

The Association of State Wetland Managers Presents:
**Improving Wetland Restoration Success
2014 — 2015 Webinar Series**
***Evaluating the Ecological Performance of
Compensatory Mitigation***

Presenters:

Joseph A. Morgan, US EPA

***Dr. Eric Stein, Southern California Coastal Water
Research Project***

&

Dr. Siobhan Fennessy, Kenyon College

Moderators: Jeanne Christie & Marla Stelk

Supported by EPA Wetland Program Development Grant 83541601



HAVING TROUBLE WITH THE SOFTWARE?



*Don't Panic -
we've got it covered!*

Check your email from today:

1. You were sent a link to instructions for how to use the Go To Webinar software.
2. You were also sent a PDF of today's presentation. This means you can watch the PDF on your own while you listen to the audio portion of the presentation by dialing in on the phone number provided to you in your email.



If you have any technical difficulties during the webinar you can send us a question in the webinar question box or call Laura at (207) 892-3399 during the webinar.

AGENDA

- **Welcome and Introductions (10 minutes)**
- **Evaluating the Ecological Performance of Compensatory Mitigation**
 - **The State of the Science on Compensation Performance Trends (30 minutes)**
 - **National Evaluation of Compensatory Mitigation Sites (30 minutes)**
- **Question & Answer (15 minutes)**
- **Wrap up (5 minutes)**





WEBINAR MODERATORS



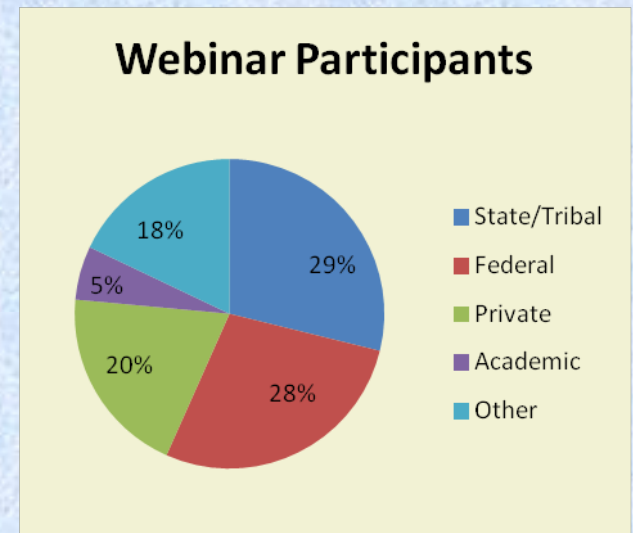
Jeanne Christie,
Executive Director



Marla Stelk,
Policy Analyst

WETLAND RESTORATION PROJECT

- Interdisciplinary workgroup of 22 experts
- Monthly webinar series
- Draft white paper based on webinars, participant feedback, external review
- Pursuing strategies that:
 - Maximize outcomes for watershed management
 - Ecosystem benefits
 - Climate change
 - Invasive species
 - Improve permit applications and review
 - Develop a national strategy for improving wetland restoration success



ACTION PLAN ➡ IMPLEMENTATION

WEBINAR SCHEDULE & RECORDINGS

Association of State Wetland Managers - Protecting the Nation's Wetlands.



ASWM Upcoming Webinars

- **Stream/Wet Meadow Restoration** - September 8, 2015
- **The Florida Wetlands Integrity Dataset: Part 2** - September 16, 2015
- **Solar Project Siting and Wetland Permitting** - September 29, 2015

For a complete list of ASWM webinars, [click here.](#)



- Home
- ASWM**
- I Am...
- Wetlands
- Science
- Wetland Programs
- Watersheds
- Law
- News
- Blog

- About ASWM
- ASWM Projects
- Doing Business With ASWM
- Volunteer
- Contact ASWM
- Publications
- ASWM Members (Login Reg.)
- Newsletter
- Insider's Edition
- ASWM Webinars/Calls



Main Menu

- Join/Re...
- Contact
- News
- Webinar
- ASWM
- Wetland
- Donate
- Volunteer

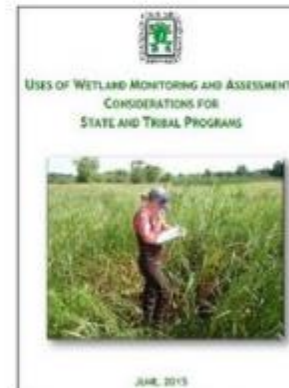
Member's Login

Remember Me

ASWM Publications

Uses of Monitoring and Assessment in Wetland Programs

Association of State Wetland Managers released a new report - **Uses of Monitoring and Assessment: Considerations for State and Tribal Programs**. This report - which was prepared with technical assistance from an EPA State Wetland Program Development Grant - explores the various ways that states and tribes could make better use of existing monitoring and assessment methods to obtain science-based answers to wetland management problems. While it provides an overview of many common approaches to wetland monitoring, the focus is primarily on **why** these methods are selected for a given purpose. This report encourages the thoughtful identification of the most appropriate and efficient methods in light of available financial and staff resources.



Picture of the Week *Lovely Weeds*





Jeanne Christie Photo

For information about this picture and to see past pictures of the week click [here.](#)

WEBINAR SCHEDULE & RECORDINGS

Association of State Wetland Managers - Protecting the Nation's Wetlands.



ASWM Upcoming Webinars

- Novel Ecosystems and Restoration - 11/20/15
- Climate-Smart Conservation for Wetlands - 12/9/15
- Improving Wetland Restoration "Success": What We've Learned So Far - 12/15/15

[For a complete list of ASWM webinars, click here.](#)

Home **ASWM** 1 Act... Wetlands Science Wetland Programs Wetlands Law News & Jobs Blog

Search ASWM

Main Menu

- Job Review
- Contact Us
- News
- Webinars
- ASWM Publications
- Wetlands One-Stop Shopping
- Donate
- Volunteer
- ASWM Forum

Members' Login

Username:

Password:


Remember Me

[Log in](#)

[Create an account](#)

[Forgot your username?](#)


[Forgot your password?](#)



ASWM Menu

- About ASWM
- ASWM Projects
- Do Business With Us
- Volunteer
- Contact ASWM
- Publications
- ASWM Members
- Login Required
- ASWM Search (Login Req.)
- Newsletter
- Member's Button
- ASWM Webinars/Calls

ASWM Webinars/Conference Schedule




The Association of State Wetland Managers holds webinars on various topics, most of which relate to a specific project and work group. In addition, ASWM hosts webinars as part of its members' webinar series on topics of interest to members. Please click on the webinar group name below for more details about individual webinars. In all cases, if you have any questions about registering for a webinar, please contact Lewis at lewis@aswm.org.

If you haven't used Go To Webinar before or you just need a refresher, please visit our guide prior to the webinar here.

The Association of State Wetland Managers (ASWM) and the Society of Wetland Scientists (SWS) share the common goal of encouraging sound science in wetland research, management, regulation, policy, and conservation. To meet this goal, the two organizations developed a formal partnership in 2014. ASWM is pleased to provide a 50% to SWS's new Webinars Webinar Series and encourage you to investigate their webinar series as well as our own.

For a full list of all available webinar recordings visit this link [click here](#).




Members' Wetland Webinar Series

For Members of ASWM Only

[Future Webinars](#)

[Past Webinars](#)



Hot Topics Webinar Series

[Future Webinars](#)

[Past Webinars](#)


Improving Wetland Restoration Success Project

[Future Webinars](#)

[Past Webinars](#)

Natural Floodplain Functions Alliance Webinar

[Future Webinars](#)



FUTURE SCHEDULE

Topics for 2016:

- Wetland Restoration & Water Rights
- Managing Invasive Species in Wetland Restoration Projects
- Establishing Reference Conditions for Performance Standards & Long Term Monitoring Results: Soils, Hydrology and Vegetation
- How to Select the Right Wetland Restoration Team
- Bottomland Hardwood Restoration
- Gulf Coast Restoration Post-Katrina
- How to Incorporate Wetland Restoration in to Landscape Planning
- Prioritizing Wetland Restoration Mitigation Site Selection in the Face of Climate Change

FOR FULL SCHEDULE, GO TO: <http://aswm.org/aswm/6774-future-webinars-improving-wetland-restoration-success-project>

INTERESTED IN RECEIVING CEUS?

Who can get CEUs?

- You must be a participant during the live webinar presentation.
- We are able to track webinar participation by registrants using our GoToWebinar software.
- **Documentation will state that you were a participant for X hours of a specific ASWM webinar.**

Receiving Documentation

*If you need CEUs for your participation in today's webinar, you **must request** documentation from ASWM.*

*Please note that we will send the documentation to you **for you to forward** to the accrediting organization.*

Please contact **Laura Burchill**
laura@aswm.org
(207) 892-3399

Provide:

- Your full name (as registered)
- Webinar date and Title

PRESENTERS



Joseph A. Morgan
ORISE Participant
U.S. Environmental Protection
Agency, Wetlands Division



Dr. Eric Stein
Principal Scientist
Southern California
Coastal Water Research
Project (SCCWRP)



Dr. Siobhan Fennessy
*Jordan professor of Biology
and Environmental Studies*
Kenyon College

A “COOKBOOK” APPROACH TO WETLAND RESTORATION WON’ T WORK

There are too many variables.

- *Every landscape is different*
- *Purpose of restoration varies*
- *Even a good design may not anticipate events*
- *Time needed varies*
- *Intervention and adaptation may be needed during and after construction*
- *Evaluating progress and completeness is needed*



Major Reasons for Failure (examples)

Overarching

- Poorly Defined Outcomes/Performance Criteria
- Lack of Access to Expertise and Training
- Lack of Accountability and Enforcement
- Altered and Changing Landscapes/Climate
- Separation of Professions – The ‘Silo’ effect

Site-Specific

- Planning issues, i.e., Inadequate Assessment of landscape, hydrology & soils
- Construction issues, i.e., failure to implement design, no adaptive management
- Post construction issues, i.e., poor record keeping, limited follow up activity to address problems

How Do We Improve?

- Better defined goals and performance criteria
- Improve Access to Knowledge and Training
- Require Accountability
- Require Documentation of Credentials
- Develop a Common Taxonomy
- Adopt New Science and Technology into Regulations and Guidance
- Engage Multi-Disciplinary, Integrated Teams
- Regional Data Depositories to Document Reasons for Success and Failure

EACH WETLAND RESTORATION PROJECT IS UNIQUE:

- *Consider both historic and current landscape setting*
- *Analyze how water moves into and out of the site*
- *Evaluate soils present and identify any onsite drainage*
- *Focus first on hydrology and soil first, last on plants*
- *Develop a plan that is achievable for the site*
- *Develop comprehensive cost estimates*
- *Ensure plan is followed*
- *Hire experienced and knowledgeable contractors*
- *Adapt plan as needed during construction*
- *Determine if monitoring criteria will measure progress*
- *Keep good records and share with others*



Evaluating the Ecological Performance of Compensatory Mitigation

IT WILL TAKE US A FEW MOMENTS TO MAKE THE SWITCH...



Photo Credit: Marla Stelk

Morgan Recommendations

Problem	Recommendation	Selected Measures
<p>Few studies of the performance of compensatory mitigation since 2008, and many states have not evaluated their programs at all.</p>	<p>States, particularly those with large and active compensatory mitigation programs, should conduct periodic self-audits to determine that both ecological and administrative goals are being met.</p>	<ul style="list-style-type: none"> • Leverage federal grants, such as EPA WPDG, to fund activities related to improving mitigation performance. • Eligible state universities can be a useful resource for states with limited employee time to dedicate to mitigation evaluations.
<p>Studies are conducted on an ad-hoc “one-off” basis, making it difficult to compare across time and space.</p>	<p>States should develop a long-term approach to mitigation to facilitate periodic evaluations of program performance.</p>	<ul style="list-style-type: none"> • Employ a standard study design that can leverage existing aquatic resource surveys as reference. • Organize project files in a geospatial database & establish standard reporting procedures for mitigation projects.
<p>Few studies have evaluated differences in outcomes between compensation mechanisms (banks, ILF, permittee-responsible).</p>	<p>Study designs should be constructed to compare all three mechanisms where appropriate.</p>	<ul style="list-style-type: none"> • Refer to Siobhan & Eric’s study design for wetlands. • Administrative performance may be addressed through file review and/or “windshield” surveys without the need for time-intensive and expensive sampling.
<p>Very few studies have evaluated the performance of stream compensation.</p>	<p>Studies should examine all forms of aquatic resource compensation, not just wetlands.</p>	<ul style="list-style-type: none"> • We are working on developing a similar study design for stream compensation. • Valuable information can be gleaned from existing data – file reviews don’t require the same level of effort/fieldwork, see Palmer & Hondula (2014).

Stein Recommendations

Cause of Failure	Recommendation	Selected Measures
Poor site selection and design	Incorporate landscape ecology and historical ecology understanding into design	Analyze historical distributions of wetlands at the watershed scale. Create templates for watershed-scale restoration based on this understanding. Mitigation projects must select and design sites consistent with the overall watershed plan
Failure to investigate and understand hydrology to a sufficient level to inform restoration design	Conduct analysis of historic, current, and model anticipated future hydrologic conditions prior to design.	Several seasons of surface and subsurface hydrologic monitoring should occur at the proposed site AND an appropriate reference site, prior to restoration design. Modelling should demonstrate ability to maintain hydrology under expected future conditions. Include adaptive hydrologic monitoring to correct errors and unanticipated events early in the restoration process.
Inadequate or poorly conceived monitoring	Monitor broad suite of structure and functional indicators at project and reference site using a BACI design	Standardized monitoring procedures, indicators/indices, and data templates should be used. Pre-restoration monitoring at the project and reference site should occur for several years before design is approved. Post-restoration adaptive monitoring should occur for a minimum of 20 years. Permittees could pay into regional monitoring entities for this
Lack of data sharing and dissemination to allow lessons to be shared	Create and enforce standard data templates, web services, and apis to facilitate information sharing	Regional data exchange networks would allow better sharing of lessons learned and would provide broader access to data from past sites that could be used to improve the science of wetland restoration.

Fennessy Recommendations

Cause of Failure	Recommendation	Selected Measures
Studies of performance often limited in scope, making comparisons difficult (through time and across regions)	States need consistent methods to evaluate mitigation projects and program performance.	<ul style="list-style-type: none">• Adopt standard methodology as proposed• Benchmark with NWCA and/or statewide data
Many states have incomplete or inaccessible project records that prevents ability to track and assess	Electronic databases of compensatory mitigation projects are needed	<ul style="list-style-type: none">• Funding needed to gather and organize current and historic data on compensatory mitigation and improving the our ability to track these data into the future• Use database to initiate studies of compensatory mitigation using the study design
Consistent performance standards lacking, prevents adaptive management and project improvement	Use the data collected to develop better performance standards and monitoring protocols	<ul style="list-style-type: none">• Pilot studies can show relationship between performance standards and project success• Standards must be ecologically relevant, use existing biological assessment methods (VIBI)

Questions?

Joseph A. Morgan
Morgan.Joseph@epa.gov
202-566-0272

Dr. Eric Stein
erics@sccwrp.org
714-755-3233

Dr. Siobhan Fennessy
fennessym@kenyon.edu
740-427-5455



*Thank you for your
participation!*



www.aswm.org