



**Are your koi experiencing stress?** Transportation, changes in water quality or environment, predators, and illness can all trigger stress reactions. You will need to investigate further if you observe any of these behaviors or changes.

## Aggression

Fish typically display aggression by chasing and nipping at each other. This behavior is normal occasionally, especially during the breeding season, but recurring aggression indicates stress. Overcrowding is a potential cause, so make sure your pond has adequate room for its occupants, containing at least 1,000 gallons of water with 200 gallons of water per fish.

## Flashing

Flashing occurs when koi turn on their sides and swim rapidly and erratically. This behavior is typical for koi new to a pond for the first few minutes. Prolonged flashing, or its unprompted emergence, might indicate a parasitic infection.

## Jumping

Dolphin-style leaps above the water's surface are common when koi are initially added to a new pond. Among settled fish, this behavior could indicate a problem with water quality. Check pH, ammonia, nitrite and nitrate levels. Your koi also could be jumping because they are on edge, indicating the presence of predators.

## Scratching/Scraping

Koi will rub their bodies against hard surfaces in the pond when they are experiencing skin irritation. This natural behavior helps them dislodge objects stuck between their scales. Excessive or repetitive scratching could indicate bacterial infections, parasites, high nitrate levels, or pollutants.

## Gasping

Koi take in oxygen through their gills and release carbon dioxide. If there is insufficient oxygen available in their water, they will go to the surface to try and breathe. If you see this behavior, increase your pond's oxygen saturation immediately.

## Clamped Fins

If koi begin to swim with their pectoral fins clamped tightly against the body rather than flapping normally, they are exhibiting stress due to some discomfort. In most cases, bacterial or parasitic infections will prompt this behavior.

## Hiding

It is common for new fish to hide in pond substrate, and they should reappear once they've acclimated to their surroundings. However, if your ordinarily active fish suddenly go into hiding for prolonged periods, you may have predators on the prowl.

## Lethargy

Aside from winter torpor, your koi should remain relatively active. A fish lying on the pond's bottom and not responding to stimuli is probably exhibiting stress. Often, this can indicate suboptimal water conditions or temperature. Koi thrive in water between 65-75° F. Warmer water releases oxygen quicker, so ensure your water is properly aerated. In some cases, disease or bacterial infection can cause fish to become lethargic.

## Loss of Appetite

Koi love to eat, so if one or more of your fish is eating less or not at all, there likely is an underlying environmental or physical condition. Check for water quality, as high nitrate levels can affect a koi's appetite.