

# Bonneville Spillway South Shore Scour ROV Inspection Report

**Inspection date:** September 27<sup>th</sup>, 2022.

**Inspection conducted for:** Seung Yoo, Andrew Derugin & ODB Project.

**ROV Inspection by:** NWP Office of Dive/ ROV Operations and Safety.

**Inspection location:** ODB Spillway Tailrace, South Shoreline below Bay 18.

**Desired inspection targets:** Conditions surrounding fish ladder and scour area.

## **ROV and Sonar description:**

The ODB Spillway South Shoreline Scour area was inspected using a Deep Ocean Engineering Phantom T5 remotely operated vehicle (ROV). The T5 was piloted from a project vessel at the inspection location. Visual inspection is conducted using the installed high-resolution camera and documenting on HDD. Sonar imaging was conducted utilizing a Tritech Gemini 1200ik 2D multi-beam imaging sonar as well as a Tritech SeaPrince Sector/ Polar Scanning sonar.

The Tritech sonar software is proprietary and records the sonar imagery that can only be viewed on that software. To share this imagery, screenshots are taken and presented below.

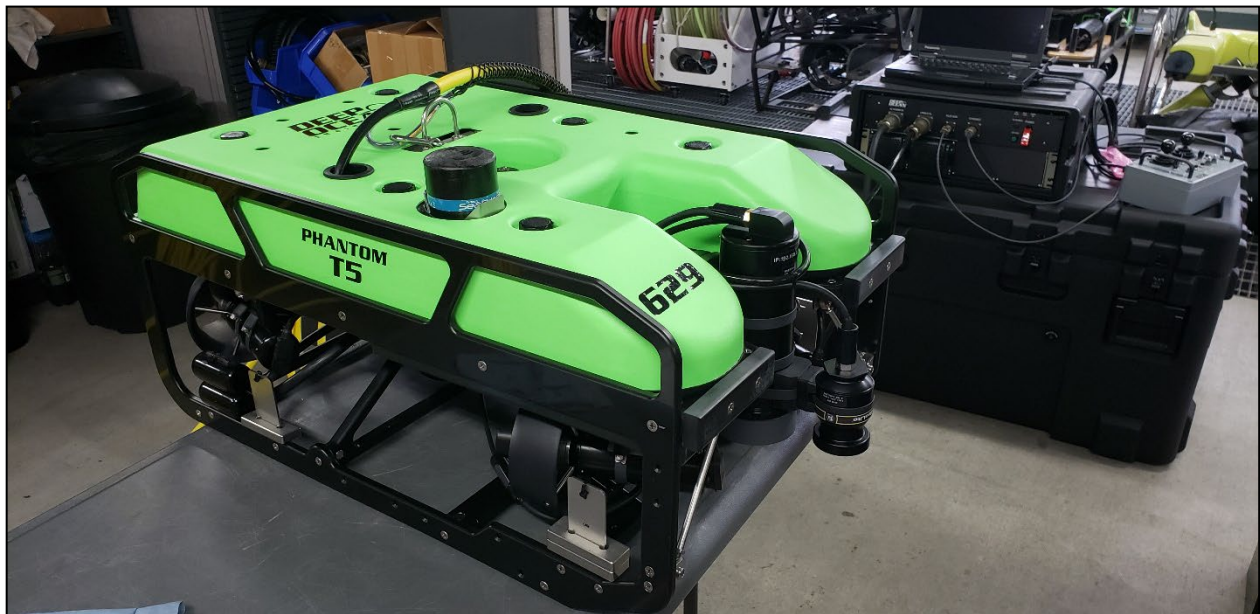


Figure 1 DOE Phantom T5 ROV and sonar.

## ODB Spillway South Shoreline Inspection, 27 September 2022



Figure 2 Bonneville Dam Spillway. Red box indicates approx. inspection area.

### Project description and inspection findings:

South Shoreline Scour- The NWP ROV was deployed from the vessel and piloted into the scour area. The overall approximate underwater dimensions of the scour area are approximately 55-66 ft. long (east to west), approximately 35-45 ft. wide (north to south) and approximately 8-10 ft. deep. There was no undermining found below the fish ladder and the patch from the previous repair is still in-tact. There was undermining of approximately 3-4 ft. found at the east end of the scour, under the area that is capped with concrete. The rip rap that was placed along the west downstream edge of the concrete cap, as well as the northern edge of the concrete cap toe is missing and dispersed along the bottom. A hydro survey is recommended to determine rip rap distribution due to ROV camera limitations.

Sonar & video still images below highlight areas of interest found during this inspection. Yellow arrows in sonar images represent water flow direction for viewing orientation:





Figure 3 Image of undercut area in the southeast corner of the scour area.



Figure 4 Additional image showing undercut in the southeast corner.

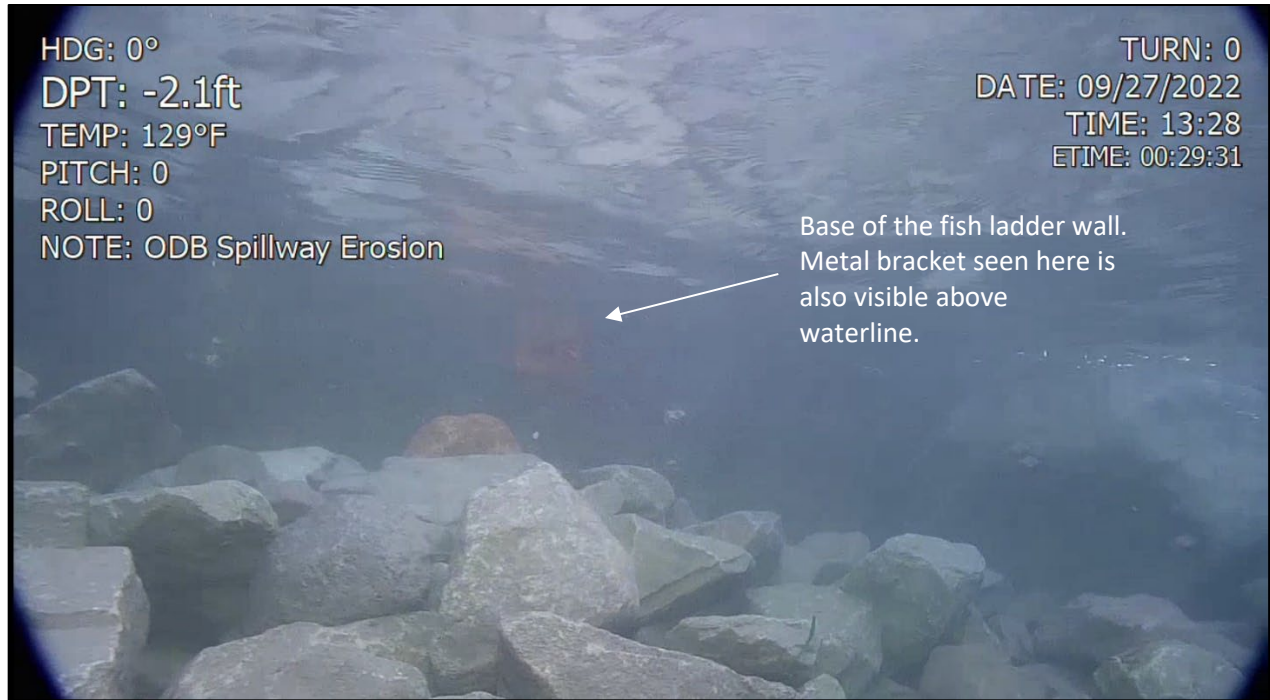


Figure 5 Image showing rock & rip rap up against the north wall of the fish ladder. No undercutting noted in this area.



Figure 6 Image showing missing rip rap along western edge of concrete structure.



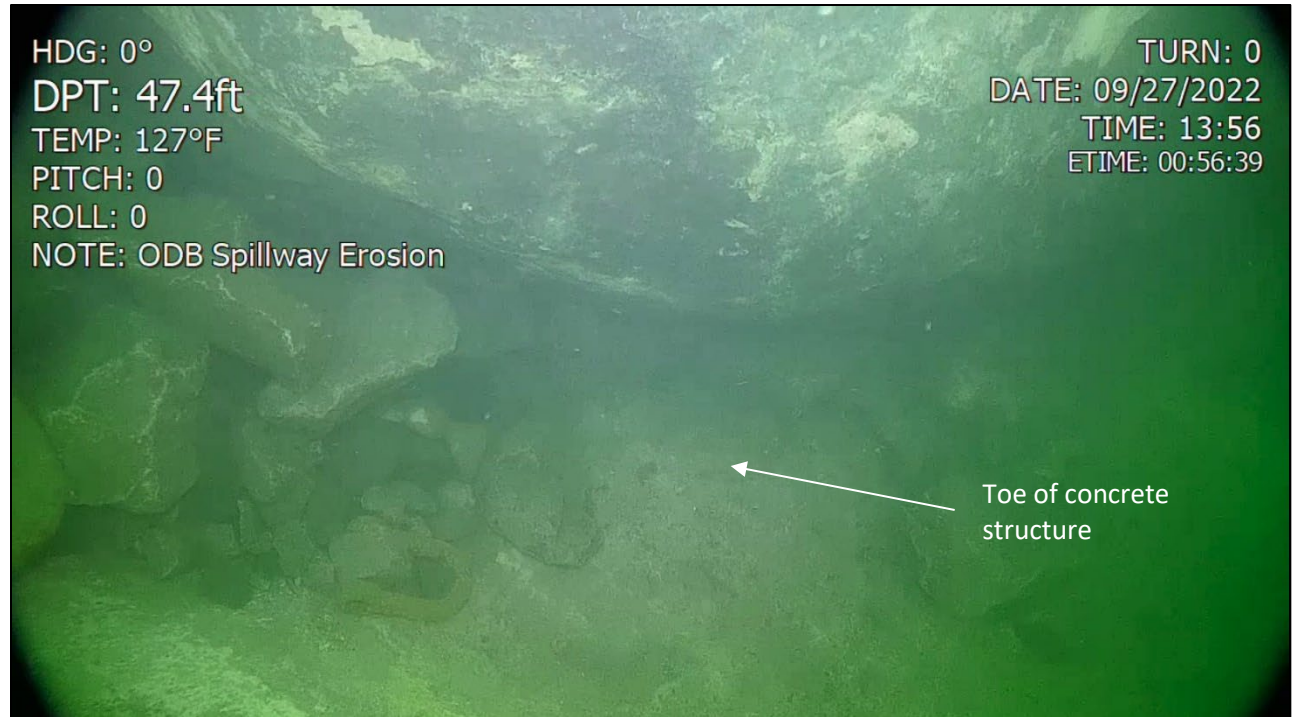


Figure 7 Image showing missing rip rap along the northern edge of the concrete structure.

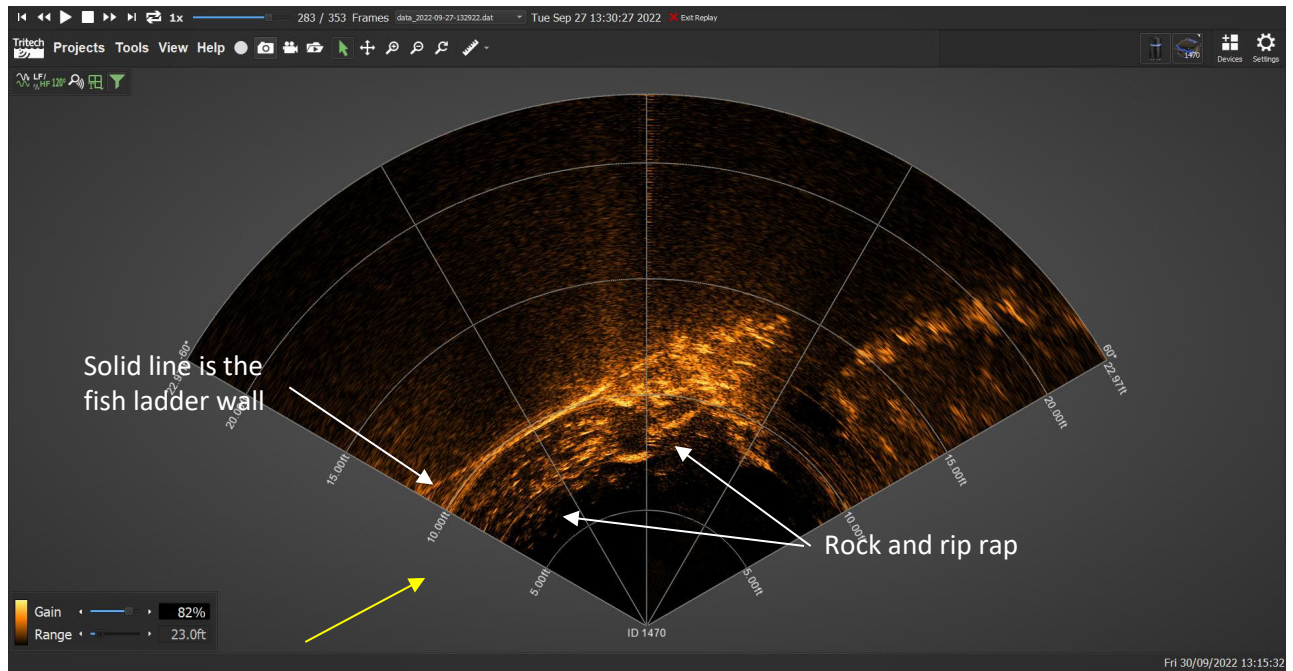


Figure 8 Sonar imagery showing rock & rip rap distributed up against fish ladder wall.

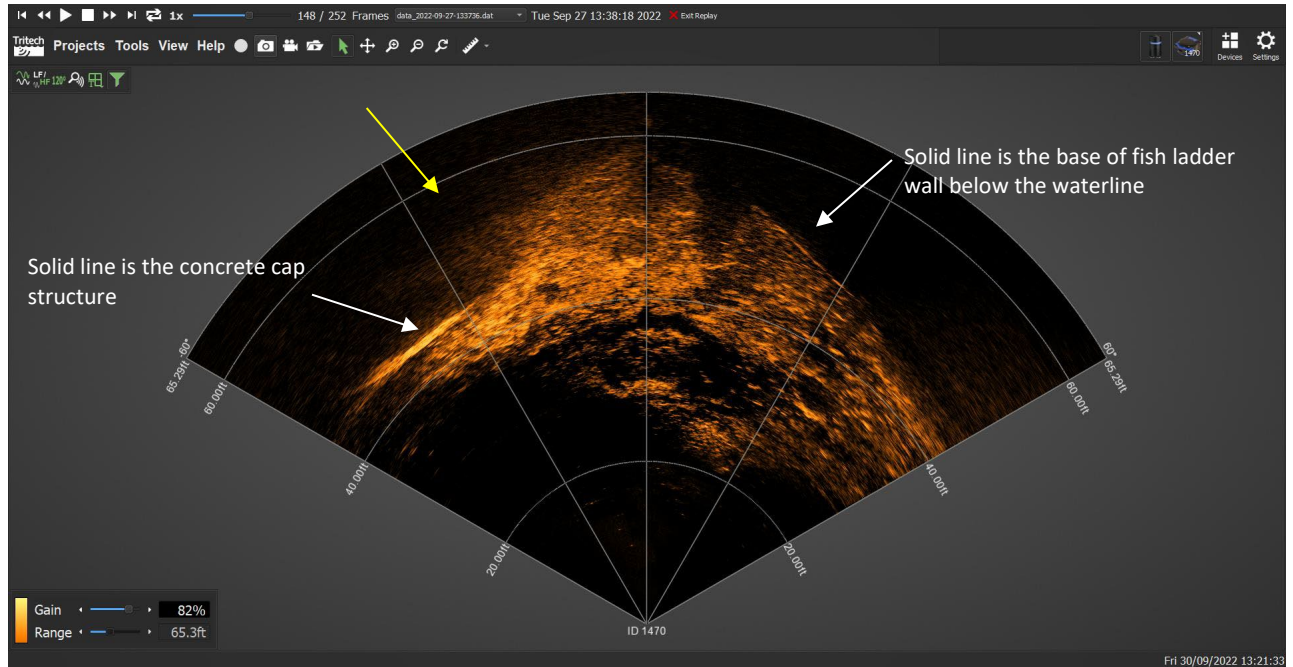


Figure 9 Sonar imagery showing the scour area slope and relationship to the fish ladder wall and the concrete cap structure.

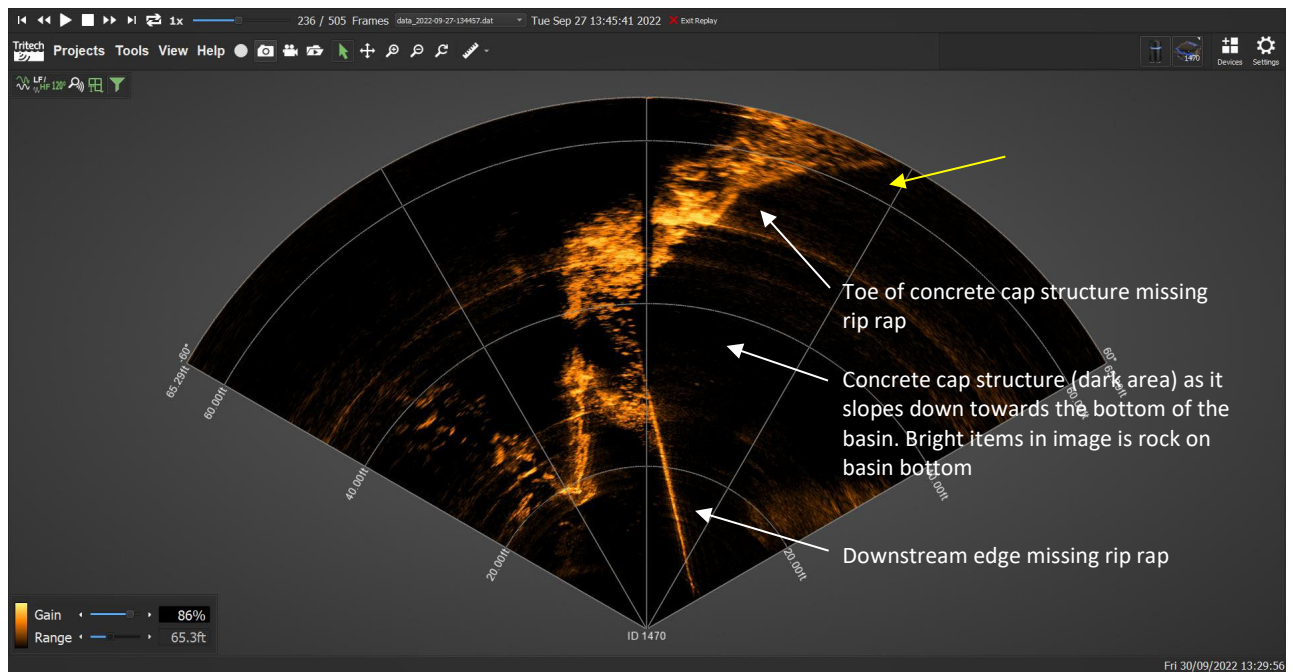


Figure 10 Sonar imagery showing missing rip rap along the toe and downstream edge of the concrete cap structure.

Point of contact for inspection results and report:

Todd Manny

**NWP Office of Dive/ ROV Operations and Safety**  
**541-374-3972 Office**  
**541-554-9726 Cell**  
[David.T.Manny@usace.army.mil](mailto:David.T.Manny@usace.army.mil)

**Jared Butler**  
**NWP Office of Dive/ ROV Operations and Safety**  
**503-341-1846 Cell**  
[Jare.W.Butler@usace.army.mil](mailto:Jare.W.Butler@usace.army.mil)