Still Impossible After All These Years – Keeping Moorish Idols

There is something very unconventional about beginning an article at its conclusion. Such tricks and plot twists are usually reserved for television crime dramas or Hollywood thrillers. I can’t promise you anything as nail-biting, anything as exciting as that, but I can promise you one thing. You will, if you are a conscientious aquarist, get chills at the end of this article. No peeking, be patient and read it through, or the impact will be lost.

The Moorish idol, Zanclus cornutus, or in some references Z. canescens, is still to be considered one of those heartbreakingly impossible species to keep, even after all of the advances in marine fish keeping in the last two, almost three decades. So, I begin my report here with its end, and, sadly, the end of eight individuals of this incredibly beautiful, graceful, and majestic species. Of those individuals, two, perhaps four might have lived out a normal lifespan in my tank had external influences like failed heaters and power outages not intervened. However, considering that they did not, that conclusion can not be drawn.

While hundreds, perhaps thousands, of individual Moorish idols may be removed from the reefs each season, it’s doubtful that more than a handful of specimens will survive in captivity for more than a few months, with most succumbing in transit or in hobbyists’ tanks within a few days or weeks of capture. To be blunt, we, the hobby as a whole, continue to remain completely clueless as to how to properly capture, transport, and house this gorgeous species to insure even a moderately acceptable chance of survival. There should be no mistake made as to the intent of this article. It is not a recommendation for keeping Moorish idols, nor is it intended to be a guide as to how to obtain and keep them successfully. Even following the procedures herein, based on the experience of only a handful of aquarists who have kept individual specimens for more than a few months time, chances are that any who try to keep Moorish idols will fail.

Almost every last person who will try to keep Zanclus cornutus for any reasonable amount of time will fail, and fail miserably. Does that sound harsh? Yes, it certainly does, and it should. It is the harsh reality. In light of this article, isn’t this all hypocritical? In discussing this article initially with the editors and other aquarists, it became painfully evident that, to some extent, it does encourage some measure of irresponsibility by offering care recommendations. Simply obtaining a Moorish idol in itself is irresponsible as most experienced aquarists would agree. In that sense, even considering keeping the species is somewhat hypocritical, and remains, most definitely, irresponsible. Pioneering efforts in this hobby, however, are often definable as “controlled irresponsibility”. There is a very fine line between being hypocritical and utilizing “controlled irresponsibility”. Some of the key differences are research, resources, and willingness to do what is required to succeed. Ultimately, however, there is no
justification for failure, just as there is no justification for success. The responsible thing to do is to leave Moorish Idols in the wild.

My Experiences

A perennial on the list of favorites of many a marine aquarist, Zanclus cornutus has broken the hearts, minds and spirits of almost every last aquarist who has tried to keep it. I kept this in mind as I planned the stocking list for my new reef tank almost three years ago. Two of the initial entries into the newly set-up aquarium, a 450 gallon tank, the Zanclus cornutus specimens I obtained did not fare well at all. With almost 30 years of experience in this hobby, I fared no better than an aquarist with 30 days of experience. Although the pair of Moorish Idols I obtained ate well, and seemed to be doing well, an unexpected temperature spike to almost 90ºF, something almost all reef fish can easily withstand, followed by a nitrite spike, about a week after their initial acquisition rapidly did them in. Both were dead within three days of the initial temperature increase.

I thought about it for quite some time and came to the conclusion that although Moorish Idols were a risk, if I waited for stability to be achieved, I was one of very few people who did have the tools most would consider necessary for success. But could I keep the Moorish Idols successfully? My initial experience with them told me that I could not. I looked at that failure as a judgment upon my abilities as an aquarist, and not as the huge mistake that it was. The Moorish Idols I obtained were, after all, feeding, gaining weight, fitting in, and looking great, in general, up until the point of the temperature and nitrite spikes. What brought me to the assumption that this early introduction into the tank was probably just a stupid mistake was the next acquisition I made for the tank some two months later, a powder blue tang, Acanthurus leucosternon. Regarded by many as one of the most difficult Acanthurids, this fish did beautifully until a two day power outage claimed it, and half of the fish in the tank. However, that came months later.

At this point, not knowing of the forthcoming power outage, I was observing some very difficult species doing exceptionally well in this tank. This is more along the lines of my normal experience with “difficult” species. So, I thought that while I certainly couldn’t stop kicking myself for making a stupid mistake, I could move on and try to learn from that mistake. That concluded the decision making process that brought me to try Moorish Idols a second time.

I began researching heavily, and followed existing conversations of aquarists that were experiencing some success. I planned and introduced a single specimen in early 2006, followed by a second individual some weeks later after the first individual really showed signs of thriving. Based on the amount of abuse this second fish initially took, I would not recommend introducing individual Moorish Idol specimens into a tank already containing an existing Moorish Idol.
Both of these individuals did exceptionally well up until the power outage mentioned above occurred some seven months later. Again, an unusual event preceded their deaths. What I did not consider was this: there were many fish that did survive, and continue to thrive, even to this day. Subsequent attempts to keep this species have met with incredibly miserable failures measured in weeks, not months. Some can be attributed to failure to eat, others to the other fish in the tank being too aggressive for the newly introduced fish. One thing is almost always true. If a Moorish Idol stops feeding, it probably will never feed again.

The Experiences of Others

In searching for true “success” stories with the Moorish idol, Zanclus cornutus, it can be found that such stories are few and far between, but those people are usually more than willing to talk about their “success”. Sadly, however, most people are not very willing to share the particulars of their failures. What I did find, however, was that people reporting their own successes or failures were about a one to one ratio. Follow the story a bit longer, however, and you’ll see how misleading these initial short-term inquiries can be. From my secondary inquiries I guessed that the actual success rate was much, much lower, probably more on the order of less than 10% survival beyond the first year. What this means for the hobbyist is that simply acquiring this species is virtually a guarantee of failure.

However, there are many commonalities in the practices of those who have had success, and it is these practices that the aquarist should focus on if they already have purchased a Moorish idol. It is of the utmost importance to state that, with a very “delicate” species like Zanclus cornutus, even a very small deviation from recommendations can tip the scales even more in favor of failure than they already are. “Skimping” on a single item, or “taking chances”, even on one small point, can be, and often is, disastrous. But, no matter what is done, the chances of failure will always, with our current understanding, be far greater than the chances of success.

With all of the warnings above, including my own experiences, it should again be heeded that the keeping information that follows is not a recommendation, but rather should be seen as a minimum requirement to what most have achieved, mostly failure, but longer lengths of time before those failures occur. Pablo Tepoot is, perhaps, the single individual who has had the most success with this species, and even he reports (pers. comm., Tepoot, 2006) no better than a one in seven success ratio with this species. Please, readers, keep that in mind when you see a tank full of Moorish idols on display. If they have a dozen on display, it is likely that seventy-two more fish died. And if you decide to try keeping a Moorish idol, please ask yourself seriously if those numbers are acceptable. For me, they are not, and I will not be including Zanclus cornutus in any of my tanks at any time in the near, and probably distant,
future. Nonetheless, I offer some recommendations, for there are bound to be those who have, or will acquire, this species.

**Tank Size and Environment**

It can not be overstated that one of the most important factors in keeping Moorish idols successfully is the size of the aquarium in which they are housed. “Bigger is better” not only applies here, but is a mandatory rule to live by. A barely acceptable minimum would be a tank approaching 200 gallons in volume. At the risk of being overly redundant, this is to be considered the barest minimum for keeping Moorish idols, and post-larval juveniles at that, and a larger aquarium, preferably twice as large, would really be considered a better minimum target volume. It can not be overstated how much room these fish actually require. They bolt and achieve top speed in the blink of an eye, and can stop on a dime and flit back in the same direction they just came from. They will swim, at almost top speed, sideways across a sand bed evading pursuit or looking for morsels. Perhaps the most impressive feat, one that most aquarists will never see, is that they will actually swim loops, like a fighter pilot, coming down behind, and facing the tail end, of a fish that previously was pursuing them. All of these top speed acrobatics and extended swimming require not only a long tank, and not only a tall tank, but one that also has enough open bottom, requiring a deep tank as well.

Not only does the tank need to be large, but the accommodations within, in terms of live rock and reef structure, is also very important. Moorish idols are grazers in their wild state, from most reports upon sponge. This means that there must be sufficient reef structure for the fish to graze upon. The structure itself should be very open, allowing plenty of room for a full grown Moorish idol to easily swim through in several places. A single Moorish idol will also wipe a tank clean of any sponge it finds palatable within a day or two, even in a tank as large as a 450. Feeding will be addressed later, but suffice it to say, for the moment, that providing a naturally renewable food source within the tank proves to be impossible. Even sponge grown in a refugium and fed to the fish in the main tank will quickly, perhaps dismayingly if the fish is consuming nothing else, disappear.

**Water Movement**

Moorish Idols are reef fishes and as such are accustomed to a fair amount of turbulence. Rather than making things easier for them, sluggish water, as it does for most free-swimming reef species, can make them seem sluggish, and actually place more stress upon them than if there were a lot more movement. As well, a very high flow rate will aid in oxygenation of the water. Most who have found success with the species have reported that highly oxygenated water is a must. The total flow rate should not be less than 20x the tank volume per hour.
Besides total turnover it is important to provide enough movement to eliminate dead spots that can become nutrient and bacterial sinks.

**Water Quality**

Dead spots within the aquarium can lead to detritus accumulation in small areas where any detritivorous organisms, like crabs, snails, and worms can not keep up. What this amounts to is rising bacterial levels, and nitrate and phosphate levels can soar, often leaving the aquarist perplexed as to how or why. Besides nutrient levels being detrimental to some forms of reef-keeping, high bacteria concentration have been reported to be detrimental to some fishes, mostly cartilaginous, but also including the Moorish idol.

It is common practice in many local fish stores to keep salinity low and treat with preventative medications, which are often copper-based. This is not an inherently bad thing for most species, but for the long-term maintenance of more delicate species, including the Moorish idol, it often is. It is in a fish store’s best interest, however, to provide the best short term care for the highest number of species. In this sense, using preventative measures is often better than providing long-term conditions suitable for more delicate species. Moorish idols, kept in these conditions, will "color down" fairly rapidly, in most cases. The longer the fish are kept under these conditions, the more likely they are to fail to thrive. It is also fairly common, under these conditions, for Moorish idols to develop ulcerations at any point on the body. These ulcerations look like chunks of flesh have fallen out or been removed from the fish. Very rarely will there be any reddening or bleeding in the area of the ulceration. Fins will also rip and tear, regardless of display tank size or other species housed within it. The individual Moorish idol specimen, even if it is eating, will be less and less likely to continue to do so as days and weeks pass.

**The Aquarium as a Whole**

Knowledgeable aquarists will look at the above recommendations and immediately intuit that nothing less than a well established and maintained large aquarium will suit a Moorish idol. Moorish idols should never be placed into a new tank, new being defined as any aquarium that has not been completely stable for at least a year. The importance of the stability of the environment can not be overstated. Virtually all of the aquarists reporting longevities of more than a few months are keeping their aquariums as close to natural sea water levels as possible.

**Tank Mates**

Moorish idols are not “wall flowers” at all; they can hold their own against most other species, including, as I’ve seen evidence of, pre-existing belligerent Acanthurids. However, in the interest of eliminating as much stress upon the fish
as possible, tank mates should be chosen wisely. Where fish are concerned, this means that competition should be kept to a minimum. With that in mind, the larger Pomacanthids are probably amongst the worst tank mate choices. Acanthurids are also competitors, and can be quite belligerent as well. Other competing species are generally not as much of a concern. It would be safe to say that, behaviorally, and competition-wise, the Moorish idol should be one of the first species added to any aquarium. But, this is not a solution and is not advisable. The aquarist can not test the stability of the system by allowing it to run fallow of fish life for a year or more. Therefore, good choices for introduction prior to the Moorish idols would be planktivores such as Chromis spp., carnivorous grazers such as Wrasses, and cave-dwellers such as more peaceful Dottybacks, etc.

Motile invertebrates are generally not a problem with Moorish idols. In this respect, Zanclus cornutus can be deemed “reef-safe”. However, in the absence of naturally available food types, some Moorish idols have been known to pick at corals and clams. Those sessile invertebrates most susceptible to this picking seem to be smaller clams (under 4-6”), any fleshy large polyped scleractinian corals, and larger feather duster (Sabellid, Protulid) worms. Small polyped scleractinians, as well as large polyped scleractinian corals with potent stings like Euphyllia spp. and Galaxea spp., seem to be perfectly safe from predation by Moorish idols.

**Diet and Feeding**

One of the greatest hurdles, if not the greatest hurdle in keeping Moorish idols is feeding them. Substitutes for their reported natural sponge diet seem to always eventually fail in most cases. What is usually described is a fish that feeds fairly well on a particular diet (usually herbivore-based), regains some weight, keeps that weight on for a fairly long period of time, then starts to slowly waste away. A diet comprised of a large amount of sponge matter would be ideal. Unfortunately, even those diets that contain sponge matter, like those for angelfish, list their primary ingredients as crustacean or mollusk based, and/or vegetable based. Interestingly, those aquarists reporting the greatest success with Moorish idols are offering living sponge, whether temperate or tropical, at least as a small portion of the diet.

Utilizing substitute foods that contain at least some sponge matter is only a small portion of the problem, however. The real challenge seems to be in getting the fish to accept any food, other than sponge, and sometimes even sponge, at all with regularity. Some have reported great success with pellet foods developed for finicky feeders, even offering such foods in dishes to maintain concentration for the Moorish idols. Others who have tried such foods have reported little to no success. Mashing gelatin based frozen foods into rocks or clam shells is another trick that sometimes works. While Nori and other vegetable based products are often recommended for species that are primarily
spongivores, I am a little leery of such recommendations. There is no real
evidence to indicate that, nutritionally, macroalgae are a viable substitute for
sponge. Still, getting the Moorish idol to at least eat something is important. The
more it eats, the more likely you will be to get it to live long enough to subsist on
a wide variety of offered foods, and the more time you buy until you can offer it
sponge as a primary diet. To this end, Mysis shrimp, bloodworms, Nori sheets,
halved freshwater clams, and other highly palatable foods should be offered
regularly.

There are quite a number of Moorish idol keepers who are relying on live
sponge as a good portion of their Moorish idol’s diet. Some are collecting local
sponges, Pacific or Atlantic, temperate or tropical, and offering them with great
success. Others are buying live sponges from their local fish store and offering
those, with equal success. Because some sponges may contain toxins, and
some collected close to shore may contain harmful pollutants, this may not be an
advisable solution, but it does seem to be working for a number of people.

Specimens and Behavior

Other than feeding, acquiring the right specimen is probably the most
difficult part of keeping the Moorish idol. Before selecting specimens, the
aquarist should know that, while they will shoal naturally, Moorish idols are most
commonly found in pairs. Whether or not these are always male/female pairs
seems unclear, but some indications point to this as being the case. With many
marine species, you can simply obtain two juveniles to acquire a pair since one
will eventually change sex. It is not clearly reported that this is the case with the
Moorish idol. Whatever the case may be, there does seem to be some indication
that they do better if they are kept in pairs, harems, or shoals rather than if they
are kept singly.

So the first hurdle is in finding more than one specimen at the same time.
If it is even possible, the specimens still all need to be suitable. But what
constitutes a suitable specimen? Other than normal healthy appearance issues,
including that the fish not be emaciated, not have any bodily damage, and should
not show any symptoms of any disease, that can be tricky. Some fin damage is
usually inevitable, especially to the dorsal streamer, and is usually not
problematic. “Washed out” coloration is a common occurrence if the store keeps
the specific gravity of the display tank a bit on the low side, or if they maintain
treatment levels of medications, especially copper. Never purchase a Moorish
idol that is not already feeding. It would be better if it was feeding with gusto, but
these would be extremely rare individuals. The size of the specimens also
seems to play a pretty big role in success or failure. The smaller the individual,
the younger it is, the greater the chance of success seems to be. Individuals
between the 3 and 4 inch mark seem to do somewhat better than those larger or
smaller. Any individual that does not appear to be perfect should be
automatically disqualified from purchase.
It is important to note that I chose eight specimens, but that does not tell you that I turned away from a dozen and a half more individuals. Think about that, there are easily twice as many individuals that are, from what I have experienced, doomed before they even leave a fish store, as there are fish that reach those stores in a healthy condition.

Contrary to most recommendations, any specimens purchased should be removed from situations that are not as near to perfect as possible as soon as possible. Getting a specimen into an appropriate setting as soon as possible seems to go a long way toward long term success. This also holds true for quarantining specimens. If a quarantine tank is not available that suits the Moorish idols' long term care, it may be better to forego quarantine. There are many, many reports of otherwise “perfect” individuals dying in quarantine tanks within days of acquisition. Conditions in quarantine should match the intended long term aquarium as closely as possible. Moorish idols do not transport well, and each individual acclimation along the way to their ultimate “home” seems to take more out of them.

Irresponsible is Irresponsible

One of the single most asked about species in online and print help formats, the Moorish idol is usually never given a chance by those responding to such queries, and rightfully so. Almost invariably, the recommendations from acknowledged experts follow the same thoughts: that the Moorish idol is better off left in the ocean, and it is. However, there will always be experienced aquarists willing to accept the challenge, and others who insistent upon keeping, or already trying to keep, the Moorish idol, regardless of warnings. Whatever the individual aquarists’ motivations, it is hoped that something will be learned from this article, and that some readers who may have otherwise failed will succeed, and that even more others will not even attempt to keep this species at all. It is important however, in this author’s opinion at least, to offer some information that might increase the current Moorish idol keepers' chances of success. When the fish have already been obtained, or in very rare instances where their acquisition is planned as a matter of “controlled irresponsibility”, there should be at least some concise and compiled reference to which the aquarist can refer.

While it is the main intent of this article to discourage the acquisition of Moorish idols, it is also to acknowledge that there will always be a market for the species, and that reference material for their care is sorely lacking in mainstream literary sources. It is hoped that you, the reader, will do the responsible thing and leave Moorish idols in the wild, and if not, at least have enough information available to have the least chance of failure possible with this most demanding and impossible of species.

Conclusion
And here we conclude, exactly where we began, just like the wrap up scene in the aforementioned crime drama. This article was over two years in the writing, gleaning experience, constantly researching anecdotal reports from hundreds of individual Moorish idol keepers. Two years ago, I approached this species with bright eyes, full of wonder, and full of hope. That was the beginning. Today, I still look at them with bright eyes, and they still fill me with wonder. But I, like many before me, have had my hopes dashed by Zanclus cornutus. And here, perhaps, the analogy to a crime drama is not so far off. Perhaps, as conscientious aquarists, we should close our eyes now and imagine the body count playing in this horrible end scene. In my home, eight bodies lined up, and in countless other homes, one, two, three bodies, bodies upon bodies.

Is that what we hope for our hobby as a whole, and particularly for this species that we admire so much? After reading this, knowing that the strict keeping conditions contained herein still met with failure eight times, and success zero, will you still purchase that Moorish idol? It is my sincerest hope that you will not.

Are you ready for the count? Are you really ready? The count I have been tallying for close to three years? I am just one man, counting the reports of bodies as they came in one by one, one here, two there, 382 bodies total. 382 bodies and only one single living individual that made it through the time it took me to finish this article. One.