Slough Modification Overview

Adaptive Management Work Group, August 21, 2025

Matt O'Neill, Bureau of Reclamation, Upper Colorado Basin

Acknowledgements

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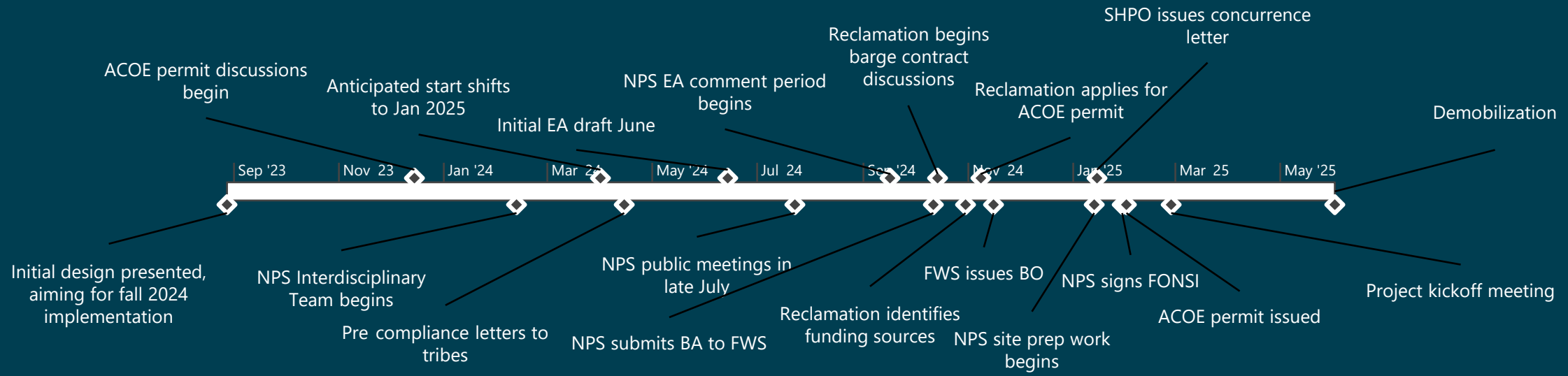
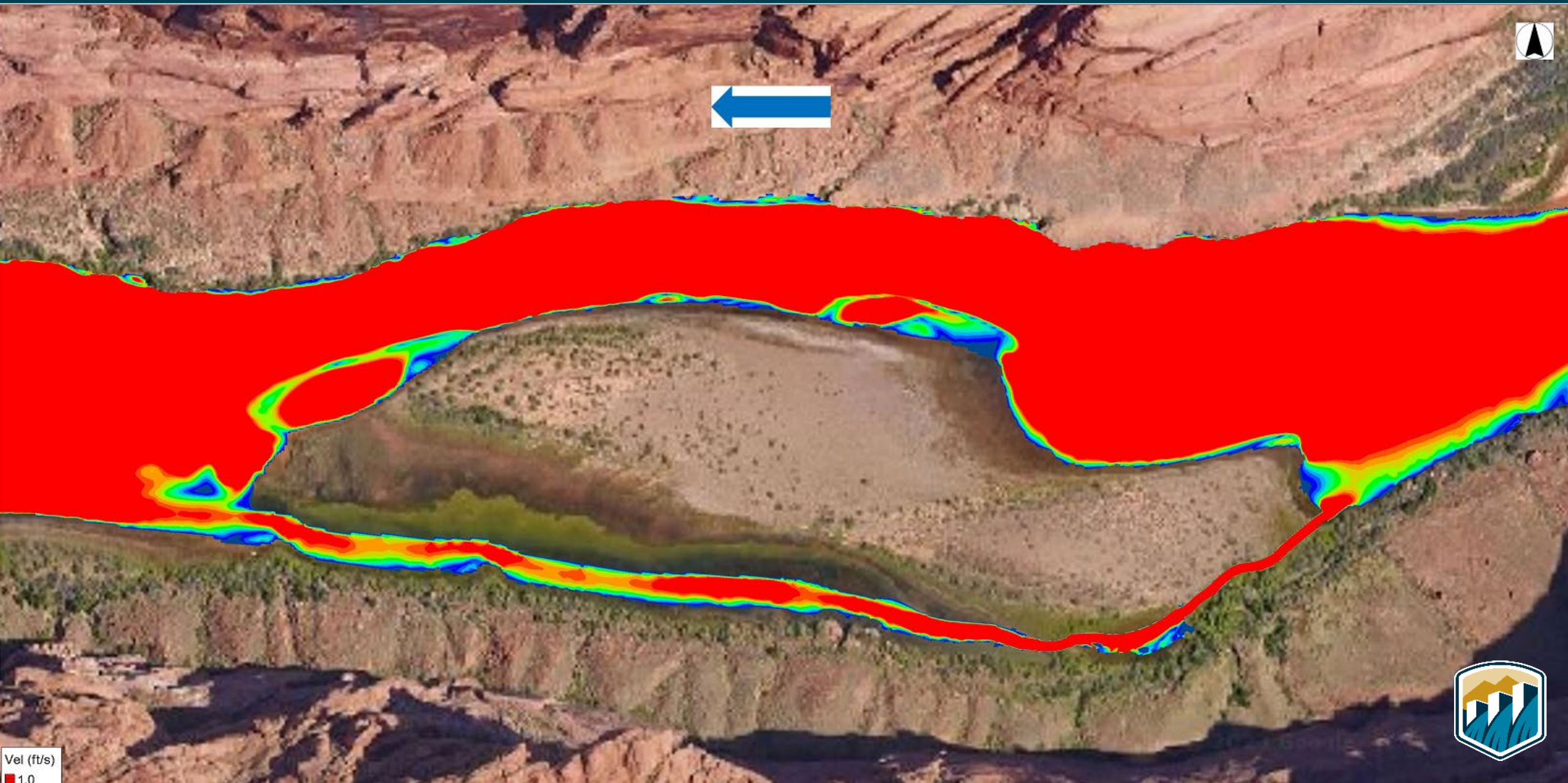
Valuable tribal input that improved the project



Channel redesign, NPS veg harvest



Mobilization Feb 26

Implementation

NPS vegetation, springs, and salamander protection

Implementation

Mainstem connection May 2

- Water moves through the channel for the first time since the 1980s
- Temperature objective accomplished

Demobilization May 31

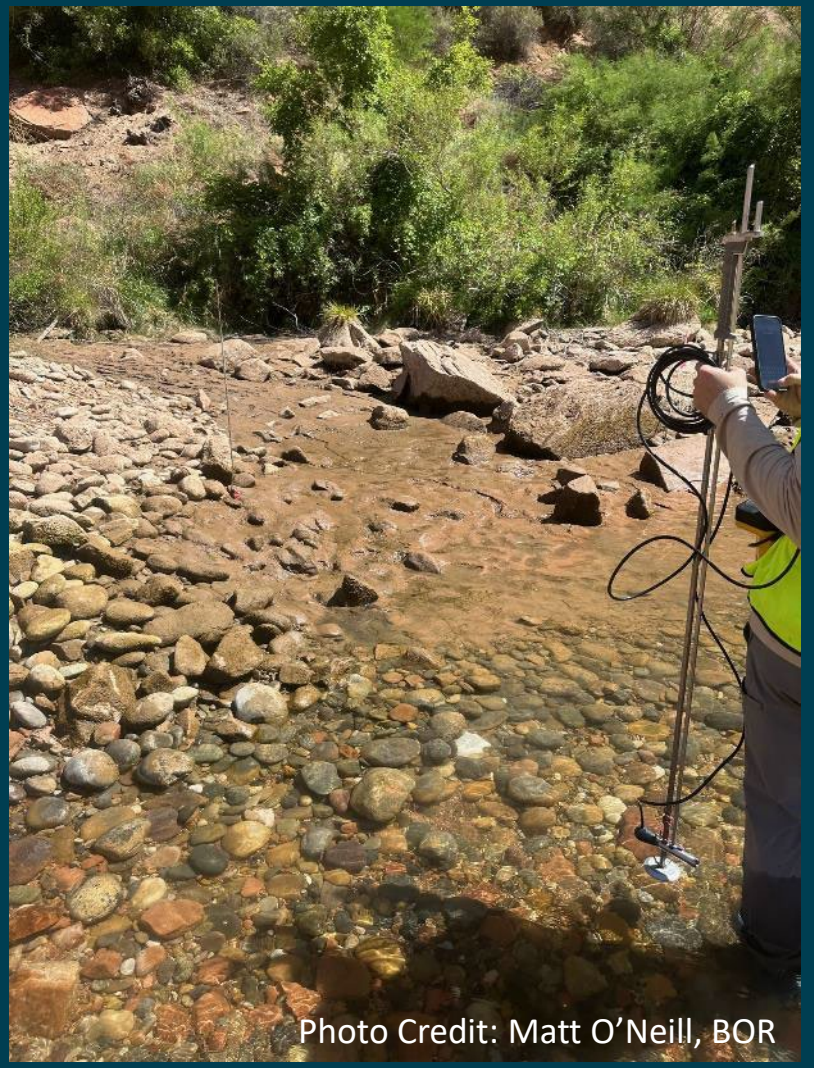
Construction completed June 1

Modeling and Monitoring

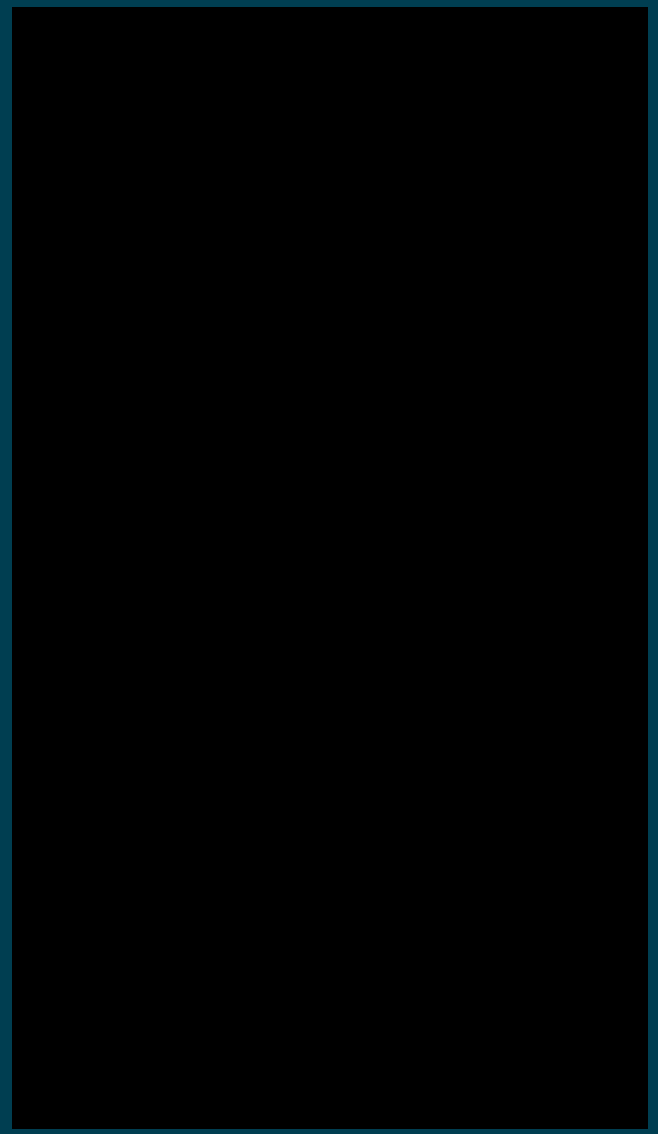
- Spring flow (Rec)
- Final construction report (Rec)
- Bar stability analysis (Rec)
- Temperature measurements (NPS)
- Water velocity (Rec)
- eDNA (GCMRC)

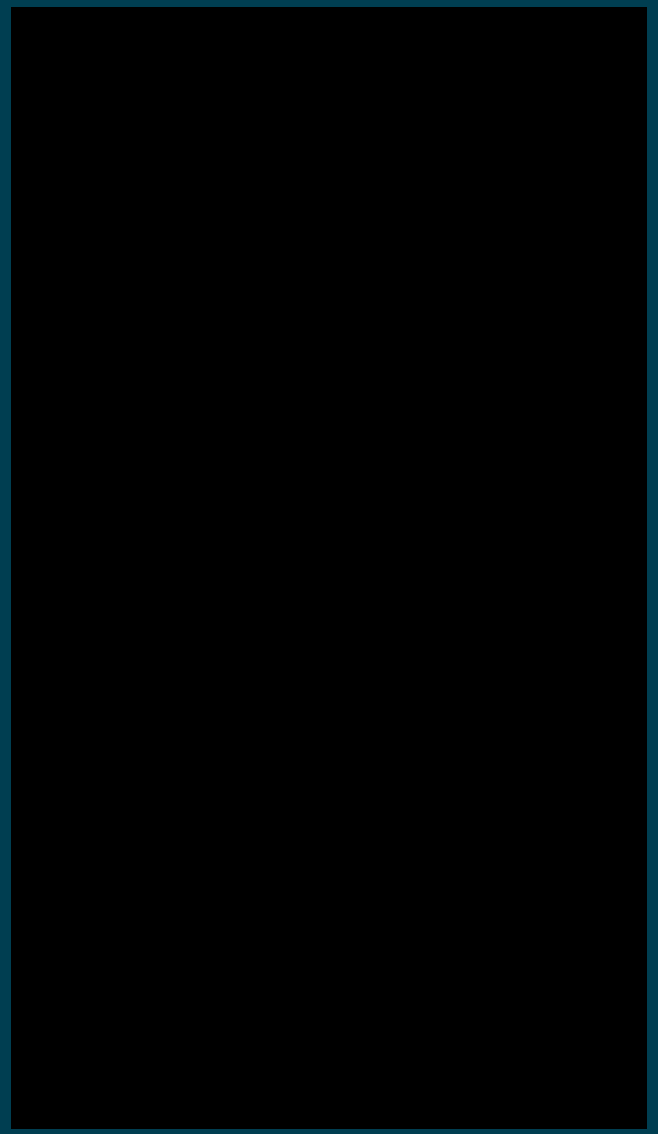
Spring flow observations

- Dam releases reduced to 5k CFS to allow for final shaping of upstream inflow May 9
- Spring outflows photographed



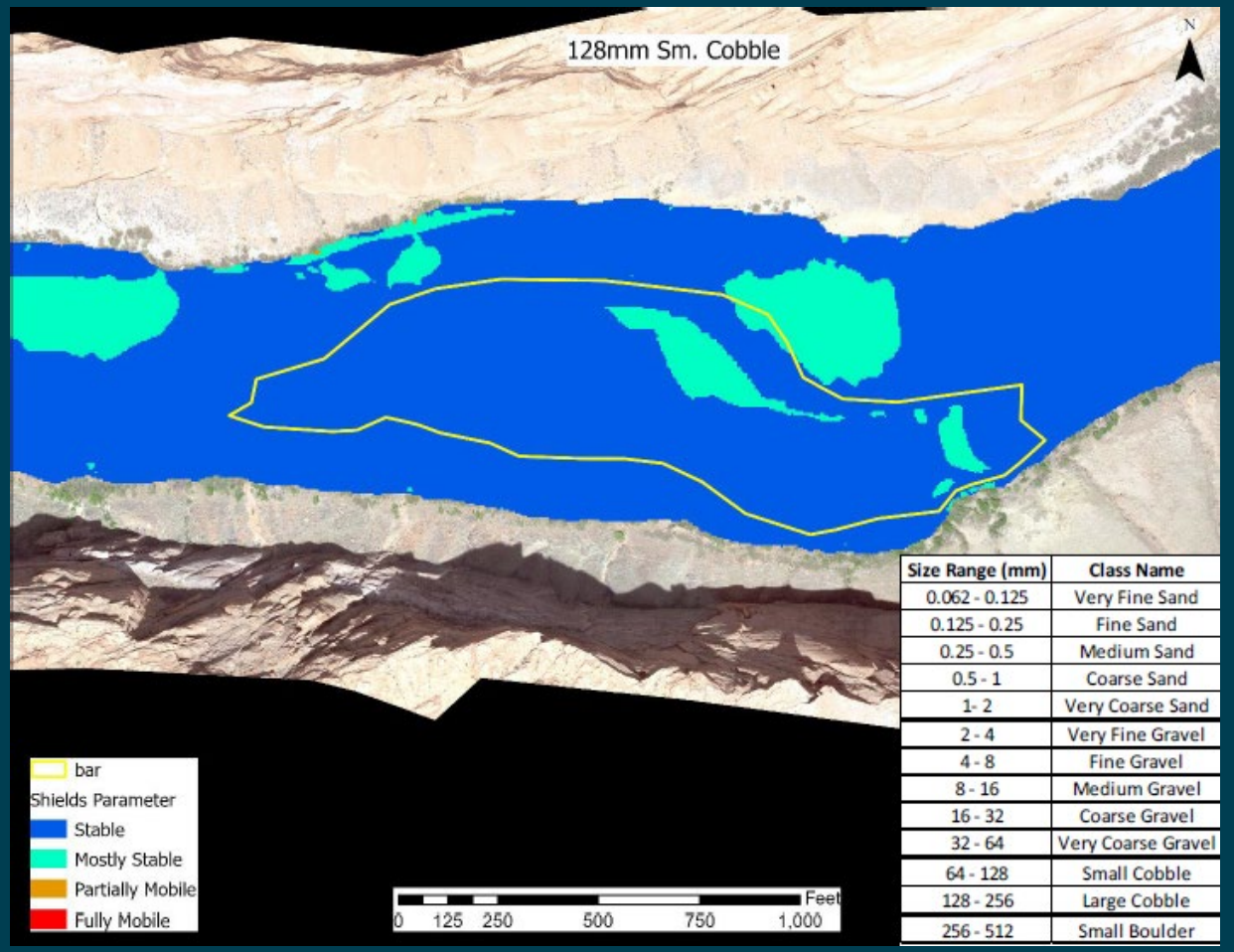
Spring flow observations





Bar stability analysis

- Engineers visited April 24
- Identified cobble size, modeled water velocity during an HFE
- Sand expected to wash out
- 64 and 128mm cobble expected to be stable



Water temps, NPS & USGS

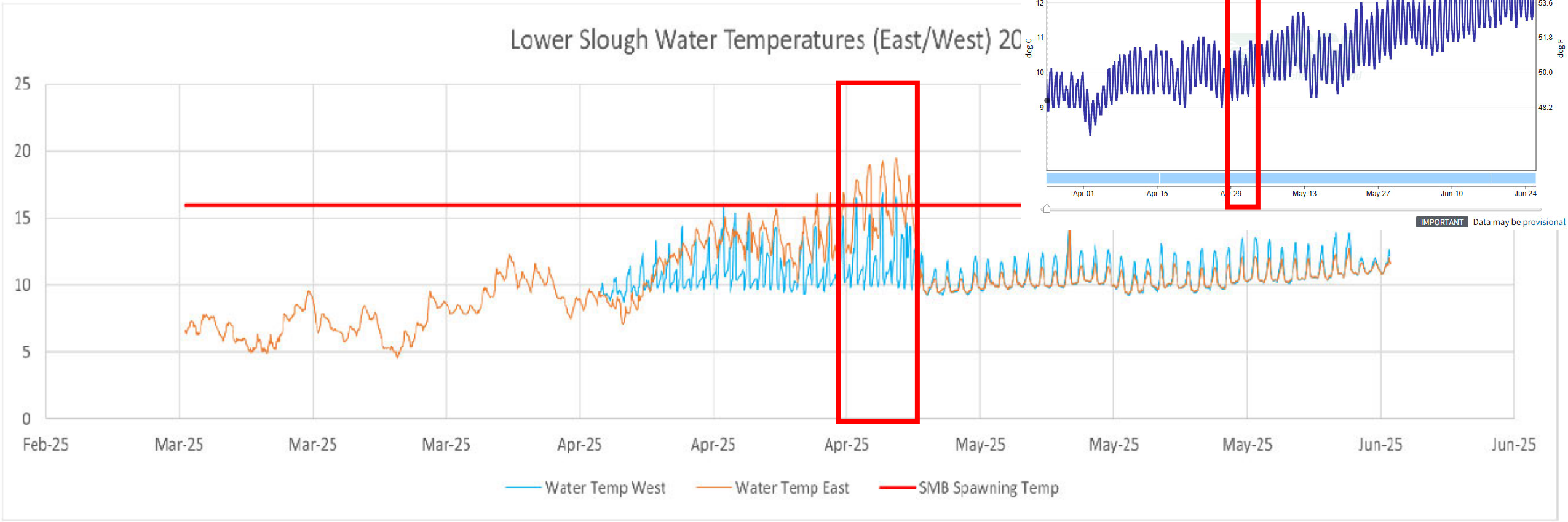


Figure 1. Temperatures within -12 Mile Slough from March - June 2025.

Measured Velocities 5/28/25
Modeled Discharge of 11,000 cfs
Realized Discharge (estimated)
10,000-10,700 CFS

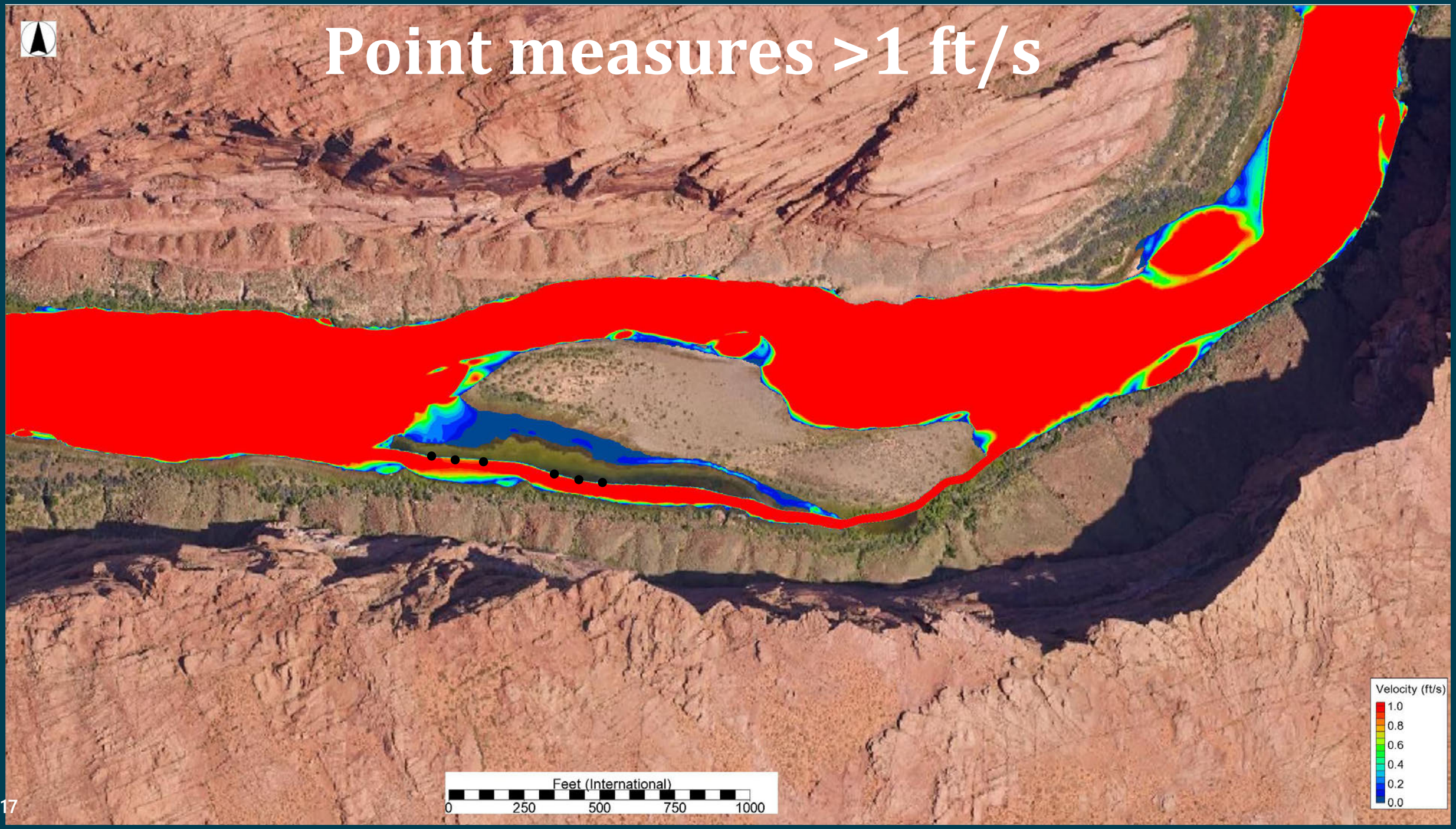
Flow in CFS, Avg and Min velocity in feet/sec.

Flow 10700 Avg 1.19 Min 0.96
Flow 10700 Avg 0.63 Min 0.59
Flow 10700 Avg 0.42 Min 0.35
Flow 10600 Avg 0.37 Min 0.26
Flow 10600 Avg 0.47 Min 0.35
Flow 10600 Avg 0.34 Min 0.26
Flow 10400 Avg 0.27 Min 0.14
Flow 10400 Avg 0.24 Min 0.08
Flow 10400 Avg 0.54 Min 0.20
Flow 10400 Avg 0.44 Min 0.10
Flow 10400 Avg 0.62 Min 0.17
Flow 10300 Avg 0.80 Min 0.26
Flow 10300 Avg 0.84 Min 0.14
Flow 10200 Avg 0.71 Min 0.30
Flow 10200 Avg 0.79 Min 0.34
Flow 10200 Avg 1.01 Min 0.16
Flow 10100 Avg 1.28 Min 0.69
Flow 10100 Avg 1.12 Min 0.20
Flow 10000 Avg 1.84 Min 0.68
Flow 10000 Avg 2.06 Min 1.8

Feet (International)
0 250 500 750 1000

Velocity (ft/s)
1.0
0.8
0.6
0.4
0.2
0.0

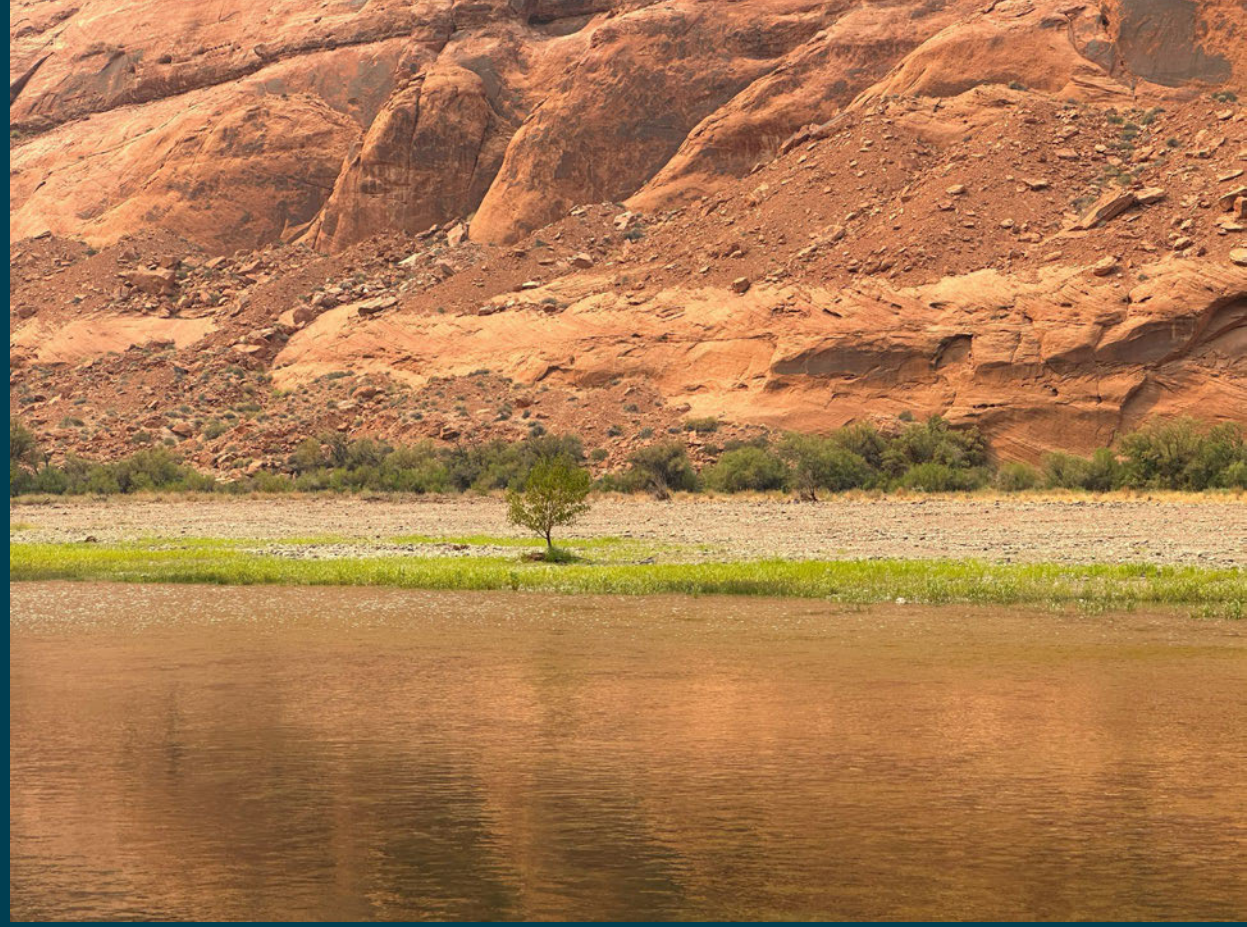
Point measures >1 ft/s



Inundated bar, 15k CFS

Dibble et al. eDNA autosampler

Vegetation regrowth



Slough water temps, NPS

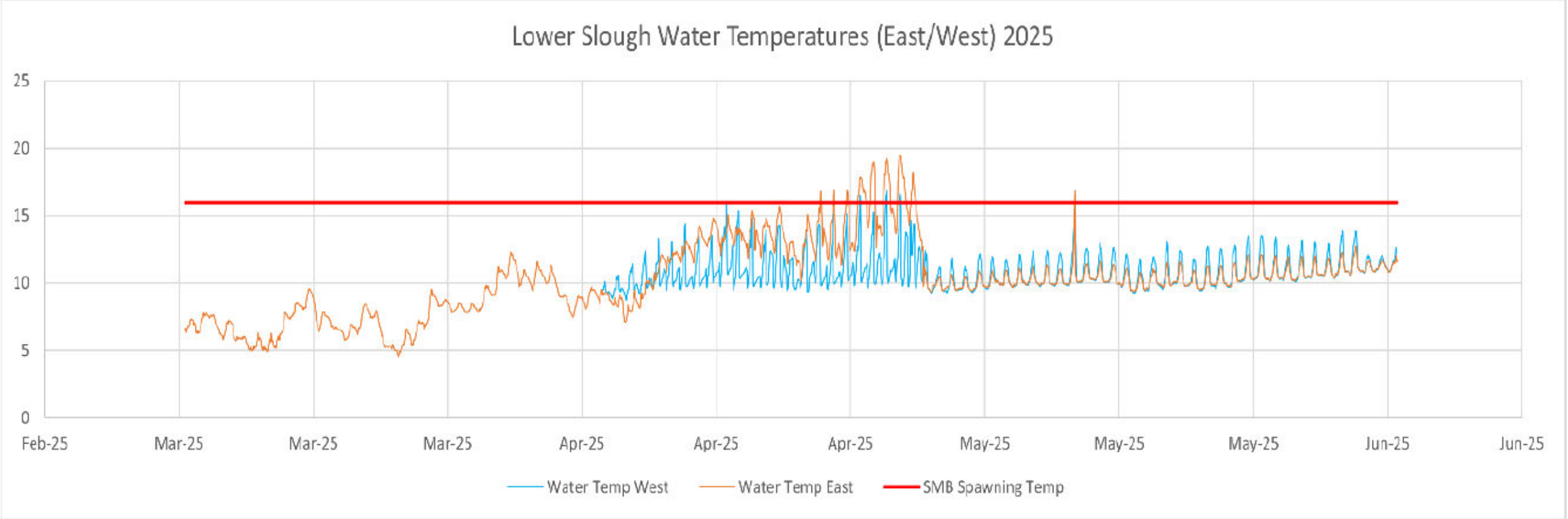
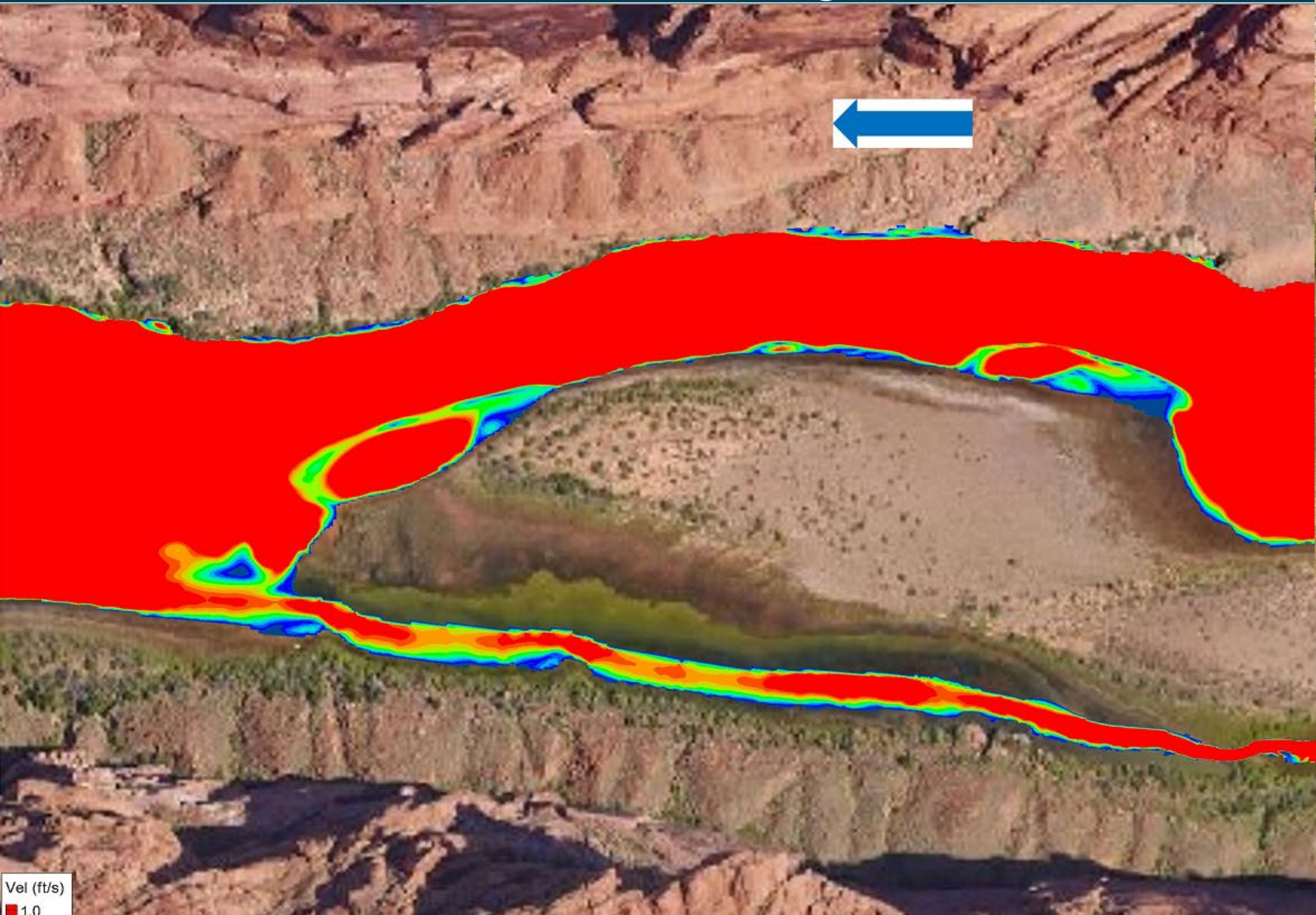


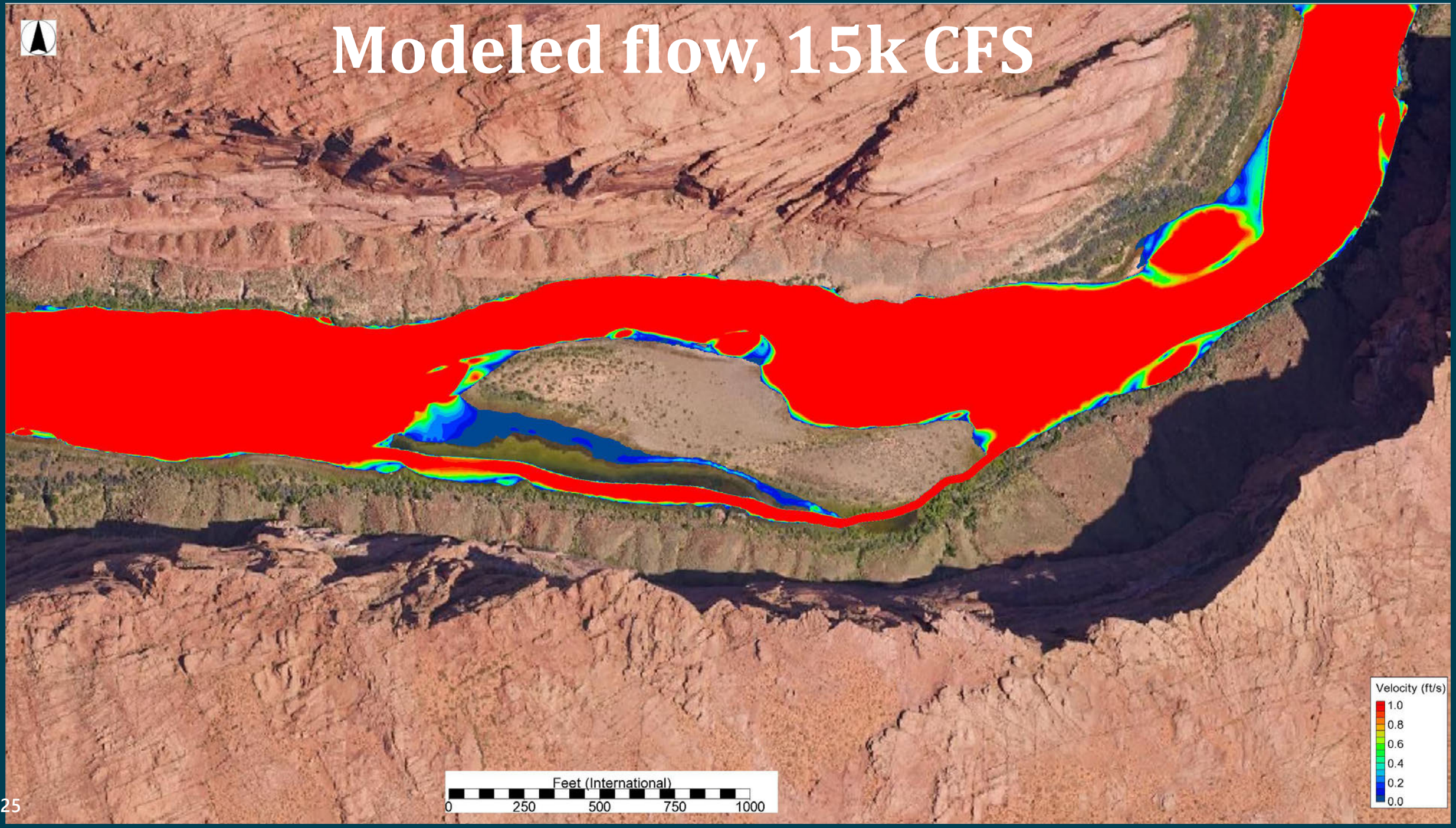
Figure 1. Temperatures within -12 Mile Slough from March - June 2025.

Modeled flow velocity, 11k CFS



Demobilization May 31

Modeled flow, 15k CFS



Inundated bar,

- Dates of mobilization, construction, demob.

Water temps, NPS & USGS

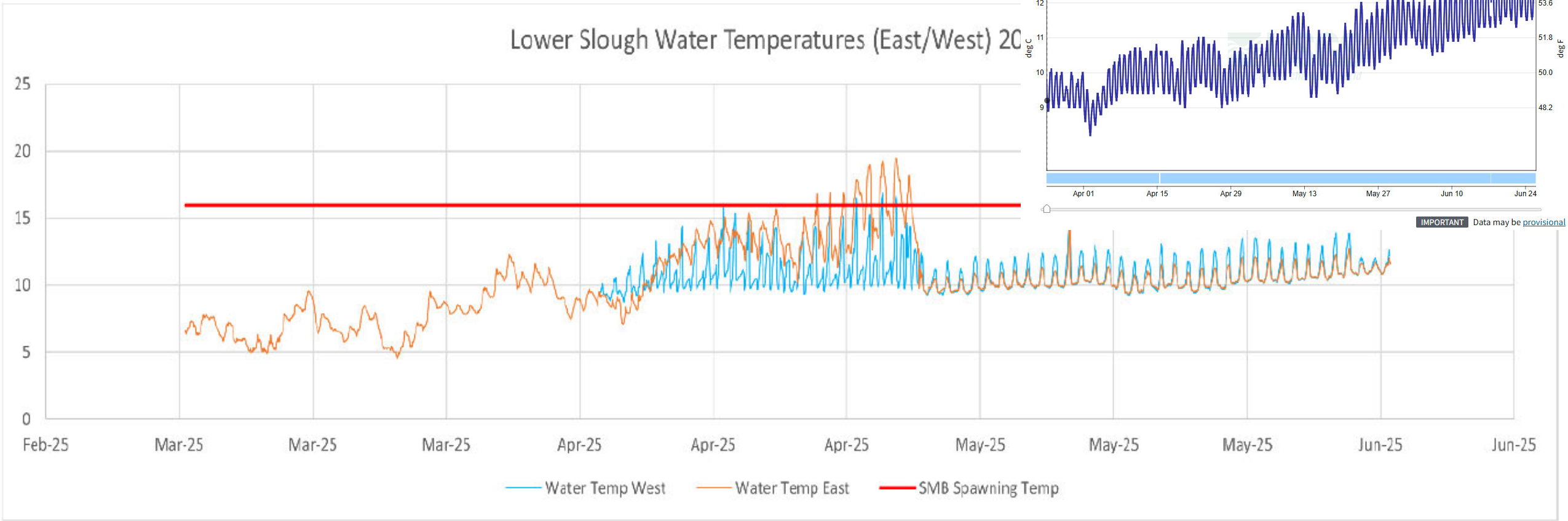


Figure 1. Temperatures within -12 Mile Slough from March - June 2025.

- Dates
  const

Inundated bar, 15k CFS

- Dates of mobilization, construction, demob.

- Dates
  const

Demobilization May 31/June 1

Low velocity/1-2m depth, 11k CFS

Demobilization May 31/June 1

Demobilization May 31/June 1

Demobilization May 31/June 1

- Dates
  const

NPS Pre-construction prep work

- Removed plants from the channel site, stored for replanting
- Flagged vegetation to avoid during construction
- Identified and marked spring outflow sites to avoid
- Trapping and relocating salamanders

Mobilization began Feb 26

- Tugboat and disassembled barge transported to Lees Ferry
- NPS decon teams clean all equipment
- Boat and barge assembled
- Reclamation crews and equipment loaded and shipped upstream

Photo Credit: Matt O'Neill, BOR

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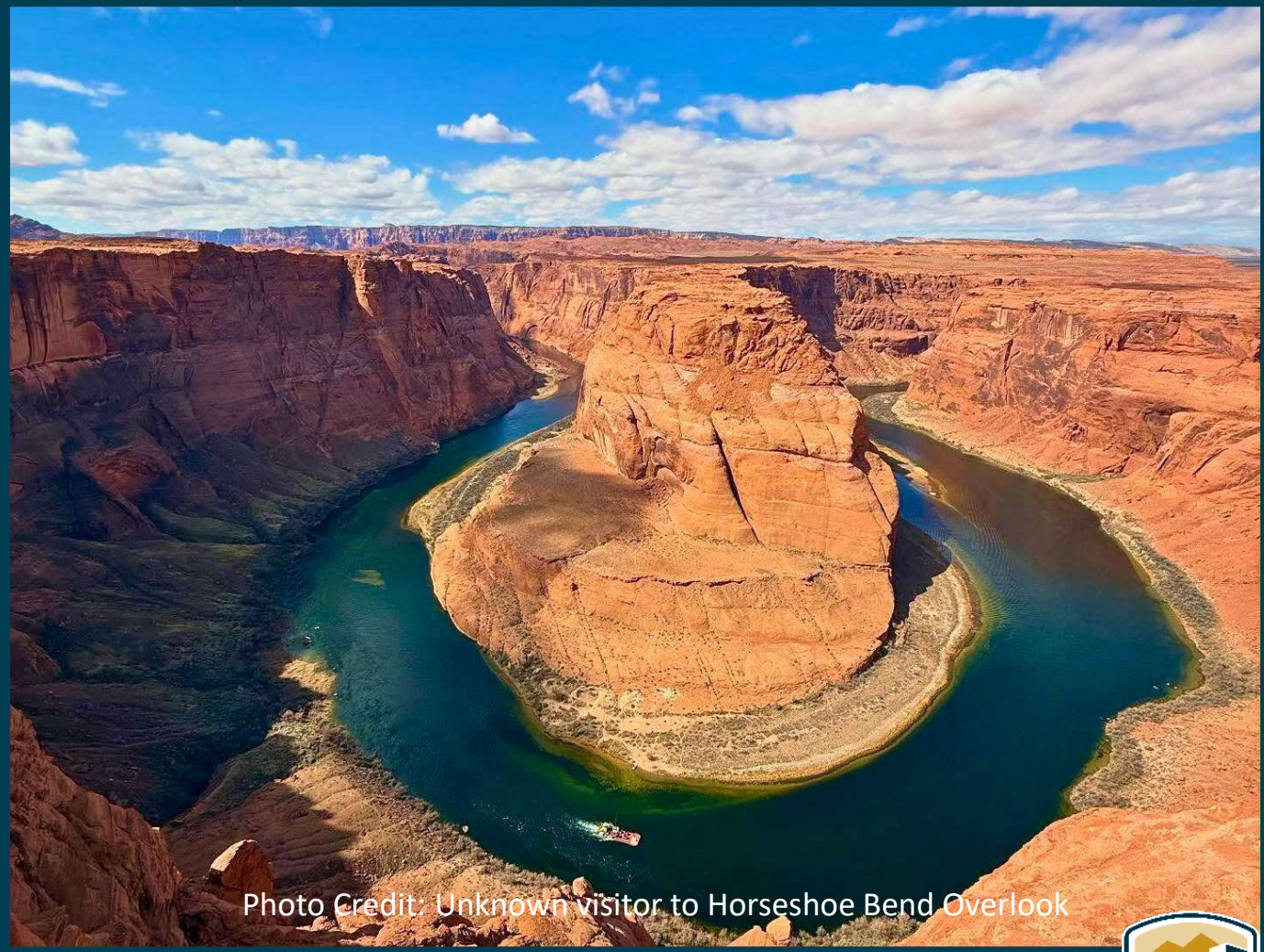

Photo Credit: Unknown visitor to Horseshoe Bend Overlook

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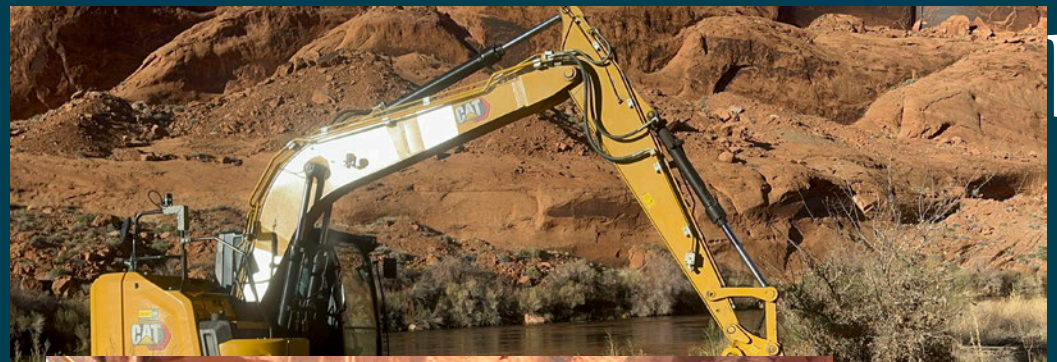
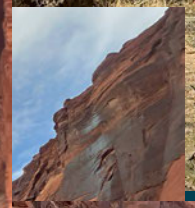
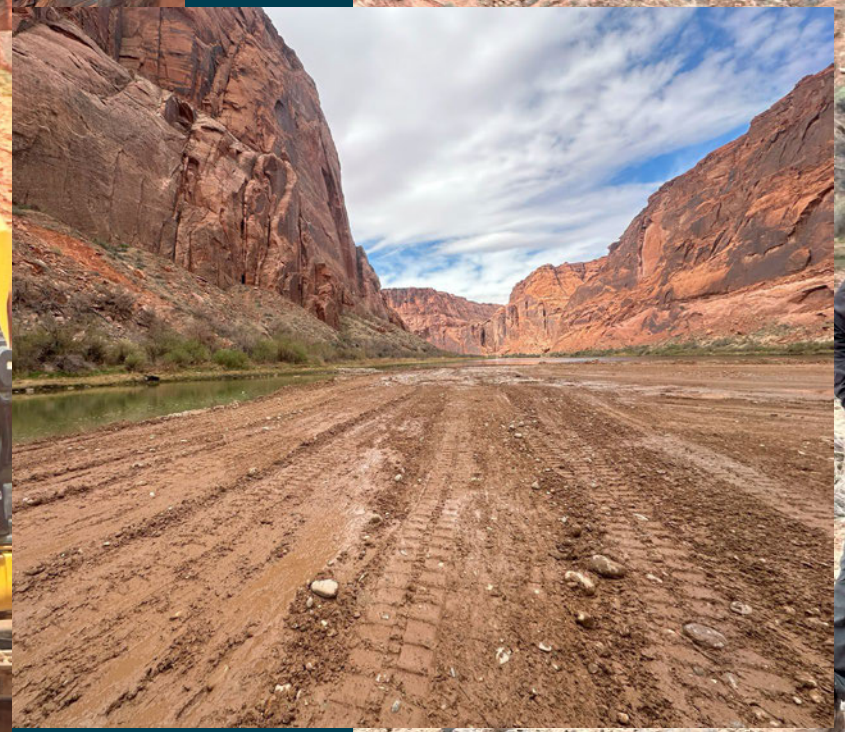
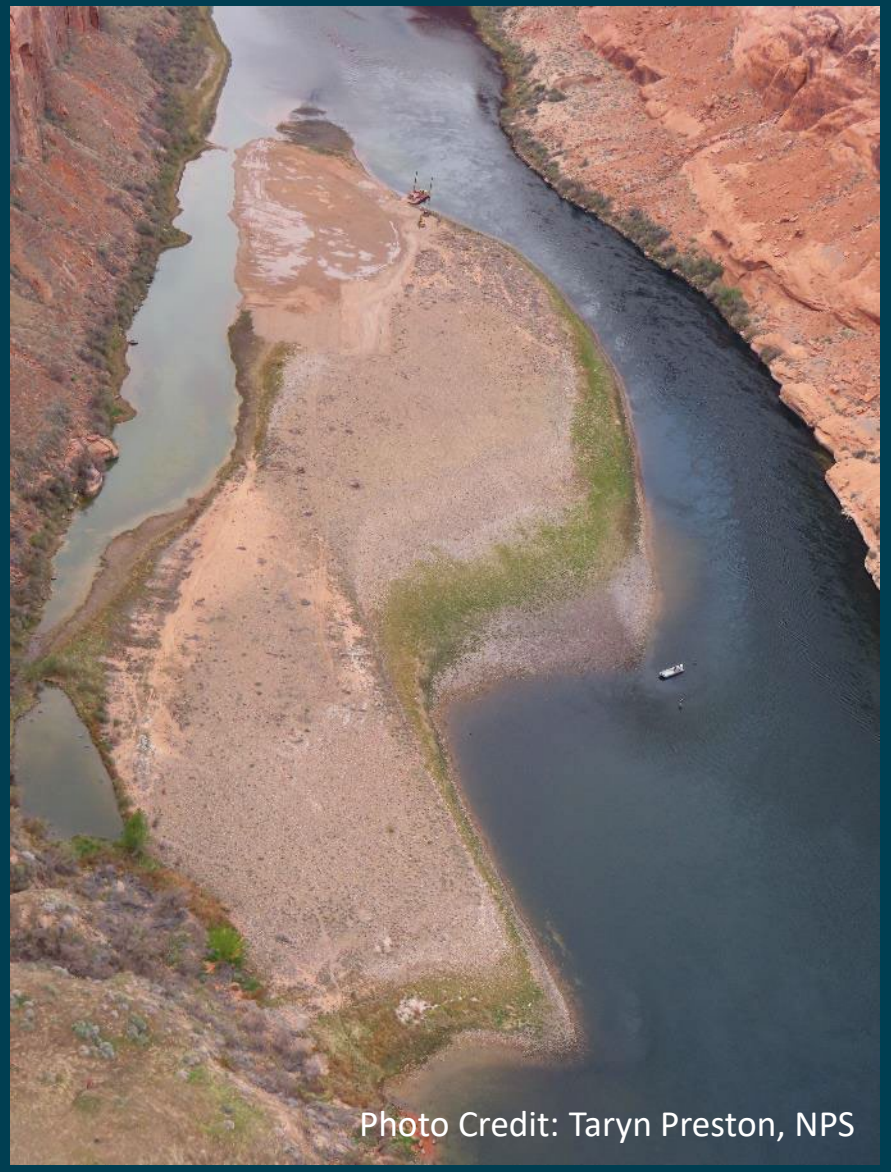






Modification – March through mid-April

- Coffer dam construction
- Begin with narrowing lower slough
- NPS continues salamander relocations

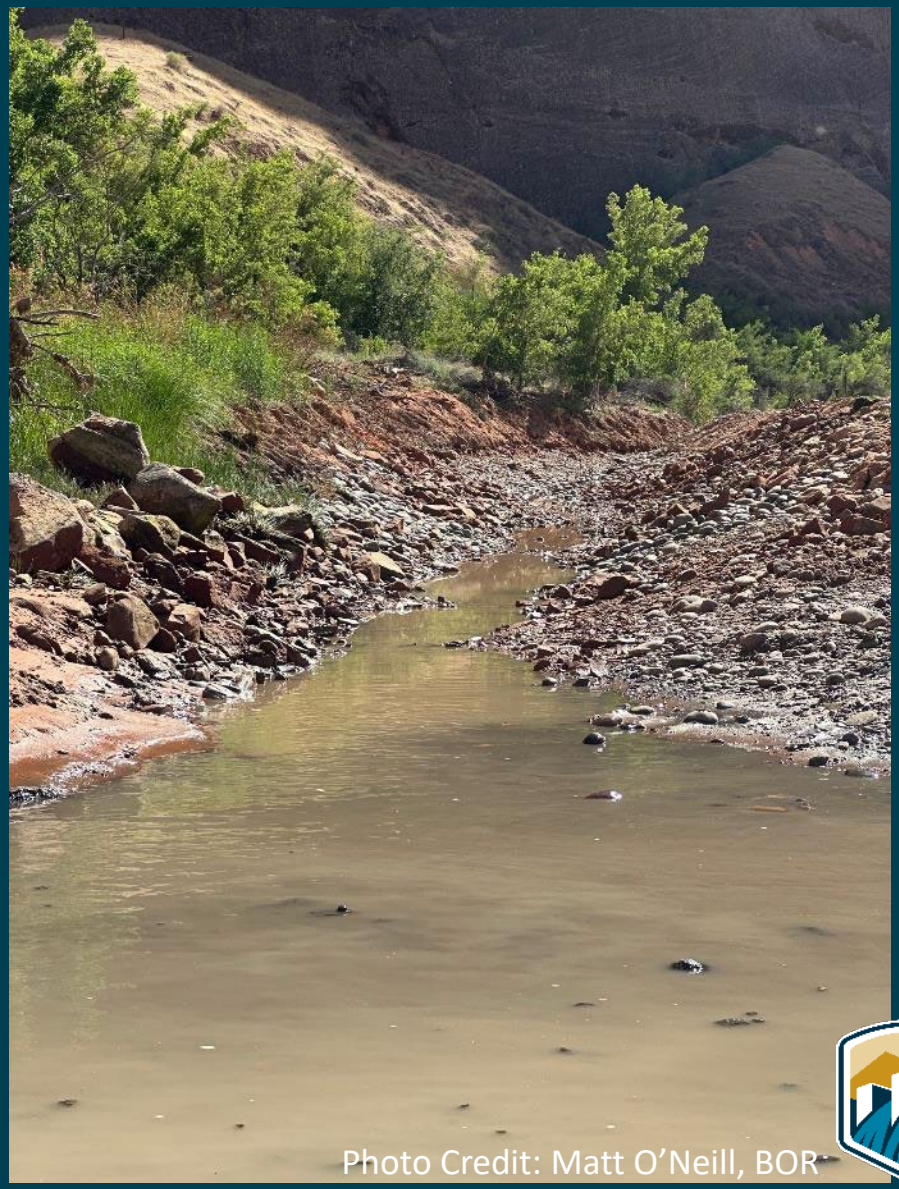


Upper channel excavation and connection

- Upper channel excavated in late April
- Upstream cut made May 2
- Water moves through the channel for the first time since the 1980s
- Temperature objective accomplished?

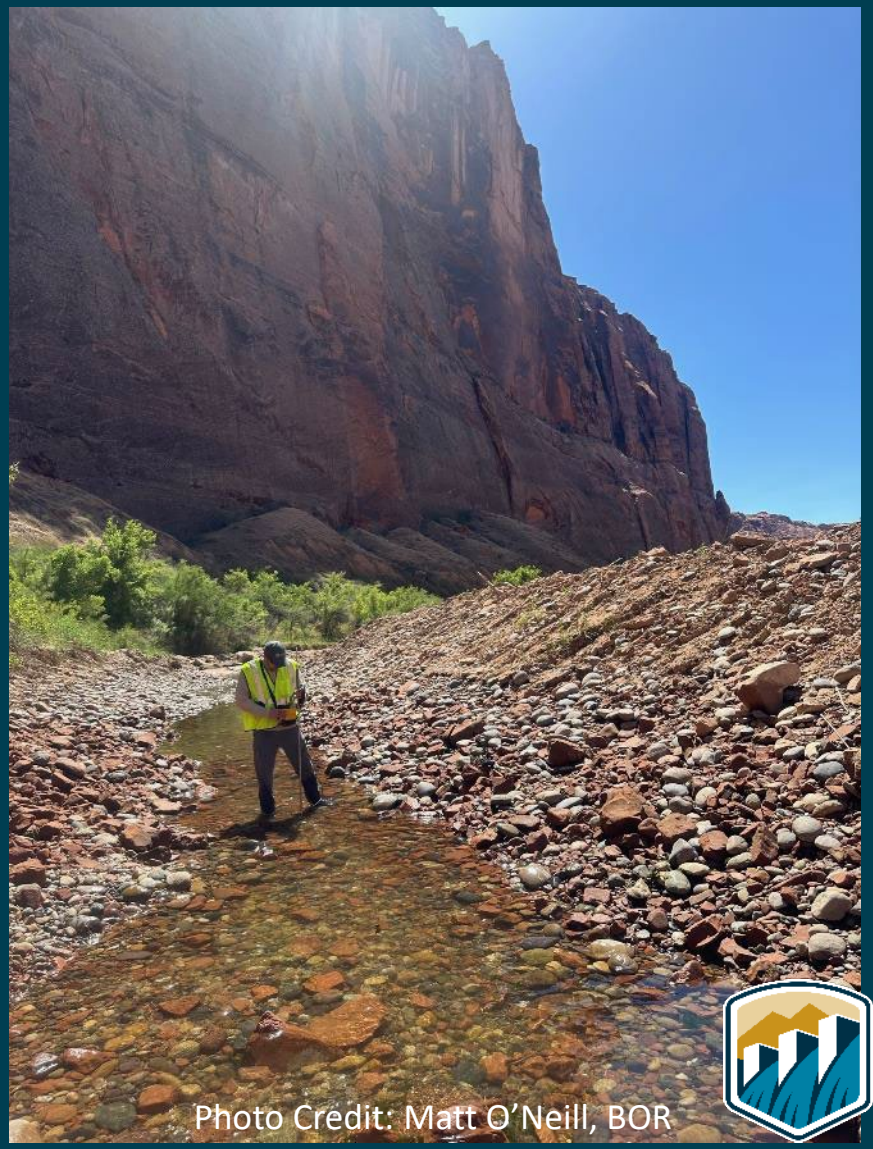
Upper channel excavation and connection

- Dam releases reduced to 5k CFS to allow for final shaping of upstream inflow May 9



Final grading and next steps

- Water velocity and temperature monitoring next week
- Final grading and cleanup
- Demobilization scheduled for end of May
- NPS revegetation and monitoring effort
- NPS off-site habitat improvements



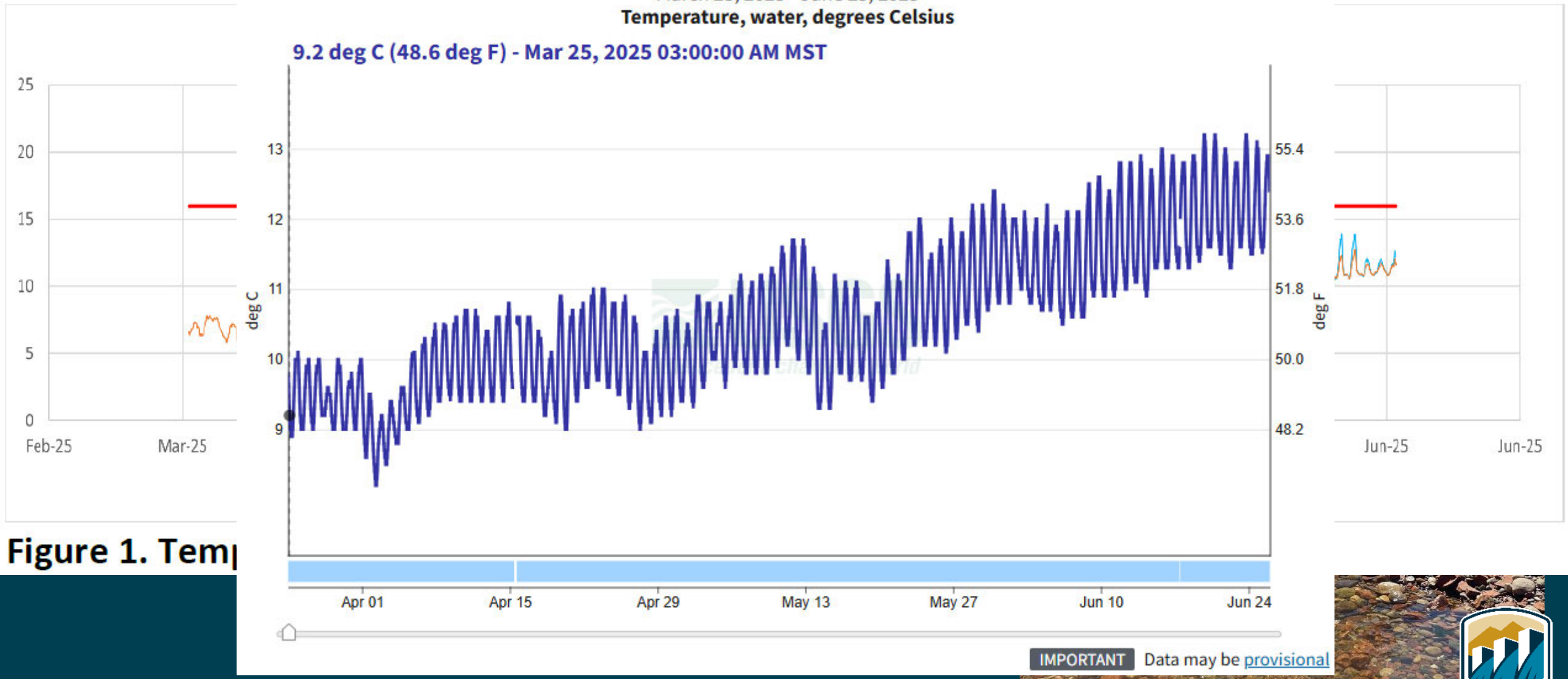


Figure 1. Temp

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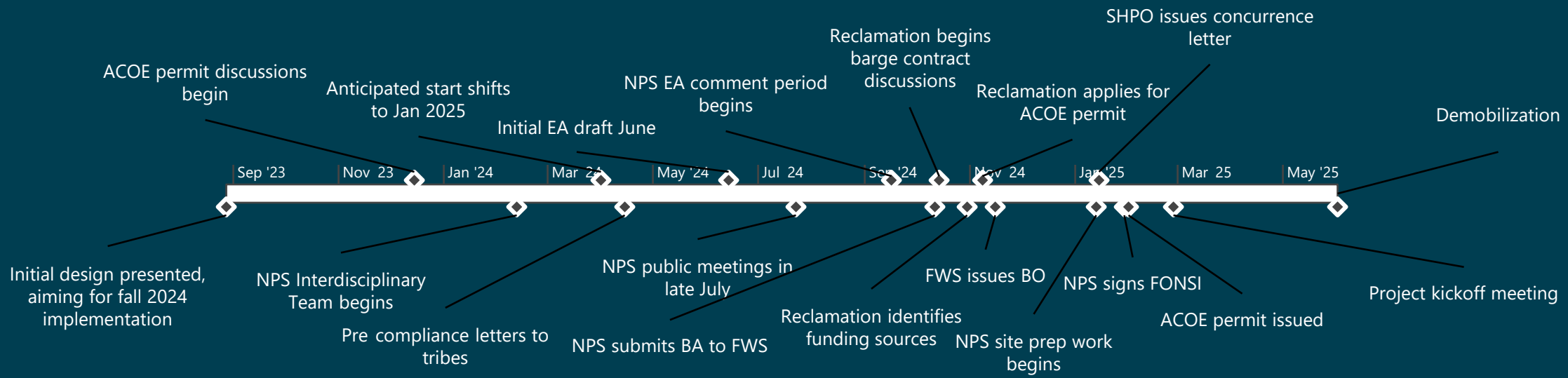
NEPA process and consultations



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