Lessons Learned Through Design, Construction, and Performance Monitoring of Enhancement Projects in Portland, Oregon

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Overview

- Intro
- Monitoring
- Construction
- Design
- Recap
Lessons Learned – Contributors

- **Watershed Management**
  - Science, Fish, and Wildlife
  - Watershed Planning

- **Engineering Services**
  - Systems Analysis
  - Design
  - Construction
  - Revegetation
  - Maintenance
Lessons Learned - Monitoring

- Permit compliance
- Performance of design
- Construction (non-conformance)
- Other
Lessons Learned - Monitoring

- Minimum recommended
- Hydrology
Lessons Learned - Monitoring

- Minimum recommended
  - Inspection (event)
Lessons Learned - Monitoring

- Minimum recommended
- Photo documentation (annual)
Lessons Learned - Monitoring

- Photo documentation (annual)
Lessons Learned - Monitoring

- Special situations
  - Survey
  - Pebble Counts
  - Aerial Photography
  - Staff Gage
Lessons Learned - Monitoring

- Expect disturbances
- Response requires
  - Funds
  - Flexible permits
  - On-call contract
Lessons Learned - Construction

- time may dictate design
Lessons Learned - Construction

- Materials
Lessons Learned - Construction

- Disposal Sites
Lessons Learned - Construction

- Other Challenges
  - Progress Payments
  - Flow Diversion
  - Survey Control
  - Means & Methods
  - Fish & Wildlife
Lessons Learned - Design

- Balancing multiple goals
- Involving Stakeholders
- Science and engineering based solutions
Lessons Learned - Design

- liability and risk
- project goals → design criteria
  - performance standards
  - measurable criteria
Design Criteria – flood related
Design Criteria – habitat related

- Summer rearing (pools)
  - 400 m², design criteria
  - 286 m², pre-project
  - 607 m², 3 years
Lessons Learned - Summary

- ‘Close the Loop’
- Expect the unexpected
- Provide resources to respond
- Or… should we go there?
Thank You!

Environmental Services
City of Portland