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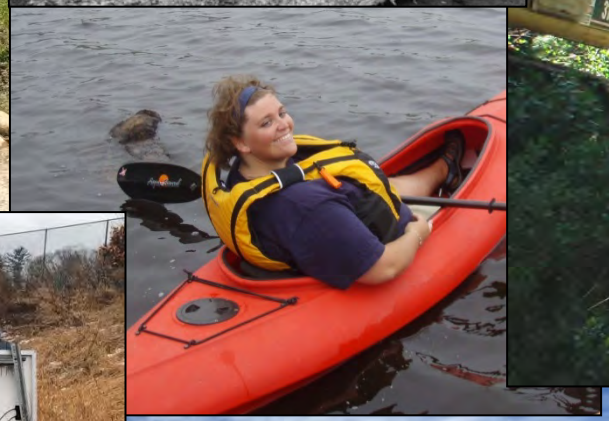
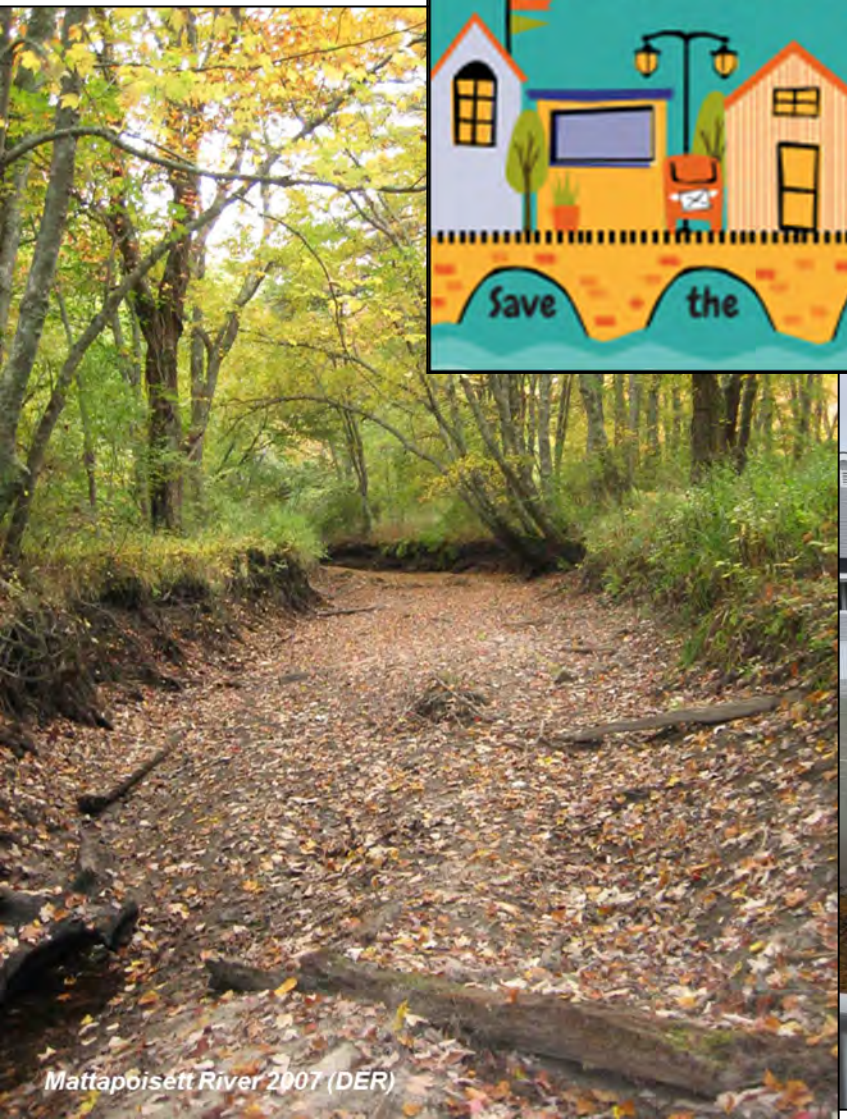
Watershed Action Alliance of Southeastern MA
2019 Conference
Water – New England's Next Big Challenge

Salute to you, eco-warriors!



Our water challenges…



https://www.boston.com/news/weather/2018/03/02/photos-boston-noreaster-storm-march-2-2018

Massachusetts Department of Fish and Game

Division of Ecological Restoration

Invested in Nature and Community

***Mission**: To restore and protect the health and integrity of the Commonwealth's rivers, wetlands, and watersheds for the benefit of people, fish, and wildlife*

https://www.mass.gov/orgs/division-of-ecological-restoration

- ~100 completed projects
- > 1,800 acres of wetlands restored
- 41 dams removed
- Around 50 active projects today
- **Action oriented**
- **Partnership based**

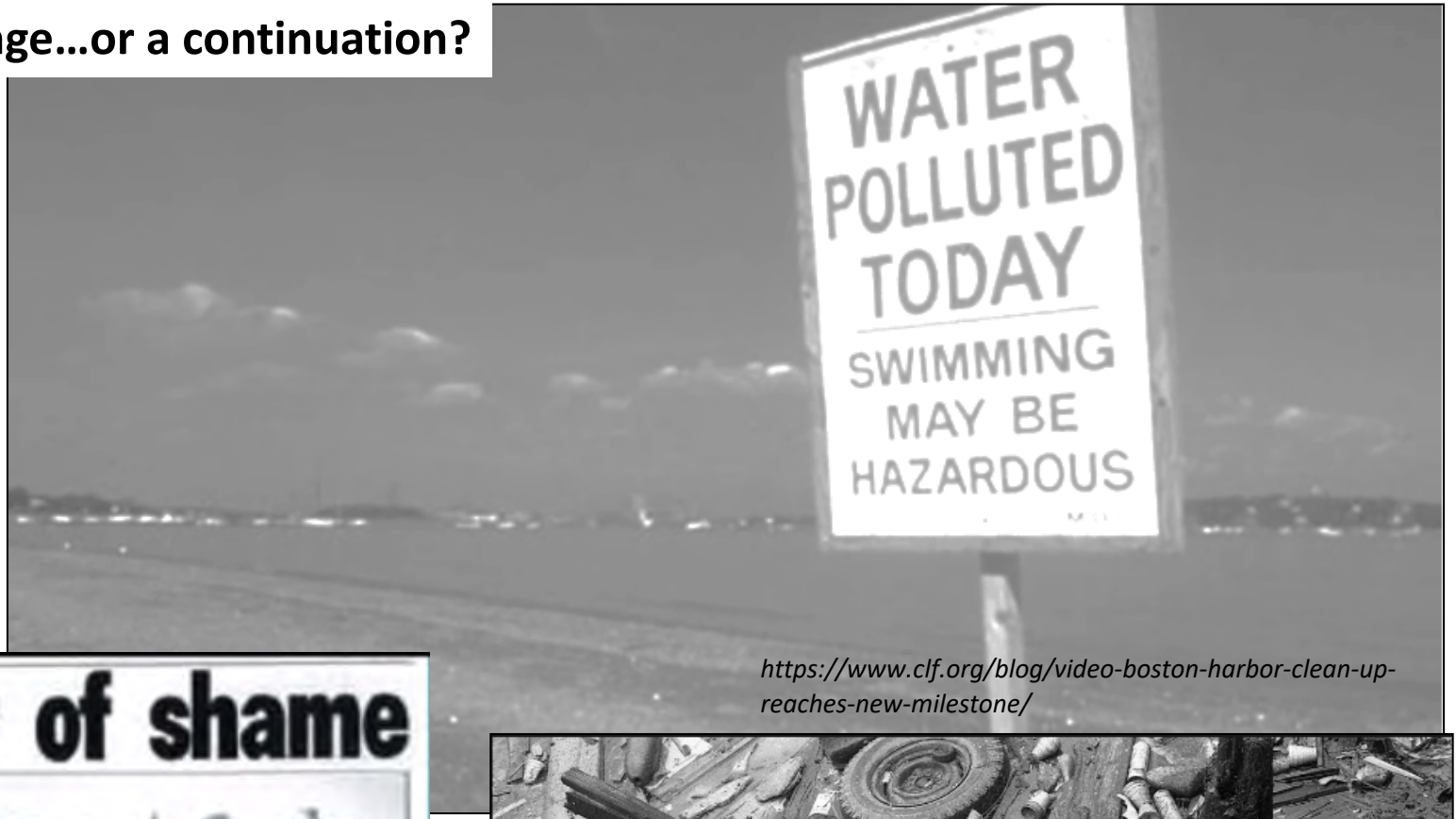
Restore wetlands on retired farmland

You will leave this talk with:

- A good definition of ecological restoration
- A simple recipe for doing it well
- Opportunities for local river and wetland restoration projects
- Hope and energy for action

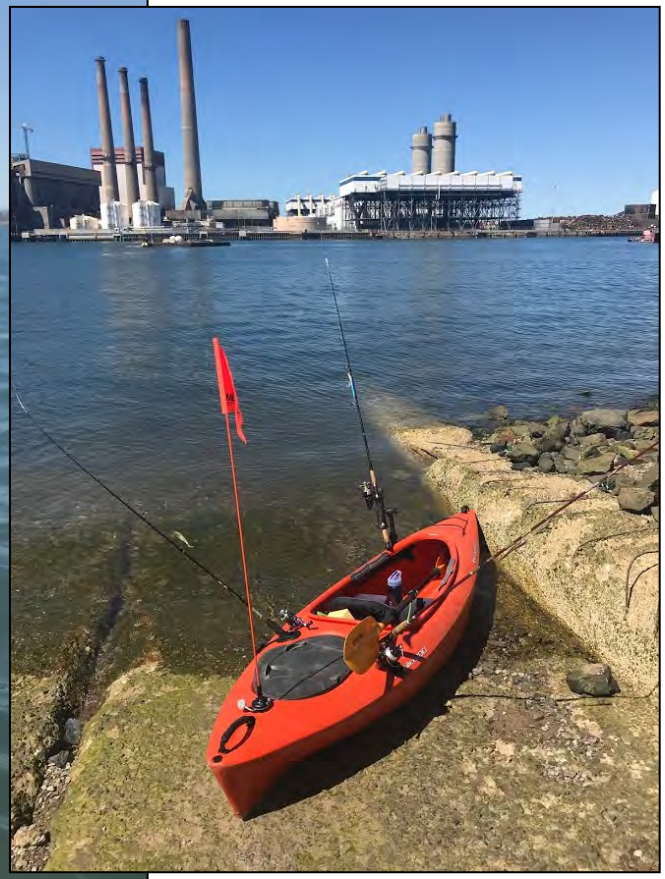
All images by MA DER staff unless otherwise noted

The next challenge…or a continuation?



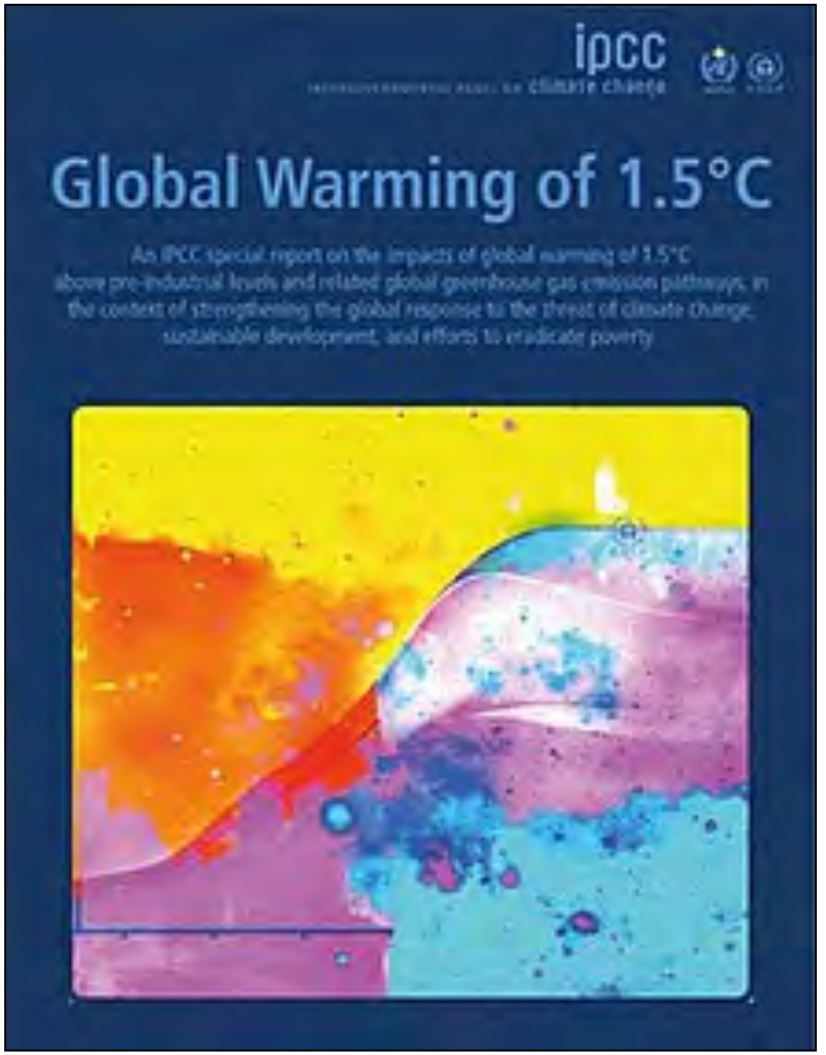
https://www.clf.org/blog/video-boston-harbor-clean-up-reaches-new-milestone/

Bottom images courtesy of US EPA: https://www.youtube.com/watch?v=ybmoVbO0omk



When we address the root cause of degradation, we see the incredible ability of natural systems for rejuvenation.

What is different now?
Scale, severity, and pace



"The next few years are probably the most important in human history."

Debra Roberts, IPCC co-chair (Oct. 2018)

The New York Times Magazine

FEATURE

The Insect Apocalypse Is Here

What does it mean for the rest of life on Earth?

Source: https://www.nytimes.com/2018/11/27/magazine/insect-apocalypse.html

Sources: https://www.nydailynews.com and www.memegenerator.net

MENU

nature climate change

Perspective | Published: 03 April 2018

Ecological grief as a mental health response to climate change-related loss

Ashlee Cunsolo ✉ & Neville R. Ellis

Nature Climate Change **8**, 275–281 (2018) | Download Citation ⬇

Abstract

Climate change is increasingly understood to impact mental health through multiple pathways of risk, including intense feelings of grief as people suffer climate-related losses to valued species, ecosystems and landscapes. Despite growing research interest, ecologically driven grief, or 'ecological grief', remains an underdeveloped area of inquiry. We argue that grief is a natural and legitimate response to ecological loss, and one that may become more common as climate impacts worsen. Drawing upon our own research in Northern Canada and the Australian Wheatbelt, combined with a synthesis of the literature, we offer future research directions for the study of ecological grief.

Source: https://www.wired.com/story/kids-and-teens-strike-against-adults-climate-screw-ups/

Baker Proposes Real Estate Tax To Pay For Local Climate Change Resiliency Projects

January 18, 2019 | By Steve Brown

Source: www.wbur.org

Municipal Vulnerability Preparedness (MVP) program

Learn more about our Climate MVP program that supports cities and towns as they build resilience to climate change.

Get your Town MVP Certified!

What are we to do?

How to prepare our communities and natural systems?

Assertion #1:
River and wetland restoration - *done right* - helps address current and future water challenges

Assertion #2:
You can make miracles happen!

Sawmill Pond Dam, Eel River (Plymouth) – c.2007

Dam removal on Eel River (Plymouth) - 2010


1 year later…


Very old cranberry farm / decades after retirement


Wetlands ~1 year after restoration actions on former cranberry farm

What is Restoration?

"Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed."

Society for Ecological Restoration (SER) Primer (2004)

Join your local chapter – SER New England

“Assisting in recovery” requires an understanding of how the whole system works *(like a doctor)*

How else can one diagnose what is wrong with the patient?

How else can one discern symptoms from causes?

How else can one prescribe treatments?

"How Nature Works"
offered with humility
(because we don't know)

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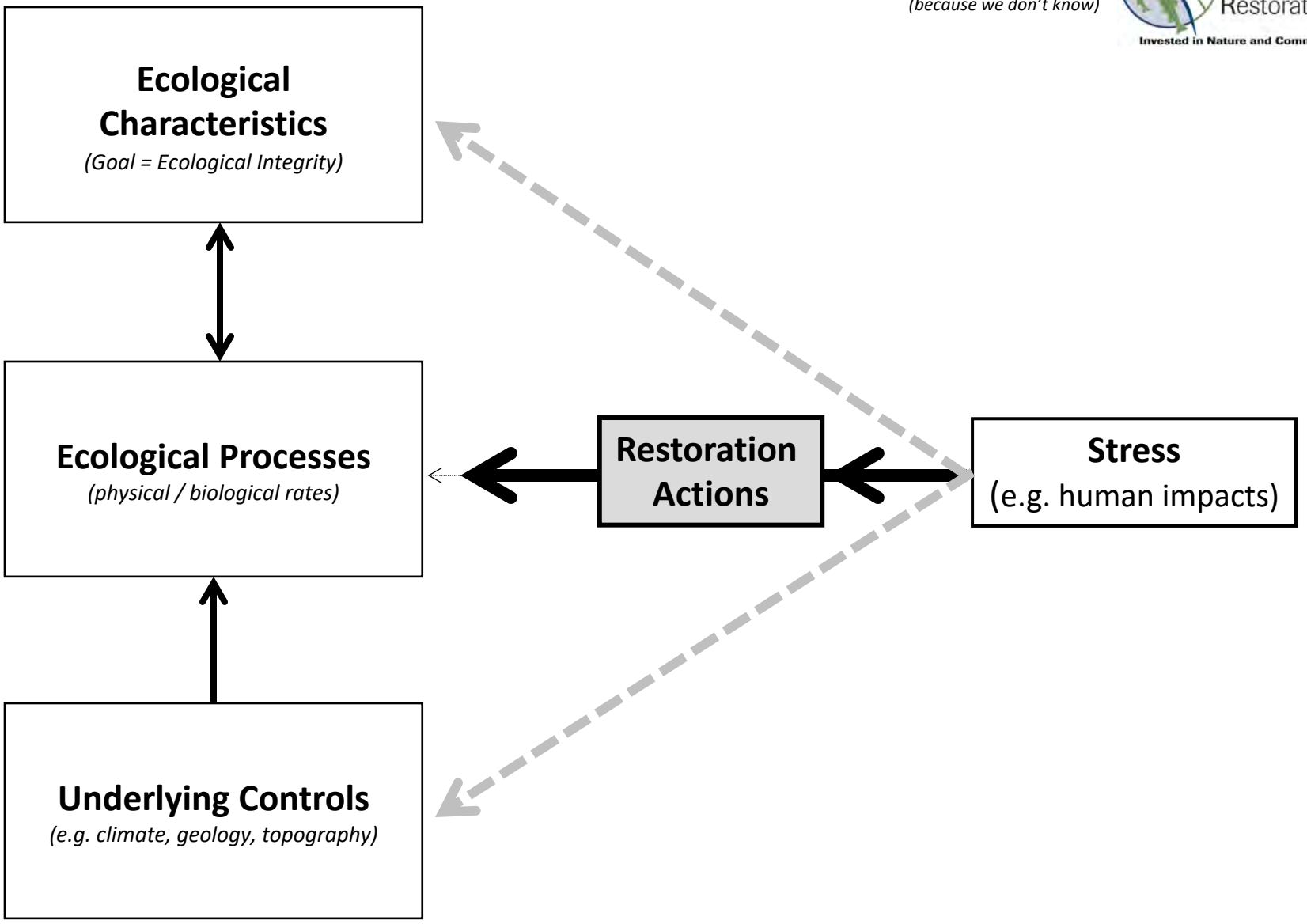

[1] *Developed by A. Hackman based upon: (1) Thorp, J. H., Thoms, M. C. and Delong, M. D. (2006), The riverine ecosystem synthesis: biocomplexity in river networks across space and time. River Res. Applic., 22: 123–147; and, (2) Roni , P. , Beechie , T.J. , Bilby , R.E. , Leonetti , F.E. , Pollock , M.M. & Pess, G.R. (2002) A review of stream restoration techniques and a hierarchical strategy for prioritizing restoration in Pacific Northwest watersheds . North American Journal of Fisheries Management 22 , 1 – 20 .*

Process-based Principles for Restoring River Ecosystems

TIMOTHY J. BEECHIE, DAVID A. SEAR, JULIAN D. OLDEN, GEORGE R. PESS, JOHN M. BUFFINGTON, HAMISH MOIR, PHILIP RONI, AND MICHAEL M. POLLOCK

Process-based restoration aims to reestablish normative rates and magnitudes of physical, chemical, and biological processes that sustain river and floodplain ecosystems. Ecosystem conditions at any site are governed by hierarchical regional, watershed, and reach-scale processes controlling hydrologic and sediment regimes; floodplain and aquatic habitat dynamics; and riparian and aquatic biota. We outline and illustrate four process-based principles that ensure river restoration will be guided toward sustainable actions: (1) restoration actions should address the root causes of degradation, (2) actions must be consistent with the physical and biological potential of the site, (3) actions should be at a scale commensurate with environmental problems, and (4) actions should have clearly articulated expected outcomes for ecosystem dynamics. Applying these principles will help avoid common pitfalls in river restoration, such as creating habitat types that are outside of a site's natural potential, attempting to build static habitats in dynamic environments, or constructing habitat features that are ultimately overwhelmed by unconsidered system drivers.

Keywords: river restoration, ecosystem dynamics, ecosystem processes