Specialist comment: proposed weir on the Paalskloof river on Portion 1 of Farm Annex Uintjes Kuil no. 295, Bredasdorp district

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Dear Clinton Geyser

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The proposed weir and its purpose

According to the formal development proposal, the Nuwejaars River Nature Reserve proposes to build a fish exclusion / barrier weir on the Uintjieskuil River, a tributary of the Nuwejaars River, on Portion 1 of Farm Annex Uintjes Kuil no. 295, Bredasdorp district, to prevent the upstream migration of invasive alien fish that have caused depletion of indigenous fish diversity in the river. The proposed weir is about 72m long including gabion wing walls and is 2m high. The stilling basin is 32m long and 3m wide. Note that according to Riaan van der Walt (pers. comm.) the site of the proposed weir is actually the Paalskloof River, which is a tributary of the Uintjieskraal River.

The Paalskloof River and the Uintjieskuil River are part of the Nuwejaars River catchment which has been designated a red Important Fish Area (IFA) or "fish sanctuary" in the Atlas of Freshwater Ecosystem Priority Areas of South Africa. Red IFA's are our countries most important river catchments or sub-catchments for fish conservation, as they contain one or more fish species / taxa that are nationally listed as endangered or critically endangered. Recent fish surveys of the Paalskloof River by Nuwejaars Wetland SMA field staff show that the river has good populations of three indigenous fish taxa (van der Walt *et al.* 2025), namely the South Coast Clade of the Cape kurper *Sandelia capensis* which is a widespread lineage of the species (Bronaugh et al. 2019) and two Cape Galaxias lineages, namely the endangered and near endemic Agulhas Galaxias *Galaxias* sp. nov. *'*Heuningnes*'* (Chakona 2017) and the mountain Galaxias *Galaxias sp.* nov. 'nebula', which is a more widespread and common lineage (NWSMA 2025). According to the riparian land-owner at the proposed weir site, the Endangered and endemic Agulhas / Heuningness redfin *Pseudobarbus sp. '*Heuningnes*'* (Skelton 2024) used to occur in the study area up to 20 years ago before being locally extirpated by predatory invasive fishes, namely spotted bass *Micropterus punctalatus* (van der Walt et al. 2025). The presence of this species and Bluegill sunfish *Lepomis macrochirus* are the key reason for the highly threatened status of the Agulhas redfin elsewhere in the Heuningness River System (Russell and Impson 2006).

According to van der Walt et. al. (2025), the Paalskloof River is the only tributary of the Nuwejaars River system which is nearly free from alien vegetation with good water

quality and in-channel habitat, and with a wide natural vegetation buffer along the lower Paalskloof River. This makes it a prime candidate for rehabilitation and conservation action in the Nuwejaars catchment.

After the alien fish barrier weir is completed, staff of the NWSMA plan to eradicate spotted bass and Bluegill sunfish if these are present using mechanical methods such as fyke, gill and seine nets, and electrofishing. Dams in the catchment above the weir are likely free of invasive fishes, but if such fishes are found they will be eradicated. According to van der Walt et al. (2025) other aspects of the wider project are to:

- negotiate formal conservation status for the freshwater fish reserve (e.g. stewardship or servitude),
- conduct annual fyke net surveys to determine the progress of bass removal efforts and to monitor indigenous fish recovery,
- translocate Agulhas redfin into the restoration zone once bass eradication is complete, and
- raise awareness that includes appropriate signage


Heuningnes redfin (*Pseudobarbus* sp. nov. 'Heuningnes')


Heuningnes galaxias (*Galaxias* sp. nov. 'Heuningnes')

Plate 1 and 2: Two endangered fish species found in the study area (NWSMA 2025)

Impacts of the proposed weir

The aim of the proposed weir is to create a permanent sanctuary for two endangered indigenous fishes, once bass have been eradicated from above the weir. The proposed weir is designed to be a physical barrier to prevent re-invasion by bass that dominate the river below the barrier.

The team that has motivated for this project (see van der Walt 2025) and have designed the weir have expertise in such projects and have achieved success elsewhere with similar conservation action projects on fynbos fishes (e.g. Biedouw River, Thee River, Breekkrans River – all in the Cederberg). I have been involved in all of these projects during my time at CapeNature and now as an associate with the Freshwater Research Centre, but not current conservation action projects for the Agulhas redfin.

The only negative impact of the weir is a very minor one, namely halting the upstream movement of indigenous fish species if they are present below the weir, once it is built.

The impact is minor because bass and bluegill sunfish have eliminated most indigenous fish from river reaches below the proposed weir. Constructing the weir will obviously impact on the river downstream (increase sediment and turbidity levels in the river) whilst it is being built. These impacts can be minimised if construction takes place during the dry season and mitigatory steps as recommended by an experienced aquatic scientist are complied with. In addition, there are strong populations of indigenous fish above the proposed weir site.

If bass and bluegill were to be successfully eliminated from the Nuwejaars River System (most unlikely given the complexity of the habitat), then a fish ladder could be added to the weir at a later stage to allow indigenous fish to bypass it.

Recommendations

For our threatened indigenous fynbos fishes to persist, it is essential that each species has sufficient refuges with good habitat and water quality and that are free of invasive fishes. That is why the barrier weir needs to be built on the Paalskloof River. Other key factors are supportive riparian land-owners and conservation agencies, such as the NWSMA, that have the resources to achieve their goals.

No fish should be stocked into dams in the catchment above the weir without a permit from CapeNature. The only fish considered for stocking should be locally occurring indigenous species.

It is recommended that field staff of the Nuwejaars SMA Conservation office monitor the fish community of the Paalskloof River upstream of the proposed weir at regular intervals (e.g. every 2 - 4 years) once the proposed weir has been built.

References

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