world's smallest commercially harvested fish. Found in the Philippines, they have an average length of 12.5 mm.

4.5 Whale shark;

The largest fish is the whale shark. It is a slow-moving filter feeding shark with a maximum published length of 20 meters and a maximum weight of 34,000 kg.

4.6 Ocean sunfish;

The ocean sunfish is the heaviest bony fish. It can weigh up to 2,300 kg. It is found in all warm and temperate oceans.

4.7 King of herrings;

The king of herrings is the longest bony fish, with total length of 11 meters, weigh up to 272 kg. It is a rarely seen oarfish found in all the world's oceans.

4.8 White Sturgeon;

White sturgeon is the largest fish of freshwater measuring up to 4.2 m and weighing about 1000 Kg.

4.9 Pirarucu;

Pirarucu is the longest fish confined to freshwater of South America, which measures up to 4.5 m and weighs up to 160 Kg.