

ASSESSMENT OF THE FISH FAUNA ON DARTFORD FARM IN RESPONSE  
TO A PROPOSED NEW IRRIGATION DAM ON THE KHAMANZI RIVER



Khamanzi River Tributary

January 2025

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## DECLARATION OF INDEPENDENCE BY THE SPECIALIST

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I, **Dacre James Alletson** hereby declare that --

- I act as the independent specialist in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).



Alletson Ecologicals

17 January 2025

# ASSESSMENT OF THE FISH FAUNA ON DARTFORD FARM IN RESPONSE TO A PROPOSED NEW IRRIGATION DAM ON THE KHAMANZI RIVER

## 1. INTRODUCTION

Alletson Ecologicals has been appointed by Nature Stamp (PTY) Ltd to assess the fish assemblage of a small river on Dartford Farm on which a new dam to be constructed for irrigation water has been proposed. The farm is located in the Underberg area of the Dr Nkosazana Dlamini Local Municipality (Harry Gwala District Municipality). The dam would be built on the Khamanzi River and has the following characteristics:

**Table 1:** Characteristics of the proposed Dartford Dam

DETAIL	CHARACTERISTICS
Property Numbers	LOT FP 173 FARM 8581 PORTION 0 LOT IB FARM 7604 PORTION 0
Quaternary Catchment	T 51C
Supply Channel	Khamanzi River. Perennial flow regime.
Primary Channel	Umzimkulu River
Dam Area	42 ha (Approximately)
Dam Volume	1 500 000m <sup>3</sup>

The purpose of the dam will be to supply water for irrigation purposes with uptake being used for not only Dartford Farm but also two neighbouring properties. See Figure 1.

## 2. TERMS OF REFERENCE

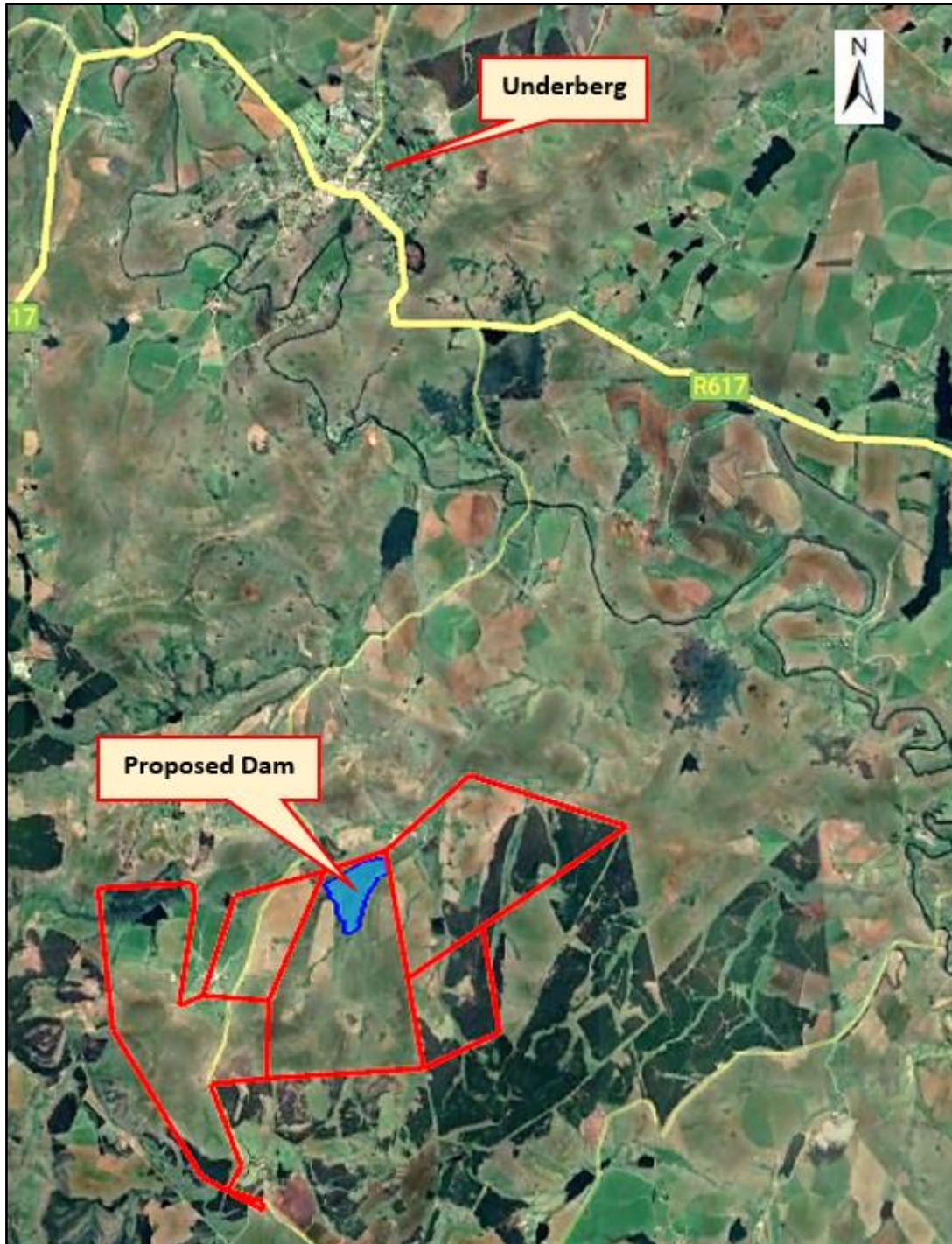
The terms of reference for the study were as follows:

- To undertake an *in situ* survey of the fish in the Khamanzi River at the dam site and immediate surrounds.
- To consider historic fish data from an area surrounding the dam site
- To consider any potential impacts on the fish fauna.
- To provide mitigatory measures for impacts on the fish faunas.

## 3. METHODOLOGY

The fish survey was undertaken in two phases. These were a desktop study which entailed searching for historic and database records, and a field survey. The following databases were searched:

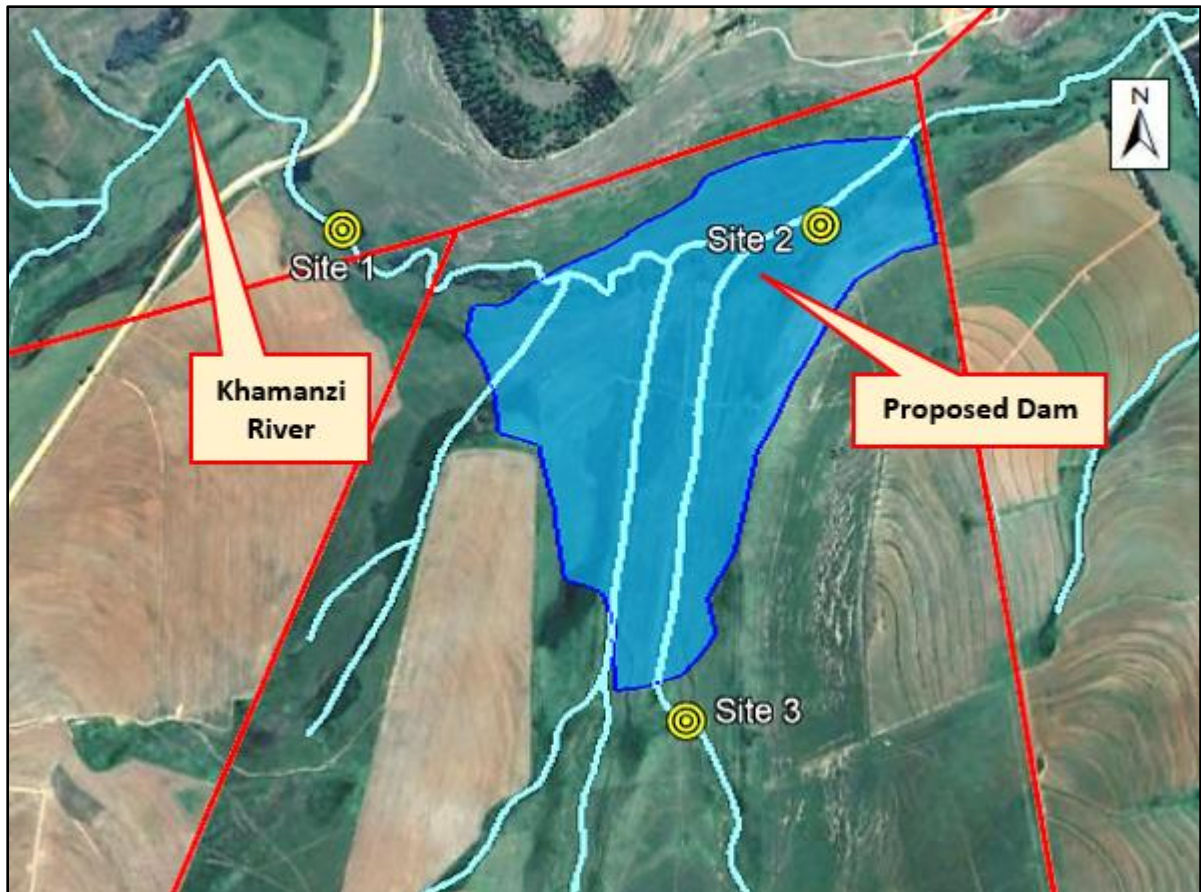
- The Freshwater Biodiversity Information System
- Relevant fish-related literature
- Personal records (The author lived in Underberg for some time and undertook numerous fish surveys, both in the area, and further afield in the Umzimkulu catchment).
- SANBI Redlist Assessments: Fish
- Ezemvelo KwaZulu-Natal Wildlife Minset database.



**Figure 1:** Location of the proposed Dartford Dam in relation to Underberg

For the purposes of the desktop survey the study area was taken to be a 10 km radius circle with the centre on the dam wall.

The field survey was undertaken on 21 January 2025. Stream flows were low at the time of the study and, while it had been planned to undertake sampling by means of electrofishing, the low water levels made that impossible, and so scoop netting was used instead. Only the Khamanzi River and a tributary stream were sampled as shown in Figure 2.



**Figure 2:** Location of fish sampling sites

#### 4. RESULTS

The desktop study produced few records as shown in Table 2 and Figure 3.

**Table 2:** Records of fish within the 10 km radius study area

SPECIES	COMMON NAME	GPS COORDINATES	NOTES
<i>Enteromius anoplus</i>	Chubbyhead Barb	29°49'53.57"S 29°31'39.48"E	Conservation Status is Least Concern.
<i>Enteromius anoplus</i>	Chubbyhead Barb	29°53'0.57"S 29°34'43.46"E	A very common and widespread species found in most rivers and dams in the region. Occurs across much of the country and some separation into regional variants or species is noted.
<i>Enteromius anoplus</i>	Chubbyhead Barb	29°54'39.39"S 29°25'55.99"E	
<i>Enteromius anoplus</i>	Chubbyhead Barb	29°57'24.89"S 29°28'39.27"E	

SPECIES	COMMON NAME	GPS COORDINATES	NOTES
<p><i>Anguilla mossambica</i></p> <p>Conservation Status is Near Threatened (IUCN 3.1)</p>	Longfin Eel	<p>29°49'53.63"S</p> <p>29°31'18.38"E</p>	<p>A very uncommon species this far up in the east coast rivers. A single specimen found in at the 22173 road bridge over the Umzimkulu River in 1987. (Kleynhans et al, 2008)</p>
<p><i>Labeobarbus natalensis</i></p> <p>Conservation Status is Least Concern.</p>	Natal Yellowfish	<p>29°53'49.13"S</p> <p>29°36'9.10"E</p>	<p>Common in the Umzimkulu River downstream of a large waterfall on the farm Hopewell. Does not occur upstream of the waterfall.</p>

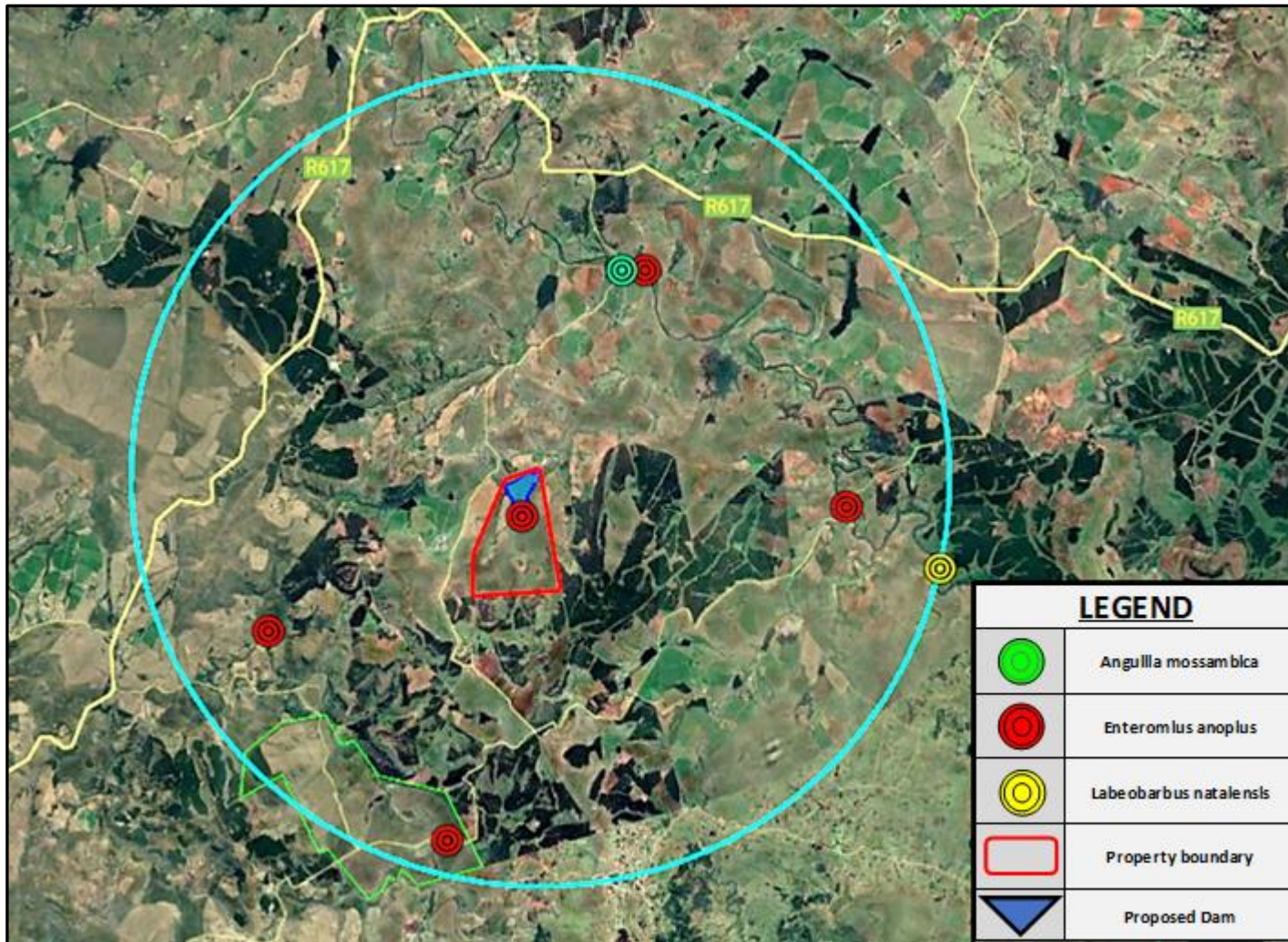
In addition to the indigenous fish species, it must be noted that most of the larger dams and rivers contain alien Rainbow Trout (*Onchorynchus mykiss*) and/or Largemouth Bass (*Micropterus salmoides*). These species are further disregarded.

Three sites were sampled within the dam basin and immediate surrounds but the only place where fish were found was at Site 3 which was in a small tributary stream. This was a single specimen of a juvenile *Enteromius anoplus*. See Figure 2 and Frontispiece.

## 5. CONSIDERATION OF THE FISH FAUNA

Of the two indigenous fish species which are to be found within the study area, only the Longfin Eel is a listed species since it is assessed to be Near Threatened. The reasons for the listing include dams, pollution, seasonal closure of estuary mouths, and possibly disruption of its marine breeding areas. However, not all of these conditions apply to the Umzimkulu River but the fish is at the extreme edge of its range in regard to upstream migration into rivers. The author is aware of only two other records of the species in the foothill region of the Drakensberg.

However, should the species ever enter the Khamanzi River the dam wall would not be a barrier to it as these fish are readily able to ascend small dam walls or spillways and may even leave the river channel to do so. It may therefore be concluded that the proposed dam does not pose any form of threat to the species even if flows are reduced in the river.



**Figure 3:** Location of database fish records within the 10 km radius study area

The second indigenous fish species in the area is the Chubbyhead Barb. This fish is common and widespread in the region where it occurs in both flowing and still water bodies. It has two peak breeding seasons each year and so numbers can increase rapidly. It is often seen ascending the spillways of dams during high flows and where clumps of vegetation such as grass are present to break the force of the current.

## **6. CONCLUSION**

On the basis of the foregoing material it has been found that the fish fauna in the vicinity of the proposed dam on the Khamanzi River is extremely poor in terms of both diversity and numbers. While other places in the catchment may have higher numbers of indigenous fish these will still be dominated by just the Chubbyhead Barb. Therefore it is concluded that the dam will have no negative impacts on indigenous fish and there is therefore no reason to oppose its development in that regard.

## **7. BIBLIOGRAPHY**

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