The Bridge Crisis (AKA the Impetus)

- 365 Highway Bridges needed fixing, fast.

- Project by project permitting is slow, confusing and annoying for everyone:
  Environmental goals were unclear and the outcome uncertain
Programmatic Permit Goals

- Environmental Protection and Uplift
- Certainty in Scope, Schedule and Budget
- Rapid Project Approval
- Financial and Engineering Feasibility
Environmental Performance Standards

- Focus on the desired outcome
- Have clear, easy to assess criteria, but
- Allow for other approaches
- Be achievable for at least 80% of the projects
- Don’t make “the perfect the enemy of the good”
Getting There

- Assemble the stakeholders and disciplines
- Clarify the issues
- Agree on purpose, goal and outcome
- Identify the elements
- Discuss, propose, discuss, counter-propose, discuss, decide
Reality Check

The Programmatic BO is for:

• An Existing Stream Crossing Structure
• A Single Point on the Stream
• A Defined Set of Projects
• For most, but not all bridge crossings
What is the Fluvial Performance Standard’s Goal?

• Focus on the habitat, or the stream?

• Assumption: A “normally” functioning stream is good habitat for fish, so focus on the stream.

• A stream functions “normally” when it is not interacting with the bridge.
The OTIA III Fluvial Performance Standard

Allow normative physical processes within the stream-floodplain corridor.
“Normative Functions”

• Connectivity with the floodplain:
  – Normal flow paths and depths during common flood events
  – Allow some lateral movement of the channel

• Maintain sediment transport and debris movement for common events.

• Important habitat features (spawning beds, refuges) preserved.
Span the Functional Floodplain

- What is the Functional Floodplain?
- Rosgen’s “flood prone area” used to define the “Functional Floodplain”
The Functional Floodplain

- 2.2 times the Bankfull Width if the Entrenchment Ratio is $>2.2$
- or
- The width of the Floodprone area if the Entrenchment Ratio is $<2.2$
Riprap, the *Bête Noire*

- Riprap in-stream for existing bridges only
- Use soil bioengineering techniques
- Incorporate large wood in riprap if possible
Flexibility

• Different approaches to reach the same goal
• Modify criteria based on the site
• Off-site mitigation specifically allowed in the Programmatic Biological Opinion
Testing the FPS

Practical, or will it break the bank?

• Looked at real bridges: most spanned the functional floodplain
OTIA III Outcome

- About half the bridges needed no enlargement.
- Many streams already whacked, so the functional floodplain was narrower than $2.2 \times$ bankfull.
- **The opening is important, not the bridge length.**
The rest of ODOT meets the FPS

• No formal roll-out
• The FPS conditions get put in the BOs for non-OTIA III projects
• A draft appendix on the FPS for the ODOT Hydraulics Manual given the unfortunate title “Fluvial Design Method”
Bad Blood

- Confusion about the FPS and Programmatic Permits
- Fear of excess cost
- Concerns about restricted use of riprap
- Legacy of distrust and conflict
- Separation by a common language
The FPS Evolves: The Size of the Opening

- Incentive for single span bridges:
  - The opening is 1.5 x bankfull width.
- Multiple span bridges:
  - The opening is 2.2 x bankfull width.
The FPS Evolves: Protecting Abutments

- Abutment Protection: Riprap allowed outside the Scour Prism

Note: See Hydraulics Design Manual, Figure 10-17 for more revetment details.
Status

• FPS is part of the Federal Aid Highway Programmatic BO for Oregon
• FPS is the starting point for Individual BO consultations
• The FPS has been pared down to the essentials
• Guidance on the FPS and associated Environmental Performance Standards frequently updated
Lessons

• Include representation from all who will be affected by the permit
• Don’t try to cover all situations
• Explicitly connect criteria to the habitat benefit
• Define terms
• Check for practicality
• Educate early and often
• Manage the program
Don’t Make the Perfect the Enemy of the Good

Definitely not the Enemy, and due Thanks:

Janine Castro, NMFS/USFWS; Zak Toledo, HDR; Art Martin, ODFW; Tom Loynes, ODOT; Paul Wirfs, ODOT; Marc Liverman, NMFS