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PAMA

RAISING CLOWNFISH FOR THE HOBBYIST

By Forrest A. Young

Connie Guarrant, Technical Assistant

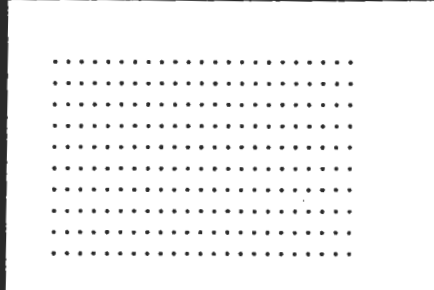
■ Until recently, the propagation of marine tropical fish by the home aquarist was an extremely difficult, if not impossible task. Now with some different techniques, it is possible for any serious home hobbyist to raise clownfish, which are among the easiest to rear of all marine fish.

The new technique uses frozen foods exclusively, thereby eliminating the need for the aquarist to maintain cultures of live planktonic foods, which is more difficult for the home aquarist than the actual larval fish rearing. The first food used in this method is frozen rotifers (*Brachionus plicatilis*). These are not commonly available but may be marketed in the near future. (Editors Note: Frozen marine rotifers, *Brachionus plicatilis* are

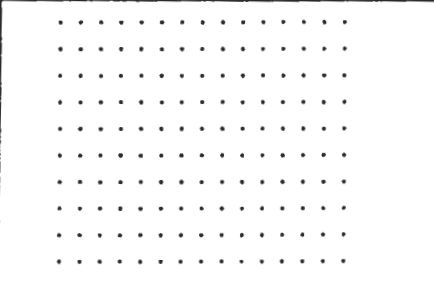
now available for \$8.00/million plus shipping from Instant Ocean Hatcheries, Inc., Route 2, Box 86, Dade City, Florida 33525.) These are fed to the larval fish three times a day, keeping the concentration at five to ten rotifers per milliliter of salt water. This is the most subjective part of the technique and demands considerable experience, but the accompanying diagrams will make this much easier.

The breeding pair should be fed a good well-balanced diet, simulating the diet of small invertebrates and benthic algae (Allen, 1972) as closely as possible. The salinity of the water should be kept at thirty-five parts per thousand which is the normal salinity of oceanic environments. The clown

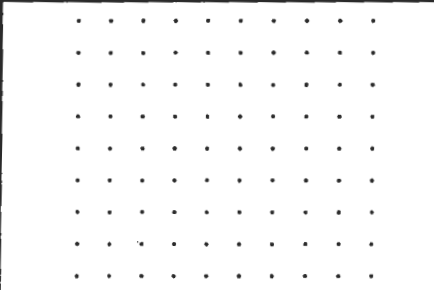
anemonefish (*Amphiprion ocellaris*) is the easiest of all clownfish to breed and rear, so I highly recommend that the prospective breeder attempt this species first. The female is always the larger of the two fish in a breeding pair and pairs can be arbitrarily selected from your dealer's tank by selecting a large fish and a small fish. Since these fish are protandrous hermaphrodites (switch from male to female) (Keenlyside 1979), they are capable of reversing sex as the need arises. If you start with a large male and a small male, the larger of the two will "switch sex" and become a female and the smaller fish will remain as a male. If the larger fish is already a female you will have no problems in this regard. This type of reproductive



This represents one square inch of larval tank. Each dot is one rotifer and this is the optimum food density with live rotifers. This is a little too dense to feed dead foods like frozen rotifers.



This section represents one square inch of the larval tank. Again each dot is a rotifer and this is the recommended density to be used with frozen rotifers.



Again this is one square inch of larval tank. This is about the minimum food density that will allow good survival. Do not let food level concentrations drop below this point with either live or dead rotifers.



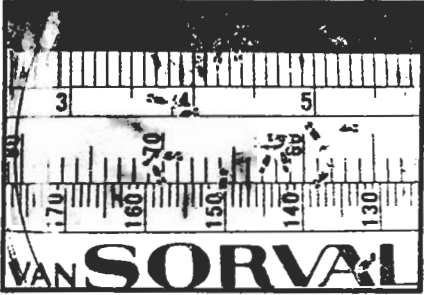
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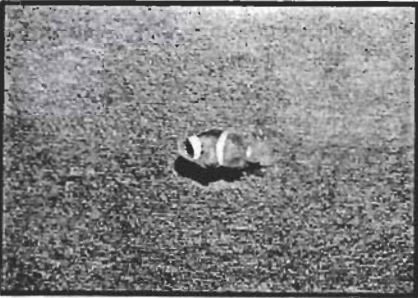
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pattern insures breeding success in the wild, especially in areas with scattered populations containing few members of the same species of fish. Reproductive success is guaranteed by chance meeting of almost any two fish of the same species.

Once you have set up your pair, and if you have the space it is best to set up several, place them in 30 gallon to 40 gallon tanks using an undergravel filter and either flat pieces of rock, coral, or flower pots for shelter. The eggs will be laid upon these in cichlid fashion, and will hatch in about seven days at 28°C.

Once your pair(s) start spawning, the next hurdle is larval rearing. Allow the parents to fan and care for the eggs for at least five days after spawn (at 28°C.), preferably six or seven, then remove the nest rock from the breeding aquarium and place it in your larval tank. Aerate the eggs with either an airstone, a bubble wand or a flow of water from

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1. A pair of *A. ocellaris*.
 2. *A. ocellaris* spawning.
 3. The pair in their "Nest."
 4. This photo shows the *A. ocellaris* eggs.
 5. *A. ocellaris* fry at two days.
 6. *A. ocellaris* fry at six days.
 7. *A. ocellaris* fry at ten days.
 8. *A. ocellaris* fry at fourteen days.
 9. This photo shows a specimen of *A. ocellaris* fry from two days to two weeks of age.
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another source. You can also allow the parents to naturally incubate the eggs and siphon the larvae out immediately following hatch. Use a flashlight to see them in the darkened aquarium. The eggs will hatch well in either situation and the next step is the most difficult. During the whole time of conditioning the breeding

pair and incubation of eggs, the day period should be 14 hours and the night period should be 10 hours.

The larval tank is a bare unfiltered tank of at least 30 gallon capacity and a 50 or a 75 gallon tank is preferable. The incubating eggs should be kept dark during the night hours, as should the breeding pairs, since this simulates the natural cycle. The eggs hatch usually during the seventh or eighth night and will be free swimming and feeding by the next morning.

It is very important that the larvae be fed immediately the morning after hatching since very little of the yolk sac will be left. As stated before, feed the frozen rotifers three times a day and keep the larval tank lit for the duration of larval rearing. The larvae will grow quite rapidly if all goes well and will take either frozen or live newly hatched brine shrimp after four to six days of rotifer feedings. At this point, gradually diminish the amount of rotifers fed

and increase the brine shrimp feedings until the fish metamorphose and assume juvenile coloration.

Proper food levels are difficult to explain fully in an article, but can be determined by careful examination of the larvae. They should have a fairly "full" appearance at all times. At first the gut will appear as a silvery round mass, changing more to an orange color as you progress to brine shrimp feeding. Be careful not to overfeed the larvae with brine shrimp since they can die from excess food consumption. Also overfeeding is a serious problem with dead foods and is to be avoided at all costs since it induces tank fouling and rapidly leads to high, if not complete, larval mortality.

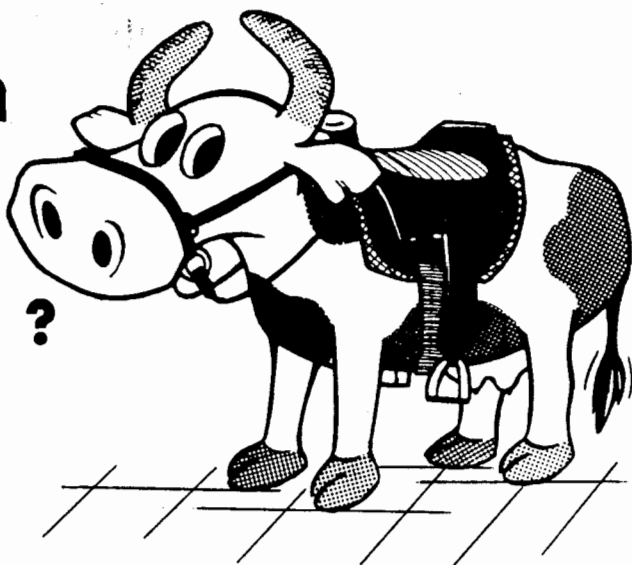
It is essential to daily siphon off all of the material that sinks to the bottom of the larval tank. Also complete water changes should be done every other day. You can use water from a healthy community tank for this purpose and place the "used water" from the larval tank back into the community tank to be filtered biologically. You could also maintain a special tank for this purpose or keep several hundred gallons of water at your disposal, whichever your budget, or desires, require. Never use biological filters such as undergravel filters in a larval tank since they will remove both larval food and the larvae themselves. Advanced systems have been developed to achieve this aim but these are beyond the scope of the home aquarist.

Once the fish have assumed juvenile form, coloration and behavior, the hardest part is over. Feed them frequently with high quality flake foods, finely ground shrimp, and other shellfish, live or frozen brine shrimp and other such foods, and they will grow rapidly. Perhaps you may be able to obtain second or third generations of your own tank reared marine fish.

Literature Cited

- Allen, Gerald R. 1972. The Anemonefishes: Their Classification and Biology. T.F.H. Publications, Inc., Neptune City, N.J.
Keenleyside, Miles H.A. 1979. Diversity and Adaptation in Fish Behaviour. Springer-Verlag, New York.

**WANNA
BUY
A
HORSE ?**

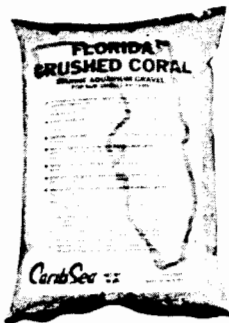


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On the other hand, when shopping for marine aquarium gravel you probably won't be able to tell at a glance - or even after close inspection - whether the material you're looking at is any good. One gravel can look pretty much like another, and many times even the experts can't determine much from appearance alone.

Just saying that a gravel is "for marine aquarium use" can be a lot like putting a saddle on any old thing and calling it a horse. Most so-called "marine" gravels are actually produced for an entirely different application - in construction, agriculture or manufacture. Typically, such materials are purchased in bulk and with little or no further preparation are bagged, labeled (sometimes), and presented as the right stuff for your marine aquarium. Some perform adequately and some don't. Problems arising from poor filter bed performance usually get blamed on something else anyway, so who's to know?

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