

# Algal Control and Prevention Techniques in the Lake Diefenbaker Irrigation Canals

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## Problem Statement

Filamentous algae is growing over the irrigation pumps. This hinders the efficiency of the system. Decreased flow for farmland irrigation and mining operations adversely impacts the Saskatchewan economy.

## Purpose

- To analyze biological, chemical, physical, and canal design techniques for algae control and prevention.
- Create a conceptual design alternative that is:

- ✓ **Low cost**
- ✓ **Low Environmental Impact**
- ✓ **High Effectiveness**
- ✓ **High Suitability for Location**

## Design Options

Primary	Secondary	Comment
Magnacide H	Fish screens	Chemical control
Prussian carp	Fine screens	Biological control
Ultrasound	Air burst screen	Physical control

Supplementary Canal Design Options:	Drainage ditches	Constructed wetlands	Cross-section design (deeper, narrower)

## Methodology

- Literature Review
- Stakeholder Analysis
- Comparative Analysis
- Design Options
- Weighted Criteria Matrix

## Conclusion

Magnacide H with fish screens is the most suitable option

## Weighted Criteria Matrix

Criteria	Weight	Magnacide H		Prussian Carp		Ultrasound Tech.	
		Eval.	Score	Eval.	Score	Eval.	Score
	3	2.5	7.5	1.5	4.5	1	3
	3	2	6	2	6	3	9
	2	2.5	5	1.5	3	2.5	5
	1.5	2.5	3.75	1	1.5	1.5	2.25
<b>Overall Scores</b>			<b>22.25</b>		<b>15</b>		<b>19.25</b>

## Recommendations

- With limited studies on canals, more research is required for algal treatment options
- Supplementary canal design options should also be considered

West Side Project Canal

Thompson Arm of Lake Diefenbaker

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