

## Reproductive strategies of fishes in a tropical temporary stream of the Upper Senegal basin: Baoulé River in Mali



In the tropics, there is very little information on fish reproduction in intermittent streams and most of the studies are from the neotropical regions. In temporary rivers, environmental conditions are sharply contrasted and the variation amplitude of hydrological and physicochemical characteristics is high. In the Baoulé River (Mali), during the peak of the dry season, the remaining pools comprise only 10% of the total length of the river. During the wet season, there is a short (three months) but intense period of flooding. In this study, the reproductive strategies of 18 species of fishes were investigated in the upper reach of the Baoulé drainage. They belong to eight families, show variation in feeding guilds, and vary in size and habitat preferences. Fishes were collected from February 1985 to November 1988 using gillnets. Two main types of spawning strategies may be distinguished among these species. The first, the 'total spawners', have generally a short annual spawning period just before the flood. The second, the 'small-brood spawners', produce small batches of eggs at frequent intervals for most of the year. Most of the species inhabiting the Baoulé River exhibit a

breeding strategy in relation to the flood seasonality. This type of strategy, common in harsh but predictable environments, favours a synchronous reproduction in phase with the optimal environmental conditions and the production of large number of juveniles that require no parental care. Concerning the Baoulé River, 12 variables related to life-history theory were measured for 18 species. Clustering of these species based on Euclidean distances resulted in two groups. The first corresponds to developed parental care, large oocytes and low fecundity (about a hundred eggs). Two species, *Chrysichthys auratus* and *Sarotherodon galilaeus*, belong to this 'equilibrium strategy'. Others species have a 'seasonal strategy', which is adapted to the harsh local conditions. In the Nilo-Sudanian area, most fishes appeared to be associated with a seasonal life history strategy that exploits an annual expansion of aquatic production. In the Baoulé River, the 'seasonal strategy' is characterised by high fecundity, absence of parental care, limited breeding season and for some species large adult size and upstream spawning migrations to floodplains.

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**Obtenir le document :** EDP Sciences

**Mots clés :** Freshwater fishes, Environment, Reproductive strategies, Senegal basin, Western Africa

**Thème (issu du Text Mining) :** FAUNE, MILIEU NATUREL, MOT OUTIL

**Date :** 2002-03-15

**Format :** text/xml

**Source :** [https://doi.org/10.1016/S0990-7440\(01\)01144-5](https://doi.org/10.1016/S0990-7440(01)01144-5)

**Langue :** Anglais

**Télécharger les documents :** [https://www.alr-journal.org/10.1016/S0990-7440\(01\)01144-5/pdf](https://www.alr-journal.org/10.1016/S0990-7440(01)01144-5/pdf)

**Permalien :** <https://www.documentation.eauetbiodiversite.fr/notice/reproductive-strategies-of-fishes-in-a-tropical-temporary-stream-of-the-upper-senegal-basin-baoule-r0>

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