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Carassius auratus

(goldfish)

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By *Robin Street*

Kingdom: [Animalia](#)
 Phylum: [Chordata](#)
 Subphylum: [Vertebrata](#)
 Class: [Actinopterygii](#)
 Order: [Cypriniformes](#)
 Family: [Cyprinidae](#)
 Genus: [Carassius](#)
 Species: ***Carassius auratus***

Geographic Range

Although goldfishes originated in China, they have now spread worldwide in aquariums, ornamental pools, and into the wild.

Biogeographic Regions: nearctic (introduced); palearctic (native); oriental (introduced); ethiopian (introduced); neotropical (introduced); australian (introduced .

Habitat

In the wild, goldfish can be found in slow-moving, freshwater bodies of water. As with their close relative the carp, they thrive in slightly sludgy water. In an aquarium, bi-weekly water changes are a good idea as a goldfish tank is hard to keep clean. They thrive in a pond environment thus the addition of real plants is optimal if the owner is prepared to replace them fairly regularly; goldfish enjoy eating live plants. An aquarium with a dirt bottom is ideal but difficult to maintain. Small pebbles are a suitable substitute for the pond-like bottom. Typically, goldfish will survive in water temperatures ranging from freezing to 30 degrees centegrade. Fancy varieties(orandas, lionheads, ranchu, veiltails...) should be kept in water no cooler than room temperature.

Goldfish prefer a pH range of 6.5-8.5.

These animals are found in the following types of habitat: temperate ; freshwater .

Aquatic Biomes: lakes and ponds; rivers and streams.

Physical Description

Mass

3 kg (high)
(6.6 lbs)

Length

41 cm (high)
(16.14 in)

As there are over a hundred varieties of goldfish, coloration and physical characteristics vary greatly. The common goldfish has two sets of paired fins - the pectoral fins and pelvic fins, and three single fins- the dorsal, caudal, and anal fin. They lack barbels on the upper jaw, and lack scales on the head. Goldfish have exceptionally large eyes and acute senses of smell and hearing. They have 27-31 scales along their lateral lines. Goldfish have (rather than true teeth) pharyngeal teeth in their throats which they use to crush food.

Goldfish can grow to be 3 kg and 45 cm long but are usually much smaller than this.

Some key physical features: bilateral symmetry .

Sexual dimorphism: sexes alike.

Reproduction

Breeding interval

Spawning may occur at intervals of 8 to 10 days.

Breeding/spawning seasonBreeding season

summer

Number of offspring

10000 (average)

Time to hatchingGestation period

5 days (high)

Age at sexual or reproductive maturity (female)

2 years (average)

Age at sexual or reproductive maturity (male)

2 years (average)

Goldfish usually mature in their second year but this varies with diet, water temperature, and other environmental influences. In the wild, breeding occurs during the summer; breeding can occur year round in indoor aquariums. Mature female goldfish will become rounder during breeding; males develop tubercles (small bumps) on their heads, operculi, and pectoral fins. Males chase the females for several days before spawning occurs. Females can produce several thousand eggs per spawning period every 8 to 10 days. Eggs are not guarded. Goldfish eggs hatch in about 4-5 days at 18-20 degrees centegrade (64-68 degrees F.).

Key reproductive features: iteroparous ; seasonal breeding ; sexual ; fertilization  (external ); oviparous .

Lifespan/Longevity

Longest known lifespan in captivity

25 years (high)

Expected lifespan in captivity

10 years (average)

Although there is one report of a pet goldfish who lived 43 years, 25 years is a more reasonable maximum lifespan for a goldfish kept in a pond. In an aquarium, ten years is more likely. In the wild, lifespan is undoubtedly less.

Behavior

In the wild goldfish will school to a certain extent. In aquariums or bowls, however, they can be kept separately. Goldfish are not particularly aggressive, thus combining sizes is not often a problem. It is worth suggesting that varieties which are drastically different should not be combined in a tank: e.g. a slow, heavy-bodied, veil-tailed Oranda with a fast, slightly more aggressive variety such as a comet.

Key behaviors: [natatorial](#); [motile](#); [social](#).

Food Habits

In the wild, goldfish are omnivores. They eat plants, insects such as mosquito larvae, small crustaceans, zooplankton, and detritus.

In captivity, goldfish are commonly fed dried flake or pellet food. As pets, they should also be fed foods they would consume if they were in the wild. Good diet supplements include freeze dried Tubifex worms, mosquito larva, bloodworms, Daphnia, brineshrimp, and vegetation such as boiled peas and lettuce.

Primary Diet: [carnivore](#) (eats non-insect arthropods); [herbivore](#); [omnivore](#).

Predation**Known predators**

- [great blue heron](#)
- [green heron](#)
- [ring-billed gulls](#)
- [kingfishers](#)
- [turtles](#)
- game fish, such as [walleyes](#), [muskellunge](#), and [northern pike](#)

Just about anything that eats fish would eat goldfish.

Economic Importance for Humans: Negative

Introduced populations are due primarily to people releasing their pets into local waterways. Goldfish should not be released into ponds in the wild because they breed quickly and are capable of crowding out native fish species. They are considered pests in most places where they have been introduced.

Economic Importance for Humans: Positive

Goldfish farming has become an industry of notable size. Millions of fish are bred each year and sold to aquarium shops for resale to fish enthusiasts. In North America there is a demand for goldfish to be used as bait by anglers. Pet shops often have feeder goldfish to sell to owners of carnivorous aquarium fish.

Ways that people benefit from these animals: [pet trade](#).

Conservation Status

Goldfish are not in the least bit endangered.

Other Comments

Goldfish and common carp can hybridize.

Contributors

Robin Street (author), University of Michigan: April, 2002.

References

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