

MCNARY PIT DESIGN CONCEPTS

Chuck Barnes

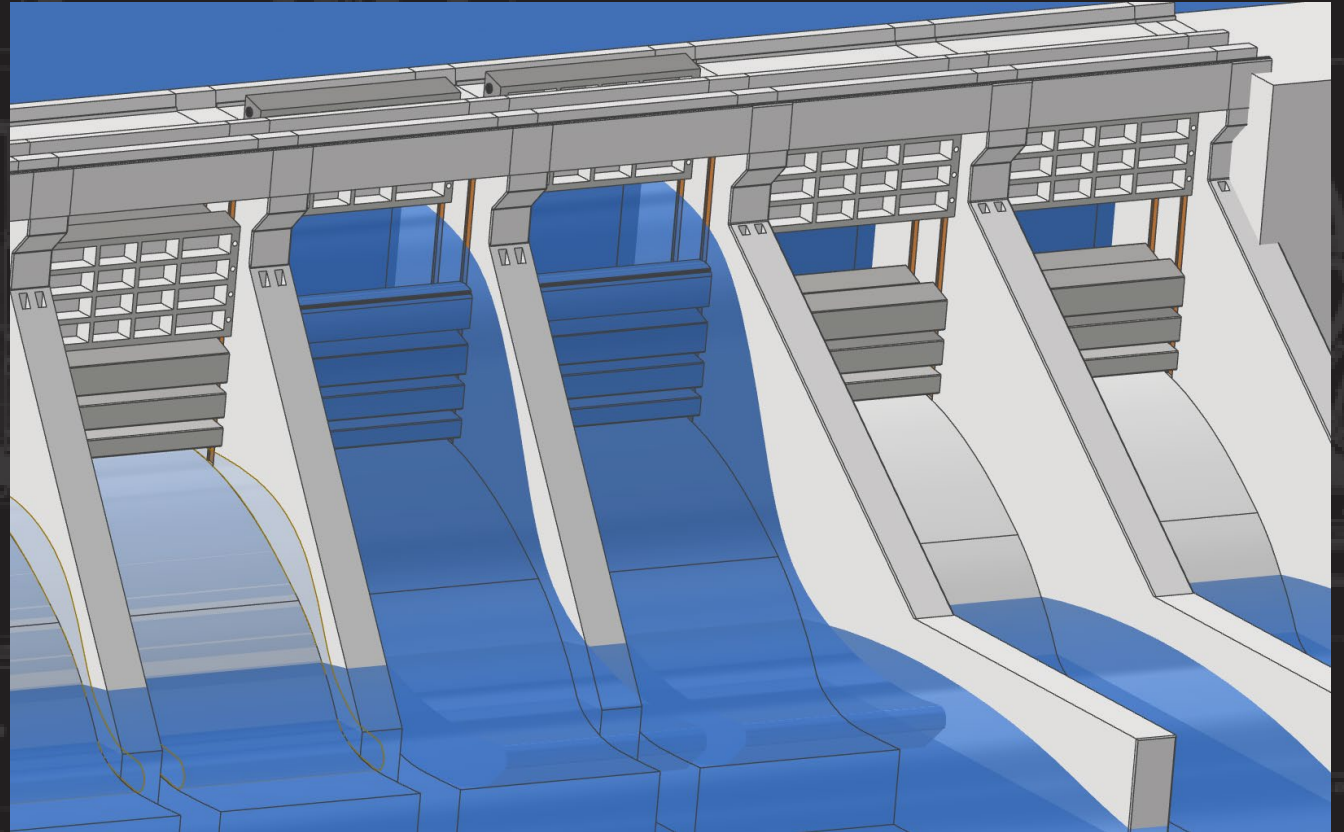
Senior Fish Biologist

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FFDRWG

7 November 2024



U.S. ARMY



US Army Corps
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MCN PIT DETECTION PROJECT DELIVERY TEAM

Walla Walla District Office:

Karen Zelch- Project Manager
Andrew Glencross- Electrical – Eng Technical Lead
Travis Foster- Hydraulics
Jana West- Civil
Brandon Tewell- Structural
Ryan Laughery- Hydraulics
Brent Meachum- Mechanical
Tiffany Stoeckig-Dixon- Operations Fisheries
Chris Peery- Operations Fisheries
Chuck Barnes- Fish Biologist
Ryan Ashcraft- Fish Biologist

McNary Dam:

Marty Ahmann- Chief of Maintenance
Bobby Johnson- Fisheries
Paul Bertschinger - Fisheries
Talon Adkins- Electrical
Anthony Ohare- Mechanical

PSMFC:

Gordy Axel
Mark Leonard
Darren Chase
Scott Livingston

NOAA:

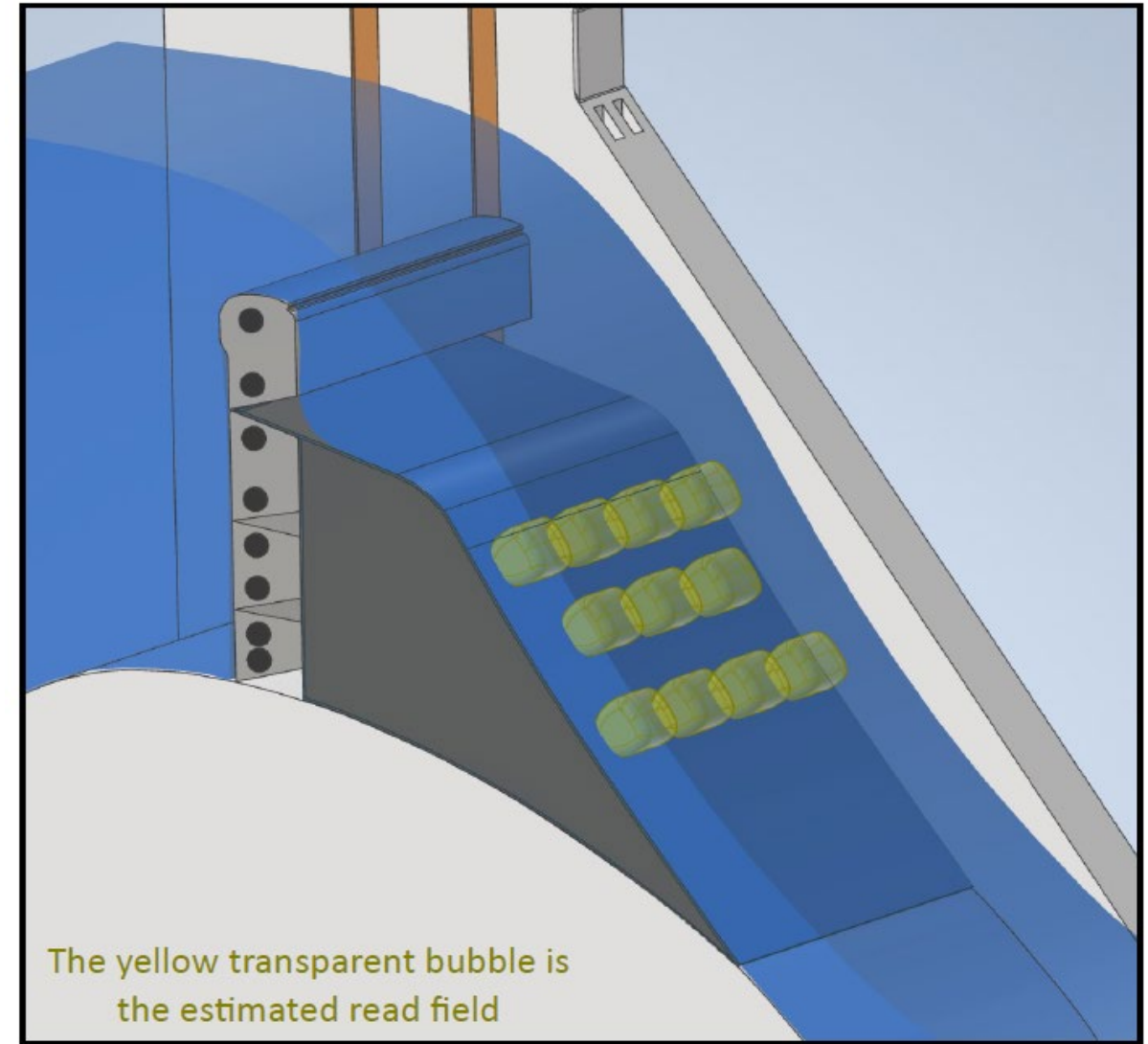
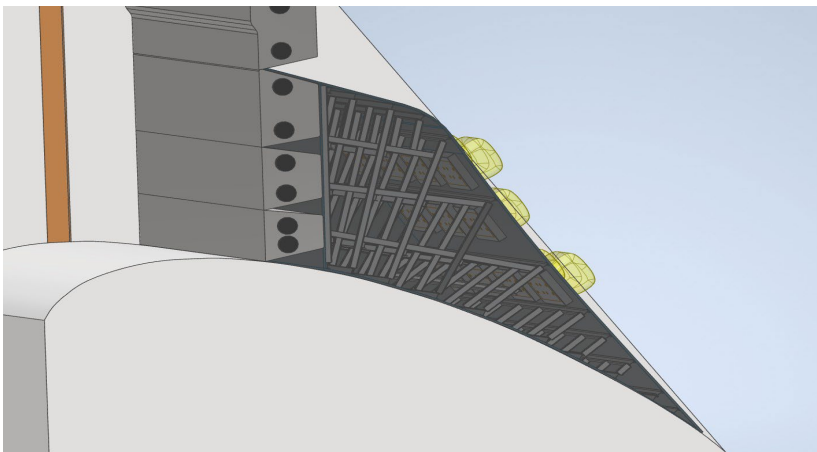
Gabe Brooks



#1 SPILLWAY RESHAPING INSERT

PDT Charrette Notes:

- a. Structural- Constraint- too heavy. Not likely to move the structure with a crane.
- b. H&H- Constraint- not able to impact the PMF (probable max flood)
- c. Civil concern- how to anchor this structure to existing spillway w/o damage
- d. Inspection concern- how would this be inspected
- e. How much time for R&D before this could be implemented? -several years at least
- f. **REMOVED FROM CONSIDERATION**

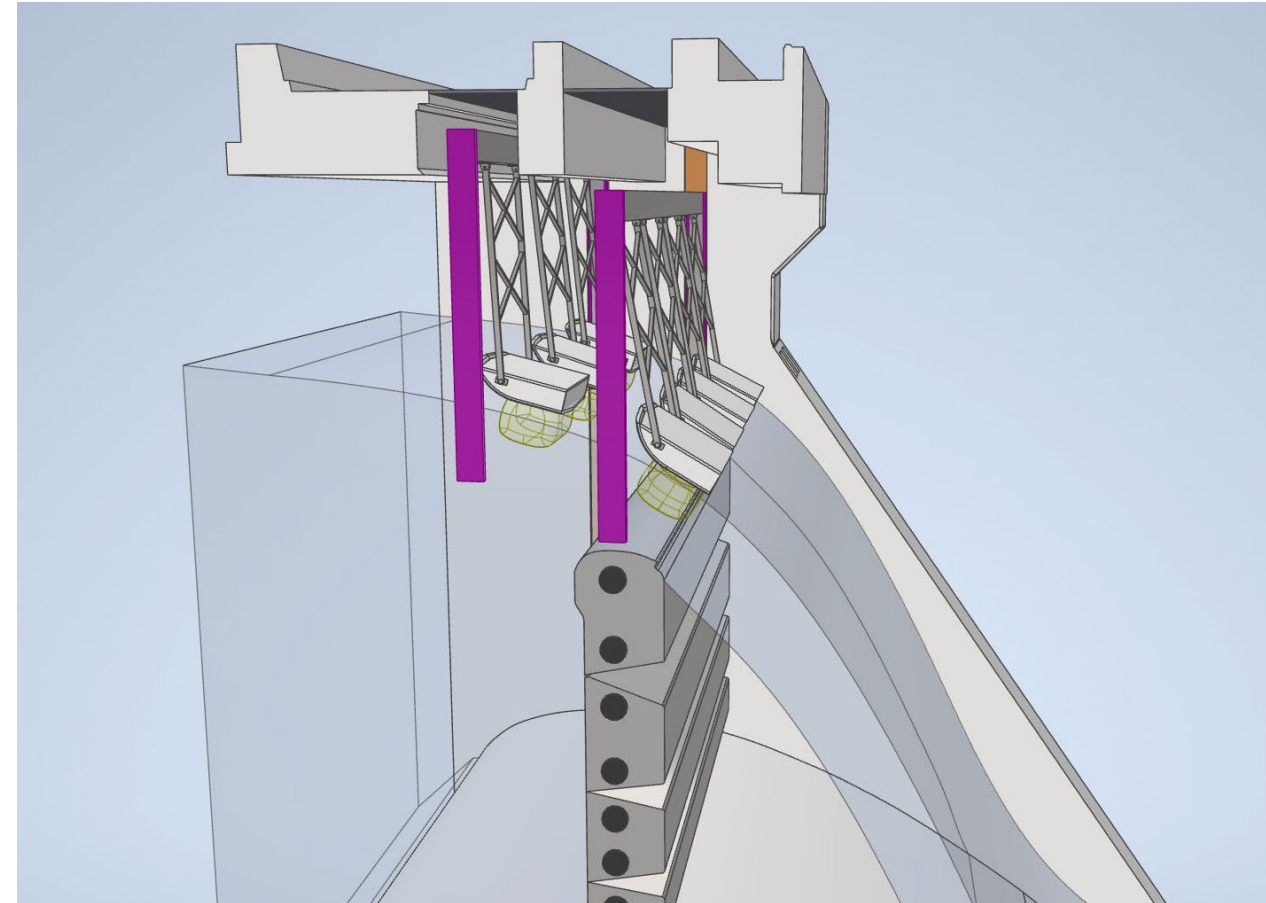
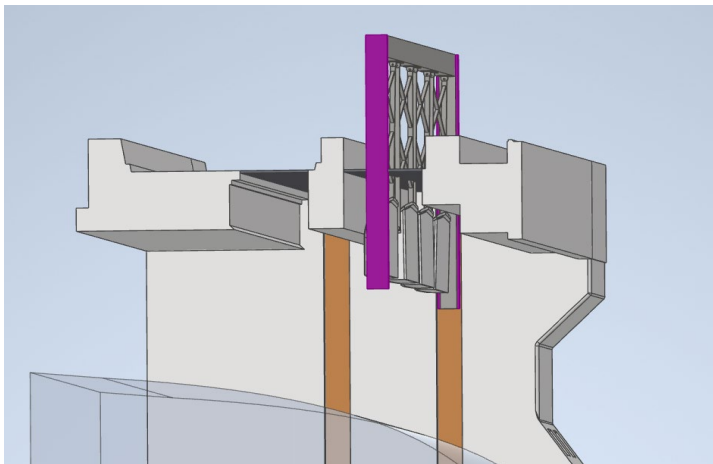




#2 SKIMMING DETECTION ARRAY

PDT Charrette Notes:

- a. Project Con- Debris; the TSW is the main route debris is pushed through
- b. Fisheries Con- located at surface and fish are not exactly at the surface
- c. Ques: how deep is the water column at the TSW? Ans: 12-14 feet at MOP.
- d. Fisheries Con- detection rates decrease with debris flow
- e. OPS - concerned about day-to-day operations and all the moving parts
- f. All- appears to be high maintenance costs/time

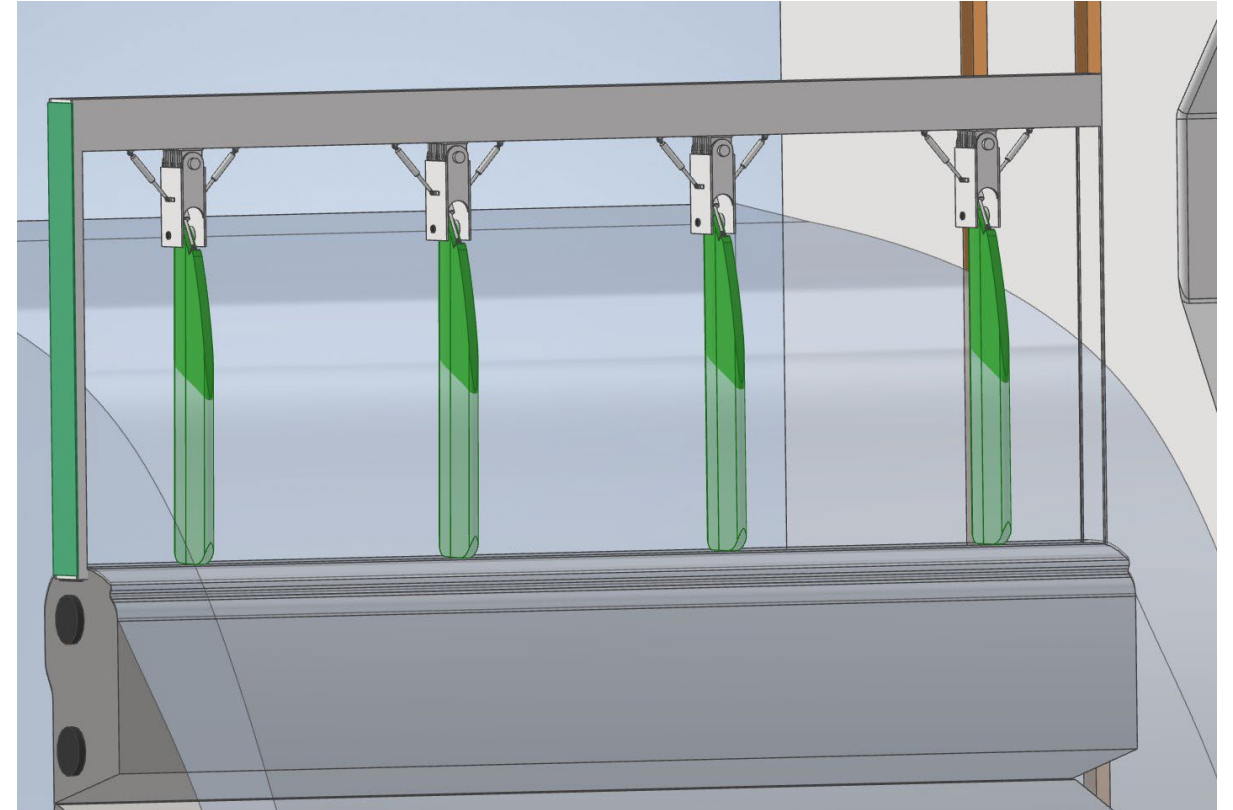
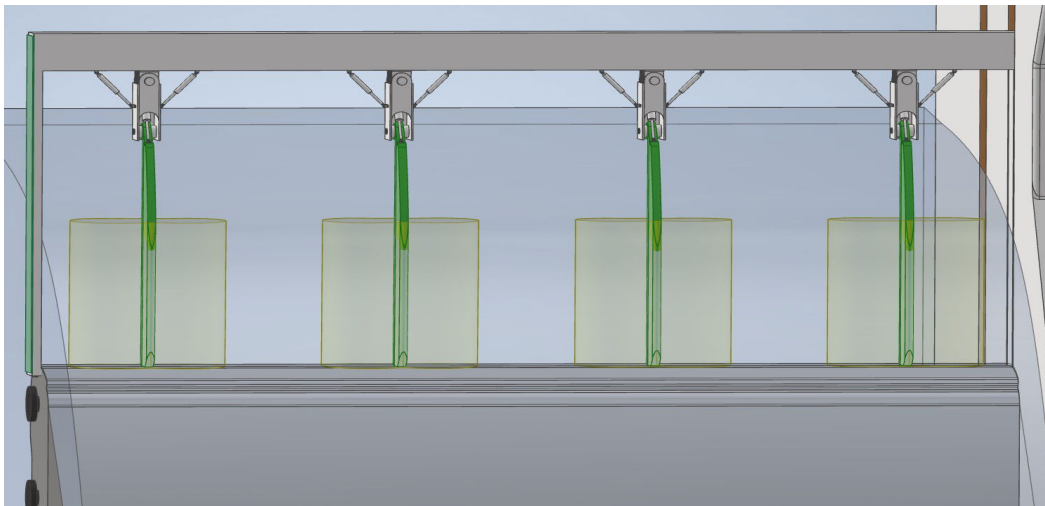




#3 ARTICULATION FIN ARRAY

PDT Charrette Notes:

- a. Fin array is flexible- similar points to concept #2
- b. Likely better detection
- c. Elect- **Not enough room to support electrical needs**
- d. Concerned about garbage and debris getting tangled
- e. OPS- concern about the addition of hydraulics- trying to minimize oil spill
- f. More moving parts usually equates to more maintenance and cost over time
- g. **REMOVED FROM CONSIDERATION**

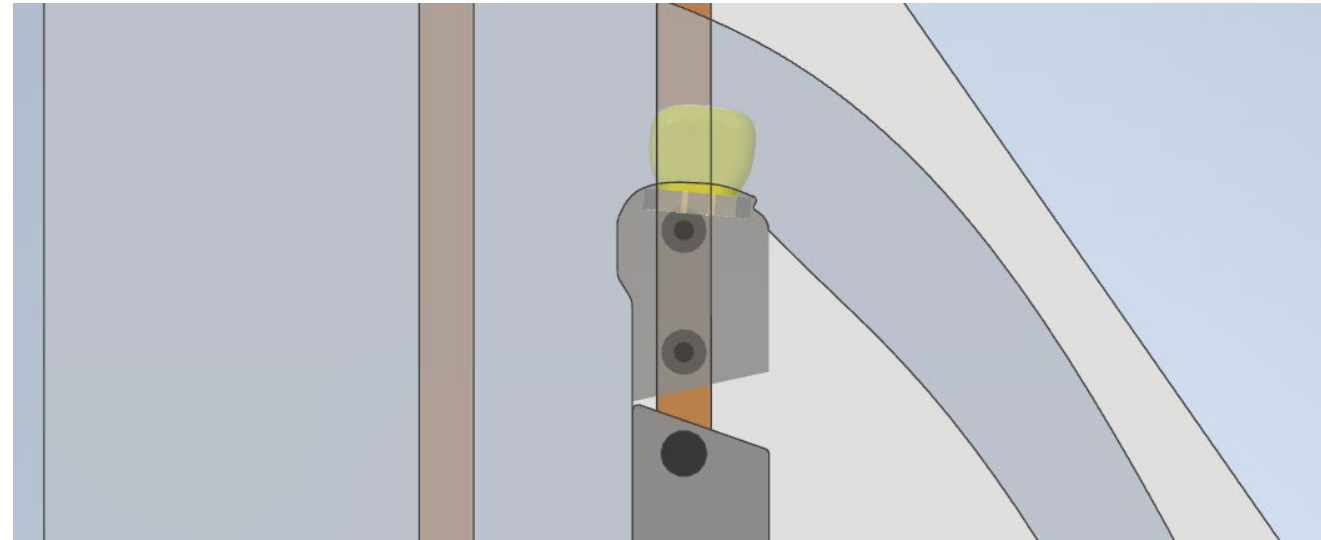
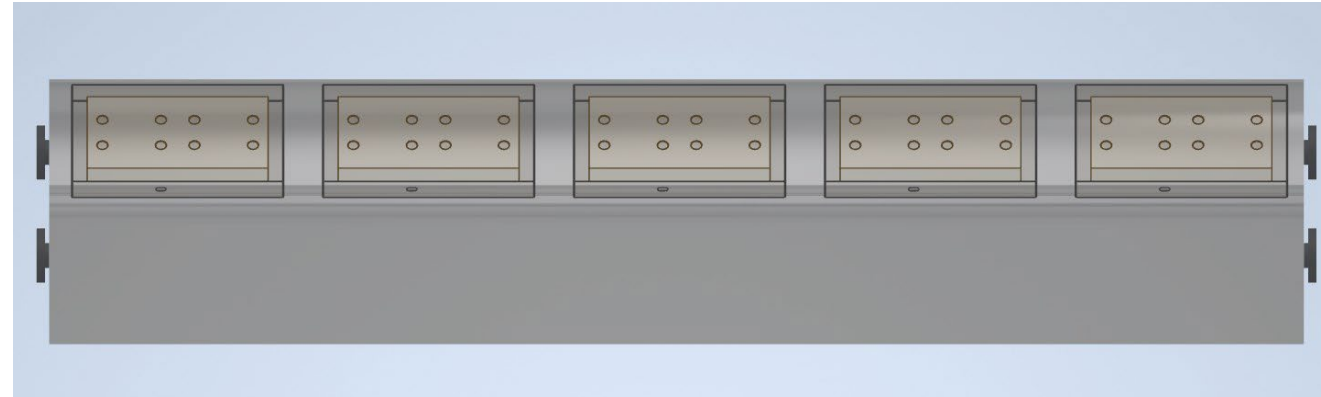
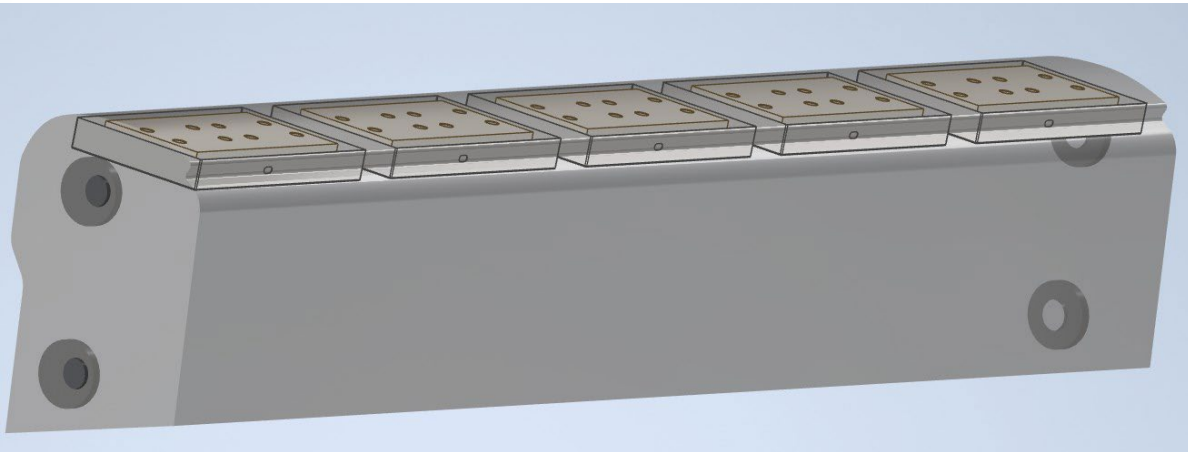




#4 DETECTION EMBEDDED TSW

PDT Charrette Notes:

- a. This alternative is favorable to team
- b. Percent detection would be lower
- c. Requires removal of surface of TSW- what did LGR have to do to remove rebar from the concrete and what was the depth embedded?

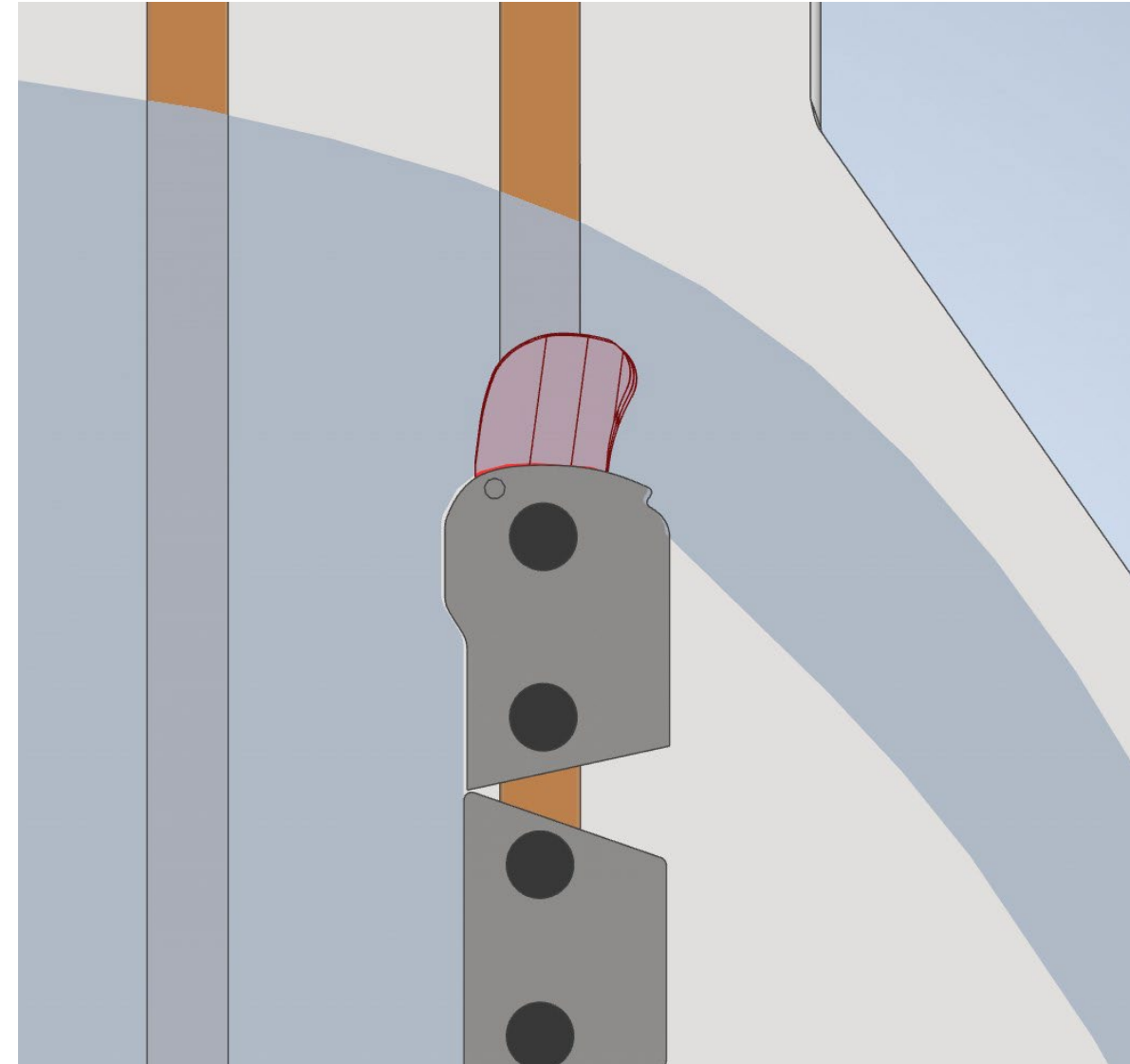
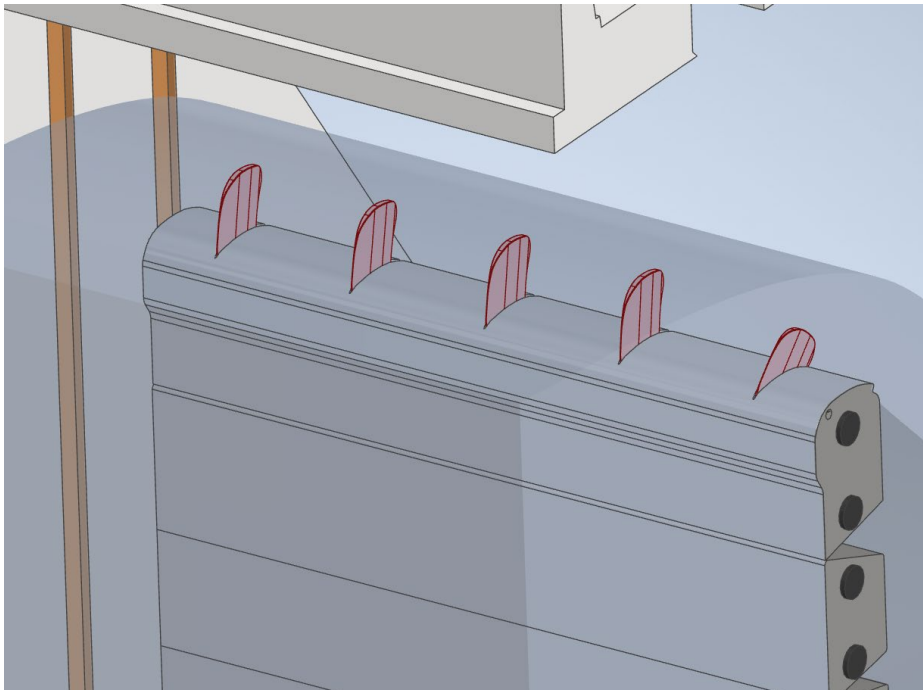




#5 TSW EMBEDDED PIT TAG FIN ARRAY

PDT Charrette Notes:

- a. Designed to deflect down
- b. Con- debris getting stuck in slot, garbage, plastics etc.
- c. High-cost maintenance and probability for problems
- d. **REMOVED FROM CONSIDERATION** due to possible fish strikes

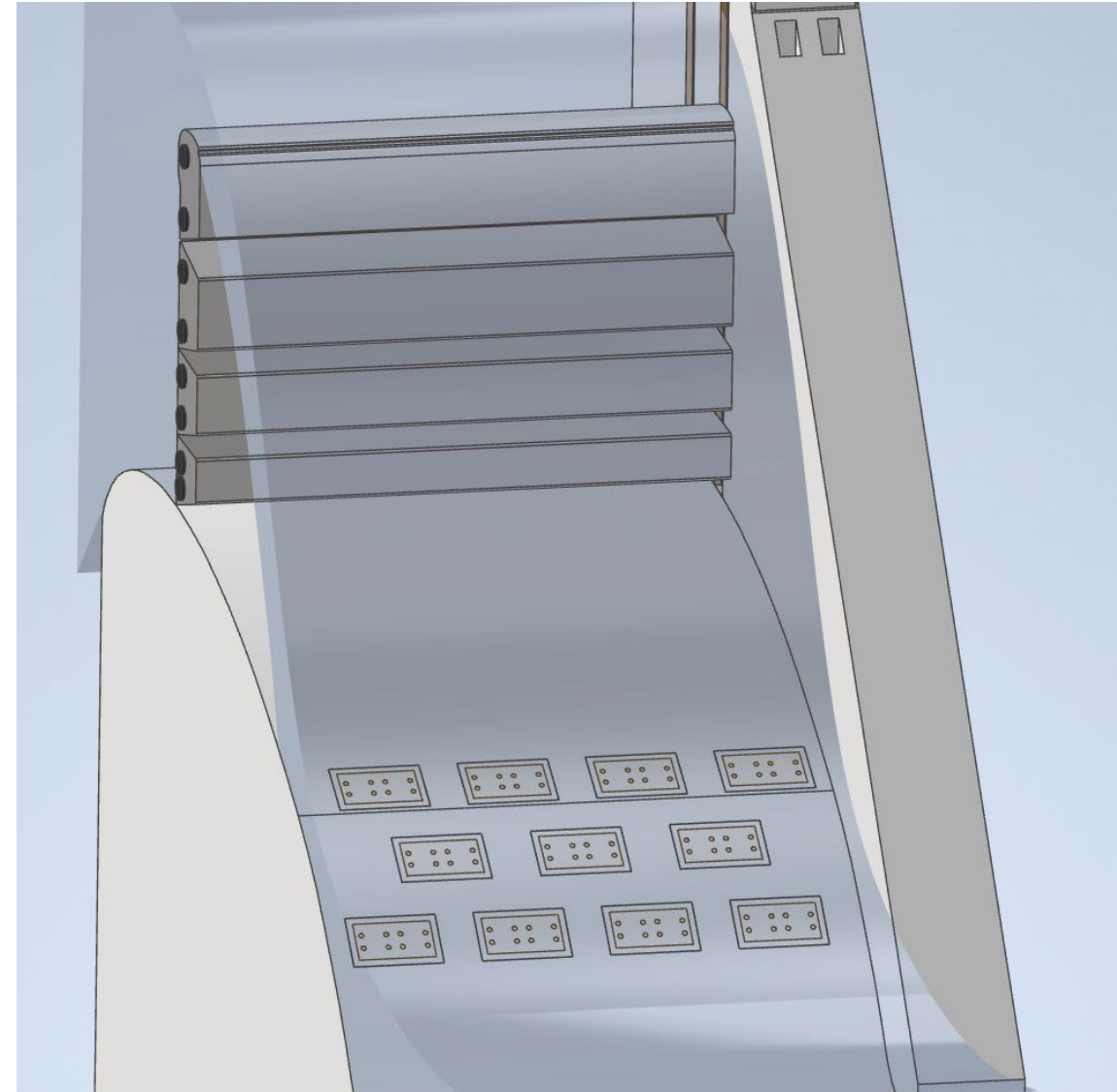
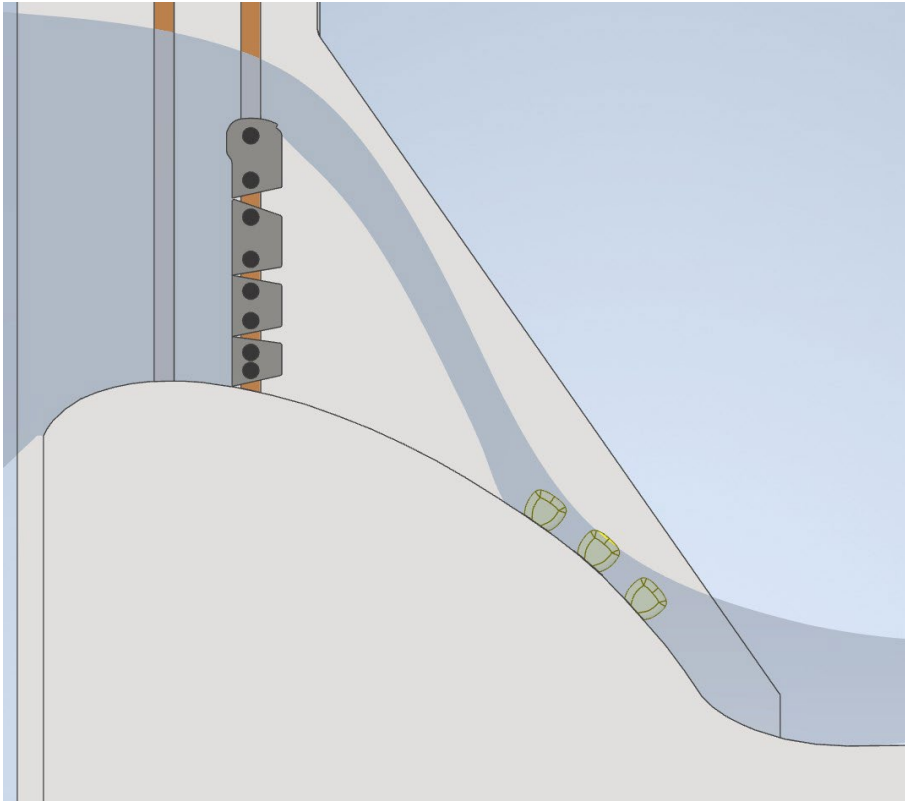




#6 EMBEDDED IN THE EXISTING OGEE

PDT Charrette Notes:

- a. Would need to move TSW to bay 22 to reach electrical
- b. Con- very costly
- c. Not easily replaceable

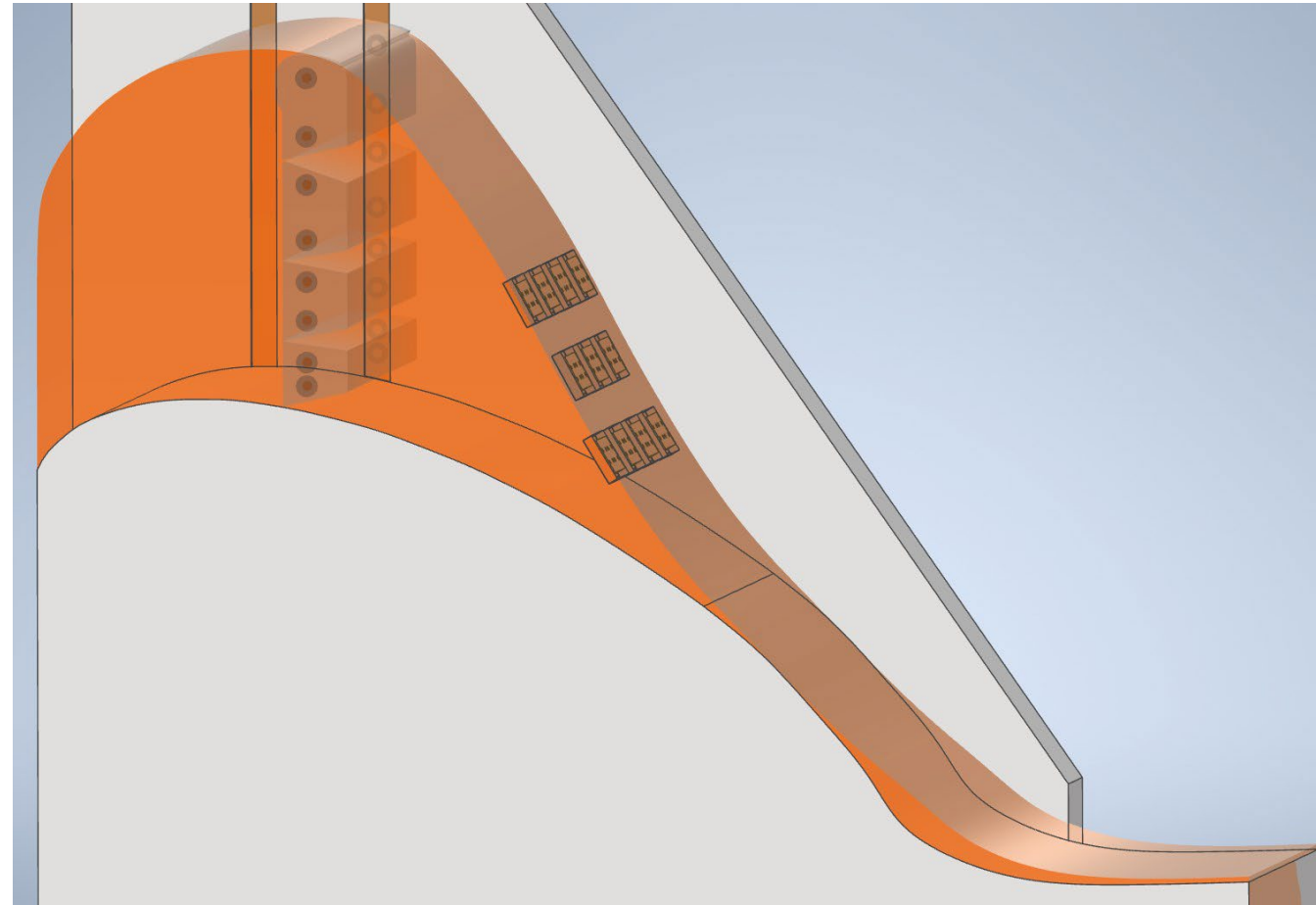
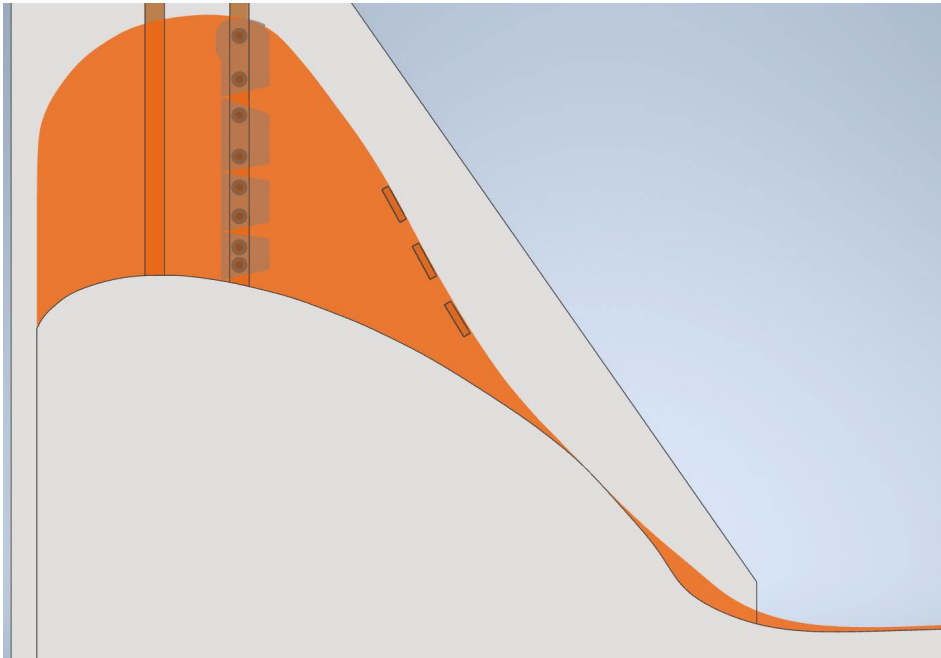




#7 EMBED IN OGEE WITH RESHAPING

PDT Charrette Notes:

- a. Higher cost
- b. Permanent once installed
- c. **REMOVED FROM CONSIDERATION-** probable max flood
- d. Look at maintenance data at LGR and see if there is any indicator for maintenance issues or problems

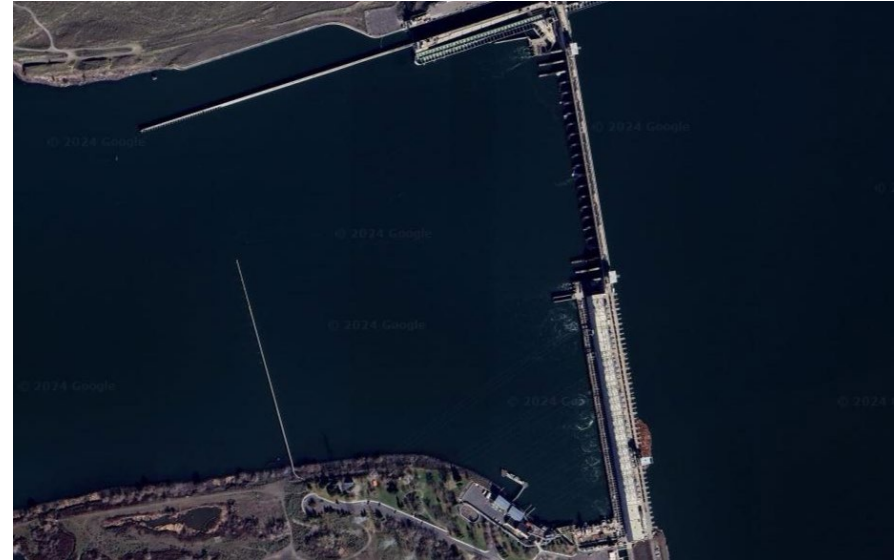




#8 PIT BARGE IN FOREBAY OR TAILRACE

PDT Charrette Notes:

- a. Con- need it to be placed in location where most fish are (upstream would be in shipping channel)
- b. Immediately upstream of spillway would raise dam safety concerns
- c. Would require an entire staff to manage and maintain- expensive
- d. April-may peak run time for fish but would need to extend through summer to capture all fish
- e. Lots of vibration, especially in tailrace
- f. **REMOVED FROM CONSIDERATION**



www.westforkenv.com

Columbia Class PIT Detection Barge Advances

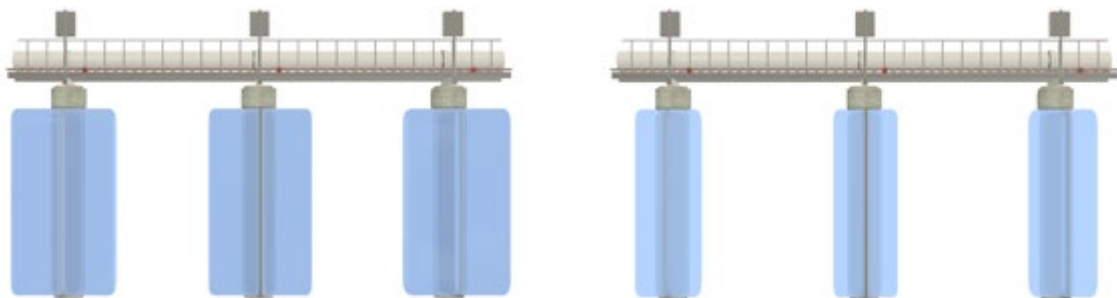




#9 JBS OUTFALL ANTENNA

PDT Charrette Notes:

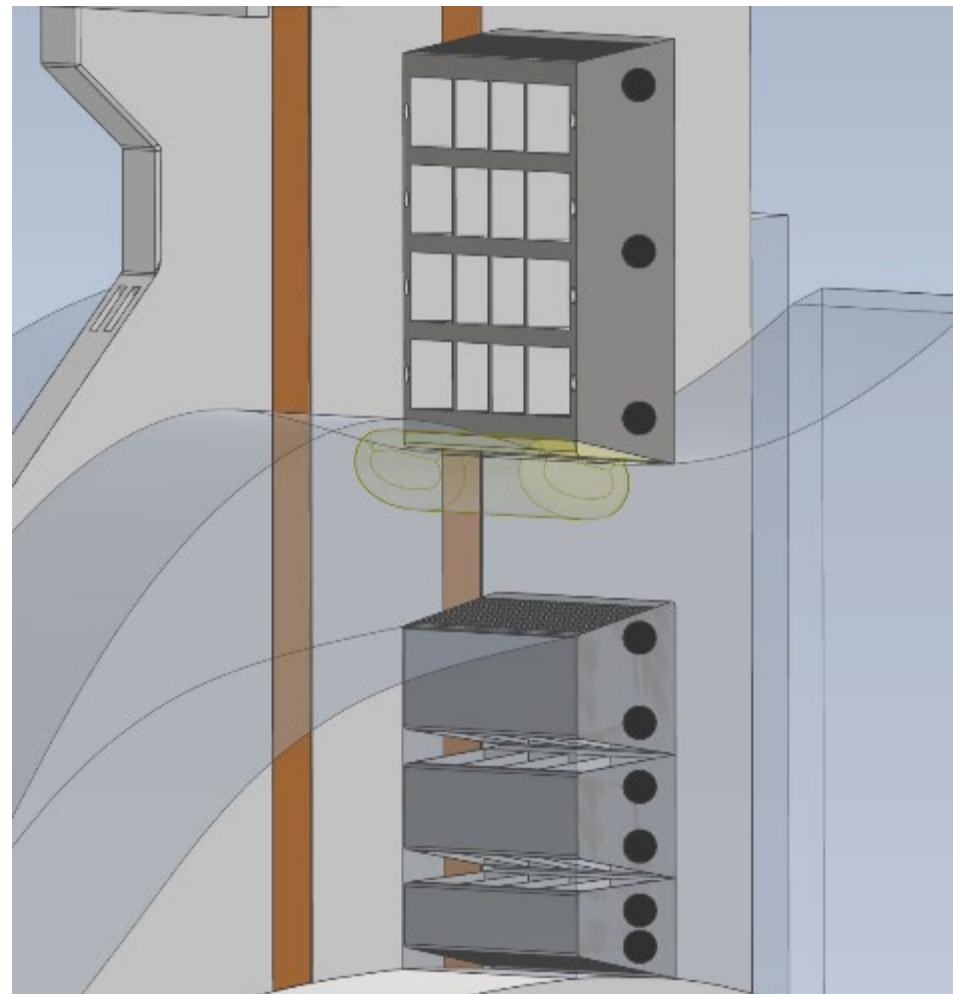
- a. Pro- This is scalable.
- b. **REMOVED FROM CONSIDERATION** -high water goes over the top of the outfall pipe and has taken out the water gun on multiple occasions and parts of the catwalk. High probability of losing any infrastructure placed on outfall piers from debris
- c. Last pier is 120 ft depth
- d. Lots of space between piers so would need to know what detection we would get
- e. Power would be on shore





#10 SPLIT-LEAF SPILLWAY DETECTION

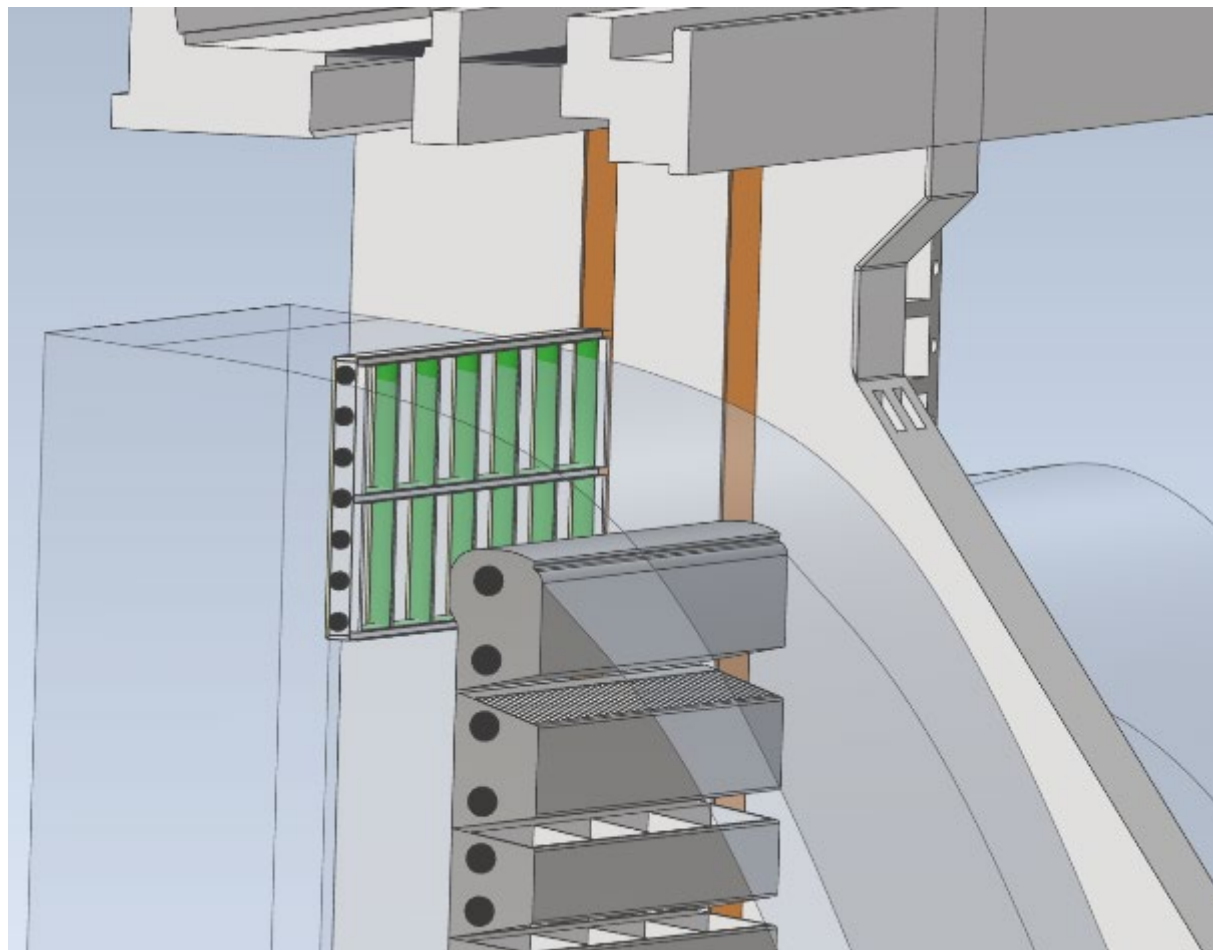
PDT Charrette Notes:





#11 “TRASH RACK” STYLE PIT DETECTOR

PDT Charrette Notes:



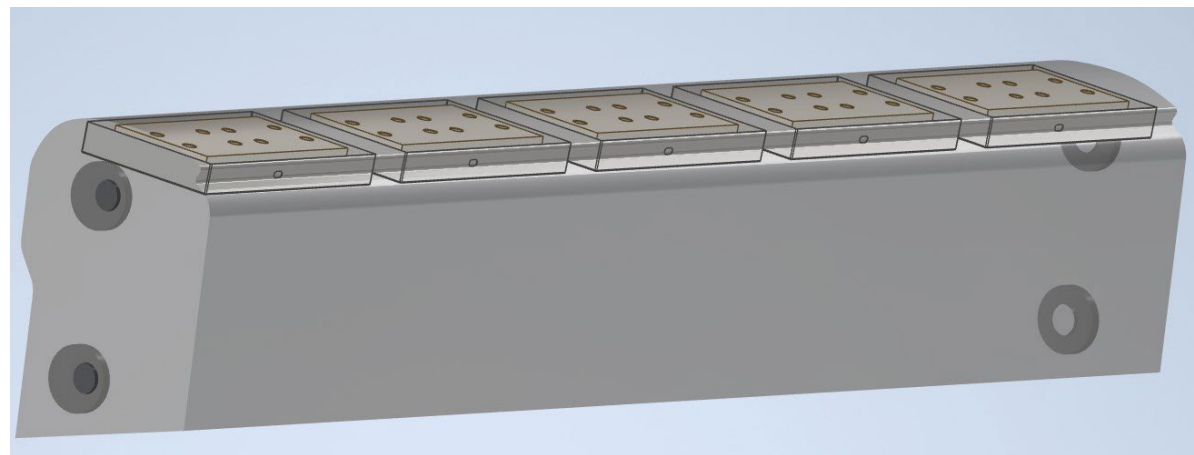
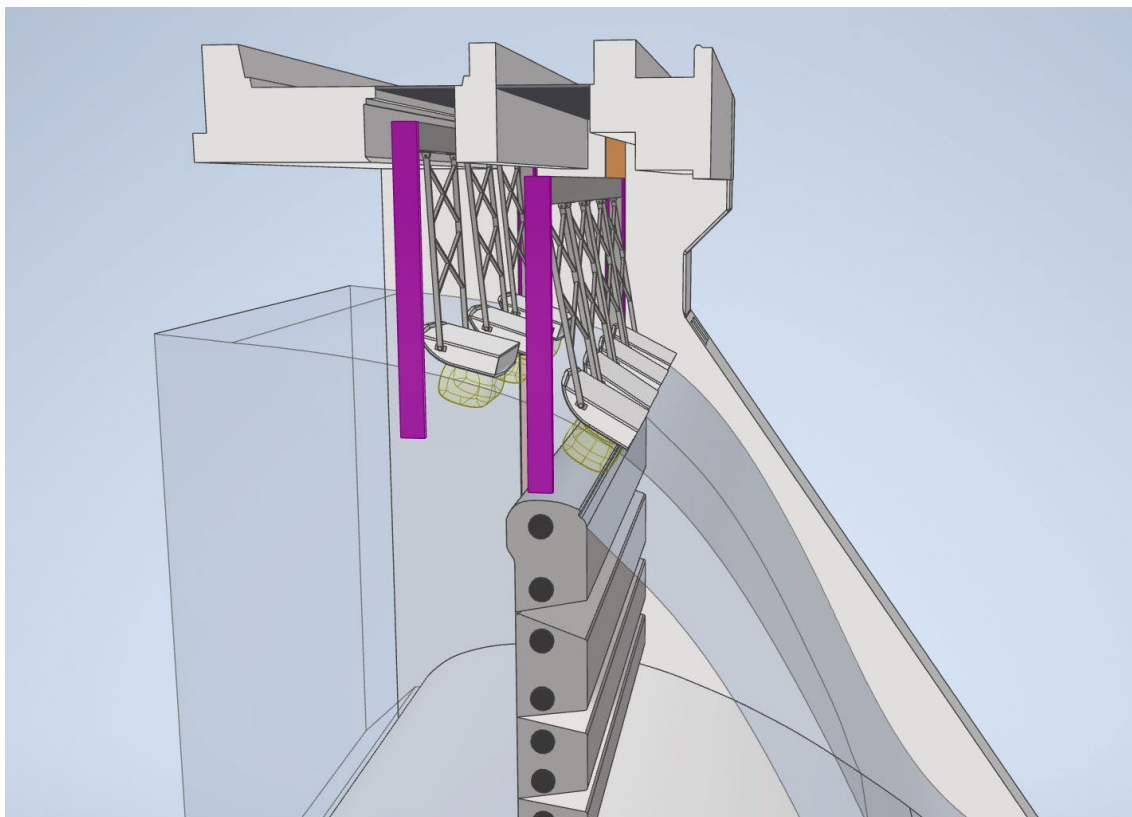


#12 CONCEPTS 2 & 4 HYBRID

PDT Charrette Notes:

#2 SKIMMING DETECTION ARRAY

#4 DETECTION EMBEDDED TSW





NEXT STEPS

- a. Schedule workshop to develop criteria and further assess alternatives
- b. Seek input from FFDRWG
- c. Begin drafting Alternatives Report

Scheduled Milestones	Date
Kickoff Meeting	May 2024
Initial Concept Briefing	June 2024
USACE Alternatives Concept Review	September 2024
All PDT Workshop- Concept Screening and further Development	October 2024- at MCN Dam
New Concept Submittal from PSMFC/NOAA	October 2024
** Brief FFDRWG on Initial Findings/ get input from group	November FFDRWG
Workshop on refined alternatives/ screening criteria	TBD
** Brief FFDRWG on workshop Findings	TBD FFDWG
Submittal: Draft Scoping Design Report (SDR)	TBD
Review Period- All PDT/ FFDRWG	TBD
Submittal: Final Scoping Design Report (SDR)	October 2025

QUESTIONS? / ADDITIONAL CONCEPTS?



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