

Fish Diversity

Fish Color Patterns

Cryptic Coloration

Many fish are colored to match their backgrounds and appear almost invisible. This cryptic coloration (or camouflage) is particularly important for sluggish bottom fish. As a result, they often resemble the substrate they rest on, sometimes even mimicking irregular patches of light or algae. Many cryptically colored fish are capable of changing their color to match their background. Some species of tidepool fish may be green when living among green algae fronds but change to red when they live among red algae. The real masters of change, however, are flounders, which can quickly change their color pattern to match the bottom they are resting on.

Silvery

Bright silvery fishes are most characteristic of well-lighted waters, such as inshore waters of lakes or surface waters of the ocean. Usually silvery fishes school and the light flashing off the scales helps to confuse predators because individual fish become hard to pick out. The silvery color also helps the fish blend in with the light reflected from the surface of the water.

Countershading

Most fishes that live in the water column have dorsally darkened and ventrally whitened. The dark back helps them blend in with the dark bottom or depths when viewed from above, whereas the white belly helps them to blend with the sky when viewed from above.

Disruptive Coloration

Another form of camouflage is colors and patterns that break up the outline of a fish, making it harder to see. One of the most common patterns of this type is vertical bars running down each side. The vertical bars on the fish can blend in with the vertical pattern of the plants or such. Circular patterns may also disrupt the outline of a fish.

Eye Ornamentation

The eyes of a fish are perhaps its most visible feature, especially at a distance. They are frequently the focus of attacks by predators and are important in communication with other members of the species. This results in two contrary trends in eye ornamentation: one is to disguise the eyes, the other is to emphasize them. There are many ways of disguising eyes: running a black line through the pupil that is continuous with either vertical or horizontal stripes on the body; minimizing contrast between the iris and the pupil by having the iris dark in color, as well as the area surrounding the eye; having numerous spots surrounding the eye that are similar in size to the pupil. There are also many ways to emphasize the eyes. Most common is simply to have the eyes brightly tinged with blue, green, or yellow. Supplementary patterns, such as eye rings, are also common, at least in reef fishes.

Eye Spots

One of the most common marks on fishes, especially juvenile fishes, is a black spot located near the base of the tail. This spot is usually about the size of the eye and may even be emphasized with a light-colored ring, while the real eye is disguised. Their principal function seems to be to confuse predators, by having them aim for the tail rather than the head, giving the victim a chance to get away.