



moffatt & nichol

# Glenrose Tidal Marsh Project

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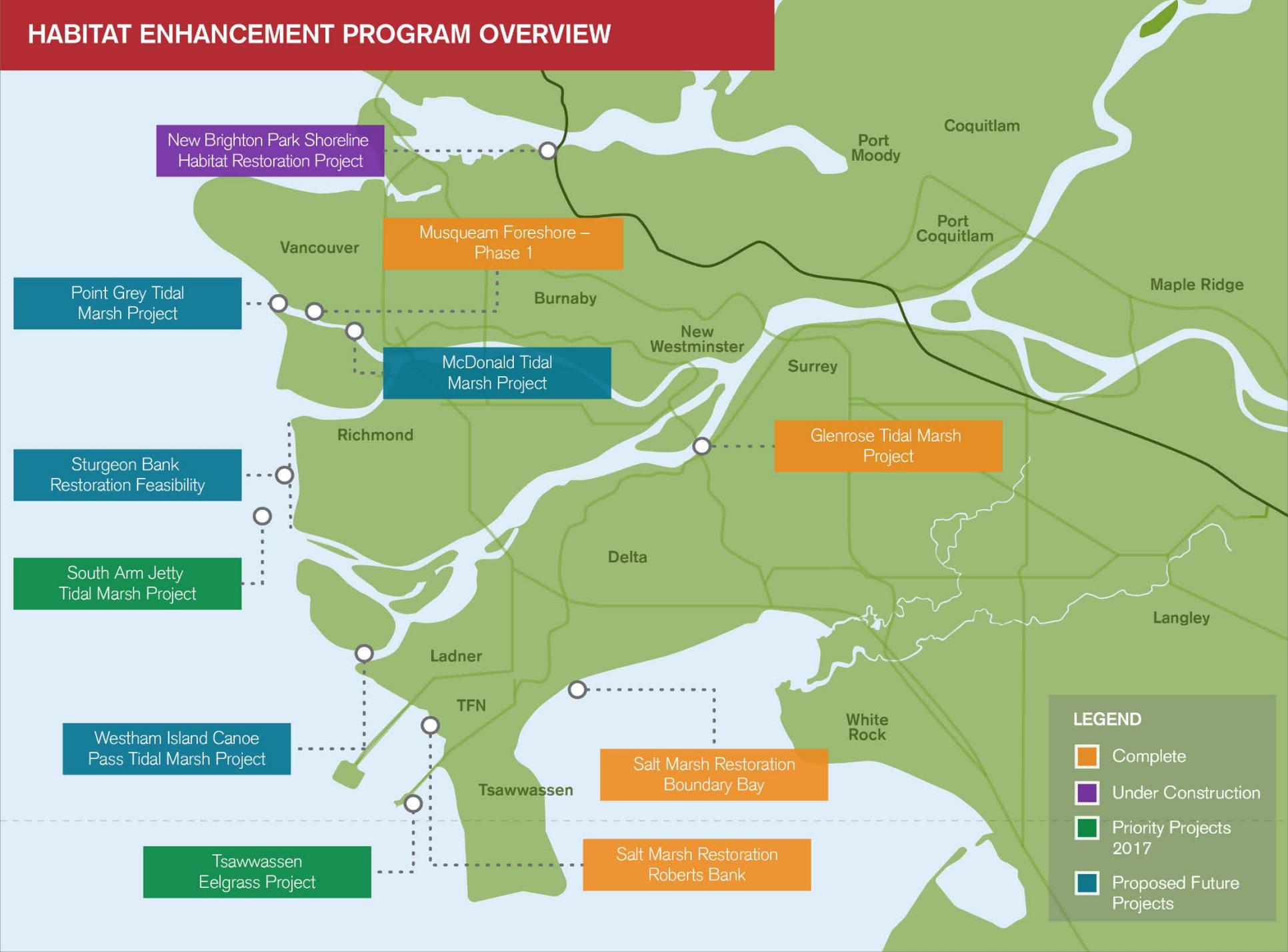
WEDA Dredging Summit & Expo '17  
June 27, 2017  
Vancouver BC

*In partnership with*



**PORT of  
vancouver**

# HABITAT ENHANCEMENT PROGRAM OVERVIEW



## LEGEND

- Complete
- Under Construction
- Priority Projects 2017
- Proposed Future Projects

# Glenrose Tidal Marsh Project



Alex Fraser Bridge

Glenrose Downstream  
New habitat

Glenrose Cannery  
New habitat

Annacis Island

Gunderson Mudflat  
New habitat

South Fraser  
Perimeter Road

Gunderson Slough

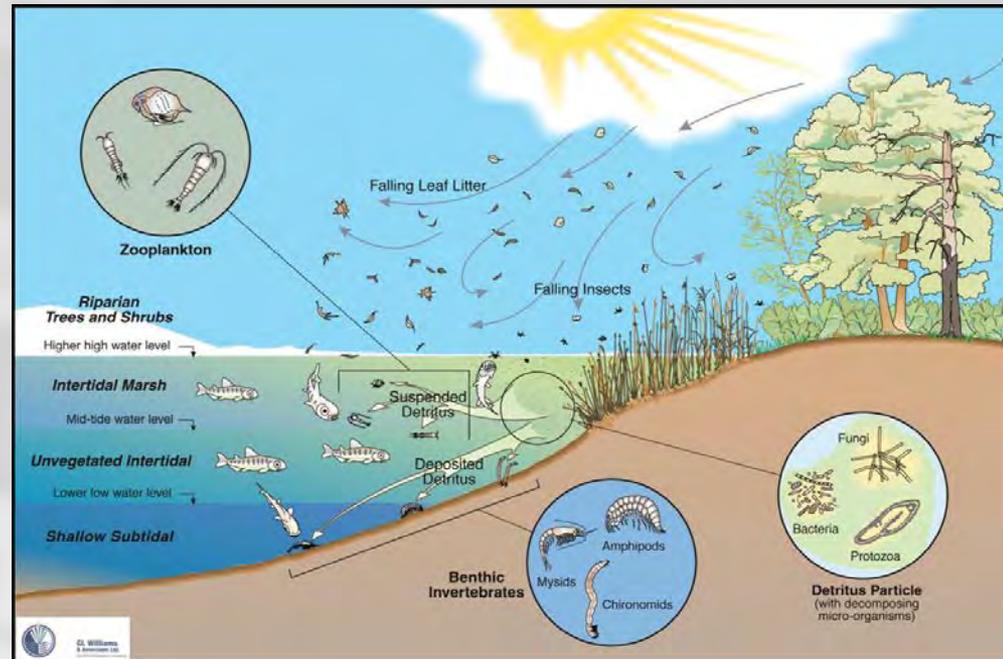
# Engineering Design Criteria

- Protect Archeological Values
- Critical Tidal Elevations
  - HHWLT = 1.8 m GD
  - MWL = 0 m GD
  - LLWLT = -2.9 m GD
- Design Wave = 2 m
  - Tugs generate 1.5 m waves
- Design Current = 3m/s
- Design Life = 50 years
- Low gradient (1%) marsh benches
- Geotechnical Considerations



# Biological Design Criteria

- Create intertidal marsh for juvenile salmonid rearing
- 70 % of estuarine wetlands lost
- Marsh soils
  - Loam sand to silt loam
  - 1-10% organic matter
- Marsh plants (brackish)
  - Lyngbye's sedge
  - Baltic rush
  - Tapered rush
  - Arrowhead
  - Cattail
  - Spikerush



# Glenrose Downstream 2014



# Glenrose Downstream 2015

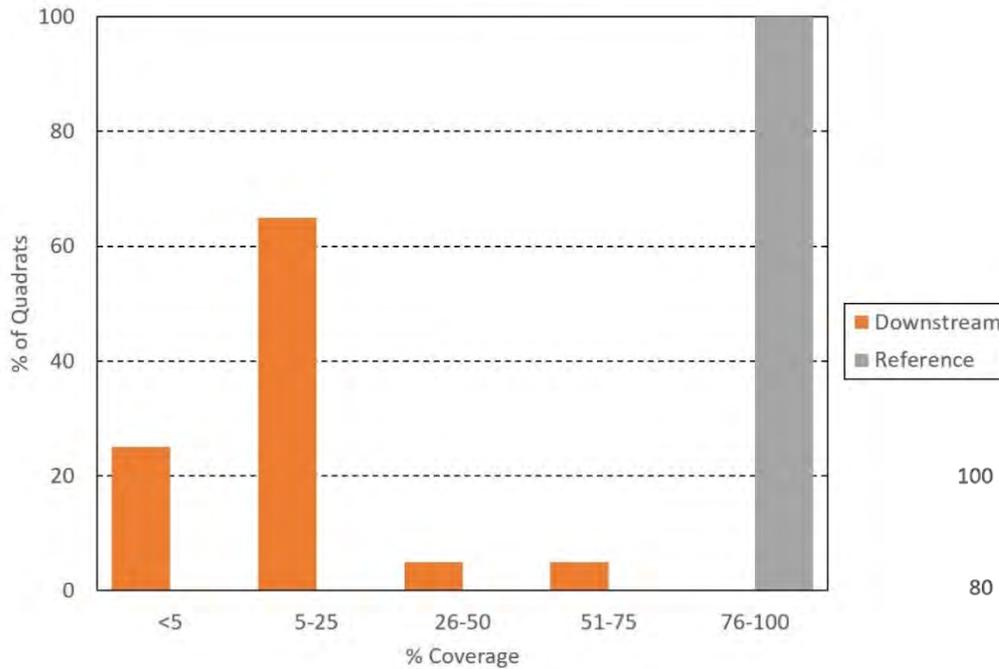


# Glenrose Downstream 2016

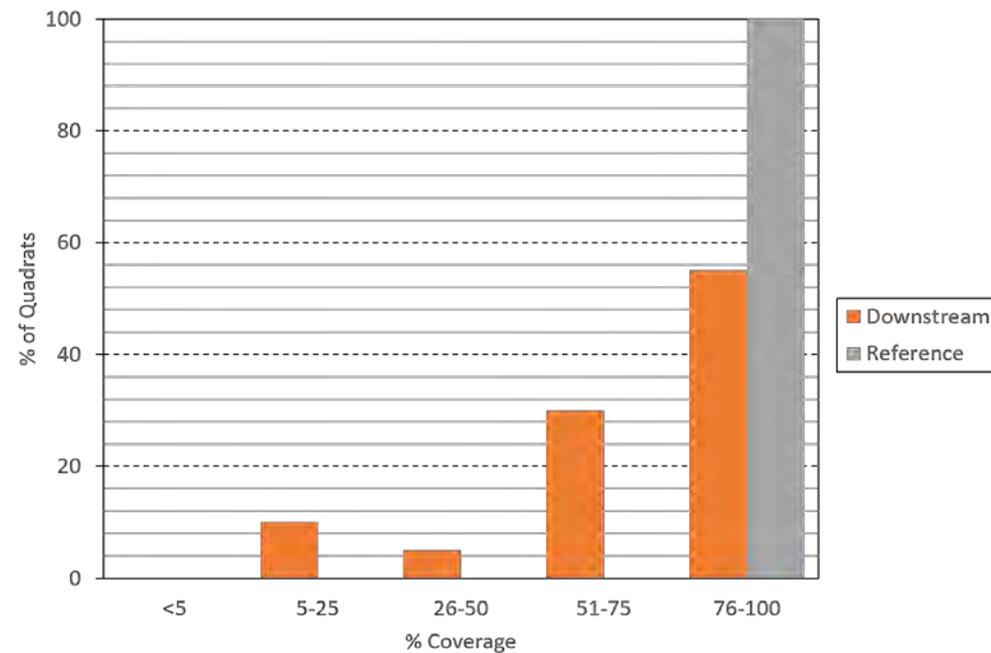


# Glenrose Downstream Results 2015 vs. 2016

A. 2015



B. 2016



# Glenrose Cannery 2014



# Glenrose Cannery 2015

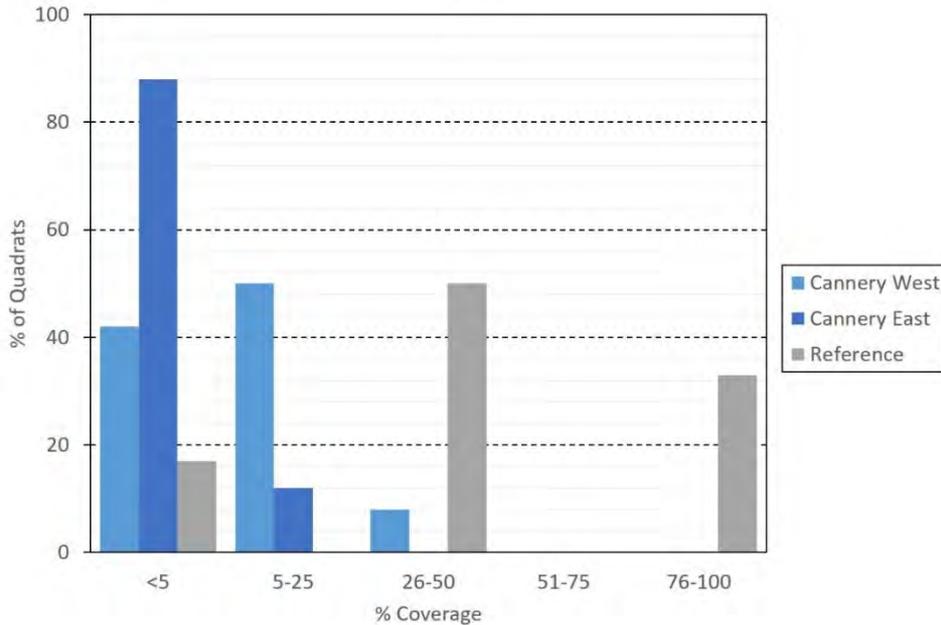


# Glenrose Cannery 2016

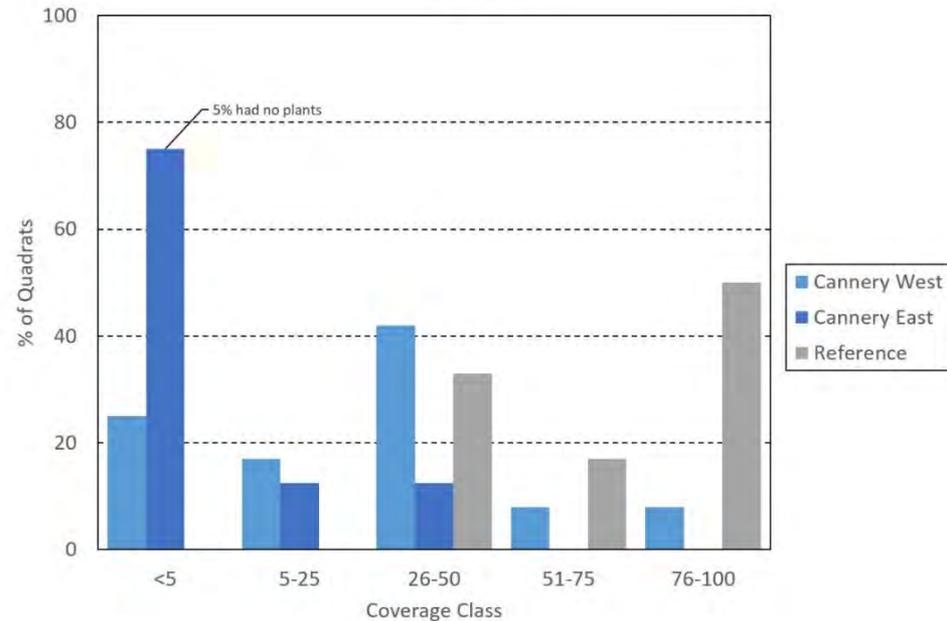


# Glenrose Cannery – Results 2015 vs. 2016

A. 2015



B. 2016



# Gunderson Slough Mudflat 2014



# Gunderson Slough Mudflat 2015

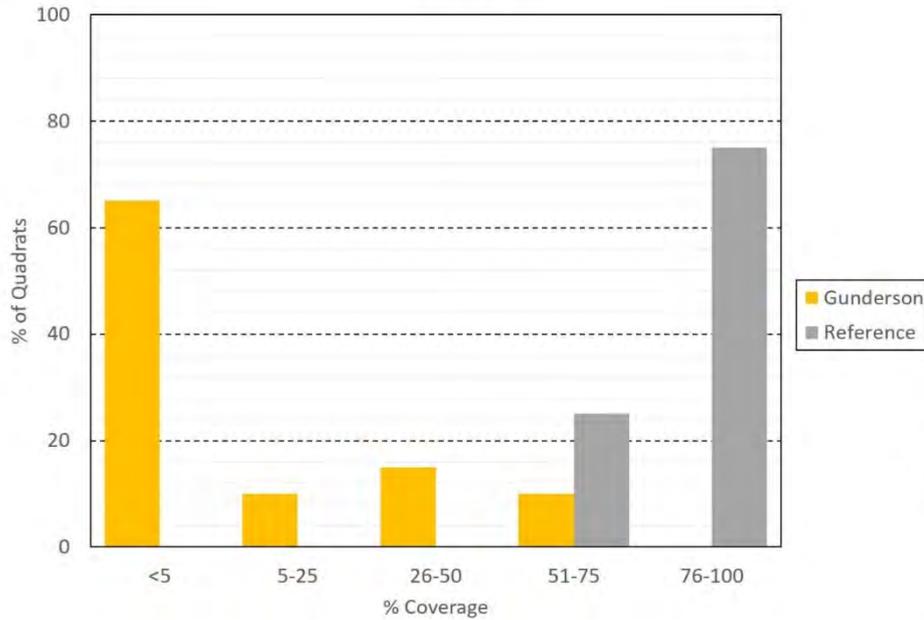


# Gunderson Slough Mudflat 2016

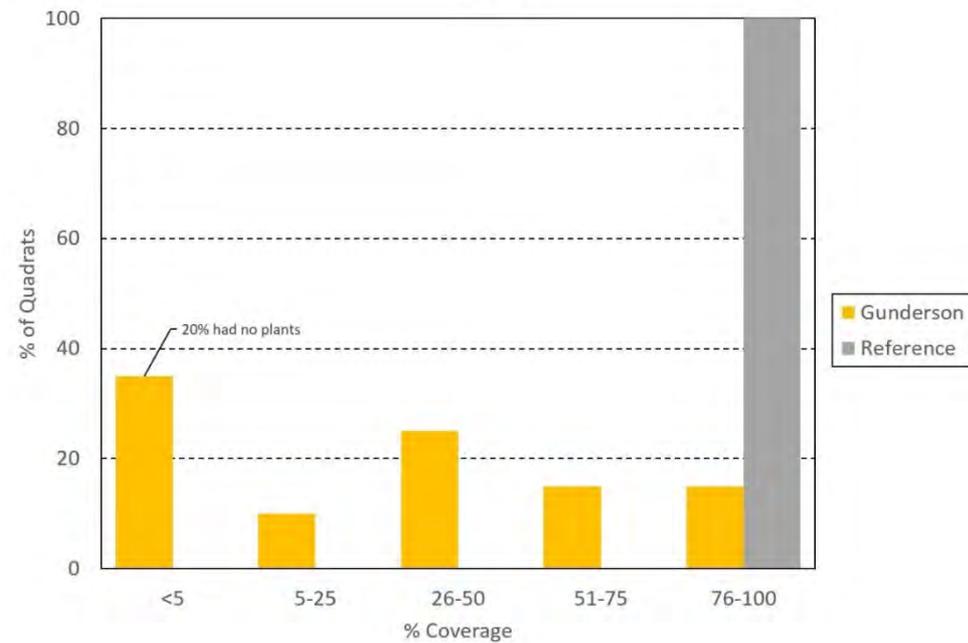


# Gunderson Slough Mudflat – Results 2015 vs. 2016

A. 2015

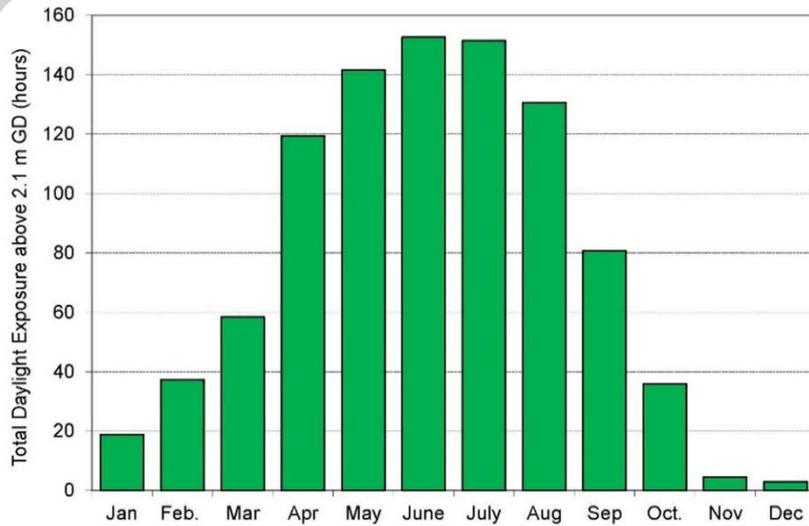


B. 2016



# Lessons Learned – Biological

## Plant to Growth Cycle



## Stressor #1 – Canada Geese



# Lessons Learned – Engineering

**Building Marshes is Fun**



**Stressor #2 – Physical Processes**



ENGINEERS

