

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

Participants



Inspiration



**Grand Teton National Park
Jackson Hole, WY**



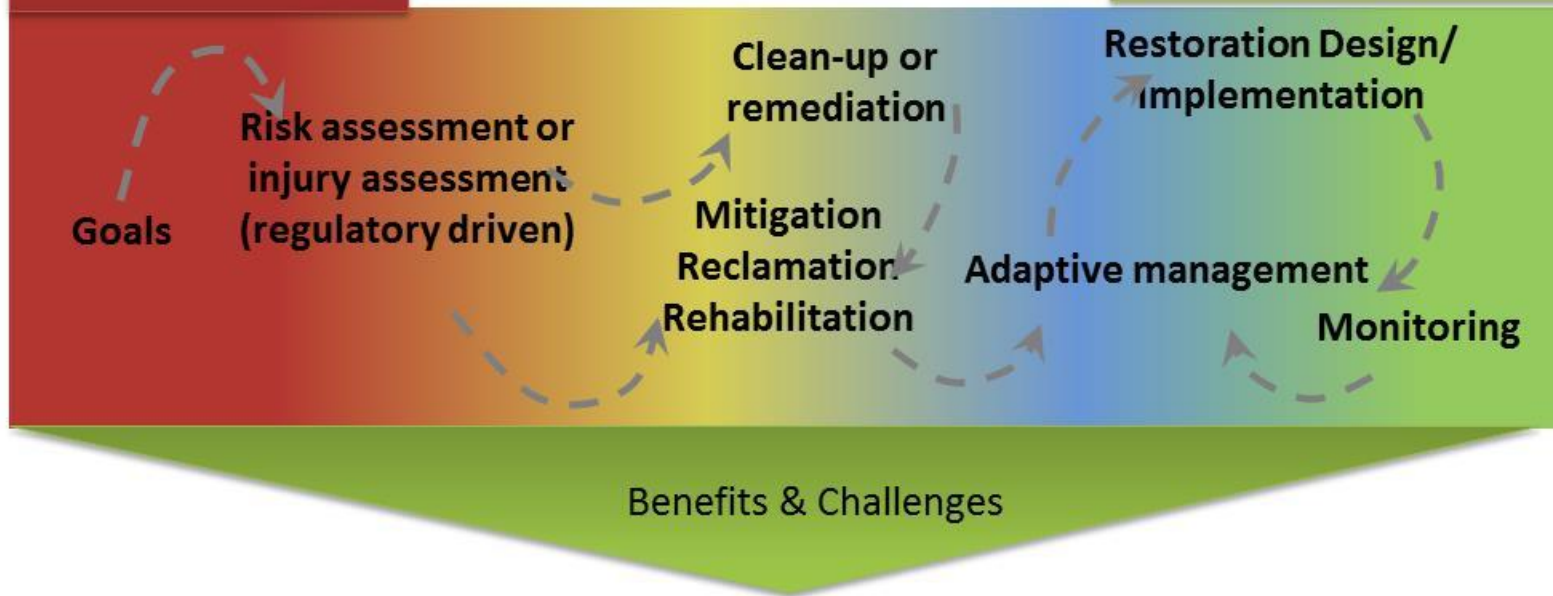
Traditional Approach to Restoration



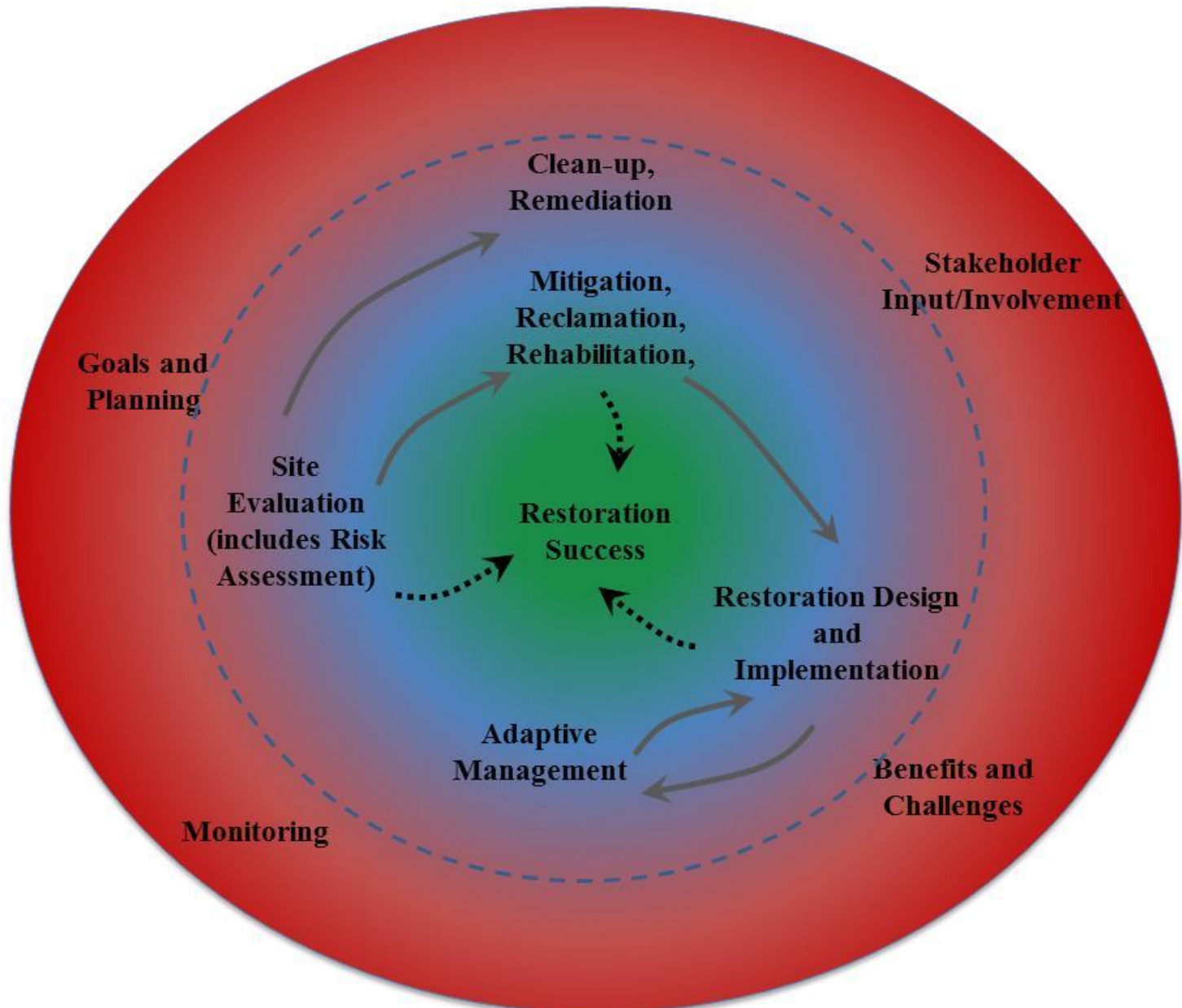
Site pre-assessment/existing conditions



Restoration success



Continuum for Restoration



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Restoration of Impaired Ecosystems: An Ounce of Prevention or a Pound of Cure? Introduction, Overview and Key Messages from a SETAC-SER Workshop

Farag A, Hull RN, Clements WH, Glomb S, Larson DL, Stahl R, Stauber J

Coordinating ecological restoration options and risk assessment to improve environmental outcomes

Kapustka LA, Bowers K, Isanhart J, Martinez-Garza C, Finger, S, Stahl R, Stauber J

A framework for establishing restoration goals for contaminated ecosystems

A.M. Wagner, D.L. Larson, J.A. DalSoglio, J.A. Harris, P. Labus, E.J. Rosi-Marshall, K.E. Skrabis

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

J.R. Rohr, A.M. Farag, M.W. Cadotte, W.H. Clements, J.R. Smith C.P. Ulrich, R. Woods

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, Iliff J, Larkin DJ, Paschke MW, Victor SL, Ward SE

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Thank you



Additional thank you to SETAC staff and Snow King Hotel for communication, logistics and a venue where concentrated work could occur.

