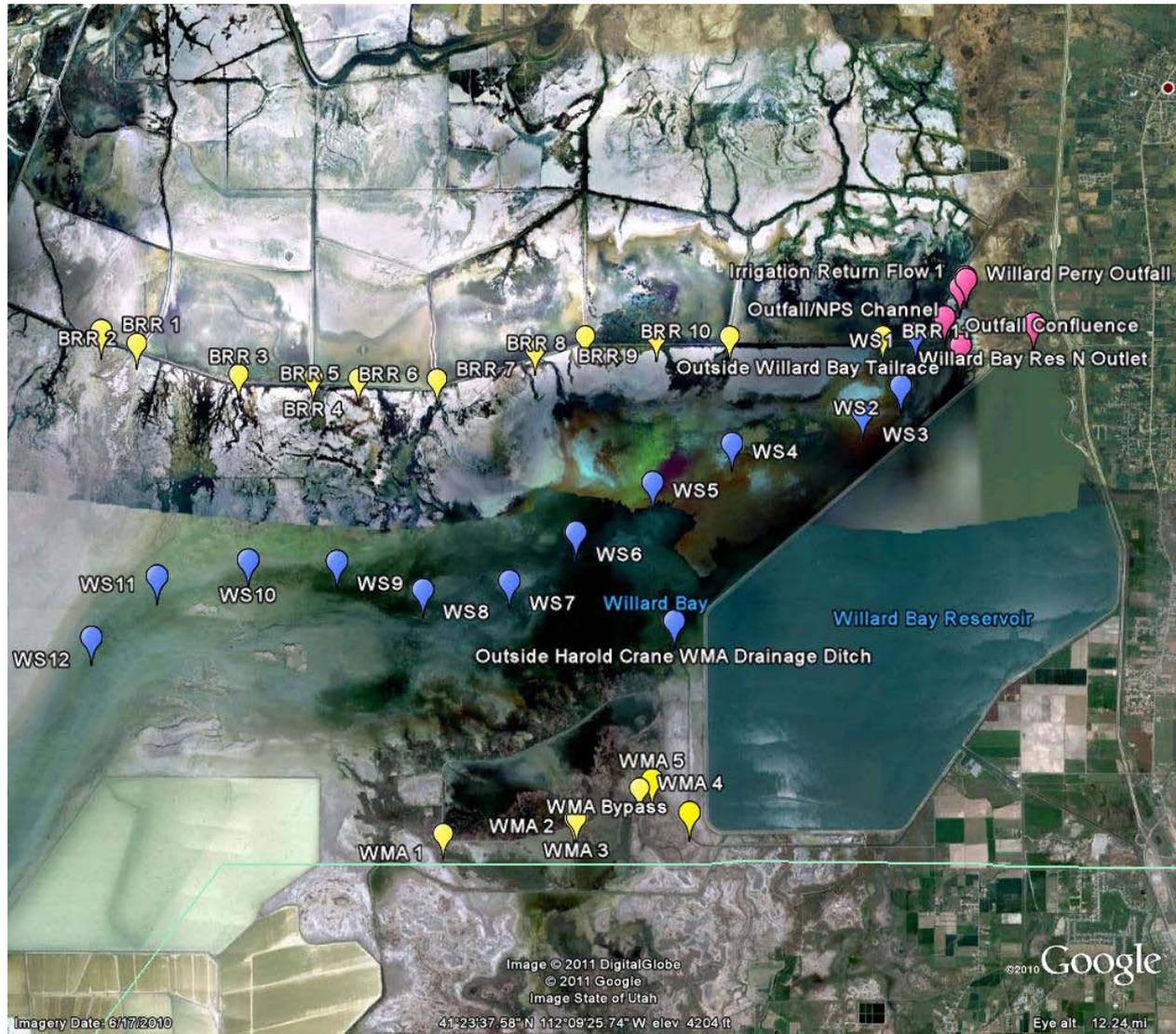


Willard Spur Summer 2011: Sampling Program



Outline: Pre - Flood and Post Flood Conditions (at different study locations)



Pre-Flood Conditions
(ex. Willard Perry Outfall)



Post-Flood Conditions
(ex. Willard Perry Outfall)

Pre-Flooding: Harold Crane WMA Study Sites



Field Measurements:

- Water Chemistry
- Water Velocity
- Field Notes



Pre-Flooding: East Side Drainage Study Sites



Field Measurements:

- Water Chemistry
- Flow
- Field Notes



Pre-Flooding: Bear River Bird Refuge Study Sites



Field Measurements:

- Water Chemistry
- Flow and Water Level
- Field Notes



Pre-Flooding: Bear River Bird Refuge (BRR 11)



Observations:

- 2 or 3 Different Plumes
- Take 2 or 3 reps.



DWQ Pressure Transducers Installed



Post Flooding: Harold Crane WMA



- a. Boards removed, water flowing out of Willard Spur
- b. Boards in, water flowing into Willard Spur
- c. Water over banks at Harold Crane WMA Bypass Canal



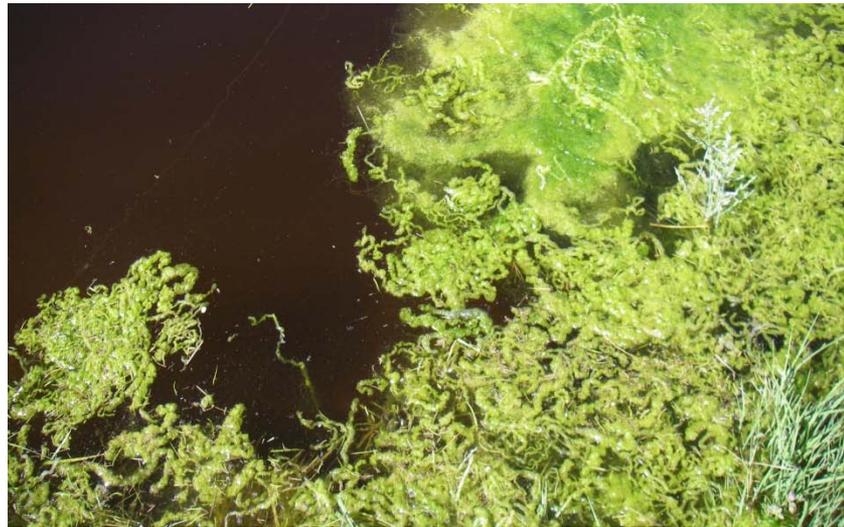
Post Flooding: East Side Drainage



a & b. Fields at Willard Perry Outfall & Irrigation Return Flow 1 flooded from Willard Spur
c. High Discharge from Willard Bay Res. N. Outlet

Post Flooding: East Side Drainage

(Vegetation Growth – 3 Types in Willard Perry Outfall)



Post Flooding: Bear River Bird Refuge



- a. Boards removed, water flowing out of Willard Spur (ex. BRR 9)
- b. Boards in, Excessive Algal Growth (ex. BRR 5)



Post Flooding: Open Water Study Sites



Sampling for Open Water Sites began 06/08/2011 and will be completed 06/24/2011

Post-Flooding: Open Water Study Sites

Field Notes

Willard Spur Run	
Trip Name: WS 10/20/11	<input type="checkbox"/> Discrete Site Visit (non-routine)
Sample Date: 6/8/11	Sample Collectors: <input checked="" type="checkbox"/> EF <input type="checkbox"/> #2 <input type="checkbox"/> EB <input type="checkbox"/> RB <input type="checkbox"/> KT
Sample Time: 13:10	<input checked="" type="checkbox"/> ST <input type="checkbox"/> #3 <input type="checkbox"/> BS <input type="checkbox"/> TJ <input type="checkbox"/> JH
Site STORET#: 5984645	Other: <input type="checkbox"/> #1 <input checked="" type="checkbox"/> AA <input type="checkbox"/> BB <input type="checkbox"/> DE <input type="checkbox"/> MS
Site Name: OUTSIDE WILLARD BAY TALK 3	
Field Observations	
Weather in past 48 hours:	
Current weather: Sunny, calm	
Flow direction: SW	Water Depth: 0.78
Secchi Depth: 0.6m	Water clarity: good
Algal mats: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Describe:
Phragmites: N/S/E	



Bird Sampling



Field Measurements

- Field Notes
- Bird Sampling
- Water Column
- Submerged Aquatic Vegetation
- Macroinvertebrates
- Zooplankton

Water Column analysis

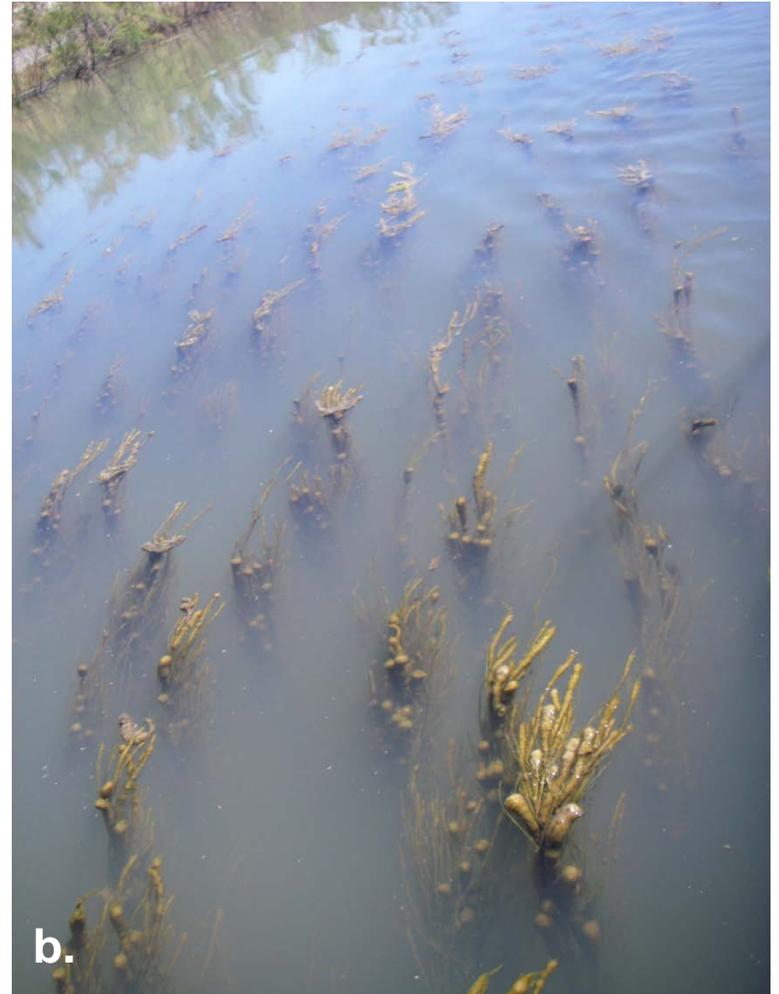


Submerged Aquatic Vegetation



Open Water: Field Observations

- a. Before flooding with Weber River waters
- b. 4 days later excessive vegetation growth in open water.



Open Water: Sampling Challenges

Challenges

- Bird sampling using airboat was challenging because of the noise and size of Spur (~ 30 mi² of habitat)
- Sampling for macroinvertebrates was difficult because of water depth (~120+ cm)

On-going Improvements

- Bird sampling with: binoculars, expand study area to a 200 m radius, & float into sampling site from 200m
- Develop a SOP for measuring turbidity with a Turbidity Tube because it is not possible to use the Secchi Disk due to the excessive growth of submerged vegetation
- Phytoplankton analysis

Questions?

