

are classified into five sub-projects:

- Lake Wamala.
- The Koki lakes [Kijanebalola, Kachera, Mburo and Nakivali].
- The Kyoga minor lakes,
- The small lakes of western Uganda.
- Rivers, streams and swamps.

Studies

Each objective forms a study under each project. The biology and ecology of each major commercial species also forms a study.

Achievements

Details of these are reported by individual projects and studies. Most research has been done on lakes Victoria and Kyoga. The available information so far includes:

Data on composition, relative abundance, distribution, population parameters of the major commercial species (Nile perch *Tilapia* and Mukene) and recommendations on the size at which these should be cropped.

Observations on surviving endangered native species, factors that promote their survival, and recommendations on conservation of the species.

Information on fishing gear selectivity and on the fishing methods used and recommendations on suitable types and size on nets for lakes Victoria and Kyoga.

Identification of recent changes within

fishing communities and major constraints affecting fish production, processing, marketing and consumption and recommendation to improve the constraints made.

Future Plans

■ continue monitoring fishing effort, composition, abundance and distribution of the stocks;

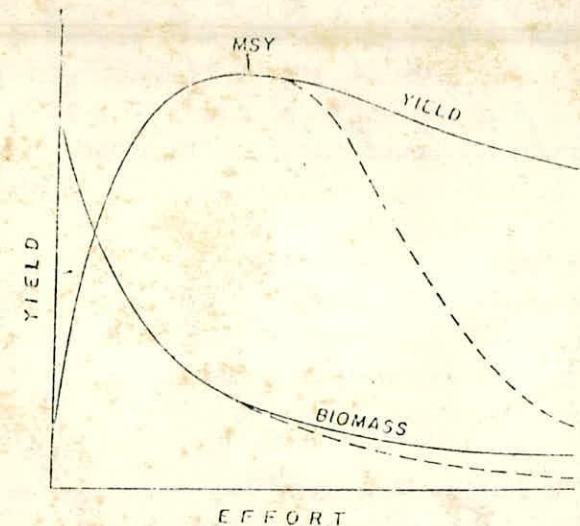
■ monitor population parameters of major commercial species to see how they respond to predation and human exploitation;

■ collect data on surviving species with emphasis on improving their stocks;

■ package data on fishing gears and methods for all major water bodies in Uganda.

■ continue studies of fishing communities to formulate recommendations of appropriate development programs and specific measures to increase the fisheries contribution to income, employment, and environmental protection.

THE FISHERIES PROGRAM



NATIONAL AGRICULTURAL RESEARCH ORGANISATION

FISHERIES RESEARCH INSTITUTE
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Background

Uganda has a high potential for fish production. Up to 17% of the country's surface area is covered by lakes, rivers and swamps. Fish is locally the cheapest source of high quality animal protein and is a major foreign exchange earner. It accounts for over 50% of Uganda's animal protein supply with an estimated *per capita* consumption of 15 kg per year. The fishing industry provides employment to about one million Ugandans. In 1993, fish ranked fourth among Uganda's exports and earned about US\$ 15 million.

The Fishery Resources

Total fish production in Uganda in 1991 was 220,000 metric tonnes. This was produced by: Lake Victoria (55%), Lake Kyoga (27%), Lake Albert and the Albert Nile (12%), Lakes Edward and George (6%). Although no statistics are available, small water bodies are important sources of fish for people around them. The most important fish species are, in order of priority: *Tilapia* (Ngege), Nile perch (Mputa), *Rastrineobola argentea* (Mukene), *Bagrus docmac* (Semutundu), *Haplochromis* (Nkejje), *Clarias* (mud fish), *Hydrocynus* (Tiger fish), *Protopterus aethiopicus* (Lung fish), *Alestes* (Ngara), Molluscs (Bisonko), *Labeo victorinus* (Ningu) and *Barbus* (Kisinja).

Production Constraints

Increased and sustainable fish production is constrained by: over-fishing; inadequate information on composition, abundance and distribution of the stocks; causes of declines in fish species diversity; open access policy to fisheries; impact of exotics; the biology and ecology of the species and inadequate fishing technology. Knowledge on the structure, functioning, performance, and contribution of the fishing industry to national economy is also inadequate.

Overall Program Goal

To generate knowledge required in formulation of development and management policies for enhancing increased and sustainable fish production.

Specific Objectives

- Determine fishing effort in the various water bodies to recommend optimum fishing effort.
- Determine the composition, abundance, distribution and population structure of the fish stocks.
- Study the biology and ecology of the major commercial species [food

and feeding habits, fecundity, size at first maturity, sex ratios, breeding season, growth, mortality rates, length-weight relationships of the species and maps of areas important in fish survival].

- Determine fish species diversity, study the biology and ecology of rare species and make recommendations on improving stock of endangered species.
- Determine the impact of fish species introductions on fishery yield and on fish species diversity.
- Determine the impact of fishing gears and methods on fish stocks and fish production to recommend suitable gears and methods.
- Examine the contribution of individual water bodies to the national economy, fish production, protein consumption and study the structure, functioning and performance of the fishing industry.
- Examine the impact of the changes in the fisheries on the community and on the environment.
- Examine Uganda's fisheries resources management regulations and advise on how these can be improved.
- Disseminate the information obtained to the fisheries extension workers.

The Projects

The objectives are examined by five projects:

- Lake Victoria Fisheries
- Lake Kyoga Fisheries
- Lake Albert and the Albert Nile Fisheries
- Lakes Edward and George Fisheries
- The Fisheries of the Small Water Bodies which