

AQUATIC ECOLOGY UNIT RESEARCH AND MONITORING PROJECTS

OVERVIEW

The Scientific Aquatic is headed by the Director Scientific Services, Professor Edson Gandiwa (egandiwa@zimparks.org.zw). A team of 15 ecologists led by Chief Ecologist, Mr. I. H. Tendaupenyu (itendaupenyu@zimparks.org.zw) is responsible for the research and monitoring programs in dams within the Parks and Wildlife Estate.

There are 12 dams under the Parks and Wildlife Estate i.e. Lake Kariba, Lake Tugwi Mukosi, Lake Mutirikwi, Lake Chivero, Osborne Dam, Mushandike Dam, Ngezi Dam, Sebakwe Dam, Manjirenji Dam, Darwendale Dam, Bangala Dam, Cunningham Dam and Umzingwane Dam. All dams are being monitored by aquatic ecologists who conduct research and monitor gillnetting cooperatives operating in these dams. There are currently nine (9) ongoing research projects and ten (10) monitoring programs.

They are currently 126 cooperatives operating in Parks Estate dams, with a total combined effort of 13 474 933m of gillnetting nets. Osborne, Sebakwe and Ngezi dams are the only water bodies below fishing capacity thus have potential for additional fishing cooperatives.

Lake Kariba has only 7 km² of its surface area under aquaculture, there is potential to increase the area to above 20 km². Except for Mushandike dam and Tokwe Mukosi dam, all other dams have no cages or aquaculture projects adjacent to them. These dams have the potential to house about 40 new cage projects. Ecologists are also responsible for conducting ecological assessments for all fish farming projects within Parks Estate and outside as well.

A. AQUATIC RESEARCH PROJECTS

Project 1

Title: Conservation status and biodiversity of endemic amphibian species in the Eastern Highlands, Zimbabwe.

Objectives

- Determine species' taxonomic status, distribution, population status and natural history.
- Analyze potential health threats that might affect existence of the species.
- Determine threats and extent of threats to the conservation of the species.

Lead Researcher: Banele Maya

Contact Details: bmaya@zimparks.org.zw

Project 2

Title: Impacts of artisanal fishing on the reproductive biology and population structure of tiger fish (*Hydrocynus vittatus*) in the Ume Basin of Lake Kariba, Zimbabwe.

Objectives

- This study seeks to get more insight into how the operations of artisanal gill net fishermen are affecting the reproductive biology and population status of tigerfish in the Ume River estuary

Lead Researcher: Terence Magqina

Contact Details: tmagqina@zimparks.org.zw

Project 3

Title: Local residents' perceptions and attitudes about the planning and management issues in the proposed Tugwi Mukosi Recreational Park

Objectives

- This study therefore aims to understand the socioeconomic characteristics of the local residents around the proposed Tugwi Mukosi Recreational Park and to assess the perceptions and attitudes of residents towards the planning and management issues around the proposed protected area.

Lead Researcher: Terence Magqina

Contact Details: tmagqina@zimparks.org.zw

Project 4

Title: Length-weight relationships and condition factor of fish species caught using gillnets in Lake Kyle

Objectives

- To determine the current length weight relationships and condition factors for fish species in Lake Kyle.

Lead Researcher: Kuzivakwashe Mawoyo

Contact Details: kmawoyo@zimparks.org.zw

Project 5

Title: An investigation of gonadal state, species composition and condition factor in fished and non-fishing areas of Lake Sebakwe

Objectives

- To determine seasonal species, sex, size and maturity composition of fish caught in a range of experimental gear mesh size.
- To assess the impact of each gear type on species caught, and the environment.
- To assess the length-weight relationship (LWR) and condition factor of fished and non-fished areas.

Lead Researcher: Takunda Kwenda

Contact Details: tkwenda@zimparks.org.zw

Project 6

Title: Socioeconomic impacts of Australian red claw crayfish *Cherax quadricarinatus* in Lake Kariba by Adroit T. Chakandinakira, Takudzwa C. Madzivanzira, Shantel Mashonga, J.V Muzvondiwa, Nobuhle Ndlovu and Josie South

Objectives

- To report on the losses that the fishermen incur that are due to *C. quadricarinatus* spoilage in Lake Kariba

Lead Researcher: Adroit Chakandinakira **Contact Details:** achakandinakira@zimparks.org.zw

Project 7

Title: Length-weight relationships and condition factor of fish species caught using gillnets in Manyame lakes

Objectives

- To determine the current length weight relationships and condition factors for fish species in Manyame lakes.

Lead Researcher: Gregory Nyaguse

Contact Details: gnyaguse@zimparks.org.zw

Project 8

Title: Distribution, dispersal dynamics, population characteristics and structure of Lake Kariba's invasive Crayfish (*Cherax quadricarinatus*).

Objectives

- Identify possible changes in population characteristics throughout its distribution.
- To establish data on the present status of crayfish population.
- Establish associated impacts to the ecosystem

Lead Researcher: Takafara Gozo

Contact Details: tgozo@zimparks.org.zw

Project 9

Title: Assessment of length-weight frequencies, sex ratios and gonad stages of *Synodontis zambensis* caught off Lake Kariba's Basin 5 Lakeside experimental gillnetting.

Objectives

- Identify changes in length-weight frequencies of *S. zambensis* over the past decade in Sanyathi Basin.
- To establish the changes of sex ratios of *S. zambensis* in Sanyathi Basin.
- To determine the reproductive capacity of *S. zambensis* in Sanyathi Basin.

Lead Researcher: Adroit Chakandinakira **Contact Details:** achakandinakira@zimparks.org.zw

B. AQUATIC MONITORING PROGRAMS

Monitoring Program 1

Title: Lower Pungwe Fly-Fishing Trout Hatchery

Objectives

- Maintain sustainable populations that enhance fly-fishing.

Lead Researcher: Blessing Mugaviri **Contact Details:** bmugaviri@zimparks.org.zw

Monitoring Program 2

Title: Trout ova monitoring in Nyanga Rainbow Trout Hatchery

Objectives

- To have +50 % swim up fry.

Lead Researcher: Blessing Mugaviri **Contact Details:** bmugaviri@zimparks.org.zw

Monitoring Program 3

Title: Matopo Lake Surveys

Objectives

- To inspect the lakes for damages, invasive species, and any other changes
- To monitor the dam water levels in the park
- To monitor the status of fish stocks in Matopos Dams

Lead Researcher: Michael Tiki **Contact Details:** mtiki@zimparks.org.zw

Monitoring Program 4

Title: Tugwi Mukosi Commercial fisheries monitoring program

Objectives

- To assess and monitor the catch and effort of fishing cooperatives in the Dam.
- To assess the relative abundance of fish species caught by fishermen.

Lead Researcher: Terence Magqina **Contact Details:** tmagqina@zimparks.org.zw

Monitoring Program 5

Title: Binga Inshore fisheries monitoring

Objectives

- To assess and monitor the catch and effort of fishing camps on the shorelines of Lake Kariba and Zambezi River.
- To assess the relative abundance of fish species caught by fisherfolk.

Lead Researcher: Takafara Gozo

Contact Details: tgozo@zimparks.org.zw

Monitoring Program 6

Title: Binga Pelagic fisheries monitoring

Objectives

- To assess and monitor the catch and effort of Kapenta fishing companies and cooperatives.

Lead Researcher: Takafara Gozo

Contact Details: tgozo@zimparks.org.zw

Monitoring Program 7

Title: Binga Captive Crocodile monitoring

Objectives

- To monitor the wild crocodile populations in the Lake Kariba and Upper Zambezi.
- To monitor the health of captive and wild crocodiles.

Lead Researcher: Takafara Gozo

Contact Details: tgozo@zimparks.org.zw

Monitoring Program 8

Title: Lake Mutirikwi commercial fisheries monitoring program

Objectives

- To assess and monitor the catch and effort of fishing cooperatives operating in the lake
- To assess the relative abundance of fish species caught by fisherfolk

Lead Researcher: Kuzivakwashe Mawoyo

Contact Details: kmawoyo@zimparks.org.zw

Monitoring Program 9

Title: Analysis of fish stocks and species diversity in Lake Sebakwe (Commercial gillnet fishery)

Objectives

- To collect commercial fishing returns and vessel log sheets from fishing co-ops on a monthly basis and assess them.
- To monitor fisheries (commercial and angling) and permit requirements on a weekly basis.

Lead Researcher: Takunda Kwenda

Contact Details: tkwenda@zimparks.org.zw

Monitoring Program 10

Title: Analysis of fish stocks and species diversity in Lake Sebakwe (Commercial gillnet fishery)

Objectives

- To collect commercial fishing returns and vessel log sheets from fishing co-ops on a monthly basis and assess them.
- To monitor fisheries (commercial and angling) and permit requirements on a weekly basis.

Lead Researcher: Takunda Kwenda

Contact Details: tkwenda@zimparks.org.zw