

## Summary of Marine Fish Aquarium Families

**An overview of fish that will do well for you in a marine aquarium.**

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Most of the fishes I will be discussing will fare quite well in the typical saltwater aquarium. Therefore, before launching into a description of common saltwater fish families, I thought it would be wise to define what I mean by a "typical" saltwater aquarium setup.

While no two aquariums are alike, it is possible to describe an aquarium that reflects, on average, what the majority of saltwater aquarists actually buy. For a saltwater fish-only aquarium, most people set up a 30- to 75-gallon (114- to 284-liter) aquarium outfitted with an undergravel filter operated by powerheads and an external power or canister filter containing activated carbon.

Light is supplied by a single fluorescent lamp. If the aquarist plans on keeping invertebrates, whether or not tropical fish are to be included in the display, the aquarium is usually filtered with a wet/dry system and a protein skimmer. If the invertebrates are those that require light (photosynthetic), four fluorescent lamps are installed above the aquarium.

Before animals are added to any saltwater aquarium, the biological filter must be established by one of a variety of methods (known as cycling or breaking in the aquarium). At the conclusion of this process, the aquarist performs a large water change and checks pH, temperature, specific gravity and nitrates. If all of these tests are found to be acceptable, specimens are added. If invertebrates are to be added to the aquarium, in addition to the factors noted above, the aquarist checks the calcium concentration and alkalinity and adjusts these parameters appropriately.

If your aquarium is outfitted similarly to the ones just described, and if water parameters are within acceptable limits, you are ready to add specimens. Almost.

There are several hundred kinds of tropical fishes and invertebrates regularly available in the aquarium trade. How is one to make sense of so wide a variety of potential aquarium inhabitants? One simple approach with saltwater fishes is to study the various families rather than attempting to sort out the bewildering variety of individual species.

Within a given family of saltwater fishes, reproductive behavior, feeding preferences, temperament and other characteristics are relatively consistent. Thus, if one knows the general characteristics of the triggerfish family, for example, one will know what to expect of the pinktail triggerfish, or niger triggerfish and so on with a fair degree of accuracy. There will always be exceptions, of course, and reference books should be checked when considering an unfamiliar, rare or particularly expensive specimen. The experiences of other aquarists should also be sought out.

What follows is not a complete guide to saltwater fishes by any means. However, the information provided here should help you to begin the process of choosing fishes to keep in your aquarium. For color photographs and a brief descriptive note about virtually every species of saltwater aquarium fish that you are likely to encounter, consult Dr. Warren Burgess' Atlas of Marine Aquarium Fishes published by TFH Publications. This book contains more than 4,000 color photos, and a series of symbols under each photo gives information on feeding, lighting, temperament, size and so on.

Not all families are listed below — only the ones that are the most popular and commonly available. For each family, a representative species is described.

### Damselfishes

Damsels — Territorial, non-schooling saltwater fishes that are often aggressive toward their tankmates, especially if the damselfishes are well-established in the aquarium Hardy, easy to feed and tolerant of poor water conditions, the blue devil (*Chrysiptera cyanea*) is a popular species. This species is solid blue, although males from some localities have a yellow or orange tail. Females are blue with a small black dot at the posterior base of the dorsal fin. Keep one male and several females together.

Chromis — These are schooling, peaceful damsels that feed on plankton. Hardy and undemanding, chromis are never aggressive. They are best kept in groups of three or more and will school in the aquarium. The green chromis (*Chromis viridis*) is seafoam green in color with a deeply forked tail. It shows off its colors to best advantage under bright

illumination.

Clownfishes — Damsel-fishes that are specialized for living in symbiotic association with certain species of large sea anemones are called clownfishes or anemonefishes. They can be kept without an anemone but do better if the appropriate anemone is present. In this latter case, water conditions and lighting conducive to the growth of the anemone are most important. Highly territorial and defensive of the anemone, different species of clownfishes seldom tolerate each other in the aquarium. Much has been written on this popular and fascinating group.

The common clownfish (*Amphiprion ocellaris*) is bright orange in color with three white vertical bars. Often the white bars are edged in black, but this is variable. Keep singly, in pairs or in a small group of juveniles. It prefers the "ritteri" anemone, *Heteractis magnifica*. Different species of clownfishes have differing preferences in anemones, so it is wise to purchase the fish and anemone together, if possible.

#### Tangs

All tangs are vegetarians that live in large schools and cruise along the reef nibbling at algae. They are intolerant of nitrates above about 40 parts per million (ion) and thus regular water changes are important. Feed frequently, providing vegetable matter, such as lettuce or spinach, upon which they can graze during the day. Also include other green foods, such as frozen seaweed, in the diet. Small amounts of meaty foods (worms, brine shrimp, etc.) will also be eaten but should not be fed exclusively.

Keep tangs in groups or as individuals. The various species usually tolerate each other quite well. The yellow tang (*Zebrasoma flavescens*) is solid lemon yellow in color, hardy, inexpensive and popular.

#### Big Predators

Included in this category are several groups. All grow large and all are aggressively predatory toward tankmates small enough to be eaten. Good choices for a large aquarium, most of the fishes in this assortment are very hardy and long lived in the aquarium. All predators seem to be quite intelligent and can become quite tame, even recognizing the aquarist who feeds them. Generally, feed such fishes every two or three days and offer a variety of meaty seafoods. Live freshwater fishes will be eaten readily, but these should not form the staple diet because freshwater fishes lack essential fatty acids that are required by saltwater predators. Feed mostly fresh or frozen saltwater fish meat, shrimp, shellfish and other similar foods.

Lionfishes — All lionfishes are capable of inflicting a painful sting, so handle them with caution. Adult sizes range from the 4-inch (10-centimeter) Fu Manchu lion, *Dendrochirus biocellatus*, to the black volitans lion, *Pterois lunulata*, at more than 2 feet (61 centimeters). Lionfishes tolerate each other well and will not harm other fish that are too large to eat.

Groupers — Groupers like to hide in ambush, waiting for prey. Most grow very large and are popular food fishes (often seen on menus as sea bass). Easy to keep, groupers will eat almost anything small enough to swallow. The panther grouper (*Chromileptes altivelis*) is solid white with black polka dots. Provide it with a roomy aquarium.

Eels — Moray eels are nearly blind and hunt by smell at night. They generally spend the day in a hole or crevice with just the head protruding. Most get quite large and some are aggressive — capable of delivering a nasty bite. One good choice is the snowflake moray (*Echidna nebulosa*). It rarely grows larger than 3 feet (91 centimeters) and is a peaceful and hardy aquarium inhabitant. It is chocolate brown with cream-colored "snowflake" patterns on the body.

#### Triggerfishes

As with the members of the previous groups, triggerfishes are large, hardy and aggressive. Intolerant of members of their own kind in the aquarium, different species of triggers can be kept together in a roomy aquarium if specimens are chosen with care. They are intelligent, have powerful jaws and may rearrange the aquarium decorations from time to time. Feed triggers a wide variety of meaty seafoods — they will consume almost anything edible.

The clown trigger (*Balistoides conspicillum*) is beautifully patterned in black and yellow, with white polka dots. Although expensive, this is a very desirable aquarium species that will live for many years. Start with a small specimen if you have a community aquarium. Large individuals are sometimes aggressive toward tankmates for no apparent reason.

#### Angelfishes

Angelfishes are found exclusively on coral reefs and thus demand good water quality and a nutritious, varied diet high in vegetable matter. They fall into two groups.

Dwarf angels — Rarely exceeding 4 inches (10 centimeters) in length, the beautiful dwarf angelfishes are ideal for a small

aquarium. Provide them with plenty of hiding places and do not attempt to mix different kinds together because they may not get along. If small individuals are chosen and placed in a roomy aquarium all at one time, you can keep a harem of dwarf angels together. All start life as females and later develop into males as they grow larger. This pattern will be repeated in the aquarium if you are patient.

The flame angelfish, *Centropyge loriculus*, is found in deep water and feeds on a variety of seaweeds and invertebrates. It is bright red in color with markings in orange, blue and black. A less expensive choice is the coral beauty (*Centropyge bicolor*), which is strikingly colored in orange and blue. Specimens from Australia have more orange on the body than those from Hawaii.

Large angels — In these species, which in some cases may reach 2 feet (91 centimeters) in length, the juveniles are always different in color from the adults. Generally, juvenile specimens adapt better to aquarium life and will change into their adult coloration when they reach an appropriate size. In the aquarium, the large angels are very demanding and some species cannot be successfully kept under any circumstances. Because large angels often cost \$100 or more, choose carefully and make sure you can provide the fish with what it needs to survive.

Among the better choices is the queen angelfish (*Holacanthus ciliaris*) from Florida and the Caribbean, which is considered by some to be the most beautiful of all fishes with its gaudy markings in yellow and blue. From the Indo-Pacific comes the beautiful blue, black and white juveniles of the Koran angelfish, *Pomacanthus semicirculatus*. These are commonly available and adapt well to aquarium life. Provide all large angelfishes with an aquarium of at least 75 gallons (284 liters).

#### Butterflyfishes

Like the angelfishes to which they are related, butterflyfishes are found only on coral reefs. Some readily adapt to aquarium life, while others are best left in the wild. This is generally because of specialized feeding requirements. For example, some butterflyfishes will eat only the living polyps of certain types of corals. It is therefore important to make sure you can identify correctly any specimen you are interested in to determine its feeding preferences.

The longnose butterflyfish (*Forcipiger longirostris*) is frequently imported from Hawaii. It is bright yellow with a black face "mask" and has a long, pointed snout that it uses to pluck small tidbits from the reef. Because it feeds on a variety of foods in nature, this fish adapts well to aquarium life.

#### Wrasses

Wrasses are mostly elongated, active fishes and are highly variable in both size and coloration. All are carnivorous, feeding on a variety of crustaceans, worms, small fishes and the like. Generally, wrasses are peaceful except toward anything small enough to eat, so beware of including small shrimps, for example, in an aquarium housing a wrasse. Color can vary widely and is usually gaudy.

Wrasses have three life stages, designated as female, male and supermale. Most often, supermales are collected for the aquarium trade. In nature, a group of males and females will generally be dominated by a single supermale, which differs markedly in color and pattern from the "regular" male and female. You can keep wrasses in similarly composed groups in the aquarium, but two supermales in the same aquarium will not tolerate each other.

Among the wrasses to consider is the paddlefin wrasse (*Thalassoma lucasanum*) from the Sea of Cortez. The supermale is a beautiful pink color with a blue-green head and fins and a bright-yellow "collar" behind the head. Juveniles, on the other hand, are striped in pink, yellow and brown and are called "Mexican rock wrasse." Juveniles, in some cases, will change into supermales in the aquarium.

As a general rule, species from the foregoing groups are suitable for aquariums of 50 gallons (190 liters) or larger, and — with some exceptions — are not suitable tankmates for aquariums that feature invertebrates. For smaller aquariums or aquariums that have many invertebrate specimens, damselfishes, some dwarf angels and some smaller wrasses may be suitable if the species are chosen judiciously.

From the groups described below, however, virtually all species may be included in the invertebrate or "reef" aquarium. All are excellent choices for smaller saltwater aquariums. Most of the members of these remaining fish families do not exceed 4 inches (10 centimeters) in size.

#### Hawkfishes

This group includes some larger species of hawkfishes as well as several that are highly desirable for small aquariums. Hawkfishes characteristically perch atop a rock or other prominence observing the passing scene, darting out now and then to snatch food, such as shrimps or worms, from the water column. Hawkfishes should not be kept with small

shrimps but will not bother most other species of fishes or invertebrates. Hawkfishes are intolerant of each other, so keep only one hawkfish per aquarium.

The flame hawkfish (*Neocirrhites armatus*) is solid red with a black stripe down the middle of the back and a black ring around each eye. Because this species comes from deep water, it is usually somewhat more expensive than other hawkfishes, but its droll appearance, peaceful disposition and hardiness make the flame hawk an excellent choice for the saltwater aquarium.

#### Basslets

Basslets are beautiful saltwater fishes, easy to keep and easy to feed. Atlantic basslets are called grammas, and Indo-Pacific basslets are called dottybacks or *Pseudochromis*. Grammas can usually be kept together successfully in groups, providing they have ample hiding places. However, do not attempt to keep Indo-Pacific basslets together because they may fight.

An excellent choice is the royal gramma, *Gramma loreto*, which is purple on the anterior (front) half of the body and bright yellow on the posterior (rear) half. There is a black dot on the dorsal fin. This hardy, inexpensive and undemanding species is generally found in groups under ledges in fairly deep waters in the Atlantic and Caribbean regions. Grammas have spawned in hobbyist aquariums. An equally good choice from the Indo-Pacific is the strawberry dottyback, *Pseudochromis porphyreus*. This charming little fish is solid royal purple in color and needs only a suitable hiding place and regular feeding in order to thrive.

#### Jawfishes

Jawfishes are related to the basslets. Only one species is commonly and widely available, the yellowheaded jawfish (*Opisthognathus aurifrons*) from the Atlantic. It is pale in color with a bright-yellow head. Jawfishes live in large colonies. Each individual constructs a vertical burrow into which it retreats at the slightest threat of danger. Each fish hovers just above the burrow, snatching small organisms from the water column. The yellowheaded jawfish is an ideal choice for a species aquarium.

#### Blennies

The blennies can be subdivided into two groups.

Combtooth or eyelash blennies — These fish are vegetarians that spend most of their time on the bottom, peering out from a hole or crevice in the rocks or perhaps living in an empty snail shell. They may be recognized by the cirri or "eyelashes" on the head.

Among these fish is the bicolor blenny, *Escenius bicolor*, from the Indo-Pacific. It is dark blue-black on the anterior portion of the body and orange on the posterior portion. It feeds avidly on filamentous and encrusting growths of algae and will also take other small foods.

Fanged blennies — These are carnivorous, spending most of their time hovering in open water and feeding on plankton. They are generally more colorful than the combtooth blennies. The name refers to the fact that these species possess poisonous fangs that are used in defense. If a predator grabs one of these fishes, its mouth will be bitten painfully and the predator usually spits out the blenny unharmed. These well-armed fishes are peaceful toward their tankmates, however.

The canary blenny, *Meiacanthus atrodorsalis*, is solid yellow with a beautiful lyre-shaped tail. It comes only from the island of Fiji in the South Pacific.

#### Mandarinfish (Dragonets)

These include only two species of interest to aquarists, the mandarinfish (*Synchiropus splendidus*) and the spotted mandarin (*Synchiropus picturatus*). Problems with these fishes are generally the result of inadequate feeding, as mandarins feed on very tiny organisms and do so almost constantly during the day. They should only be placed in a well-established aquarium that has a visible population of small crustaceans and other organisms living in it.

Male mandarins can be distinguished from females by the presence of a greatly elongated spine at the forward edge of the dorsal fin. Females have a small, unadorned dorsal fin. You can keep several individuals of both mandarin species together in the same aquarium as long as there are not two males of the same species, which will fight bitterly.

#### Gobies

Gobies are by far the largest group of saltwater fishes in terms of the number of species. Their lifestyles are too varied to make sweeping generalizations, but most gobies are peaceful, colorful, small fishes that can be kept with a

variety of other species. For aquarium purposes, we can subdivide the gobies into three large groups.

**Torpedo gobies** — Torpedo gobies are elongate, mid-water fishes that dart rapidly from place to place in the aquarium and snatch their food from the water column. Small, meaty aquarium foods are readily accepted.

Among these is the firefish, *Nemateleotris magnifica*. They are cream colored, with a striking, red, orange and black tail. Unless you have a mated pair, keep only one firefish per aquarium, as they may fight with each other.

**Prawn gobies** — Prawn gobies are distinguished by their special relationship with certain types of shrimps. In this arrangement, the shrimp — which is blind — digs a burrow that both shrimp and goby occupy. The goby provides a pair of eyes. When the two venture forth from their burrow, the shrimp maintains contact with the goby by means of its antennae. If the goby detects danger, a flick of its tail warns the shrimp that it is time to retreat to the burrow. Keep the goby and the shrimp together in the aquarium. The goby will not fare well without its partner. A commonly available prawn goby is the bluespotted yellow watchman, *Cryptocentrus cinctus*.

**All other gobies** — These can be lumped together in a diverse assemblage about which few generalizations can be made except to say that they make good community fishes for small aquariums or for reef aquariums. One "typical" example is the neon goby (*Gobiosoma oceanops*) from the Atlantic. Once collected in the Florida Keys, this species is now available from hatchery-reared stock. With a maximum size of about 2 inches (5 centimeters), the neon goby is striped horizontally in black, white and blue. This color pattern identifies it as a cleaner that picks parasites and dead tissue from the skin of other fishes. The goby will exhibit this beneficial behavior in the aquarium.

There are literally dozens of books that will provide you with additional information about saltwater aquarium fishes. I have already mentioned Burgess' Atlas of Marine Aquarium Fishes. Other good choices are the many regional guides available that cover a specific area of the world, such as Hawaii or the Caribbean.

One new book that is outstanding in its information content is the Marine Aquarist Manual — Comprehensive Edition by Dr. Paul V. Loiselle and Hans Baensch, published by Tetra Press. For complete coverage of the smaller species in the families described above, you should consult Fishes for the Invertebrate Aquarium by Helmut Debelius, published by Aquarium Systems. All of these books are available by mail or through aquarium dealers.