Unique Challenges of Floating Barriers in Cold Climate

Case Studies
INTRODUCTION

▪ TYPES OF BARRIERS
▪ UNIQUE CHALLENGES
▪ CASE STUDIES
TYPES OF BARRIERS

PUBLIC SAFETY
DEBRIS
ICE
SECURITY **
FISH GUIDANCE **
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PUBLIC SAFETY:

HEADPOND

TAILRACE
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TOPOGRAPHY:

- MOUNTAINOUS
- STEEP EMBANKMENTS
  - Shoreline anchors
- DEEP RESERVOIRS
  - In-water anchors
  - Geotechnical
  - Material size restrictions
  - Cost
Access/Remote:

- **Installation**
  - Materials
  - Equipment

- **Maintenance**
  - Expense
  - Equipment

- **Operation**
  - Seasonal removal
  - Emergency response
ENVIRONMENTAL CONDITIONS:

- COLD
  - Material Type
- HIGH WINDS
- ICE
  - Quantity/Depth
  - Large Loads
  - Material Costs
  - Reservoir Elevation Changes
CASE STUDIES
MUSKRAT FALLS
LABRADOR
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UNIQUE CHALLENGES

- COLD/ICE
- ANTICIPATE DEBRIS
- PUBLIC SAFETY REQUIREMENT
- HIGH WINDS AND WAVES
- IMPOUNDMENT IN WINTER ICE WITH BOOM IN-SITU
- COSTS
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CASE STUDIES

GHOST DEVELOPMENT - TRANSALTA

ALBERTA
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UNIQUE CHALLENGES

• AVAILABLE EQUIPMENT FOR INSTALL
• RESTRICTED ANCHOR WEIGHT
• HIGH WINDS AND WAVES
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Case Studies

Brazeau Reservoir – Transalta
Alberta
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UNIQUE CHALLENGES

- NO COMPROMISING EARTH DAM
- ANCHOR DESIGN
CONCLUSIONS