

# Cardinalfish Tank

Otterbein has the cardinal as our mascot, so the Aquarium Program naturally adopted the cardinalfish for its mascot. In this tank are several species of cardinalfish, but since most are nocturnal, we have flipped the lighting on them. We light the tank fully at night, and illuminate only with red light during the day so they come out of their hiding places and are more active. If you are here during the daytime, please take a look, but keep the entrance to the tank dark, and definitely don't shine in bright lights.



Belted Cardinal, Caribbean  
*Apogon townsendi*



Flame Cardinal, Caribbean  
*Apogon maculatus*



Ring-tailed Cardinal, Red Sea  
*Ostorhinchus aureus*



Pajama Cardinal, Indonesia  
*Sphaeramia nematoptera*



Seale's Cardinal, Pacific  
*Apogon sealei*



Striped Cardinal, Indian Ocean  
*Ostorhinchus angustatus*

What's a cardinalfish? Cardinalfish (Family Apogonidae) are often the most abundant fish on coral reefs. However, they are rarely seen because they are small (<4") and nocturnal. Most are shades of red (hence their name), or nearly clear so that they are hard to spot during the day by their predators. One exception is the Banggai cardinalfish. It is from the isolated Banggai Islands of Indonesia and is the only cardinalfish that is primarily active during the day (diurnal).

The sex life of cardinalfish. Unlike many reef fish, cardinalfish do not change sex during their lifetime. The two sexes look the same, and pairs mate, stay together over multiple years, are monogamous, and cooperate during reproduction. However, the roles of cardinalfish during reproduction are reversed from what one may stereotypically imagine. Females are the aggressors and instigators during mating, and after they produce the eggs, the male tends to them and keeps them aerated and safe while the female stays close and defends the male. The male tends the offspring by brooding the eggs (and sometimes the hatched fry) in his mouth for 7 or 8 days. This role reversal makes sense since the female uses up her energy stores producing the eggs, and mouth brooding requires all the energy of the un-depleted male. With eggs in his mouth, he can't eat for a whole week.

Loyal and social. Unlike many coral reef fish that shed their eggs into the waves and currents where they are widely dispersed, cardinalfish, as mouth brooders, keep their babies closer to home. In fact, the young of most cardinalfish species hatch and immediately join the parents' school and remain there for life. Each evening the school emerges from its daytime refuge in a cavity or hidden under coral branches and, swims together to a particular part of the reef where they feed on shrimp and zooplankton during the night. As morning approaches, the school returns to its refuge, and each fish assumes the exact same spot within that refuge.

The ability of cardinalfish to find their way home was recently tested in a study that caught individuals and released them further and further from their home refuge. Most fish rapidly returned home, despite being dropped in unknown waters. The record was 3" cardinalfish that were dropped overboard 5km from home reef in deep pelagic waters. Some found their way back even if it took 10 days of swimming through featureless water. To put this in perspective, based on their size, this is like humans finding their way home if dropped 95 miles away in foreign terrain. It turns out that Cardinalfish are not unlike Otterbein students. They may not be flashy, but they are exceedingly loyal and always find their way to their goal.

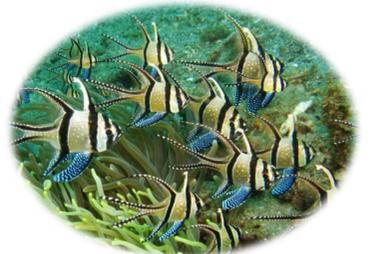
Cardinalfish in aquariums. Because Cardinalfish are mouth brooders they are relatively easy to breed in captivity, and all of our fish are captive bred. We feed them frozen brine shrimp and other commercial fish foods. The tank purposefully has ample hiding places for the fish which, in the wild, are an important prey item for many larger reef fish.



Red Stoplight Cardinal, Indonesia  
*Apogonichthys hyalinus*



Girdled Cardinal, Indonesia  
*Taeniamia zosterophora*



Banggai Cardinal, Indonesia  
*Pterapogon kauderni*



Banggai Cardinal,  
Mouth-brooding eggs



Banggai Cardinal,  
Mouth-brooding young



Ochre Striped Cardinal, Sumatra  
*Ostorhinchus compressus*



Threadfin Cardinal, Indo-Pacific  
*Zoramia leptacanthus*



Black Cardinal, Fiji  
*Apogonichthys melas*