MAXIMIZING THE HYDRAULIC EFFICIENCY OF AQUATIC WEED BARRIERS IN OPEN CHANNEL

By
Ola Mohamed Eraky

A Thesis Submitted to the
Faculty of Engineering at Cairo University
In Partial Fulfillment of the
Requirement for the degree of
MASTER OF SCIENCE
In
Irrigation and Hydraulics Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Approved by the
Examining Committee

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FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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2016

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Title of Thesis:

Maximizing the hydraulic efficiency of aquatic weed barriers in open channel

Key Words:

Aquatic weeds, Barrier screen, Open channel

Summary:

Due to the pressing and permanent need for the fresh water running in open channels, the challenging problems facing water flow management should be controlled continuously. One of these problems is the growth of aquatic weeds in waterways. They have negative impacts on the hydraulic efficiency of the open channel. The present experimental study has been carried out, to examine the effects of barrier screen on the hydraulic efficiency of open channels in presence of different accumulations of weeds. The barrier screen is one of the most common ways used to handle the problem of aquatic weed invasion through waterways. A number of scenarios with different discharges and water depths in case of different weed densities were experimented. The water surface profiles and water velocity profiles for each scenario were examined, and recorded. Analyzing the final results, a new empirical formula could be obtained correlating weed characteristics and flow characteristics.

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Eng./ Ola Mohamed Eraky

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