

# Creating a Native Stream Biotope Aquarium

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by

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I have always had a passion for the harmonious community tank, populated with various fish species settled in their own little niche. During the past year, I undertook a project to set up several kinds of community stream biotope aquariums, stocked with a variety of species from Virginia's Potomac and James River drainages. (Much of my work was based on my experience in keeping and breeding the tropical stream and riverine cichlids, *Steatocranus casuarius* and *S. tinanti*). The native species included in my study were darters, sculpins, dace, shiners and even crayfish. It has been a challenge to breed these creatures, and quite an ordeal to determine the criteria for a smoothly-running community tank. Hopefully, the information that follows will help the fishkeeper achieve that special Zen-like native communal aquarium experience.

My most successful community tank setup was an aquarium about 12 inches high and 24 inches long. Tank height is an important factor during feeding; in taller tanks, sinking food takes longer to reach the bottom, making it more available to the fast mid-level fish species such as dace and shiners. As a result, little food reaches the bottom, thus depriving the slower bottom dwellers like darters and sculpins of their fair share. A shorter tank height allows enough food to reach the bottom where darters and sculpins can forage successfully. Tank length is another critical parameter, needed to accommodate the territorial tendencies of darters, sculpins, and some breeding male dace. Also, a longer length provides more swimming space for active cyprinids.

Rocks, and plenty of them, are essential to minimize territorial squabbles between darters and sculpins. It also

provides a sense of security for the tank inhabitants. I always gather rubble, slabs and stones from fish collecting sites to better simulate the community biotope setting. Be sure to place the rocks on a layer of gravel, about two to three inches thick, to prevent cracking the aquarium bottom. Rocks from the collecting sites are typically populated with insect larvae, which the fish consume. But be aware of unwanted stowaways: clean rocks thoroughly with hot water and a brush to rid them of bacteria, fungus, parasites or any other unwanted creatures. I have also found that darker colored rocks in an aquarium enhance the colors of fish.

Water current is an important part of a stream biotope tank. Depending on the size of the aquarium, I like to use one or two hanging power filters. In addition, I recommend attaching (with a suction cup) one or two powerheads to the wall at one end of the length of the aquarium. This generates a current directly across the length of the tank. The powerhead intake tube should be covered with a small sponge. This provides an additional biological filtration media, and a barrier to keep smaller tank inhabitants from becoming trapped in the powerhead. An air pump is also useful for providing high oxygen saturation in the water and additional water current for the community inhabitants.

Darters and sculpins tend to be the focal point of my community tanks. Most of my experience has been with the greenside darter (*Etheostoma blennioides*), fantail darter (*E. flabellare*), and mottled sculpins (*Cottus bairdi*). These stream dwellers have a curious rock-hopping tendency that is fascinating to watch. The darters, in particular,

are very colorful while in breeding condition. All these species tend to be somewhat territorial, especially among their own kind. For a 20-gallon setup, I recommend no more than three or four individuals, each about two to three inches in length, with no more than one male of each species to minimize squabbles. Start with smaller-sized sculpins, about one to two inches in length, because larger ones have a tendency to swallow smaller tank mates. When keeping sculpins, a cool water species, water temperature should be about 70°F or less. (*Ed. note: The use of powerheads may increase tank temperature.*)

Dace and shiners help to provide security for the usually shy darters and sculpins that would otherwise hide among the rocks. They also fill the upper and mid-water levels of the community tank with activity. Most of my experience with these kinds of fishes have been with blacknose dace

(*Rhinichthys*

*atratulus*) and

longnose dace (*R. cataractae*). Both species are very hardy. The presence of these active cyprinids assures darters and sculpins that it's safe to come out and explore their surroundings. No more than four dace or shiners should be placed in this setup; a larger group jeopardizes the food supply of darters and sculpins at the bottom. Cyprinids do very well in small groups and always get enough food. My blacknose dace even supplement their diet by grazing on the algae growth covering the rocky habitat.

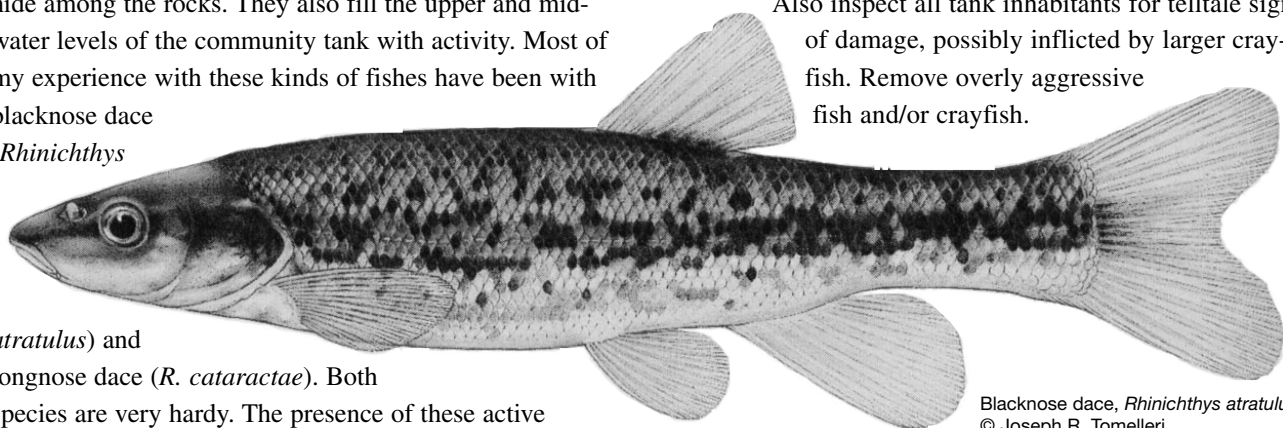
Clean-up duty in this type of community tank falls to the ever-faithful common crayfish (*Procambarus* sp.). I find it extremely entertaining to watch them go about their chores industriously, like miniature underwater cranes. Start with specimens about one to two inches in length—that will keep them from inflicting serious injury on other small tank mates. I have a three-inch specimen which has yet to claim a fish, but this may also be due to my accidentally amputating, while cleaning the tank, of its right claw (still in the process of growing back). The crayfish diligently scavenges uneaten food. Aerating the water and providing adequate lighting in the tank promotes the growth of plants and algae. This vegetation is also relished by the crayfish that grazes on the plants and

excess algae to keep the tank virtually spotless and well groomed. If fed well, the crayfish will generally leave its tank mates alone—as long as they stay out of its way!

Maintaining such a setup is relatively simple. I feed my fish once every other day; spirulina flakes, mainly to stuff the dace, and one or two cubes of frozen bloodworms and/or brine shrimp, mainly for the darters and sculpins. For a 20-gallon tank, a partial water change, about five gallons, should be done every two weeks. The changeable filter media should also be replaced at least once a month.

Keep a watchful eye on the bellies of the darters and sculpins—make sure they're getting enough food.

Also inspect all tank inhabitants for telltale signs of damage, possibly inflicted by larger crayfish. Remove overly aggressive fish and/or crayfish.



Blacknose dace, *Rhinichthys atratulus*  
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A commonsense and logical application of the suggestions outlined above should provide you with a harmonious community tank, which includes not just one or two, but many facets of the stream ecosystem. Essentially, with all the different characters involved in the community, it becomes much easier to become one with the stream. Create it, realize it, and love it.

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