GRADUALLY SLOPED REVETMENT – IF WE BUILD IT WILL THEY COME?

RRAT presentation
12 Sept 2023
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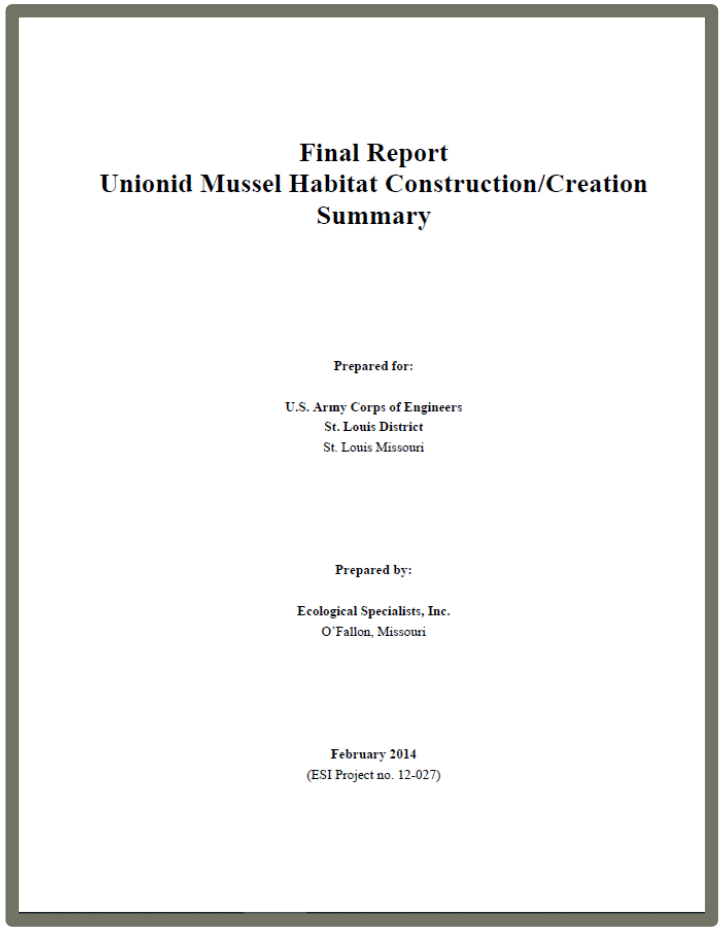
2014 MUSSEL HABITAT CONSTRUCTION CREATION SUMMARY REPORT

- **Avoid & Minimize Program effort**
- **What can we do with our channel maintenance program to improve unionid (mussel) habitat?**
- " In general, habitat within the SLD is poor compared to other areas of the UMR. Although creation of large mussel beds is likely beyond expectations, creating small areas attractive to mussels may be possible around existing or future river training structures"



Final Report
Unionid Mussel Habitat Construction/Creation Summary

Prepared for:

U.S. Army Corps of Engineers
St. Louis District
St. Louis Missouri

Prepared by:

Ecological Specialists, Inc.
O'Fallon, Missouri

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2014 MUSSEL HABITAT CONSTRUCTION CREATION SUMMARY REPORT

The Key Ingredients:

- Gradual flow changes
- Substrate heterogeneity
- Prevention of extreme scour and depositional velocities
- Prevention of substrate deposition
- Host fish source
- Mussel seed source

Design Recommendations:

- Allow voids in structures to allow material to settle in those areas
- Add some cobble size stone in toes of structures which would spread out, leaving areas for heterogeneous substrate to form
- Put raised gravel/cobble beds on stable substrate areas
- Use more sorted medium sized boulders
- Continue rock placement further riverward, but scattered allowing substrate to accumulate between rocks

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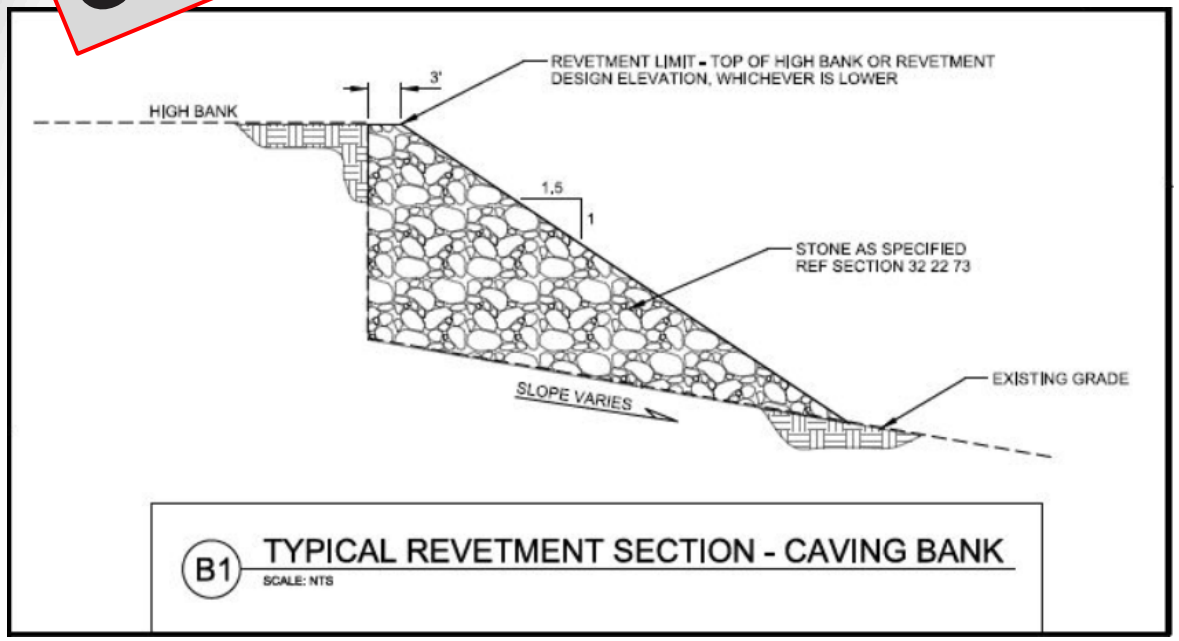
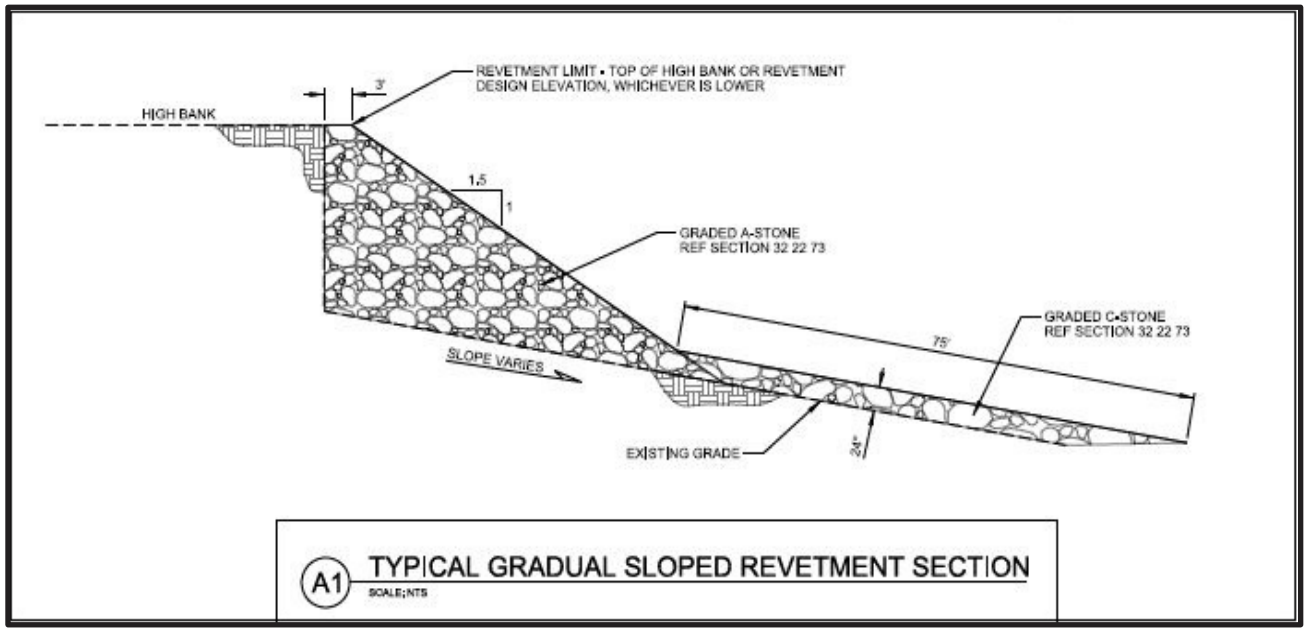
INCORPORATING MUSSEL HABITAT INTO OUR REVETMENT

OK, Lets Try it!

GRADUALLY SLOPED REVETMENT (GSR)



Traditional Revetment



GSR Revetment

- 2’ thick, and extends 75’ from revetment into channel
- C-stone vs. revetment A-stone

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GRADUALLY SLOPED REVETMENT (GSR)

- RM 291.2L (Blackbird Island)
  - Construction completed FY21

- ~~RM 280.3L (Gosline/Crider Island Side Channel)~~
  - ~~Not moving forward – existing mussel resources~~

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- ~~RM 279.8L (Gosline/Crider Island Side Channel)~~
  - ~~Was not constructed in FY21 due to low water~~

- RM 274.7R
  - Construction completed FY21
  - (replaced RM 279.8)

- RM 214.3 (Elsah Island)
  - Construction completed FY21

- RM 261.3 (Moiser Island Side Channel)
  - In FY23 contract

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GRADUALLY SLOPED REVETMENT (GSR)

- Mussel sampling contract in FY24
- Likely sampled in FY25
- 3+ years for colonization

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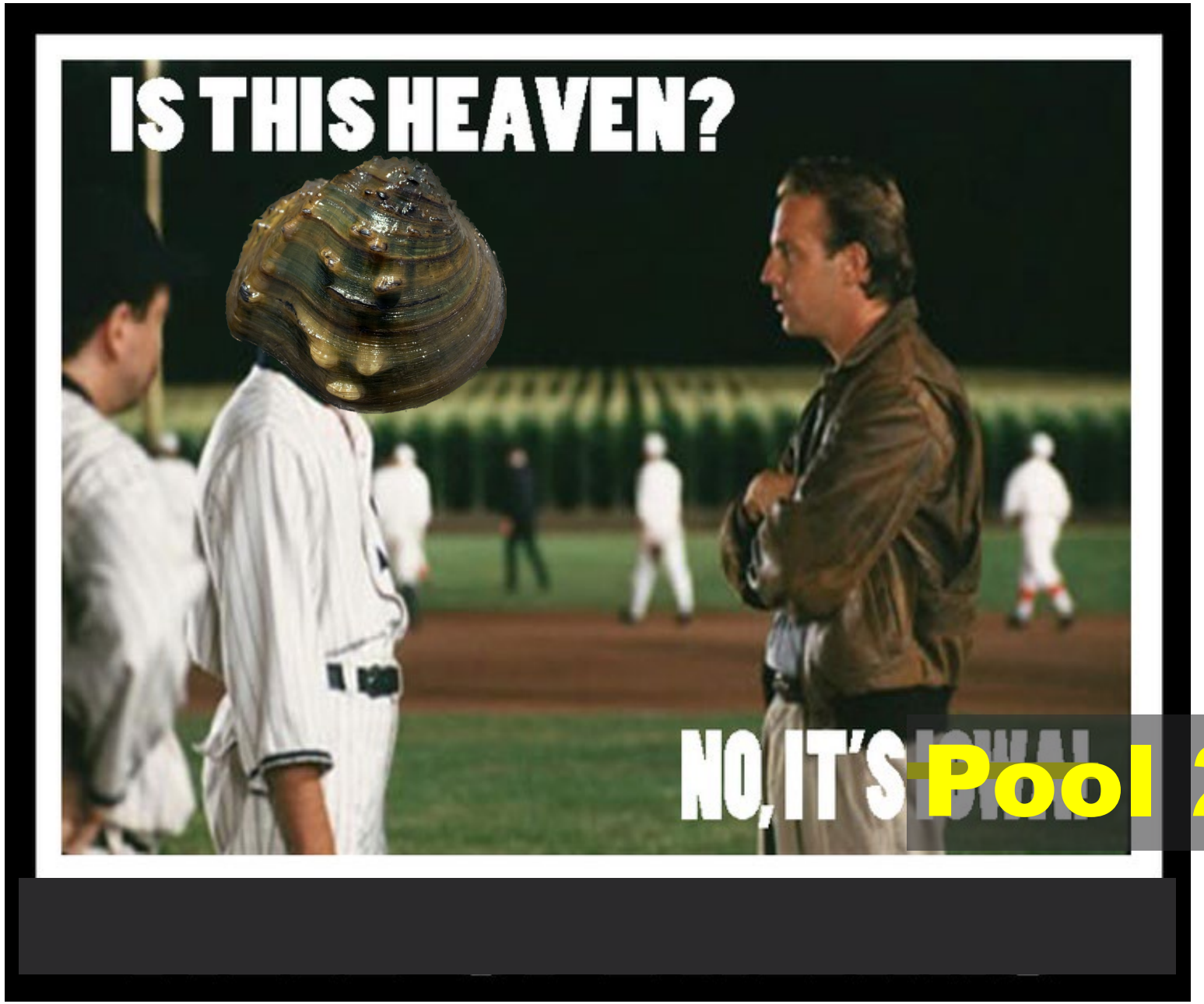

Pool 24