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Photo A.1: Weaver Bottoms Constructed 1986 Swan & Mallard Island, Whitewater River

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Photo A.2: Weaver Bottoms
Hydraulic dredging of fine sediments into a containment cell constructed on Swan Island

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Photo A.3: Weaver Bottoms
Fine sediments (ie. topsoil) being spread over sand on Mallard Island

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Photo A.4: Weaver Bottoms
Groins on north side of Swan Island

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Photo A.5: Weaver Bottoms
Offshore rock mound, Swan Island

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Photo A.6: Weaver Bottoms
Mallard Island Shoreline

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Photo A.7: Weaver Bottoms
Swan Island Groin

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Photo A.8: Weaver Bottoms
Swan Island biotechnical stabilization

Wooden stakes with wire strung between them were initially used to anchor the fiber rolls, however wave action soon loosened many of the stakes. The USFWS came up with a simple and effective way to hold the fiber rolls down. Sandbags.

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Photo A.9: Weaver Bottoms Prairie Grasses on Swan Island

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Photo B.1: Lake Onalaska
Constructed 1989
Sheltered zone downstream of islands

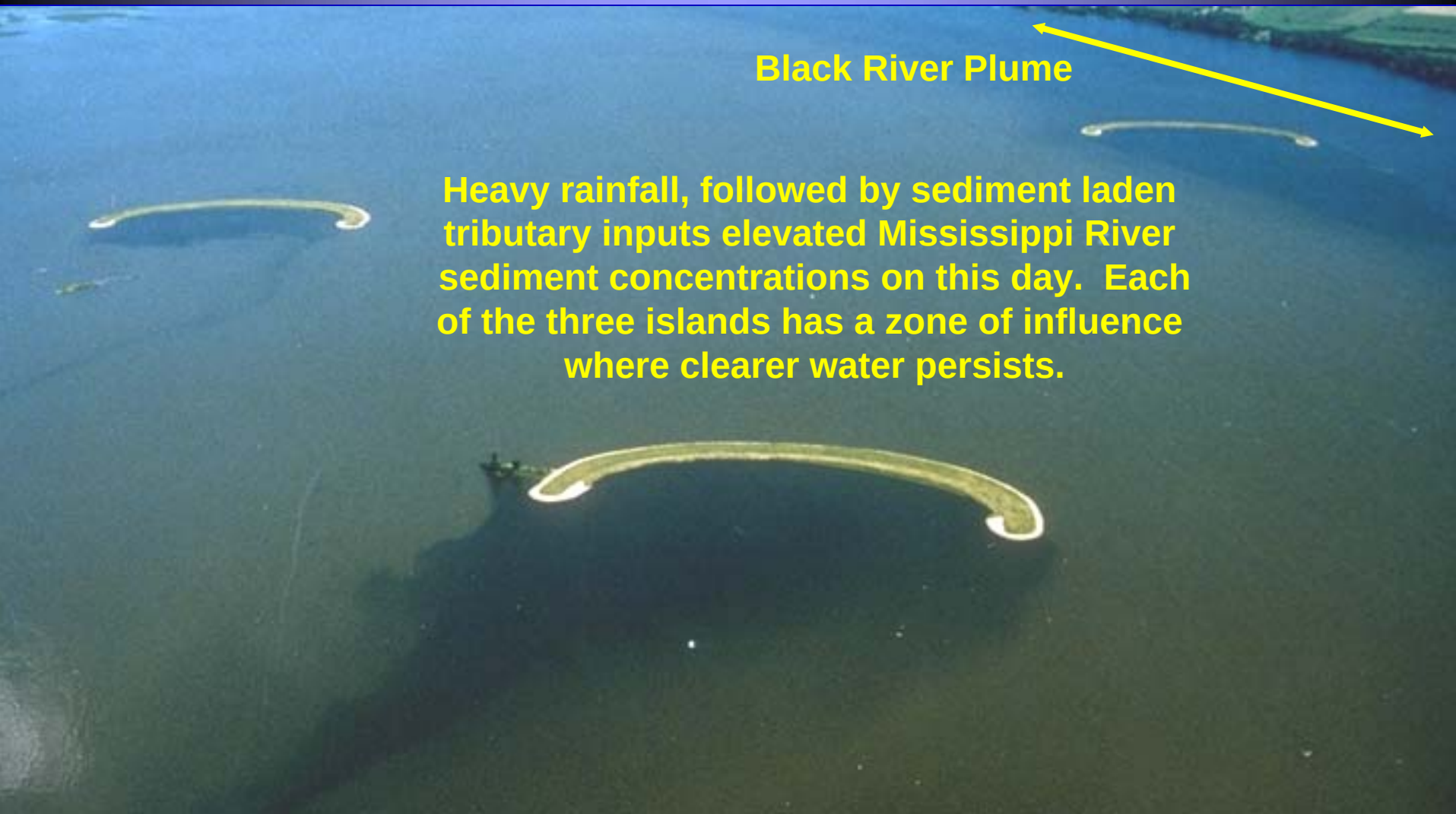

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Photo B.2: Lake Onalaska
Comorant Island before topsoil

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Photo B.3: Lake Onalaska
Comorant Island before vegetation

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Photo B.4: Lake Onalaska
Broken Gun Island 1989

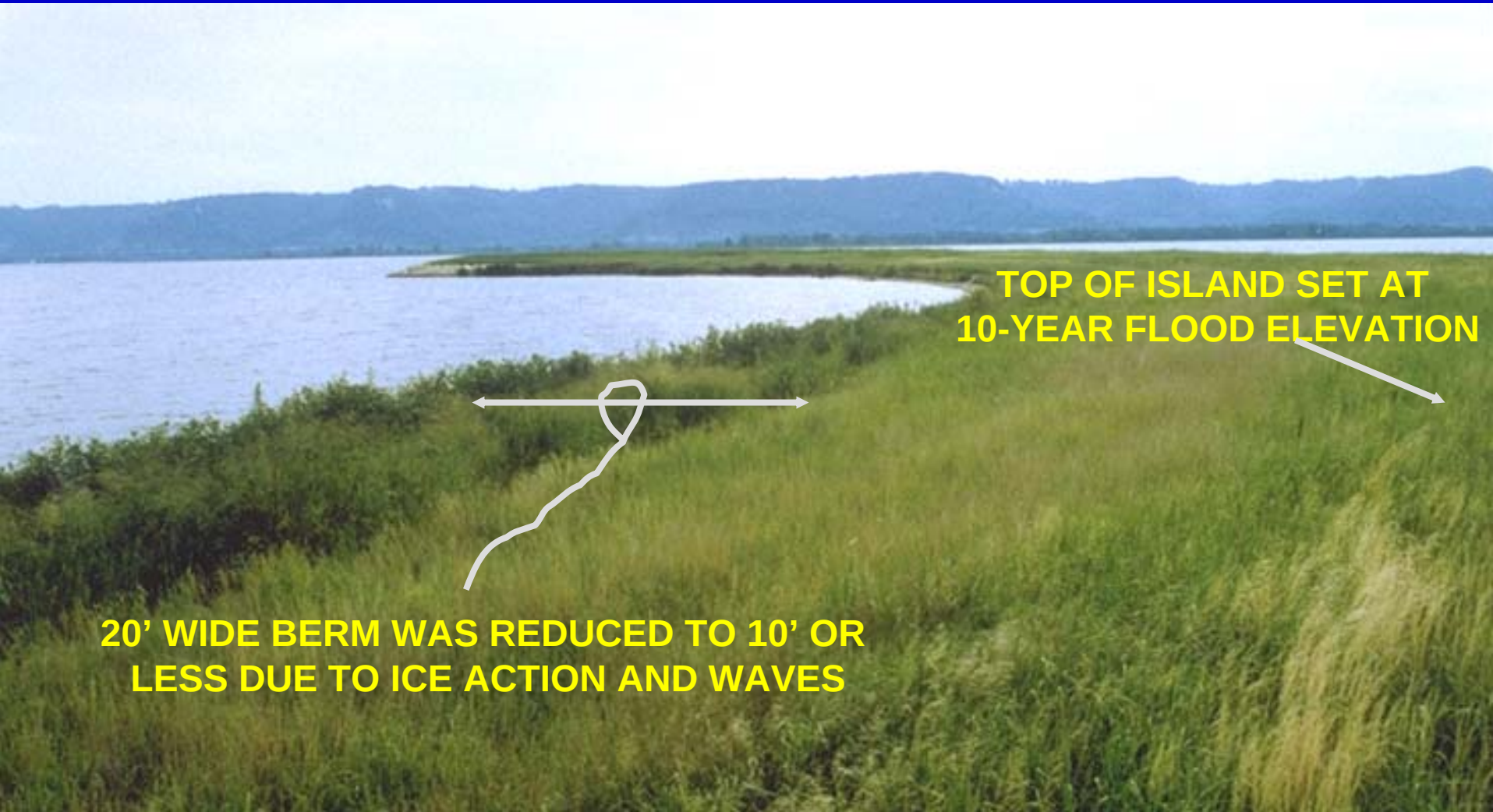

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Photo B.5: Lake Onalaska Riprap and Geotextile

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Photo B.6: Lake Onalaska
Ice action at Broken Gun Island

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Photo B.7: Lake Onalaska
Ice damaged groins

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Photo C.1: Pool 8, Phase I, Stage I
Constructed 1989
Horseshoe Island

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Photo C.2: Pool 8, Phase I, Stage I
Horseshoe Island stable shoreline

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Photo C.3: Pool 8, Phase I, Stage I
Willow growth on sand berm less than one year after construction

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Photo D.1: Pool 8, Phase I, Stage II
Constructed 1992
Boomerang Island

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Photo D.2: Pool 8, Phase I, Stage II
Constructed 1992
Grassy Island

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Photo D.3: Pool 8, Phase I, Stage II
Fines placed on Sand Base

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Photo D.4: Pool 8, Phase I, Stage II
Boomerang Island Construction

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Photo D.5: Pool 8, Phase I, Stage II
Stable during 1993 flood
Note green rows of grass beneath water

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Photo D.6: Pool 8, Phase I, Stage II Vegetative stabilization on Boomerang Island

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Photo D.7: Pool 8, Phase I, Stage II
Erosion at Boomerang Corner

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Photo D.8: Pool 8, Phase I, Stage II
Sparse ground cover after 2001 flood
Boomerang Corner

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Photo D.9: Pool 8, Phase I, Stage II Biotechnical stabilization consisting of groins, sand berm, and willows

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Photo D.10: Pool 8, Phase I, Stage II
Boomerang Island Waterfowl use

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Photo E.1: Pool 9 Island Constructed 1995

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Photo E.2: POOL 9 ISLAND

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Photo F.1: Polander Lake, Stage 1, Island 2 Constructed 1994

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Photo G.1: Willow Island, Pool 10
Constructed 1995

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Photo G.2: Willow Island Berm

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Photo H.1: Pool 8, Phase II
Constructed 1999
Stoddard Bay

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Photo H.2: Hydraulic dredging of sand

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Photo H.3: Incorporating island remnants into new shoreline

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Photo H.4: Hydraulic Placement of Fines

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Photo H.5: Rock Sill B
Stoddard Bay

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Photo H.6: Rock Sill B overtopped

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Photo H.7: Notch in Rock Sill A

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Photo H.8: Vegetative response in Stoddard Bay

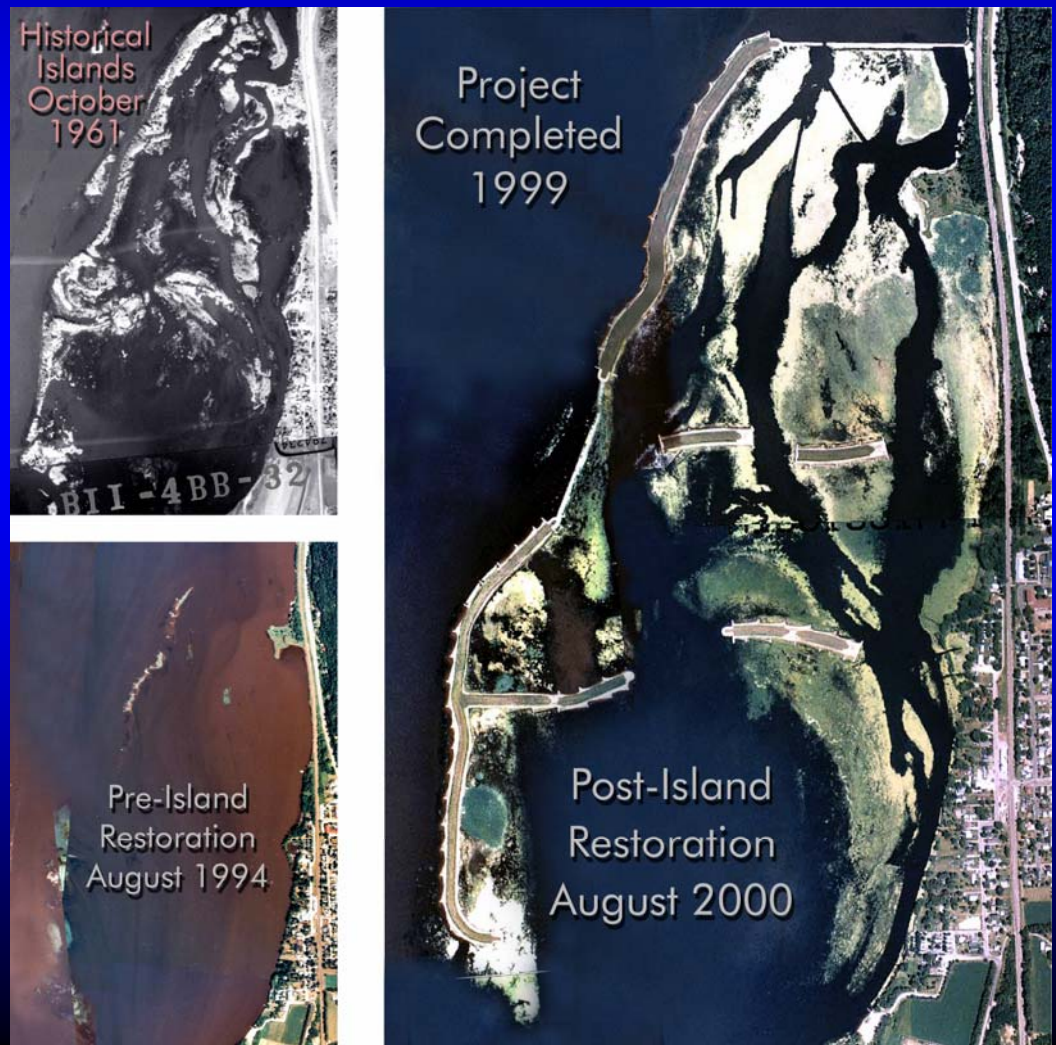

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Photo H.9: Slingshot Island stable after 2001 flood

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Photo H.10: Erosion of turtle nesting mound on Slingshot Island occurred during the 2001 flood

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Photo H.11: Rock Mound

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Photo H.12: Topsoil Erosion, Slingshot Island

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Photo H.13: Remnant island, Stoddard Bay

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Photo H.14: Pool 8, Phase II. Pelicans on rock seed island.

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Photo H.15: Rock Sill B

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Photo I.1: Polander Lake Constructed 2000

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Photo I.2: Loafing structure anchored with rock

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Photo I.3: Groins

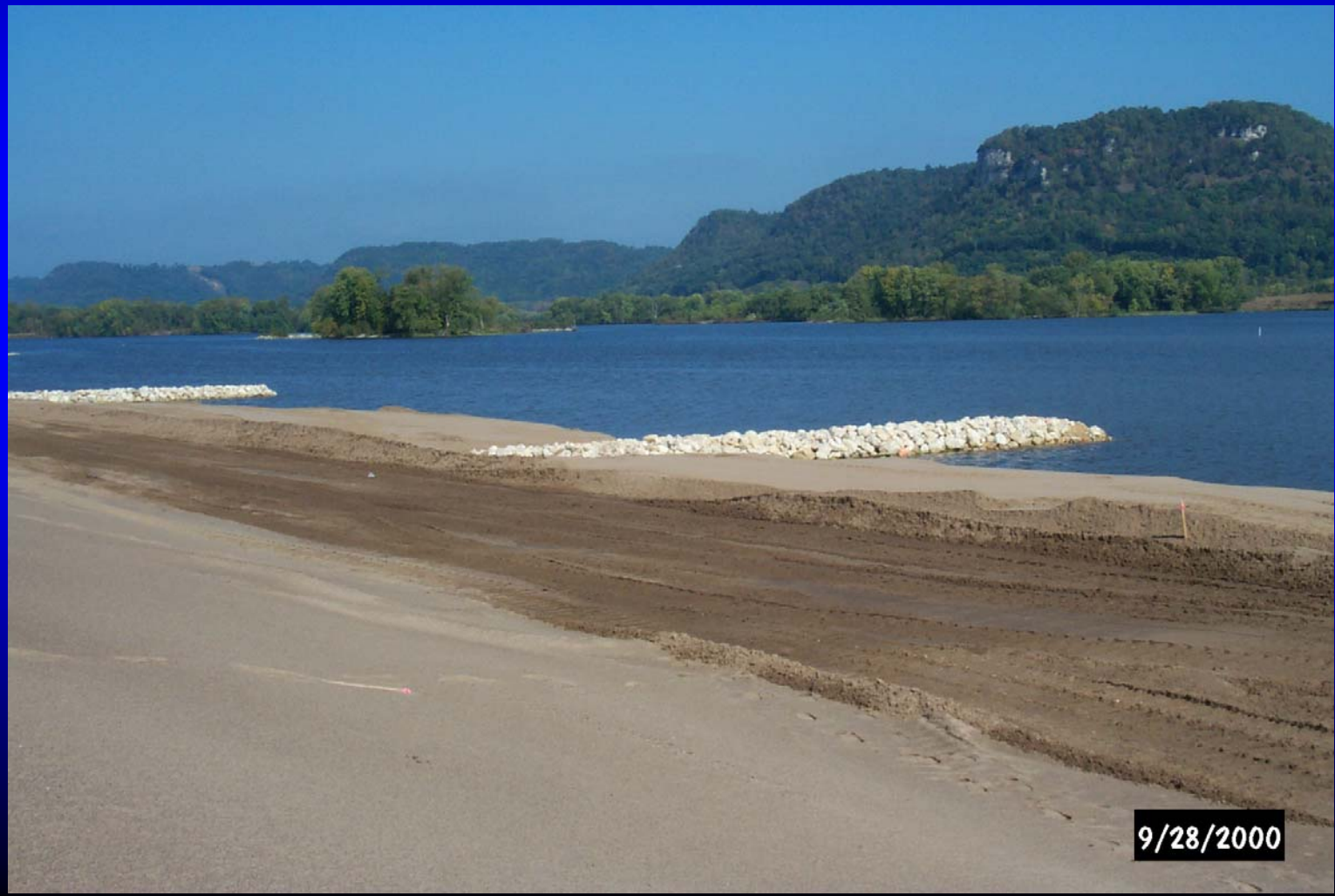

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Photo I.4: Erosion of top of island due to 2001 flood

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Photo I.5: Scalloping around groin occurred during the 2001 flood

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Photo I.6: Erosion of sand and fines occurred during the 2001 flood

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Photo I.7: Benching due to wave action during the 2001 flood

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Photo I.8: A breach formed due to overtopping during the 2001 flood.

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Photo I.9: Polander Lake shoreline

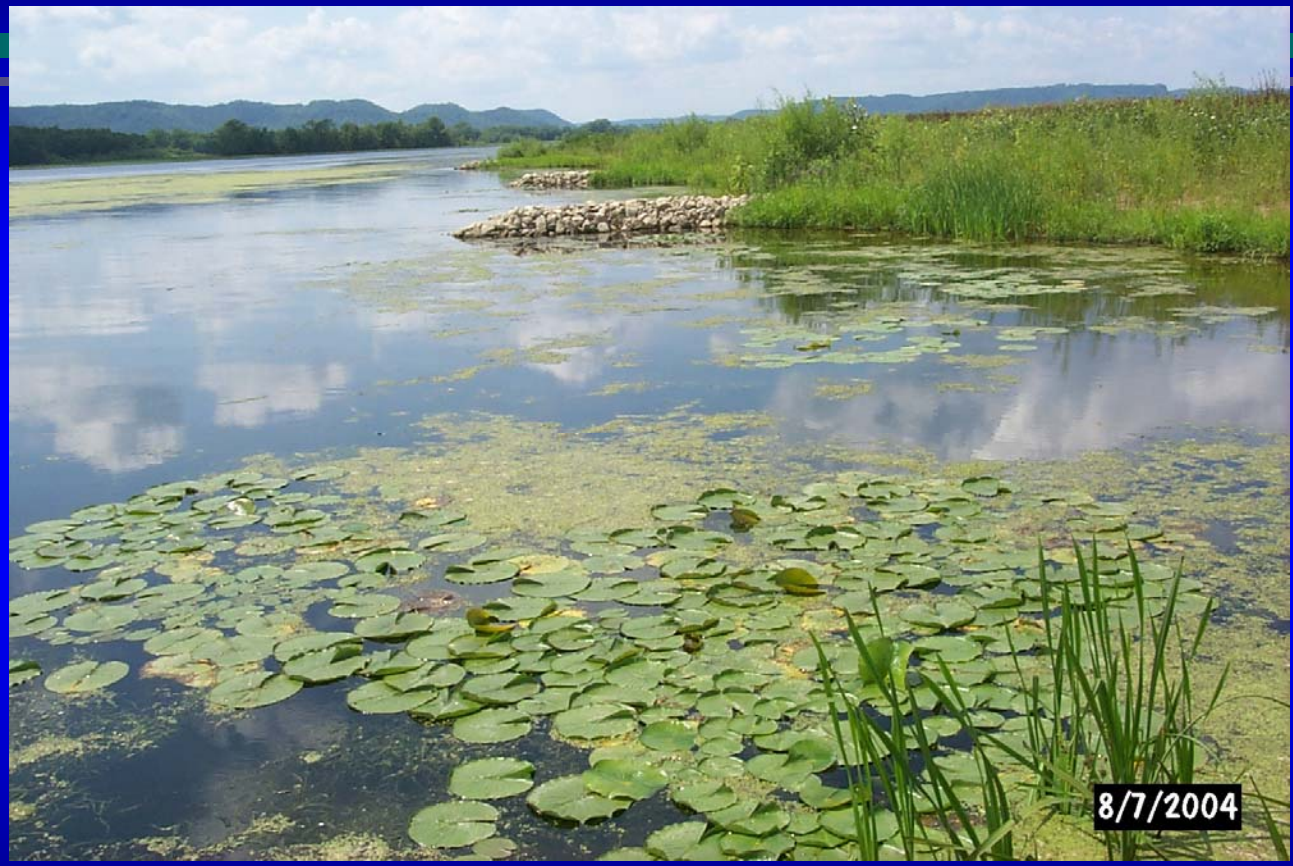

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Photo I.10: Interior wetland

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Photo I.11: Polander Lake prairie grasses

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Photo I.12: Polander Lake loafing structures

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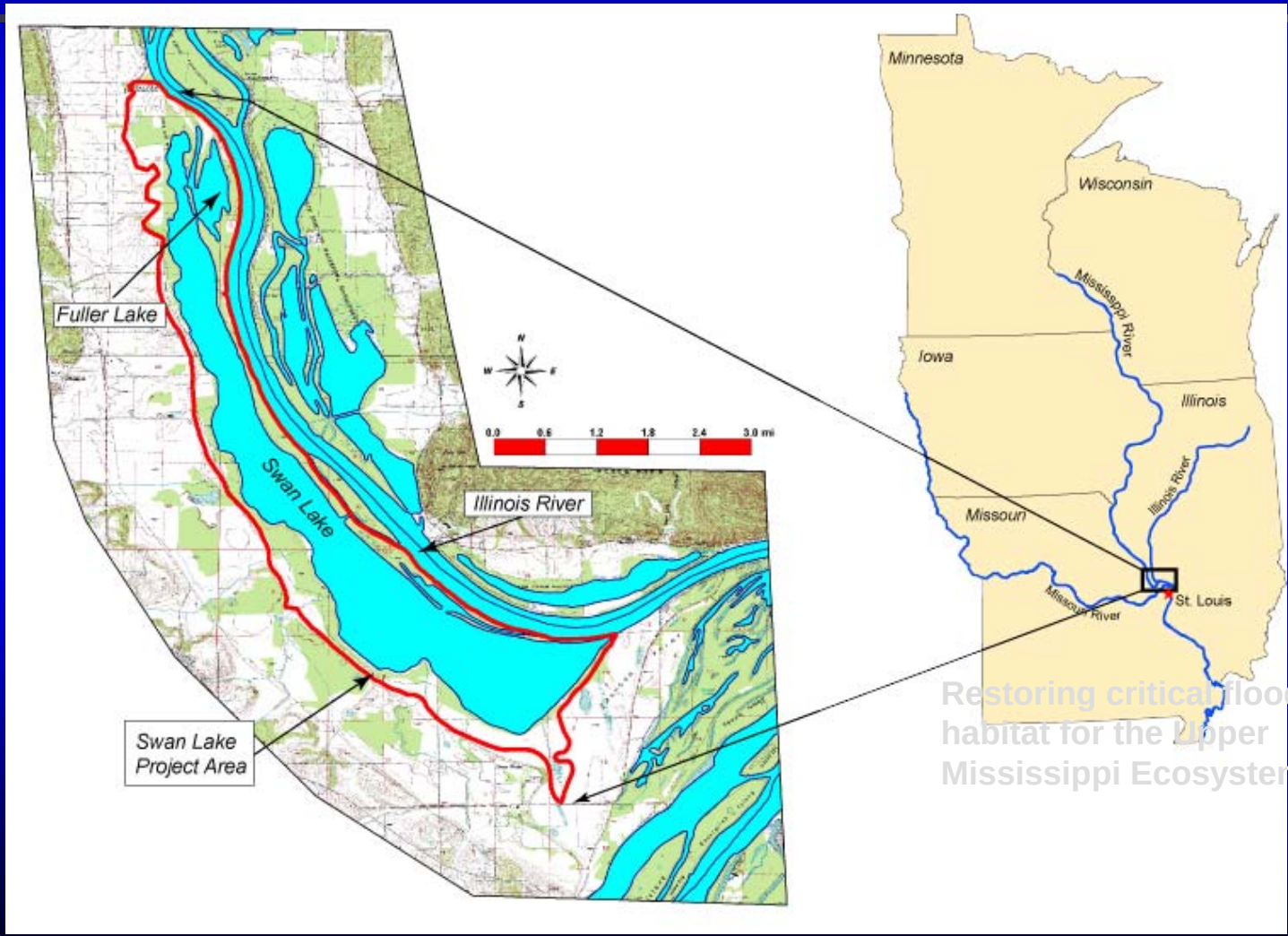
Photo J.1: Swan Lake, Illinois River Plan View



Restoring critical floodplain habitat for the Upper Mississippi Ecosystem

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Photo J.2: Aerial View of Swan Lake Project, Looking North

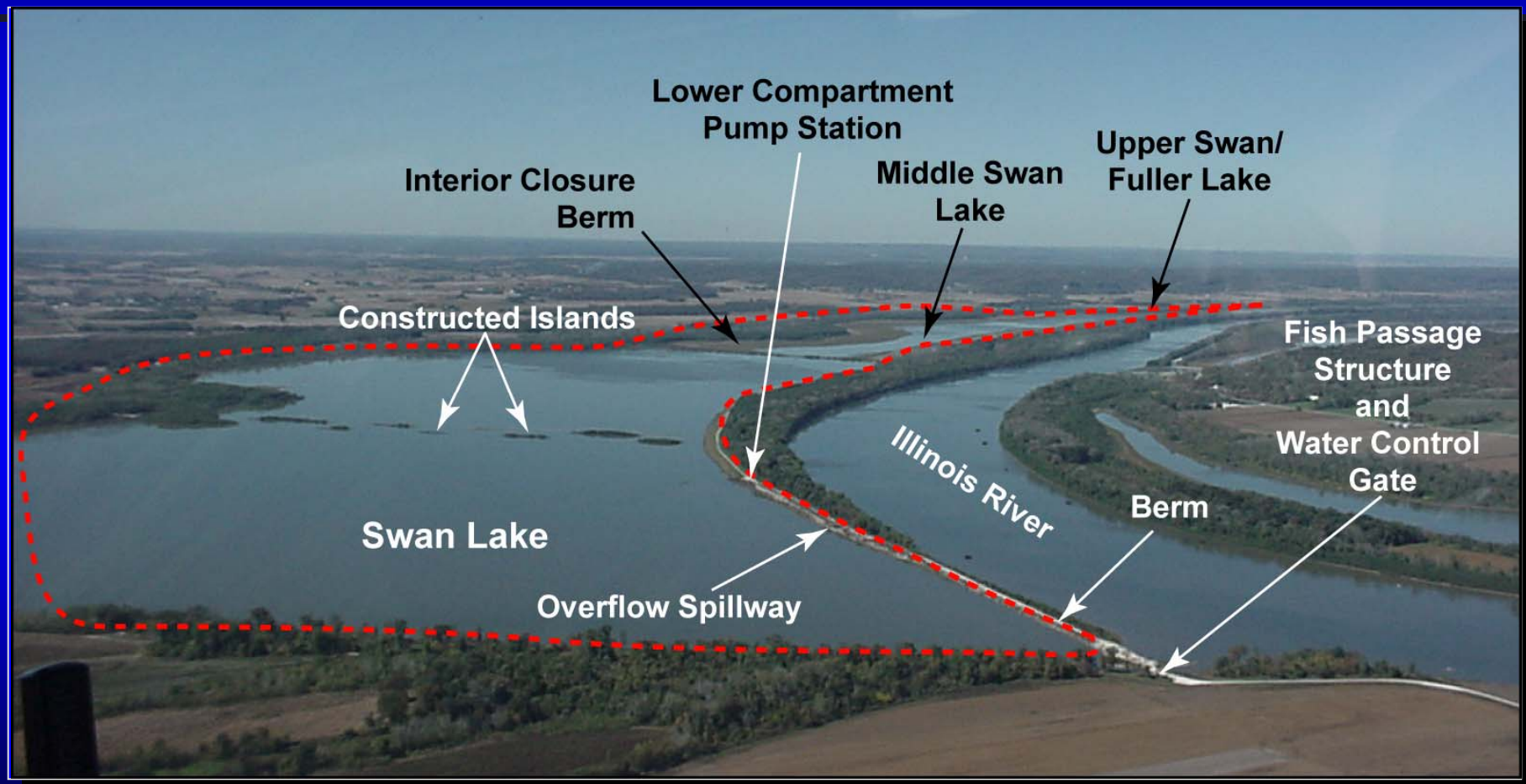

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Photo J.3: Swan Lake Islands, Illinois River

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Photo J.4: Swan Lake Islands, Illinois River

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Photo K.1: Spring Lake Islands, Pool 5

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Photo K.2: Spring Lake Islands, Pool 5

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Photo K.3: Spring Lake Islands, Pool 5, Vanes

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Photo L.1: Peroria Lake Islands, Illinois River

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Photo N.1: Pool 11 Islands, Sunfish Lake

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Photo K.1: Grand Endcampment
Vanes used to stabilize beach

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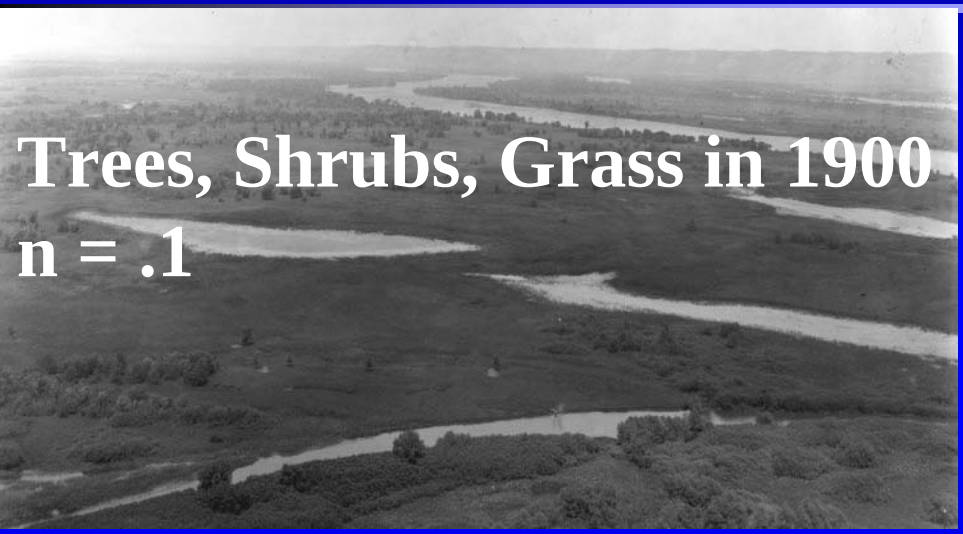

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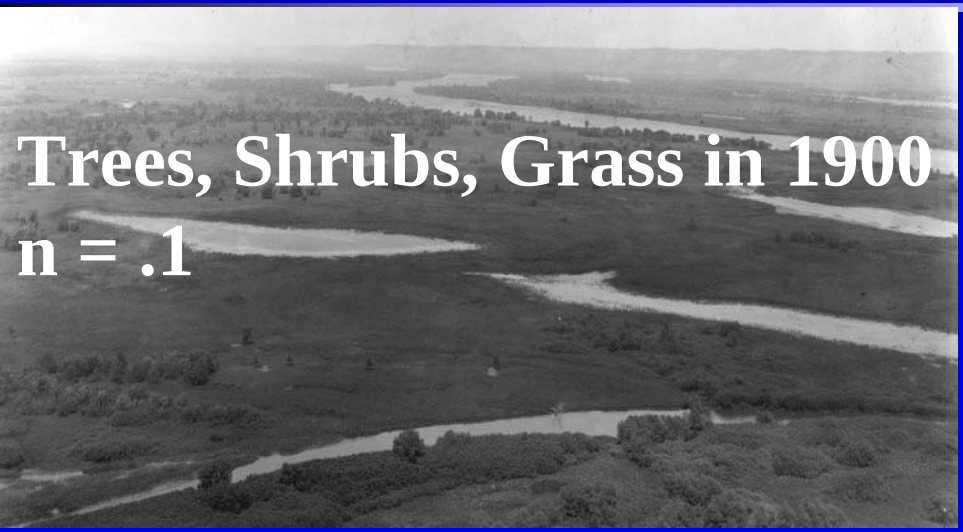
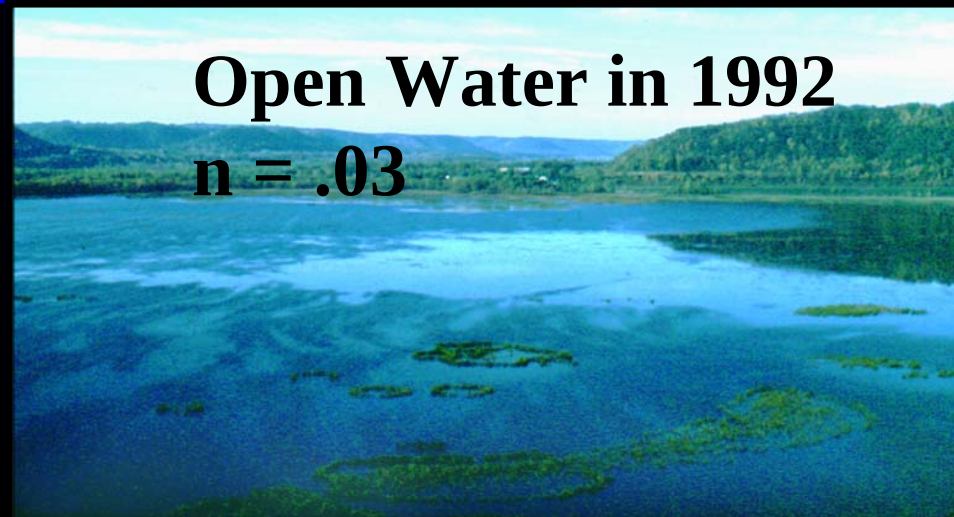
Photo K.2: Weaver Bottoms. Floodplain vegetation and roughness changes.



Physical Stresses:
Q floodplain ↑
Secondary Channel Erosion

Biological Effects:
Isolated Floodplain Habitat↓



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Pool 8, Phase 3 Layout

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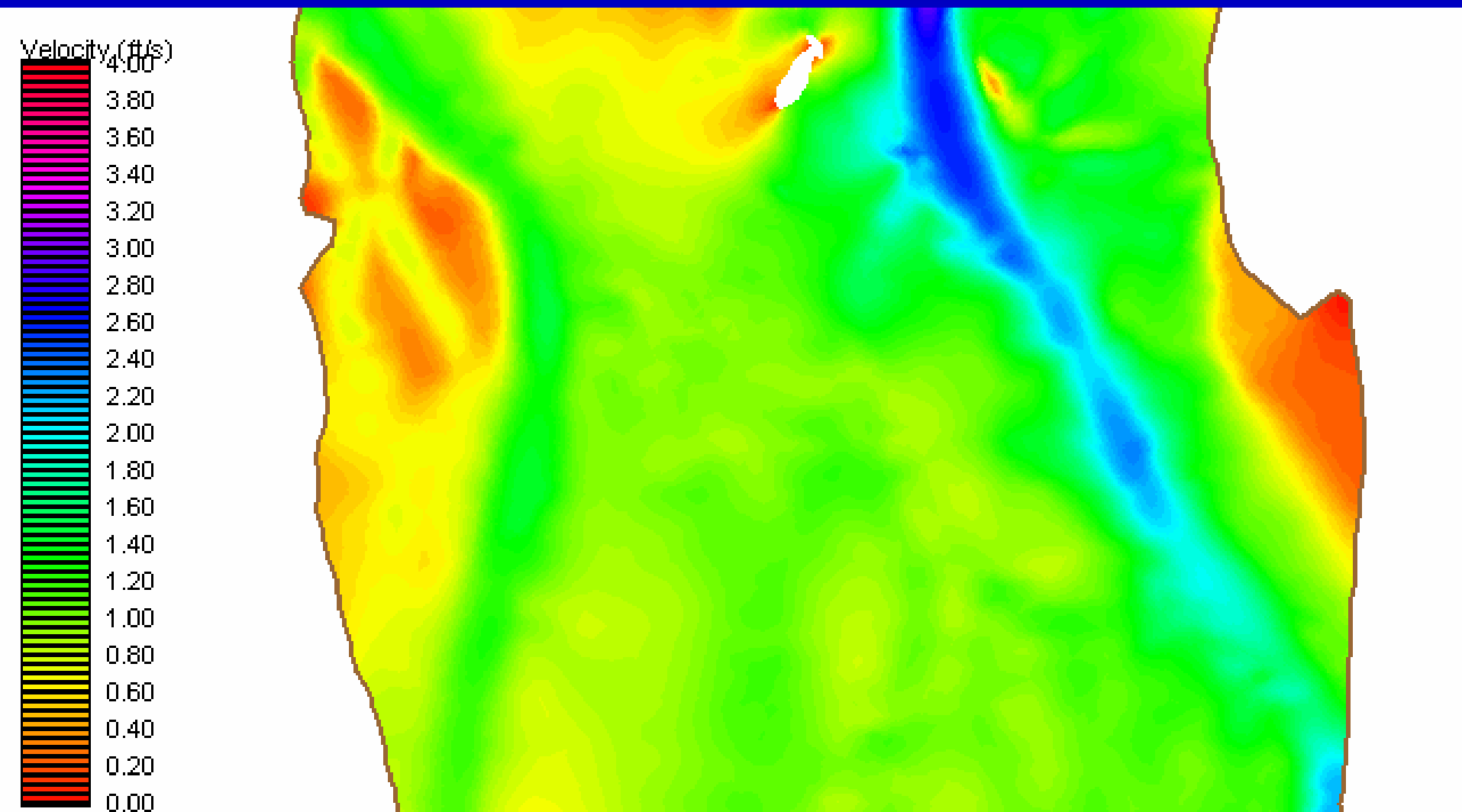
Pool 8, Phase 3 Existing Conditions Velocity



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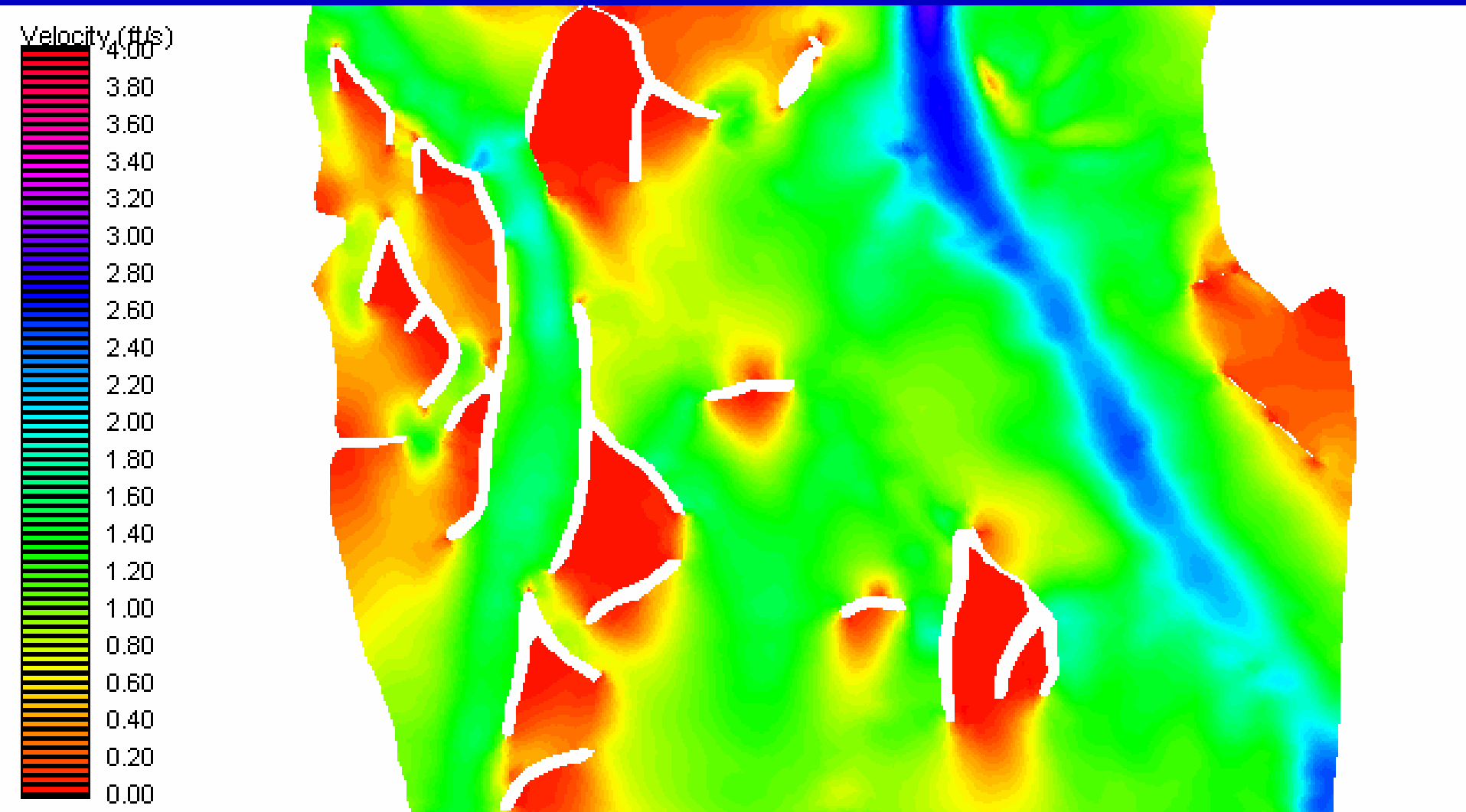
Pool 8, Phase 3 Proposed Conditions Velocity



Pool 8 Existing – North Section
Q = 50,000 cfs

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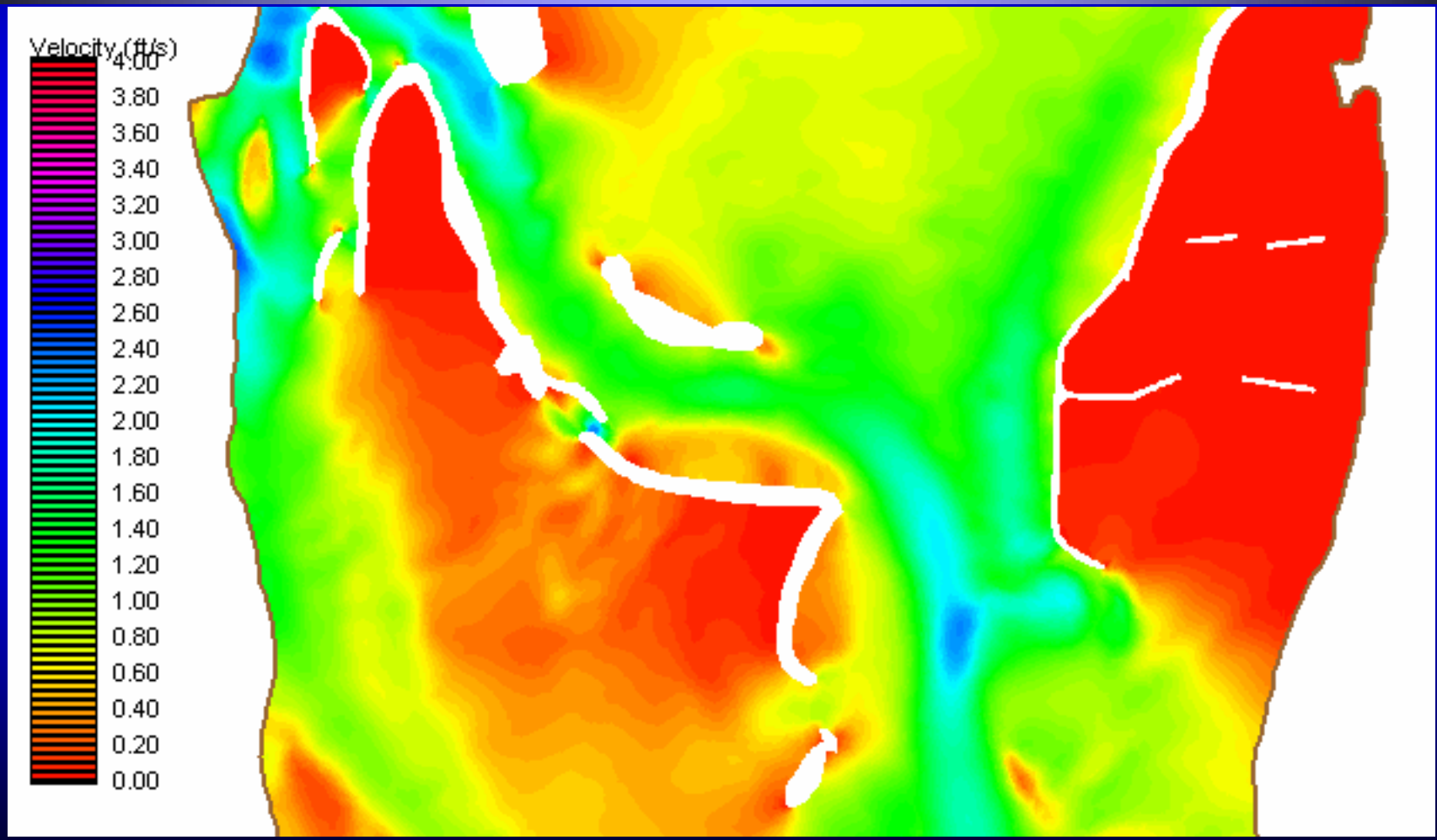

Pool 8 Existing – North Section
Q = 80,000 cfs

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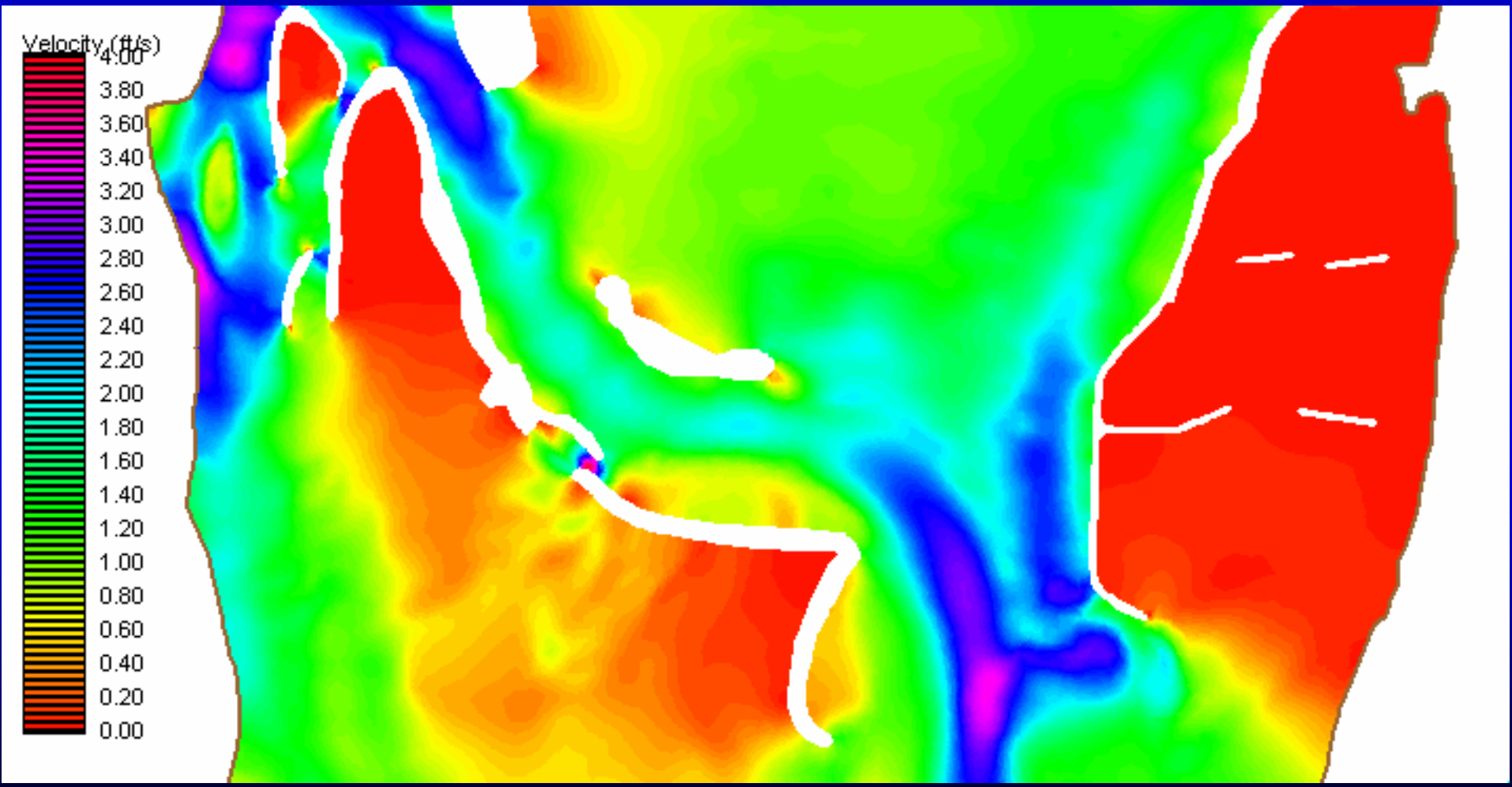

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Red Oak Island Roots

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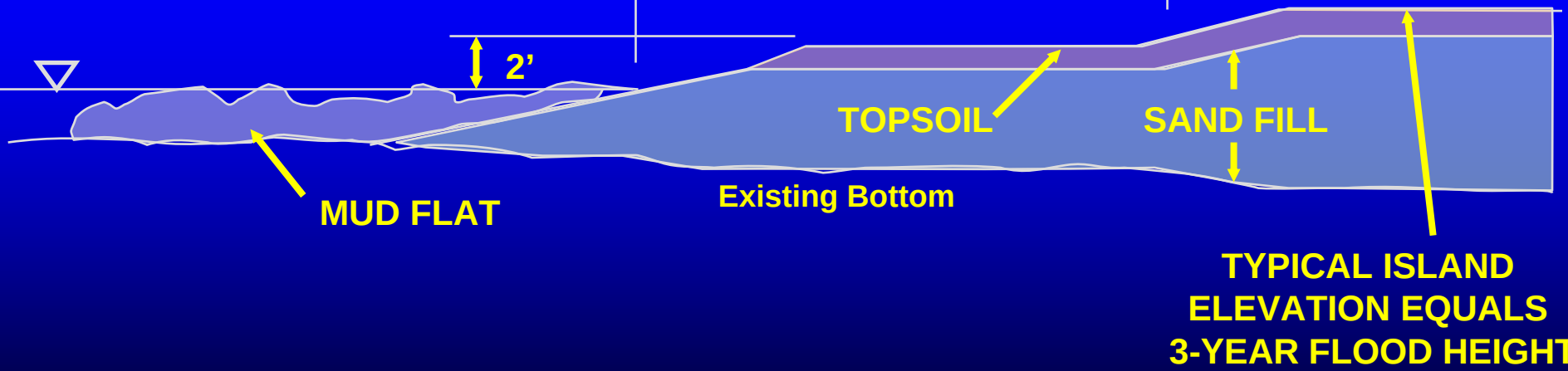
ISLAND CROSS SECTION

HABITAT →	AQUATIC PLANTS & MUDFLATS	WILLOWS & BEACH	TREES & GRASSES
DIMENSION →	MUDFLAT WIDTH IS 20 TO 200 FEET	BERM WIDTH IS 30 TO 60 FEET	TOP WIDTH IS 30 TO 80 FEET



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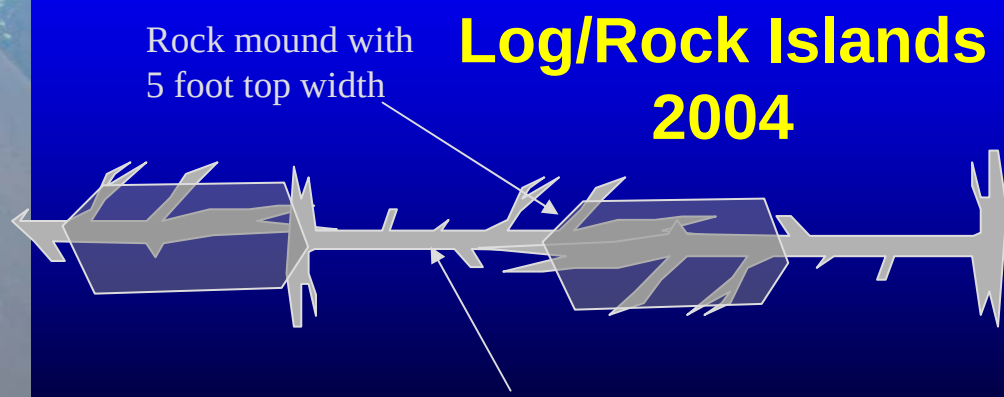
ISLAND TYPES

Log/Rock Islands
2004



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SHORELINE STABILIZATION

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HABITAT PROJECT DESIGN

- Multi-discipline Teams: Project Design Must Evolve With River Sciences.
- Restoration Concept: Restore Form and Function to Restore Sustainable Habitat.
- New Projects: Based on Sound Engineering, Past Lessons, & New Creativity.

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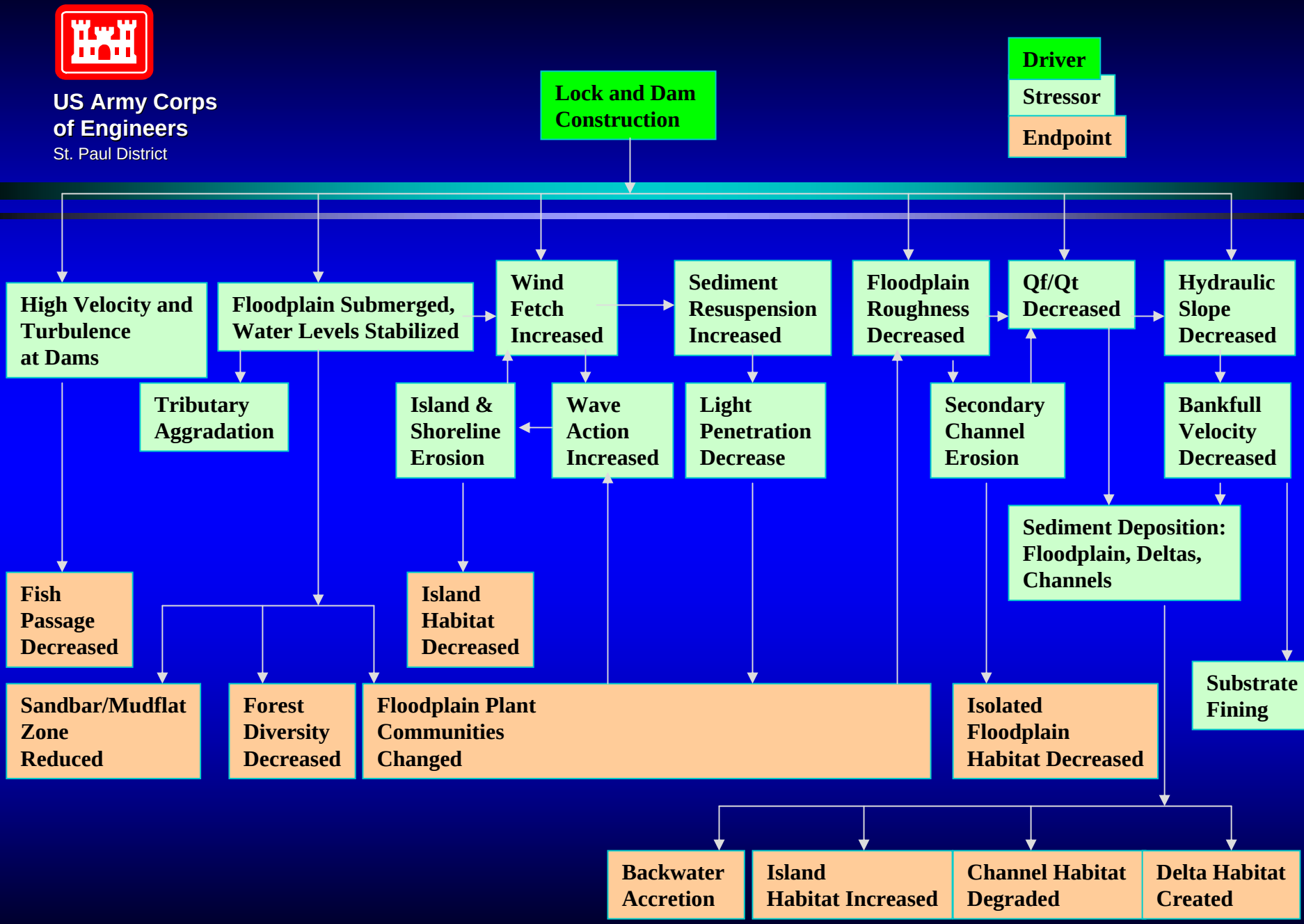

Jon S. Hendrickson,02/26/03