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[fish
Mphate River
Western Shores]

Freshwater Fish Assemblage of the Mphate River

Western Shores

iSimangaliso Wetland Park

September 2009

Introduction

An aquatic survey was conducted from 8-9 September 2009 by Messrs. R.J.Karssing, J.C.Craigie, S.P.Khubeka and Ms. R.Ndlovu of the Biodiversity Division, QEP in the Mpathe River, Western Shores, iSimangaliso Wetland Park.

Background

The survey was a baseline study to determine the freshwater fish biodiversity of the Mpathe River and surrounding pans. Database records reflect that this river system has not been previously sampled. Our sampling took place during an extreme drought period following several years of below average rainfall in the region.

Methods

Electro-fishing with a portable generator was carried out at thirteen sampling sites (Fig.1)

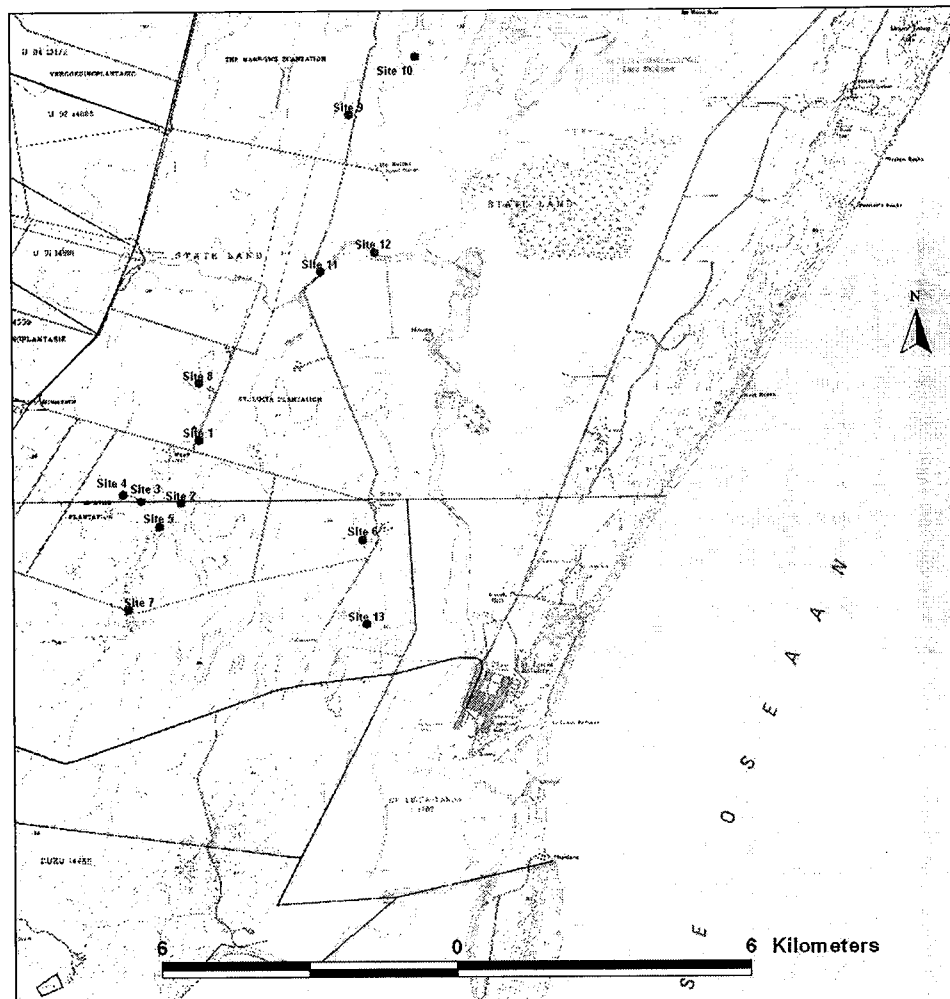


Figure 1: Sampling sites

Results

The number of fish caught, time spent electro-fishing and Catch per Unit of Effort (CPUE) is shown in Table 1. Time of sampling, water temperature, pH, Dissolved Oxygen (DO) and Electrical Conductivity (EC) is shown in Table 2.

Table 1: Number, species and CPUE of freshwater fish electro-fished at sampling sites.

Sampling Sites	Bowstripe Barb <i>Barbus Viviparus</i>	Southern Mouthbrooder <i>Pseudocrenilabus philander</i>	Sharptooth Catfish <i>Clarius</i>	Mozambique Tilapia <i>Oreochromis mossambicus</i>	Natal Topminnow <i>Aplocheilichthys myaposa</i>	Time Spent Electro-Fishing (min)	CPUE Fish/minute
1	0	0	0	0	3	9.00	0.33
2	0	0	0	0	0	1.00	0.00
3	0	1	0	0	1	5.00	0.40
4	2	2	0	0	0	18.00	0.22
5	3	1	0	0	3	8.00	0.88
6	0	0	0	0	0	1.00	0.00
7	35	9	0	0	10	15.00	3.60
8	0	0	0	0	0	1.00	0.00
9	0	0	0	0	0	2.00	0.00
10	0	0	0	0	0	5.00	0.00
11	0	0	2	1	0	12.00	0.25
12	0	0	0	0	0	4.00	0.00
13	20	0	0	0	0	7.00	2.86
Total	50	13	2	1	16		

Table 2: Time of sampling, altitude, water temperature, pH, DO and EC at sampling sites

Site	Time	Altitude (m)	C ^o	pH	EC μ S/cm	DO Mg/l
1	11:00	*	18.8	5.71	986	4.37
2	11:50	*	*	*	*	*
3	12:28	20	21.1	6.38	1412	4.50
4	12:34	18	22.7	6.77	1435	4.02
5	14:12	37.8	20.4	6.55	720	3.60
6	8:31	37	18.3	4.53	713	4.07
7	10:02	47	19.8	6.59	666	
8	11:47	19	19.5	6.95	1210	3.90
9	12:30	26	*	*	*	*
10	13:05	17	19.2	4.71	*	*
11	13:39		*	*	*	*
12	14:26	29	*	*	*	*
13	15:32	*	*	*	*	*

- No readings taken

Discussion

Only three species of freshwater fish were encountered in the Mphate River above the salt water barrage located at sampling site 1. Bowstripe Barbs *Barbus viviparus* were the most commonly encountered species (50), followed by the endemic Natal Top Minnow *Aplocheilichthys myaposae* (16) and the Southern Mouth Brooder *Pseudocrenilabrus philander* (13) (Appendix 1). None of these species are currently listed as IUCN threatened species. *A.myaposae* is regionally isolated and only occurs in certain coastal lakes and rivers located between Umlalazi and Kosi Bay while *P.philander* and *B.viviparus* occur widely in the province. The conductivity of the water was generally very high (666-1435 μ S/cm) and DO levels low (3.6-5.5 mg/l) suggesting that only species with a high threshold for poor environmental conditions are persisting in the stream areas where water is still flowing. No fish were found in any of the pans due to a high biological oxygen demand (BOD) and consequently low oxygen levels. The pH of the water was slightly acidic (4.71-6.77) most likely due to the decomposition of leaf matter within the riparian zone. Small numbers of Mozambique Tilapia *Oreochromis mossambicus* and Sharptooth Barbel *Clarius gariepinus* (Appendix 2) were encountered at sampling site 11, located below the salt water barrage, suggesting that this structure is a barrier to the upstream migration of fish.

Conclusion

The Mphate River currently has a low biodiversity of fresh water fish species. Of the five species recorded only the endemic Natal Top Minnow *Aplocheilichthys myaposae* is of conservation significance. The electrical conductivity of the water was high and the oxygen levels low suggesting that only hardy species are surviving and persisting in the system. The salt water barrage would appear to be acting as a barrier to the upstream migration of fish.

Recommendations

- (1) To resample the same sites following good seasonal rains.
- (2) To install a fish ladder at the salt water barrage.

Acknowledgements

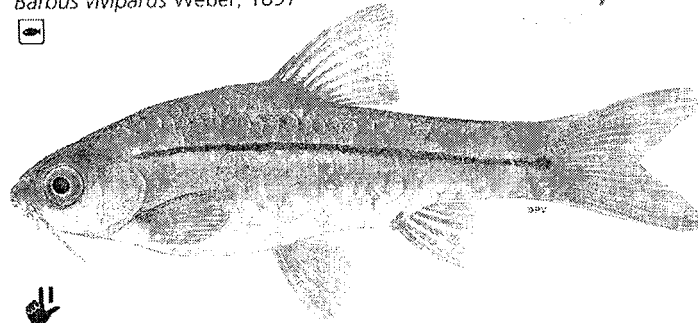
Thanks to Dr Ricky Taylor, Caroline Fox and Sibusiso Mfeka for helping us with the survey.

R.J.Karssing

Appendix 1

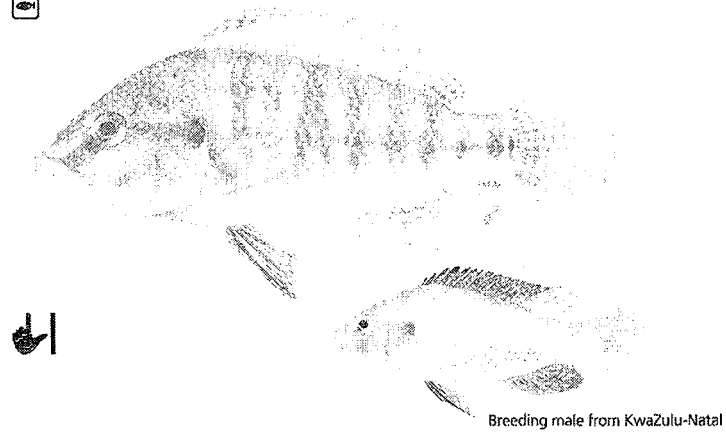
BOWSTRIPE BARB

Boogstreep-ghieliementjie
Barbus viviparus Weber, 1897



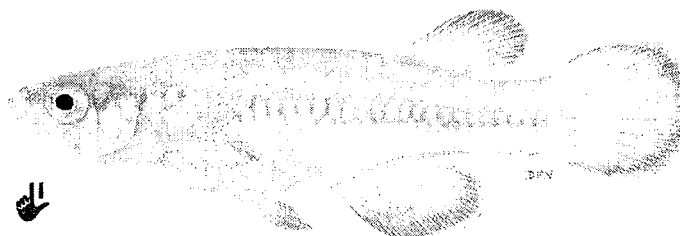
SOUTHERN MOUTHBROODER

Suidelike mondbroeier
Pseudocrenilabrus philander (Weber, 1897)



NATAL TOPMINNOW

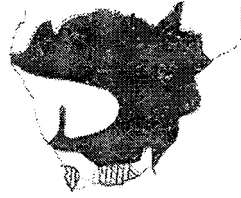
Natalse lampogie
Aplocheilichthys myaposaе (Boulenger, 1908)



Appendix 2

SHARPTOOTH CATFISH

Skerptandbaber (Baber)
Clarias gariepinus (Burchell, 1822)



MOZAMBIQUE TILAPIA

Bloukurper
Oreochromis mossambicus (Peters, 1852)

