THE LYRE GOBY (EVORTHODUS LYRICUS)

by Bob Goldstein

On a recent summer trip to Carolina and Kure Beaches, N.C., I collected in a brackish pond several specimens of Gambusia affinis, including two melanistic males for purposes of selective breeding. During the collecting, two specimens of a then unidentified species of goby were taken and placed in the same aquarium with the mosquitofish.

The gobies at that time were mottled, blunt-headed, and with a dark spot in the spiny dorsal fin. Since that time, one of the specimens has changed shape, finnage, and markings in the course of maturation. The fish can now be identified as Lyre Gobies (Evorthodus lyricus).

Information on the Lyre Goby can be found in Jerry Walls' Fishes of the Northern Gulf of Mexico, Hoese and Moore's Fishes of the Gulf of Mexico, Hildebrand and Schroeder's Fishes of Chesapeake Bay, and a few other sources of lesser import. In the aquarium literature, it is covered briefly (and inaccurately) in Sterba's Freshwater Fishes of the World under the names Evorthodus breviceps and Gobius lyricus. These are just two of the names used in the past for this very variable fish. In Hildebrand and Schroeder it is listed as Mugilostoma gobio. It has also been called, at various times and in various publications, Gobius wurdemanni, Smaragdus costalesi, Gobionellus costalesi, Euctenogobius lyricus, Gobius garmani, Gobius parvus, and all sorts of combinations of the above.

There are several reasons for the confusion. The fish is wide-ranging, occurring from Chesapeake Bay south along the Atlantic Coast to the Gulf Coast, and into the Caribbean region and Central America. It alters external shape markedly during development. Its colors appear to have been described differently, possibly a reflection of natural variation among individuals, possibly reflecting diet, possibly something else. Its markings develop in stages, and each stage has been described separately. Internally, there are also differences in that very important character, dentition. Males, females, and juveniles all have apparently differing dentition, with this phenomenon compounded by the presence of a papillary skin ridge alongside the teeth, the papules having been confused in the past with an additional row of teeth.

Let us also look at some of the illustrations of this fish. Compare these sources of pictures:

--Sterba, figs. 1141 (p. 766 my edition), and 1050 (p. 676);

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--Walls, p. 324 (drawing); and

--Hoese & Moore, fig. 387 (p. 83).

In the drawings, there is a strong tendency to put ocelli on the upper part of the caudal fin, and sometimes streaks in their place. There is also a strong tendency to show bold lines radiating from the eye on the male, and to show the forward rays connected by a membrane (in the dorsal fin) and sweeping back like a tapered rag. The photo in Sterba tends to reinforce this illusion.

My male, in fact, has no black smudges, ocelli, lines, or anything else in his tail fin other than two submarginal bands of orange-yellow. The rest of the fin is clear. There are no bold marks radiating from the eye. The dorsal fin rays are elongated filaments, but not connected by any membrane above their normal level, so that the rays alone may be erected or flow backward, but not the fin proper.

Characteristic of the fish is a very blunt head, with the mouth subterminal. The female has a black mark in her spiny dorsal fin which is quite bold, but not sharply defined. In both sexes, there are two black marks on the caudal peduncle just before the fin, one above the other.

But the real giveaway on this fish is its habit of feeding upon detritus. That may have something to do with its mullet-like mouth arrangement, for mullet are also detritus-feeders, and few fishes are. While many killies will feed on detritus, they will quickly attack other foods as preferable.

Not so with the Lyre Goby. When frozen adult brine shrimp or flake food or freeze-dried ocean plankton or even live baby brine shrimp are placed in their aquarium, they make no alterations in their feeding patterns, but continue to lope along the bottom, dipping their heads and picking up detritus, which they chew and partly spit out. As their bellies are always well rounded, it seems clear they are eating much of the detritus, and not merely selecting portions of its contents for swallowing.

The tank is set up with mud from my garden overlaying an undergravel bed and filter, with planted sagittaria and floating watersprite and duckweed. The water has been hardened with plaster of paris, and only recently (after maturation) did I add a slight amount of sea water (one cup to ten gallons of freshwater) in an attempt to stimulate the gobies into more attentive (to one another) behavior. It made no difference; the fish may still be a bit young for hanky-panky.

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I collected these fish in a pond which was of extremely low salinity, on the coast behind the dunes. The bottom was muddy and there were few emergent plants, though the gobies were collected among those plants. I suspected at the time that they were associated with the stems of the plants but not the roots, since they were not taken along portions of the shoreline rich in entwined submerged vegetation.

There is one scientific report on this fish that is at once thorough, comprehensive, restricted to this one subject, and clearly written. That is a paper by Isaac Ginsburg: Juvenile and sex characters of Evorthodus lyricus (Fam. Gobiidae), Bulletin of the(U.S.) Bureau of Fisheries, 1931, pp. 117-123. I suggest you get it from a university library. If they don't have it there, you can order a xerox copy through Interlibrary Loan Service. Just ask the librarian for this service. It is free, but for the cost of duplicating the paper and mailing it.

Of special interest is the distribution of the fish. While it is probably quite uncommon along the Atlantic Coast, it has been reported as common along the Gulf Coast, particularly in the vicinity of Louisiana. I suspect it may be found just about anywhere along our seaboard, if one merely takes the trouble to collect in obnoxious habitats. As indicated, it occurs in very low salinity regions, generally ponds connected at high tide with some tidal sea source. If there is muck and Gambusia, then it might be there. It tends to congregate in areas that have been stirred up--or perhaps the stirring is getting them out of the muck. In any case, one should seine the same spot over and over, and the gobies should start appearing in the later drags.

I hope aquarists living along seaboards will search for this fish. Look for any small goby with dark smudges on its flanks and a blunt nose. Place what you collect in a mud-bottom or silt-bottom tank and look for detritus-feeding behavior. That should clinch the identification, since it is such a rare occurrence--especially among gobies, which tend to be predaceous.

I have offered my fish PVC pipes for possible breeding, plus a variety of rock caves, and one PVC pipe standing upward in case these fish are plant-stem spawners.

I have described where I caught mine. Now let me quote to you from Ginsburg (1931): "It was not obtained in seining open beaches. It was found chiefly in two marshy lagoons connected with...Bay, at the east end of Grand Isle.... These lagoons, at low tide, are reduced to mere ponds disconnected from the main body of water. The bottom is muddy...by dragging the seine back and forth, they would be taken in

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considerable numbers." 'Nough said?

I also suggest that local members of NANFA, or clubs located near such habitats, make efforts to bring more of these fishes into the hobby and attempt to spawn them. The feeding habits of the fish, combined with its beauty, finnage, and tendency to occur in practically fresh water, all indicate that there is a good chance for breeding success with the fish. The fry may adapt very well to the infusoria in detritus, as well as baby brine shrimp at some stage of early development. The fish has great promise, and the first aquarist to breed it deserves a pat on the back from the rest of us.

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