

Total oxygen depletion may occur overnight. Production and accumulation of toxic gases like hydrogen sulphide occurs under conditions of severe de-oxygenation especially in the mud below hyacinth mats.

Animal life

there is drastic reduction in variety of animal life including fish under large resident mats. A variety of animals may occur at the edge of the mats.

Single species of low oxygen tolerant animals e.g. dragonfly larvae may occur in large numbers.

Biological Control

■ A trained biological control team comprising staff at NAARI, FIRI and Fisheries Department is in place.

The following aspect of biological control technology transfer have been completed:

An active broodstock centre for stock maintenance and limited mass rearing of biological control weevils for water hyacinth has been established at NAARI.

Reproductive viability trials for the biological control weevils have been successfully completed on Lake Kyoga.

Construction of lakeside stations around

Lake Kyoga for mass rearing and release of the weevils is complete. Latest monitoring shows extensive 'seeding' of major hyacinth infestation centres with adult weevils.

■ Biological control of water hyacinth is a slow process. It is facilitated by mass multiplication and extensive release of the agents. This step has not been undertaken by the biological control team because it will involve considerable effort and resources especially on Lake Victoria, and these have yet to be mobilised.

■ Biological control is the only long term cost effective measure yet known for water hyacinth management.

Future Plans

■ Develop data base on the impact of water hyacinth on aquatic resources in time and space as weed proliferation intensifies;

■ shift reproductive viability experimentation on biological control weevils for water hyacinth to Lake Victoria as soon as soon as possible;

■ Monitor impact of the control methods.

WATER HYACINTH RESEARCH AND BIOLOGICAL CONTROL



NATIONAL AGRICULTURAL RESEARCH
ORGANIZATION

FISHERIES RESEARCH INSTITUTE

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Background

Water hyacinth is a native plant in tropical South America where it naturally occurs harmlessly in streams and seasonally flooded environments. The plant has been introduced to almost all parts of the world mainly by admirers of its beautiful flower. In its new range water hyacinth has become one of the most troublesome water weeds largely because of its very fast growth rate to form impenetrable mats. The potential menace of water hyacinth on water resources in Uganda was first highlighted by FIRI scientists when they identified the weed on Lake Kyoga in 1988. The origin of that infestation is still unknown. Isolated mats of the weed were subsequently found in the Entebbe area of Lake Victoria in 1989. Their origin has been traced to Rwanda via the River Kagera. Water hyacinth is now a major threat to inshore water environment, fisheries and the socio-economic wellbeing of lakeside communities in Uganda. It is a potential threat to some lakeshore industries like hydroelectric power generation at the Owen Falls Dam.

FIRI's Role

FIRI has been at the forefront in:

- Sensitization about the dangers of water

hyacinth

- Acquiring knowledge on the impact of the weed on water resources

- Developing biological control capability for water hyacinth in Uganda in collaboration with Namulonge Agricultural Research Institute (NAARI).

Project Objectives

The basic objectives of the Project on water hyacinth at FIRI are:

- To determine the rapidly growing impact of water hyacinth on water quality and fishery resources and to evaluate the socio-economic effects of the weed on the lakeside communities.

- To transfer biological control technology for water hyacinth to the conditions and circumstances in Uganda and package it for rapid deployment.

- To monitor the effects of water hyacinth control processes on water environment and the resources.

Institutional collaboration

Water hyacinth research and biological control was initiated by FIRI and NAARI was asked to collaborate in recognition of their involvement with biological control of crop pests. FIRI has been the leading partner. In future work, FIRI will focus on impact research but continue the collaboration with NAARI on biological control development for which Namulonge is to provide leadership.

Information gathered so far on:

Water Hyacinth cover (August 1994)

Water hyacinth fringes:

- About 700 km of the mainland shoreline of the Uganda portion of Lake Victoria;
- About 50% of the shoreline of Lake Kyoga and 30% of that of Lake Kwana;
- 500 km of River Nile - Uganda section.

Estimated biomass (Wet wt, August 1994)

- 1,330,000 tons in Lake Victoria - Uganda;
- 330,000 tons along the R. Nile - Uganda;

Dissolved Oxygen

- Severe de-oxygenation occurs under permanent mats inshore.