An Ounce of Prevention or a Pound of Cure? An Introduction to the SETAC/SER Workshop on Restoration of Impaired Ecosystems

Photo courtesy of Diane Larson, U.S. Geological Survey
How It Came About...

• Special symposium on restoration at SETAC in 2008
• Special session on restoration and contaminated lands at SER 2009
• Both SER and SETAC had meetings in Merida, Mexico in August 2011
• identified the common interest of Restoration of Contaminated Ecosystems and a desire for a co-sponsored workshop
• Steering Committee formed in Feb 2013; Workshop held June 2014

Steering Committee
• Aïda Farag Co-chair (U.S. Geological Survey)
• Ruth Hull Co-chair (Intrinsik)
• Will Clements (Colorado State University)
• Steve Glomb (Director of NRDAR Program, US DOI)
• Diane Larson (University of Minnesota, USGS)
• Ralph Stahl (DuPont Corp. Remediation Grp)
• Jenny Stauber (Deputy Chief, CSIRO Land and Water Division, Australia)
• Greg Schiefer and Nikki Mayo (SNA Office)
Why this workshop?

- Regulatory need / corporate responsibility to restore ecosystems influenced by industrial activities
- SETAC traditionally considers impacts, risks, injuries, and remediation, but not restoration
- SER traditionally considers restoration, but not of ecosystems that have been influenced by contaminants or other industrial activities
- Forum needed to bring ecotoxicologists and restoration ecologists together to collaborate and define best practices
A Common Language

Need to share a common language (definitions in Farag et al. 2016):

- Baseline
- Clean-up vs mitigation vs remediation vs management
- Reclamation vs Rehabilitation vs Restoration
- Attractive Nuisance
- Natural Attenuation/Assisted Natural Attenuation
- Press disturbances
- Ecological Risk Assessment
- Ecological Restoration
- Ecotoxicology
- Ecosystem Services

What is meant by a Restored Ecosystem? Used SER Nine Attributes
Inspiration

Grand Teton National Park
Jackson Hole, WY
Traditional Approach to Restoration

- Site pre-assessment/existing conditions
- Risk assessment or injury assessment (regulatory driven)
- Goals
- Clean-up or remediation
- Mitigation
- Reclamation
- Rehabilitation
- Restoration Design/Implementation
- Adaptive management
- Monitoring
- Benefits & Challenges
Restoration of Impaired Ecosystems: An Ounce of Prevention or a Pound of Cure? Introduction, Overview and Key Messages from a SETAC-SER Workshop

Coordinating ecological restoration options and risk assessment to improve environmental outcomes

A framework for establishing restoration goals for contaminated ecosystems

Transforming Ecosystems: When, Where, and How to Restore Contaminated Sites

Integrated Risk and Recovery Monitoring of Ecosystems on Contaminated Sites
Hooper MJ, Glomb S, Harper DD, Hoelzle T, McIntosh LM, Mulligan D

Opportunities and Challenges of Integrating Ecological Restoration into Assessment and Management of Contaminated Ecosystems
Hull RN, Luoma SN, Bayne BA, Illiff J, Larkin DJ, Paschke MW, Victor SL, Ward SE
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