THE CLANWILLIAM RIVER: IT IS NOT YET TOO LATE?

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THROUGH the years, your esteemed journal has featured many interesting and informative articles on the Olifants River of the Western Cape. In the forty years since the introduction of largemouth bass to the system (October 1933), and thirty years since the introduction of smallmouth bass (August 1943), this unique and beautiful river has yielded almost a legend of record size fish and thrilling angling to its numerous devotees. Not only have the bass species proved an immense success, but the endemic species, especially the yellowfish (*Barbus capensis*), have given some of the most memorable angling adventures on record for our country (22½ lb., October 1966, PISCATOR No. 67, and 23½ lb., March 1968, PISCATOR No. 72).

It was realised at the time of the stocking with exotic species that the indigenous ones would have to pay the price. This was one of the reasons for the "feeling of urgency" when the "intensive collecting of fishes of this river system was done for the South African Museum in 1937 and 1938" (PISCATOR No. 57, 1963). It proved that the bass did very well, probably as a result of the rich virgin waters and abundance of natural fodder-fish (a bass of 4 lb. 12 oz., aged only 3+ years, was taken in 1939), but the effects of predation were soon felt.

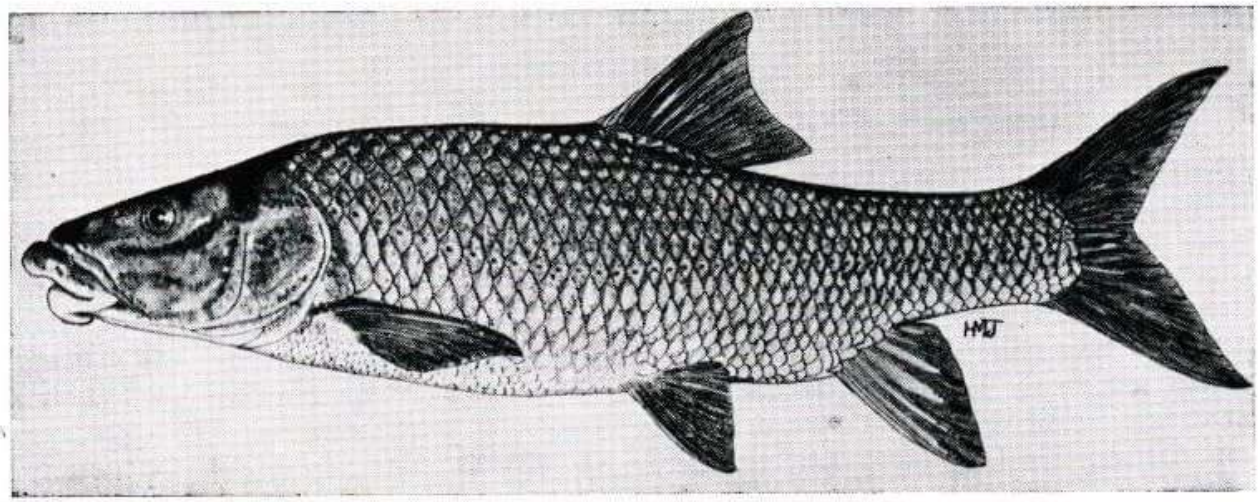
As long ago as 1949, Thomas H. Brooks saw the effects of exotic species on the defenceless indigenous ones, and in a letter in the PISCATOR (PISCATOR 11) reported: "For the past two seasons I have looked in vain for the shoals of yellowfish and other indigenous fingerlings—in previous seasons the shallows in both the Olifants and Jan Dissels Rivers were black with these fingerlings. If as I think the bass are destroying the 'yellows', then I regret my part in introducing the bass."

There can be no doubt that not only the yellowfish, but also sawfins and sandfish (*Barbus serra* and *Labeo seeberi*) were being seriously depleted; while the very attractive small endemic "red-fins" (*Barbus calidus* and *B. phlegethon*) soon were eliminated from the mainstream, so that when Dr. Jubb visited the type-localities of these species in 1958 and 1959, they had disappeared.

Why this concern for these, in some ways inferior and obscure, fish? The yellowfish, and to a lesser extent the sawfin justify their existences by right of being very fine angling fish (and despite what some might say, are perfectly acceptable fare when grilled on the camp-fire), but what of the others? Ethically and aesthetically these attractive, brightly coloured small fish have every right of existence. They form part of the unique fish-fauna of this rather unique river—"the end product of millions of years of experimentation by nature" to quote the renowned biologist Van Gelder (Van Gelder 1971), who continues: "That Man, the creature who prides himself on his ability to think, should (have) needlessly and thoughtlessly wipe(d) out these threads in the fabric of evolution (that is, species which have become extinct), belies his scientific name *Homo sapiens*."

With six species of fish restricted to this one river system, it has the richest collection of endemics of any river south of the Zambezi, and for this reason is of very great scientific interest; and because these fish are threatened, is a great challenge to Nature Conservation.

Because of reports that the yellowfish were becoming scarce and concern for the other endemics, the Department of Nature Conservation undertook a survey programme



The Clanwilliam Yellowfish, *Barbus capensis. (Photographs are of illustrations in colour prepared by Mrs. H. M. Jubb from fresh material.)*

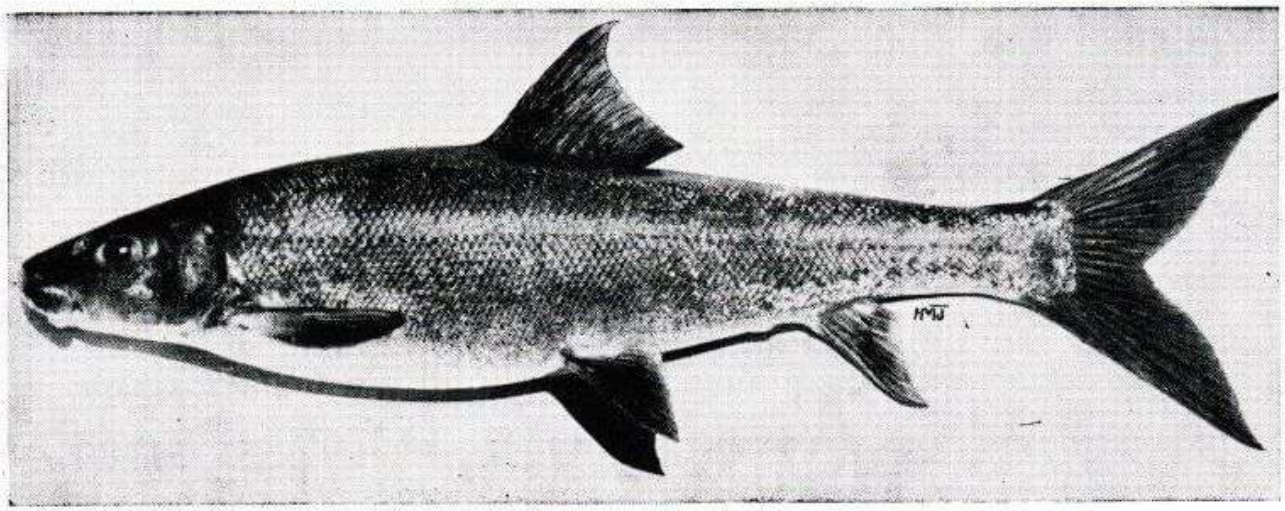
in 1972. Fish at eight stations were sampled by gill-netting, but during four sampling expeditions no yellowfish were netted below the Bulshoek barrage, and only a few large fish in the barrage and in Clanwilliam dam, while in the Keerom area mature fish still occurred in fair numbers. Mature sawfins were found throughout in fair numbers, but as with yellowfish, population analyses showed that recruitment from spawnings has not occurred for many years in populations downstream of Keerom and Citrusdal, and no juvenile fish could be found in the mainstream south of Keerom.

It would be unfair to put all the blame on the exotics in this river; dam walls obstructing the spectacular spawning migrations and decimation by man during this vulnerable period, as well as sanding over of the river course and spawning runs, irrigation water abstraction and even poor rain-seasons have probably all contributed to unsuccessful spawning. Whatever the reason, it is apparent that particularly the yellowfish is no longer capable of "holding its own".

What of the small endemic species? In January of this year, I accompanied Mr. Paul Skelton of the Albany Museum in search of these valuable little specimens. We managed to find a number of small fish in mixed populations in small mountain tributaries and side-streams in the Cedarberg, Cold Bokkeveld and neighbouring mountains. We were relieved to report that only one species, *Barbus phlegethon,* was in possible immediate danger of extinction, and that because of a very limited distribution in a few local streams near Keerom. With the small endemic species we were pleased to find juvenile yellowfish and sawfin fingerlings, proving that in these less accessible waters some successful spawning still took place. What was very apparent, however, was that nowhere where there was an established population of exotics could endemic species be found.

These refugee populations owed their, in many cases, precarious existences to natural barriers in the stream, which had prevented invasion by smallmouth bass from below. In cases where trout had been stocked the endemics owed their survival to their ability to thrive in temperatures above those tolerated by trout, or because the stocking for some other reason was not successful.

A prime case in point is the Ratels River. (PISCATOR 56 features an article on a trout stocking attempt in November 1962.) For about two kilometres from the mainstream the river is barren except for an occasional undersized smallmouth bass. Above



The Sandfish, *Labeo seeberi.*

a natural barrier, a small fall of only a metre and a half however, the river is literally an aquarium of "red-fins" and under-yearling sawfins (and it must be a very important nursery for the latter species). Above the impassable cataracts, another kilometre along, we could find none of the endemic species, and presumably the trout have become established. There are a number of similar localities of equal importance in the survival not only of the endemic small species but also as nurseries for the large endemic species.

Traditionally the culture and distribution of imported sport-fish and Nature Conservation have been closely linked; in fact the modern Cape Department of Nature Conservation had as its nucleus the erstwhile Inland Fisheries Department with its base at Jonkershoek. Nature Conservation as applied to inland waters has traditionally aimed at the protection, management and encouragement of sport-fishing, which because of the lack of suitable indigenous species (except the yellowfish) has been based on excellent (in most cases) exotic species. In recent times, however, on the grounds of ethics, the concept of Nature Conservation has been extended to include the less obvious species which are endangered, and which have an equal claim to the habitat in which they are found. This must not be construed to mean that exotic fish species are to be condemned, or that they do not have a place in our rivers and dams, but that we have an obligation to those original inhabitants of the rivers, where they are faced with extinction.

Trout and bass, and the excellent angling they have produced, have given very many people an added interest and involvement with their environment. If, however, one claims to be dedicated to Nature Conservation, one is committed to the conservation, where possible, of even those lesser species which now depend on Man for survival.

What can still be done? Bass (particularly smallmouth bass) are established over a very large part of the Olifants River system and have produced, and will hopefully continue to give, a great deal of fine angling. Trout in the headwaters and some tributaries have done the same. The endemics of the Olifants River are either restricted to those other headwaters and smaller tributaries to which bass and/or trout have not penetrated, or where they have not been successfully introduced. A total suspension of all further stockings, and setting aside of those waters where the endemics still occur as sanctuaries, seems to be the only way in which our moral obligation to the unique Olifants River fish-fauna can be fulfilled. The support of the Cape Piscatorial

Society in this challenge will show it a true and unselfish champion of the ideals of Nature Conservation.

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ENDEMIC SPECIES IN THE CLANWILLIAM OLIFANTS RIVER IN THE SURVEYS OF 1937 AND 1938

In the introduction to his *Revision of the Indigenous Freshwater Fishes of the S.W. Cape Region,* Ann.S.A.Mus., Vol. XXXVI, pt. 2, July 1943, Dr. Keppel H. Barnard remarked: "The introduction of Trout many years ago, and the recent establishment of the Black Bass in the rivers of the Cape, necessitate a prompt survey of the indigenous fish-fauna."

A report on the survey work on the Clanwilliam Olifants River during 1937 and 1938, in co-operation with Dr. Barnard, was given in Circular No. 31 of the Cape Piscatorial Society in June 1938.

At that time although the silting of many parts of the river and its tributaries with white sand, resulting from soil-erosion, was very evident, this had not reached the present wholesale blanketing of former rocky reaches, and there were plenty of good pools where indigenous fish could be collected in long series without much difficulty. Indeed, small fish were so plentiful that it was the common practice to use them as live-bait for large yellowfish and largemouth bass.

In the appendix to Circular No. 31, the following points were made: The Cape Kurper, *Sandelia capensis* C. & V., does *not* occur, but *Galaxias zebratus* does in some parts of the Olifants River system.

Endemic species easily collected in 1937 and 1938 were: —

Gephyroglanis sclateri, Blgr., a small rock-barbel or catfish.

Barbus capensis, A. Smith, the "Clanwilliam Yellowfish".

Barbus serra, Peters, the Saw-fin (also called freshwater snoek or "witvis").

Barbus calidus, Barnard, a red-fin minnow, with a serrated dorsal spine.

Barbus phlegethon, Barnard, similar, with more vivid colouration and dorsal spine slender and smooth.

Barbus anoplus forma *cernuus,* Barnard, the Clanwilliam Chubby-head (gillieminkie) minnow.

Labeo seeberi, G. & T., Olifants River Sandfish with very small and numerous scales.

A number of these were collected and kept alive in tanks, as well as the long series preserved. A.C.H.