

# Habitat preference and population structure of the rock catfish (*Austroglanis sclateri*) in the Senqunyane River, Lesotho

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## Abstract

Four surveys were conducted in the Senqunyane River between August 1995 and February 1996. *Austroglanis sclateri* specimens were collected by means of electro-fishing and gill netting. In relation to other studies a relatively large number of individuals (86) were sampled and the habitat for each individual was documented. The population was divided into different functional groups and habitat preference was expressed in terms of each functional group. It was evident that recruits (smallest functional group) preferred backwater pools as opposed to the larger fish, which preferred stickles and runs. The preferred bottom substrate was cobbles in the case of the recruits and rubble for the older groups. The mean preferred water depth for this species ranged between 19 and 59 cm. Recruits were mostly sampled at slow current velocities (<0.1 m/s) while the other functional groups preferred faster current velocities with mean values being 0.44 and 0.42 m/s respectively. The baseline information regarding habitat preference is important for determining instream flow requirements. *A. sclateri* would probably not do well in impoundments as it was found that more than 90% of specimens larger than 4.5 cm (standard length) were found within current velocities exceeding 0.14 m/s and no specimens were collected at depths greater than 1.5 m.

## Introduction

The rock catfish (*Austroglanis sclateri*) is listed as rare to indeterminate by the South African Red Data Book for Fishes (Skelton, 1987) and although the known abundance of this species is low it has a widespread occurrence throughout the major tributaries and main stream of the Orange - Vaal system. *A. sclateri* is not known to occur in any other river system although it has two relatives in the Olifants River system. According to Skelton (1993), these relatives, the endangered *A. bamardi* and rare *A. gilli* occur in the tributaries of the Clanwilliam Olifants system, western Cape. The known habitat requirements and ecology of the rock catfish are poorly documented and mostly speculative. According to Jubb (1972) this species frequents rocky pools. Gaigher et al. (1980), however, suggested that *A. sclateri* is possibly dependent on running water. Cambray (1984) and Skelton (1986) also support the theory that *A. sclateri* requires a rocky habitat with good flow. The reason for the uncertainty concerning its habitat preference is related to the difficulty in sampling this species. According to Cambray (1984) the rock catfish is difficult to collect, unless electro-fishing is carried out in rapids. Consequently, very few specimens have been sampled on which to base conclusions concerning its habitat preference. This lack of information is unfortunate as this species could be useful for instream flow recommendations in the context of the conservation of the aquatic ecosystem below the Mohale Dam wall in the Lesotho Highlands Water Scheme. Cambray et al. (1989) recommended that *A. sclateri* could be used as an indicator species for instream flow requirements as its habitat is sensitive to stream regulations.

This need for a well-documented indicator species for management of the Senqunyane River (downstream from Mohale Dam wall) partly served as motivation to investigate the habitat

requirements of this species. Furthermore information on this Red Data species would also be of importance to ensure the survival of *A. sclateri* in a river system with ever-increasing anthropogenic threats to the aquatic environment.

## Materials and methods

### Seasonal surveys

Data on the habitat preference, length frequencies and condition factors of *A. sclateri* were gathered during four surveys between 1994 to 1996, i.e.: 08-09/94; 03-04/95; 07-08/95 and 02/96, in the Senqunyane and Senqu Rivers, Lesotho.

### Study area

The study area extended from a few kilometers upstream of the proposed Mohale Dam wall, at an elevation of 1 946 m above sea level (m a.s.l.) downstream in the Senqunyane River to an elevation of 1 749 m a.s.l., just downstream from Ha Thejane. Major tributaries of the Senqunyane River also formed a part of the study area and included the Likalaneng (up to 2 212 m a.s.l.), Mantsa (up to 1 843 m a.s.l.) and Bokong (up to the Tsoenyane River confluence) Rivers. The Tsoenyane River (up to 2 126 m a.s.l.), which is a tributary of the Bokong River, was also included in the study area (Fig. 1). An additional survey was conducted during February 1996 which extended the study area to include the lower Senqunyane River and the Senqu River from the confluence to Seaka Bridge (Fig. 2).

### Sampling sites and description

Sampling sites were selected on the basis of the following criteria. Firstly, preference was given to the inclusion of all habitat types possibly suitable for *A. sclateri*. This was done due to the fact that previous surveys in the Orange River system achieved very low sampling success for *A. sclateri* (Van Schoor, 1972; Janse van Vuren, 1978; Cambray, 1984; MacDonald et al.,

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