UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Wetland Water Quality Standards Workshop
March 21-22, 2018

Water Quality Standards

Designated Beneficial Uses

Drinking Water

Recreation

Aquatic Life

Agriculture

Great Salt Lake

Criteria

Numeric:

- Toxic substances
- Salinity
- pH
- Oxygen

Narrative



Designated Uses

5E Transitional Lands

- waterfowl, shorebirds, food web, recreation

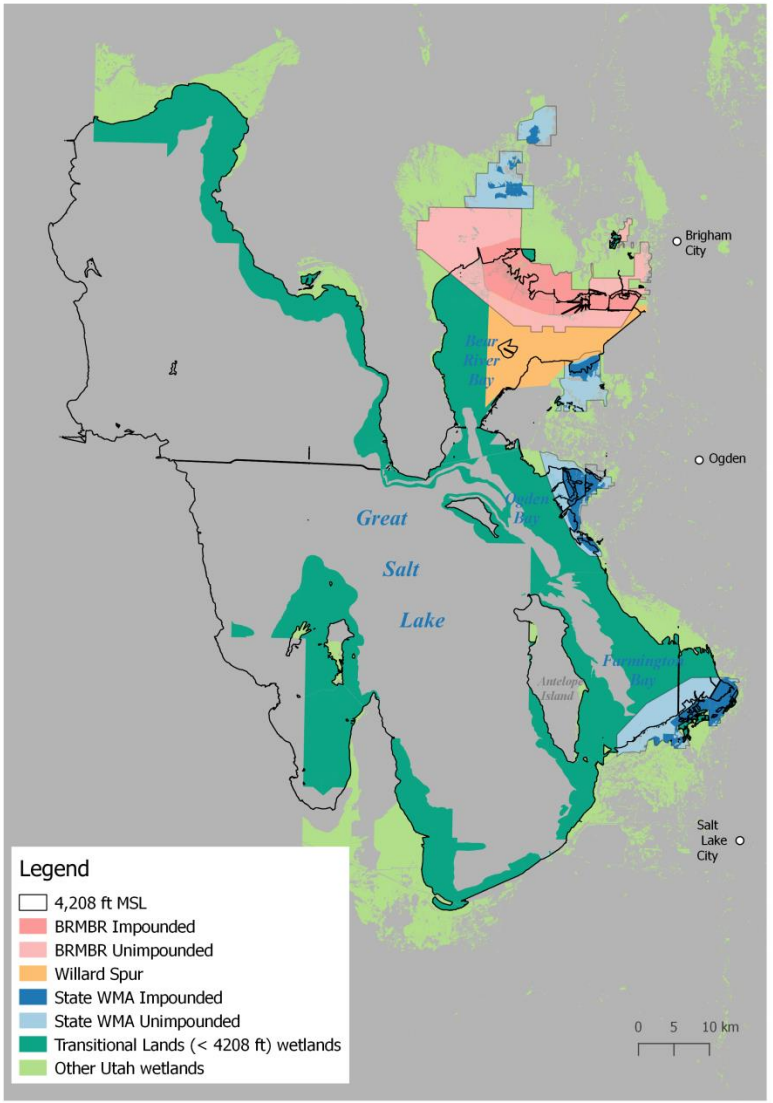
Impounded wetlands within […] wildlife management areas

- waterfowl, shorebirds and food web
- Non-game fish and other aquatic life
- recreation

All waters of the state (marshes)

- Recreation
- Aquatic life

- ***Willard Spur***
- ***Great Salt Lake wetlands***



Examples of Existing Wetland Designated Uses

- Wildlife habitat
- Aquatic life
- Recreation
- Wetland
- Agriculture & irrigation
- Water supply protection
- Water quality enhancement
- Aesthetics
- Flood attenuation
- Industrial use

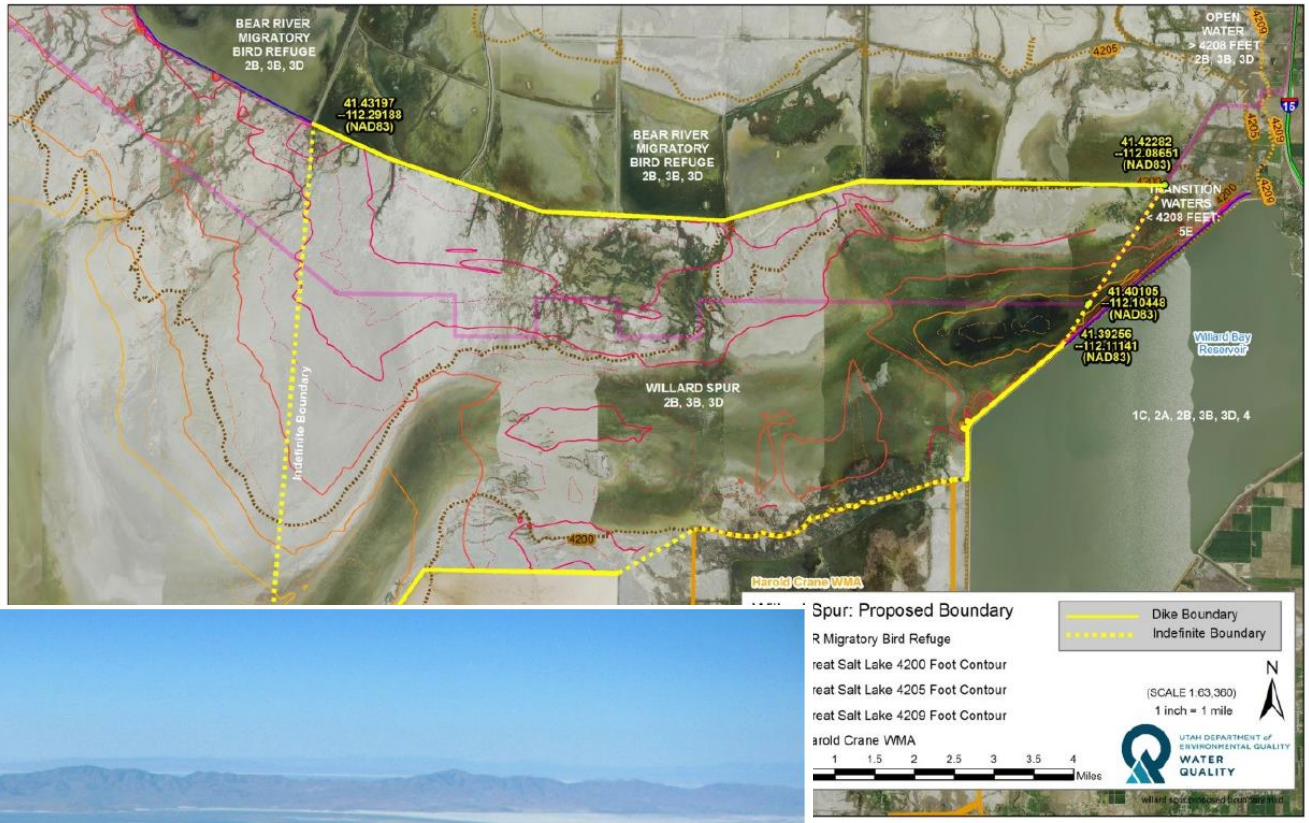
Narrative Standards

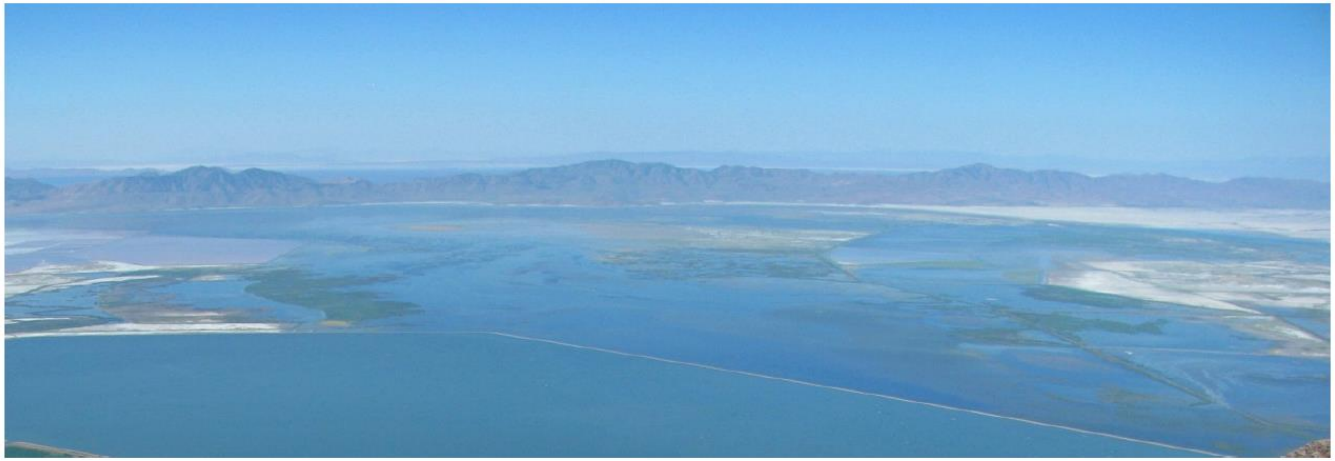
- General Statements of water quality goals
  - There SHALL be:
    - *No floating material*
    - *Biological and community structure maintained*
- Describe things not well captured by numeric standards
  - Wetlands
- Starting point for numeric standards and biological assessment methods

Examples of Wetland Narrative Standard Criteria

- Biological community
- Toxicity
- Turbidity
- Temperature
- Radioactivity
- Pathogenic organisms
- Biostimulatory substances
- Hydrology
- Algae
- Junk and refuse
- Bioaccumulation or pesticides
- pH

Willard Spur





Wetland Water Quality Standards

Wetland Designated Use

Waterfowl

_____

_____

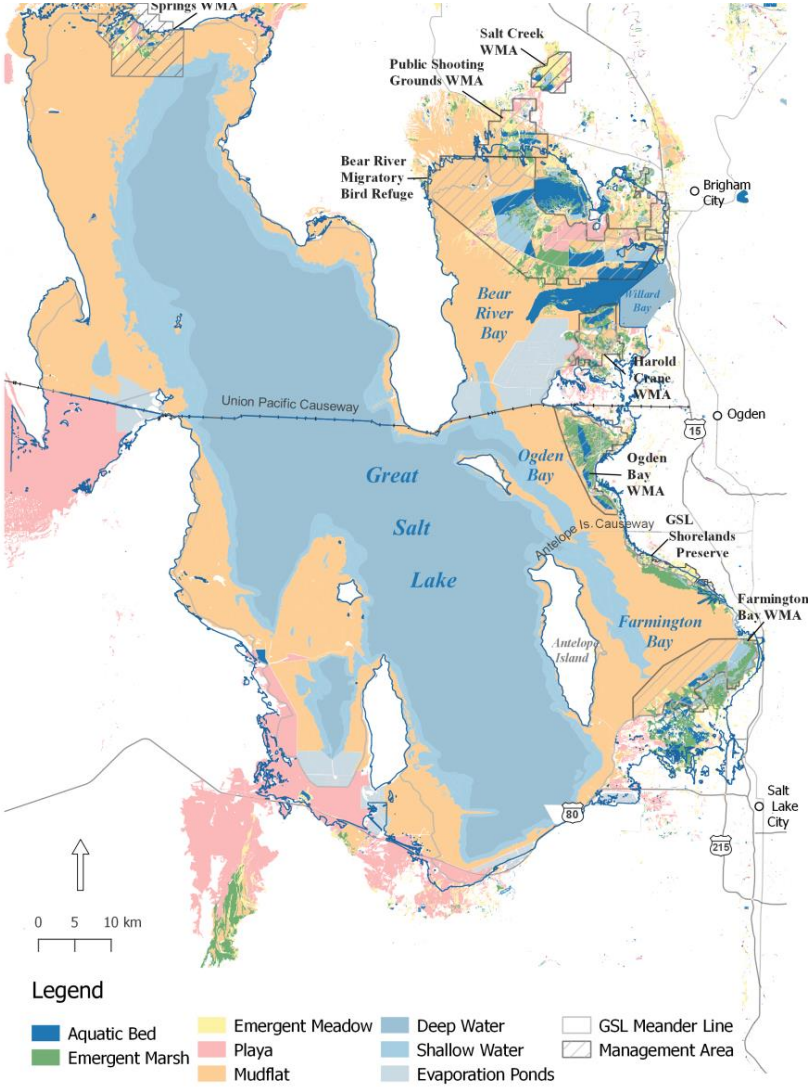
_____

Wetland Narrative Criteria

Narrative ‘shall be …’

- _____
- _____
- _____
- _____

Great Salt Lake Wetlands



Submergent

Tall emergent

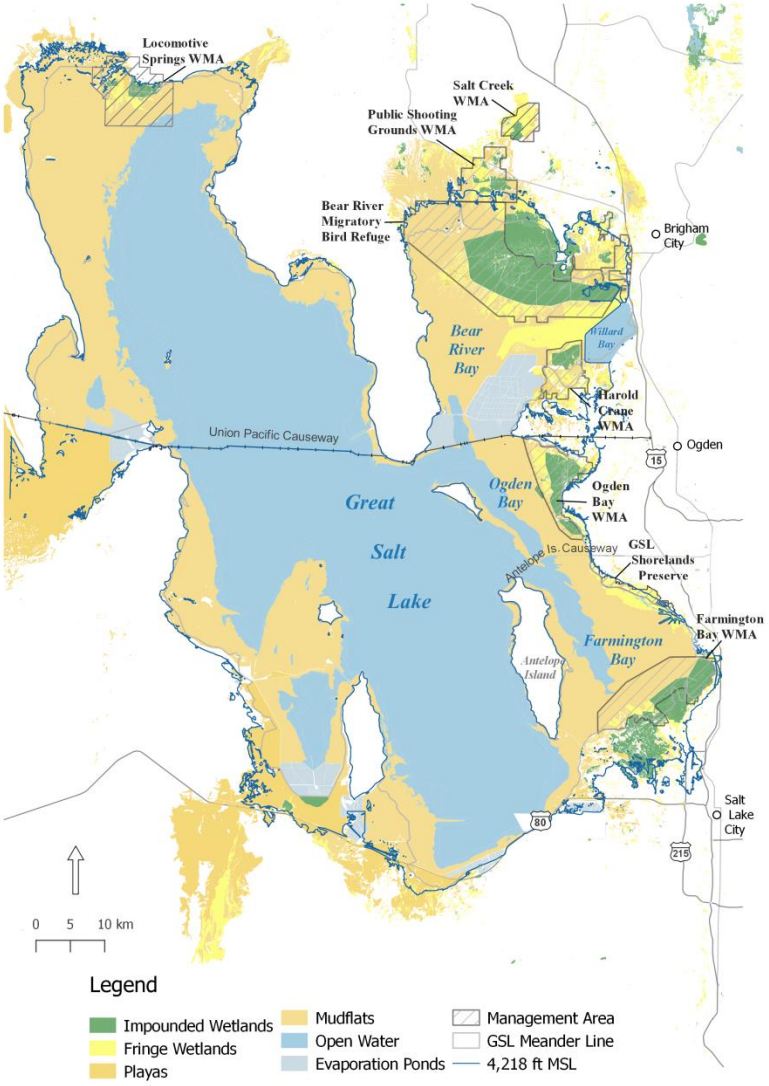
Meadow

Short emergent

Playa

Mudflat

Great Salt Lake Wetlands

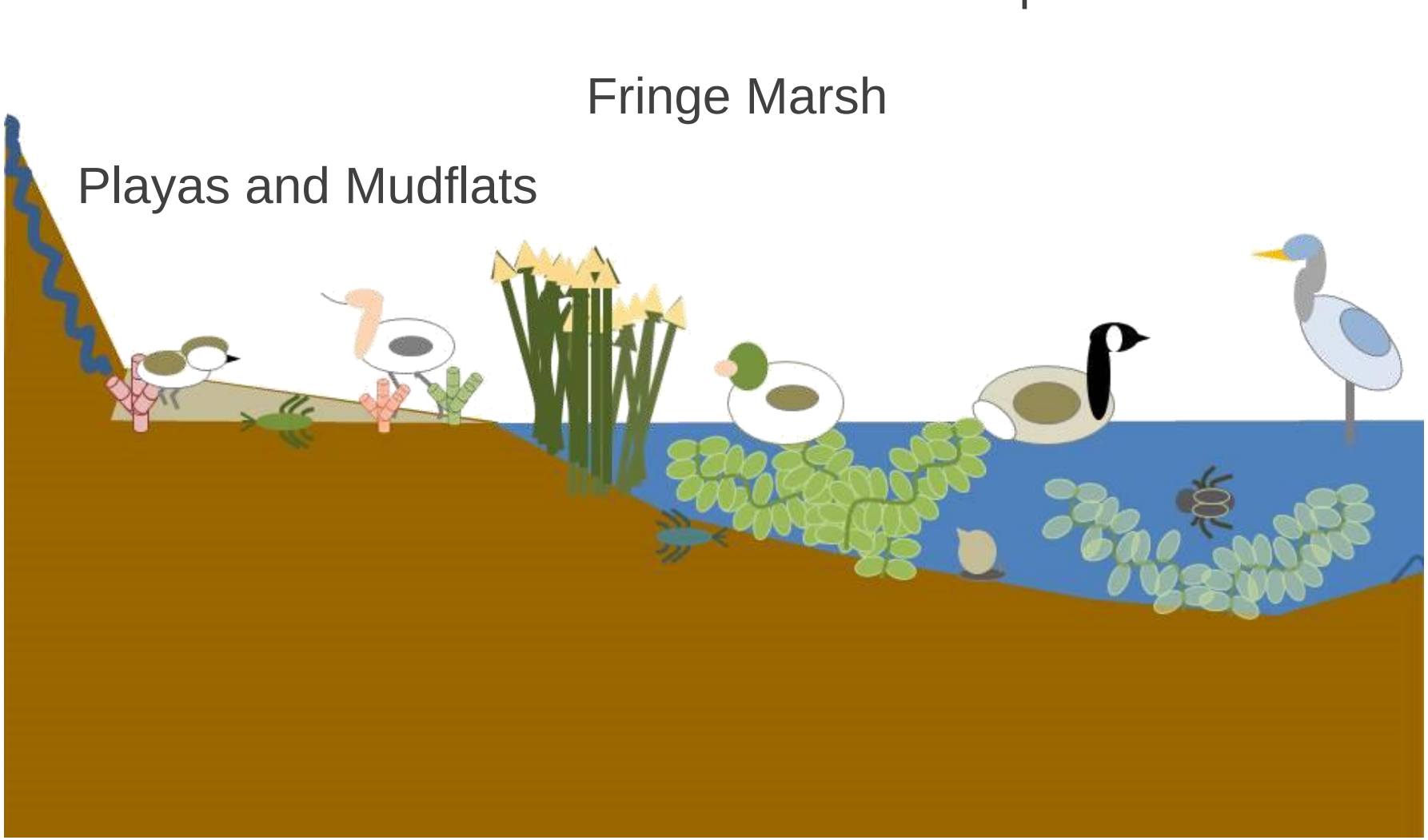


Impounded Wetlands

Fringe Wetlands

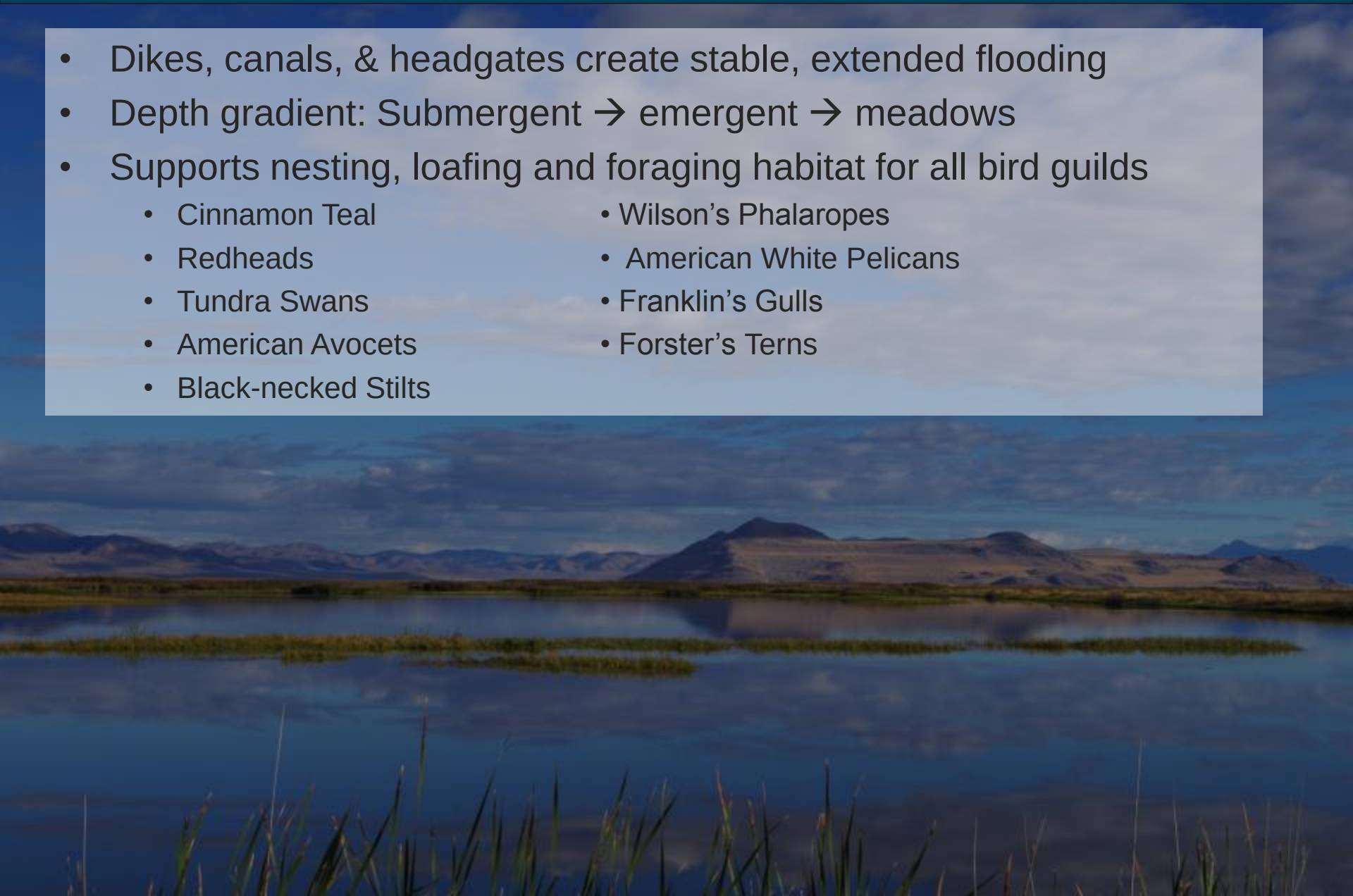
Playas & Mudflats

Targets



Impounded wetlands

- Dikes, canals, & headgates create stable, extended flooding
- Depth gradient: Submergent → emergent → meadows
- Supports nesting, loafing and foraging habitat for all bird guilds
  - Cinnamon Teal
  - Redheads
  - Tundra Swans
  - American Avocets
  - Black-necked Stilts
  - Wilson's Phalaropes
  - American White Pelicans
  - Franklin's Gulls
  - Forster's Terns



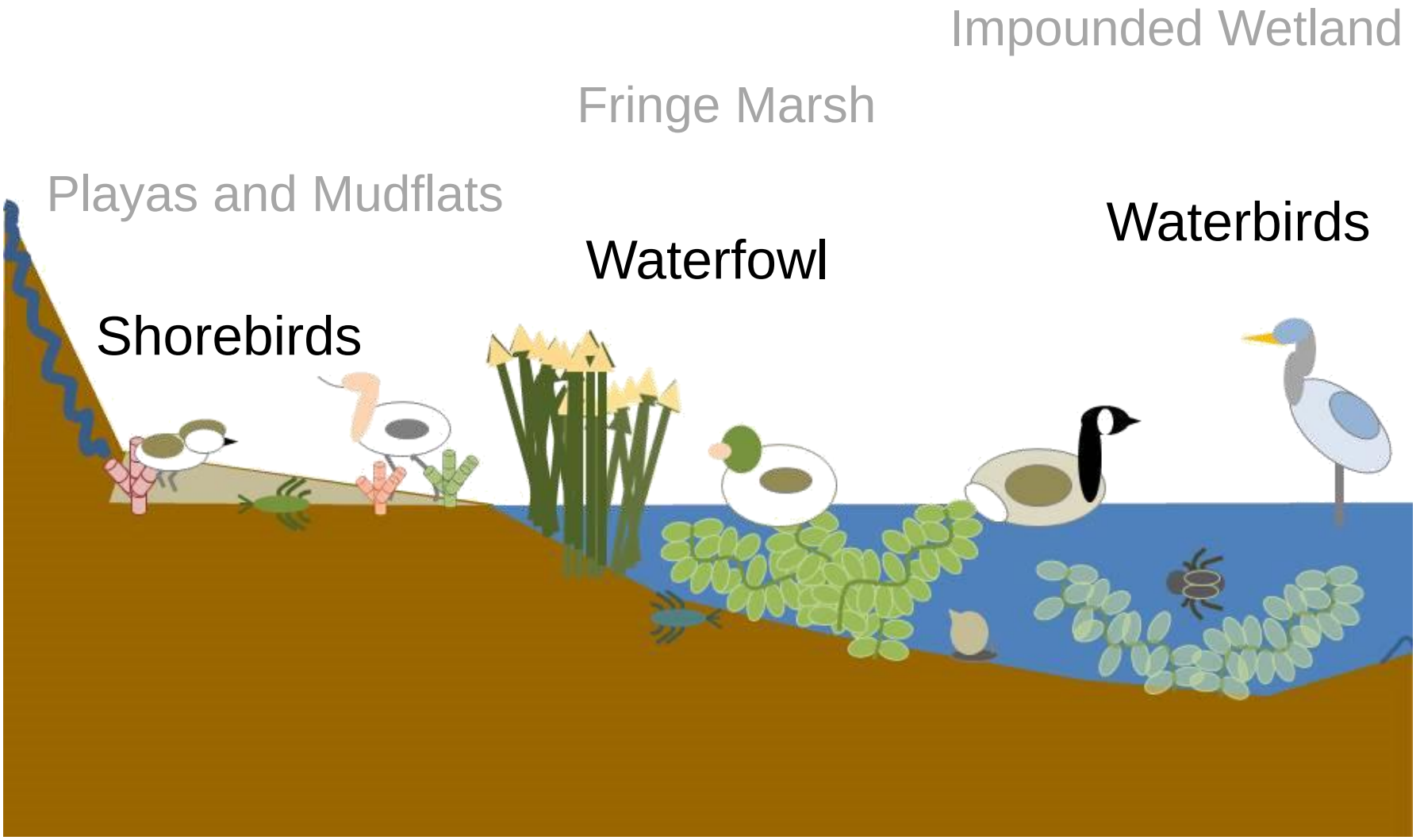
Fringe wetlands

- Unmanaged wetlands, high and low
- Shifting mix of submergent and emergent wetland types
- Supports nesting, loafing and foraging habitat for all bird guilds
  - Cinnamon Teal
  - Redheads
  - White-faced Ibis
  - Black-necked Stilts
  - Western Grebes
  - Forster's Tern
  - Wilson's Phalaropes

Playa wetlands

- Flat shoreline habitat, fluctuate with GSL
- Playas have halophyte plants, mudflats are unvegetated
- Supports nesting, loafing and foraging habitat for all bird guilds
  - Snowy Plover
  - Black-necked Stilts
  - American Avocets
  - Long-billed Dowitchers
  - Marbled Godwits
  - Western Sandpipers
  - Long-billed Curlews

Targets > Nested Targets



Targets > Nested Targets > Ecological Attributes

Hydrologic Regime

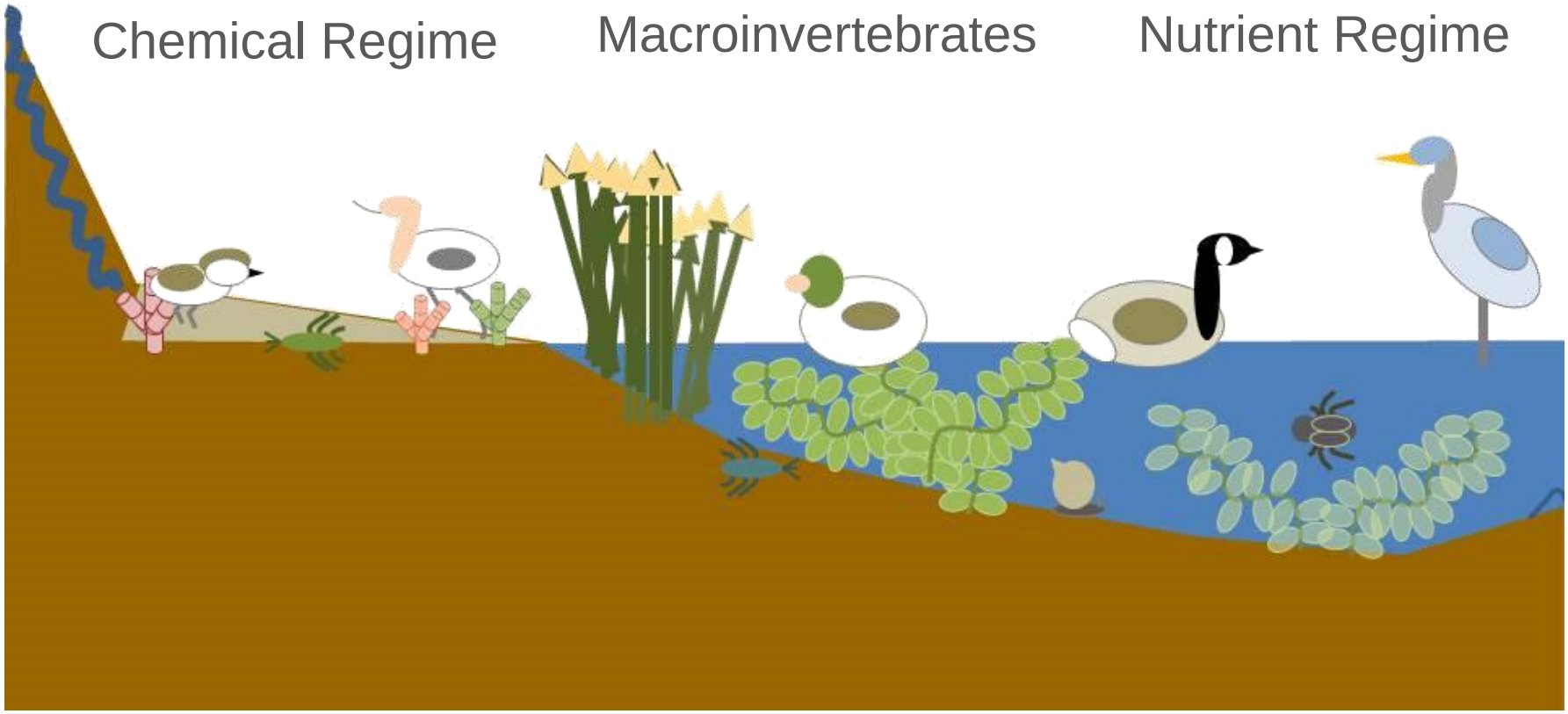
Size

Plants

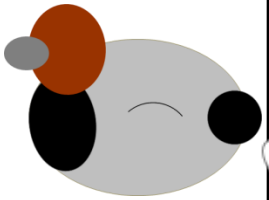
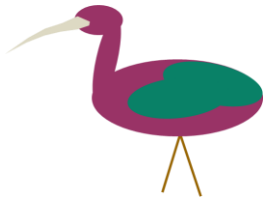
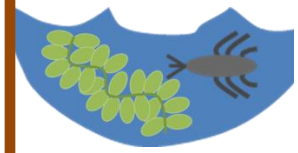
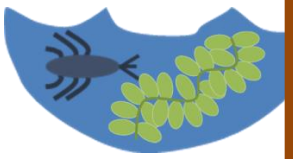
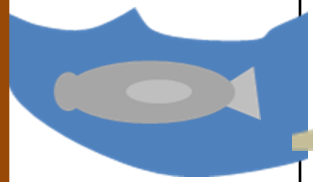
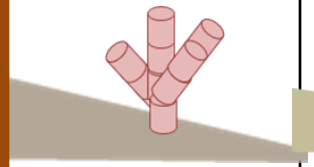
Chemical Regime

Macroinvertebrates

Nutrient Regime



Nested Targets Habitat Requirements

	Waterfowl			Shorebirds	Waterbirds	
	Diving Waterfowl	Dabbling Waterfowl	Large Shorebirds	Small Shorebirds	Piscivorous Birds	Colonial Birds
						
Feeding	Macroinvertebrates , Tubers	Macroinvertebrates , Leaves, Seeds	Macroinvertebrates	Macroinvertebrates	Fish	Macroinvertebrates
						
Nesting	Emergent Vegetation	Meadow Vegetation	Playa/Mudflat	Playa/Mudflat	Islands	Meadow Vegetation
						

Ecological Attributes > Indicators

Hydrologic Regime

Playas and Mudflats	Fringe Marsh	Impounded Wetland
Diversity of salinity conditions, topography, and hydrology	Presence of submergent, emergent, meadow, and playa wetlands	Flooding depth, flushing flows

Proposed GSL Wetlands KEAs

Key Ecological Attribute and Indicator	Impounded Wetlands	Fringe Wetlands	Playas & Mudflats
Hydrology – Timing & quantity	☑	☑	☑
Chemical Regime - Toxic substances	☑	☑	☑
Nutrient regime – Availability & cycling	☑	☑	☑
Macroinvertebrates - composition & biomass	☑	☑	☑
Plants – Composition & diversity	☑	☑	☑
Plants – SAV cover & condition	☑		
Size		☑	☑