1. Section A--Information

* 1. Please provide your contact information.

Name: 
Organization: 
Email: 
Phone Number: 

2. Select the physiographic regions in which you have used the selected structure.

- 1 Superior Upland
- 2 Continental Shelf (not on map)
- 3a Embayed section
- 3b Sea Island section
- 3c Floridian section
- 3d East Gulf Coastal Plain
- 3e Mississippi Alluvial Plain
- 3f West Gulf Coastal Plain
- 4a Piedmont Upland
- 4b Piedmont Lowlands
- 5a Northern section
- 5b Southern section
- 6a Tennessee section
- 6b Middle section
- 6c Hudson Valley
- 7a Champlain section
- 7b Northern section (not on map)
- 10 Adirondack Province
- 11a Highland Rim section
- 11b Lexington Plain
- 11c Nashville Basin
- 12a Eastern Lake section
- 12b Western Lake section
- 12c Wisconsin Driftless section
- 12d Till Plains
- 12e Dissected Till Plains
- 12f Osage Plains
- 13a Missouri Plateau, glaciated
- 13b Missouri Plateau, unglaciated
- 13c Black Hills
- 13d High Plains
- 13e Plains Border
- 13f Colorado Piedmont
- 13g Raton section
- 20b Blue Mountain section
- 20c Payette section
- 20d Snake River Plain
- 20e Harney section
- 21a High Plateaus of Utah
- 21b Uinta Basin
- 21c Canyon Lands
- 21d Navajo section
- 21e Grand Canyon section
- 21f Datil section
- 22a Great Basin
- 22b Sonoran Desert
- 22c Salton Trough
- 22d Mexican Highland
- 22e Sacramento section
- 23a Northern Cascade Mountains
- 23b Middle Cascade Mountains
<table>
<thead>
<tr>
<th>Region</th>
<th>13h Pecos Valley</th>
<th>13i Edwards Plateau</th>
<th>23c Southern Cascade Mountains</th>
<th>23d Sierra Nevada</th>
<th>24a Puget Trough</th>
<th>24b Olympic Mountains</th>
<th>25c Oregon Coast Range</th>
<th>25d Klamath Mountains</th>
<th>25e California Trough</th>
<th>25f California Coast Ranges</th>
<th>25g Los Angeles Ranges</th>
<th>26 Lower California province</th>
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Other (please specify):
3. Structure Type

3. What structure types do you have experience with?

- [ ] Rock Vanes
- [ ] J-hooks
- [ ] W-weirs
- [ ] Cross Vanes
- [ ] Stream Barbs
- [ ] Bendway Weirs
- [ ] Constructed Riffles
- [ ] Submerged (Iowa) vanes
- [ ] Spur dike/ Groynes

*4. Do you have experience with the use of rock vanes?*

- [ ] Yes
- [ ] No

See sketch and descriptions for structure clarification.

- **Rock vane**—single-arm rock structure extending from the bank; gradually slopes from the bank into the bed at free end; tip is submerged during low flow.

- **J-hook**—constructed exactly like a rock vane except there are additional boulders placed at the tip of the vane in a hooking pattern with gaps between them.

- **Cross vane**—dual-arm rock structure made by connecting the tips of two rock vanes from opposite banks with rocks arranged perpendicular to the flow.

- **Spur dike/ groyne**—single arm structure made of rock or nonporous material extending from the bank, normally overtopped only during high flows.

- **W-weir**—dual arm rock vanes extending from both banks are joined by two rows of rock in the shape of a "V" pointing downstream.

- **Submerged (Iowa) vane**—thin foils angled into the upstream flow and submerged even during low flow periods.

- **Constructed riffle**—array of rock located within a channel reach where depth decreases and the channel may widen.
4. Section A--Rock Vanes

5. What is the most likely alternative to rock vanes?

- Riprap
- Pavement/Concrete
- Dredging
- Other instream structure (Please specify)

6. Answer the following questions considering rock vanes and its most likely alternative.

<table>
<thead>
<tr>
<th>Construction/installation is quicker than the most likely alternative.</th>
<th>Strongly Agree (4)</th>
<th>Agree (3)</th>
<th>Disagree (2)</th>
<th>Strongly Disagree (1)</th>
<th>Not Applicable</th>
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<tbody>
<tr>
<td>Cost of construction materials is less than the most likely alternative.</td>
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<tr>
<td>Cost of construction/installation is less than the most likely alternative.</td>
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<tr>
<td>Design guidelines are adequate for the selected structure type.</td>
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</table>
7. Answer the following questions considering the performance of rock vanes.

**Rate your level of agreement; 4 being Strongly Agree, 1 being Strongly Disagree**

<table>
<thead>
<tr>
<th>Description</th>
<th>Strongly Agree (4)</th>
<th>Agree (3)</th>
<th>Disagree (2)</th>
<th>Strongly Disagree (1)</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure successfully halts further bank/bed erosion or scour.</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Structure results in sediment deposition at the project site.</td>
<td>○</td>
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<tr>
<td>Structure prevents erosion during a flood event.</td>
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<tr>
<td>Structure successfully protects infrastructure (pier, culvert, abutment, etc.)</td>
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</table>
8. Rock vanes trigger adverse environmental effects.

- Strongly Agree (4)
- Agree (3)
- Disagree (2)
- Strongly Disagree (1)
- Not Applicable
9. Please specify adverse effects

- Increased sediment load
- Blocked fish passage
- Habitat destruction
- Other (please specify)
10. Rock vanes improve aquatic habitat.

Rate your level of agreement; 4 being Strongly Agree, 1 being Strongly Disagree

○ Strongly Agree (4)  ○ Agree (3)  ○ Disagree (2)  ○ Strongly Disagree (1)  ○ Not Applicable
11. **Please identify habitats improved.**

- [ ] Increased flow diversity
- [ ] Macroinvertebrates
- [ ] Fish
- [ ] Vegetation

Other (please specify)

________________________


Provide estimates for repairs and maintenance of rock vanes.

### 12. Estimated time until first repair
- Less than 6 months
- 6-12 months
- 1-2 years
- Greater than 2 years
- Never

### 13. Estimated cost of normal maintenance (as percentage of project cost)
- Less than 5%
- 5-15%
- 15-30%
- Greater than 30%
- None Required

### 14. Estimated repairs needed after design flood events
- None Required
- Minor Repair
- Moderate Repair
- Major Repair
- Replacement
11. Section A--Uses & Limitations

15. What is the most effective use of rock vanes?

16. What are the biggest limitations of rock vanes?
12. Section B--Rock Vane Successful Project

Please provide details for a successful project which used rock vanes.

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<tr>
<td><strong>17. Project name/Location</strong></td>
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<td><strong>18. City/Town</strong></td>
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<td><strong>19. Year project completed</strong></td>
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<td><strong>20. Objectives of structure implementation</strong></td>
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</table>
Answer the following questions considering the successful project using rock vanes.

### 21. Bed composition (Select all that apply)

- [ ] Clay
- [ ] Silt
- [ ] Sand
- [ ] Gravel
- [ ] Cobbles
- [ ] Other (please specify)

### 22. Project monitoring, if any (Select all that apply)

- [ ] Visual inspection
- [ ] Stage/discharge
- [ ] Velocity
- [ ] Water quality
- [ ] Cross-section surveys
- [ ] Macroinvertebrate population
- [ ] Fish population
- [ ] Habitat
- [ ] NO MONITORING WAS PERFORMED
- [ ] Other (please specify)
23. How long was the project monitored?

☐ Less than 1 year
☐ 1-2 years
☐ 2-3 years
☐ Over 3 years

24. How frequently was the project monitored?

☐ Every 2 years or longer
☐ Every 1-2 years
☐ More than once a year
☐ Other (please specify)
25. What changes have occurred on site since project completion?

26. Design guidelines followed, if any.
- Newbury
- Odgaard
- HEC-23
- Rosgen
- NEH-654
- Other (please be as specific as possible)

27. Was the project installed per design specification?
- Yes
- No

If no, list deviations

28. Has the low-flow structure experienced a design flood?
- Yes
- No

29. Why was the project considered successful?

30. Would you recommend this site for NCHRP monitoring?
- Yes
- No
Please describe an unsuccessful project that included rock vanes.

31. Project name/Location

32. City/Town

33. Year project completed

34. Objectives of structure implementation
35. Bed composition (Select all that apply)

- [ ] Clay
- [ ] Silt
- [ ] Sand
- [ ] Gravel
- [ ] Cobbles

Other (please specify)

36. Project monitoring, if any (Select all that apply)

- [ ] Visual inspection
- [ ] Stage/discharge
- [ ] Velocity
- [ ] Water quality
- [ ] Cross-section surveys
- [ ] Macroinvertebrate population
- [ ] Fish population
- [ ] Habitat
- [ ] NO PROJECT MONITORING

Other (please specify)
18. Unsuccessful Rock Vane Project Monitoring

37. How long was the project monitored?
- ○ Less than 1 year
- ○ 1-2 years
- ○ 2-3 years
- ○ Over 3 years

38. How frequently was the project monitored?
- ○ Every 2 years or longer
- ○ Every 1-2 years
- ○ More than once a year
- ○ Other (please specify)
19. Unsuccessful Rock Vanes Project

39. What changes have occurred on site since project completion?

40. Design guidelines followed, if any.
   - Newbury
   - Odgaard
   - HEC-23
   - Rosgen
   - NEH-654
   - Other (please be as specific as possible)

41. Was the project installed per design specification?
   - Yes
   - No
   If no, list deviations

42. Has the low-flow structure experienced a design flood?
   - Yes
   - No

43. Why was the project considered unsuccessful?

44. Would you recommend this site for NCHRP monitoring?
   - Yes
   - No