

Engineering With Nature



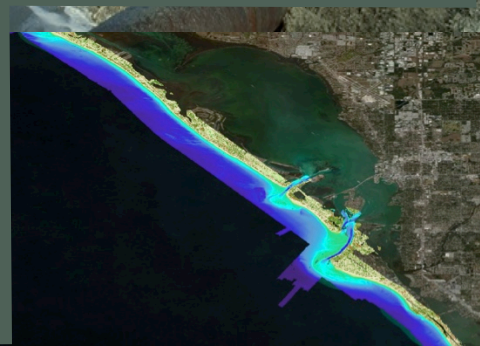
Dr. Todd S. Bridges
U.S. Army Corps of Engineers

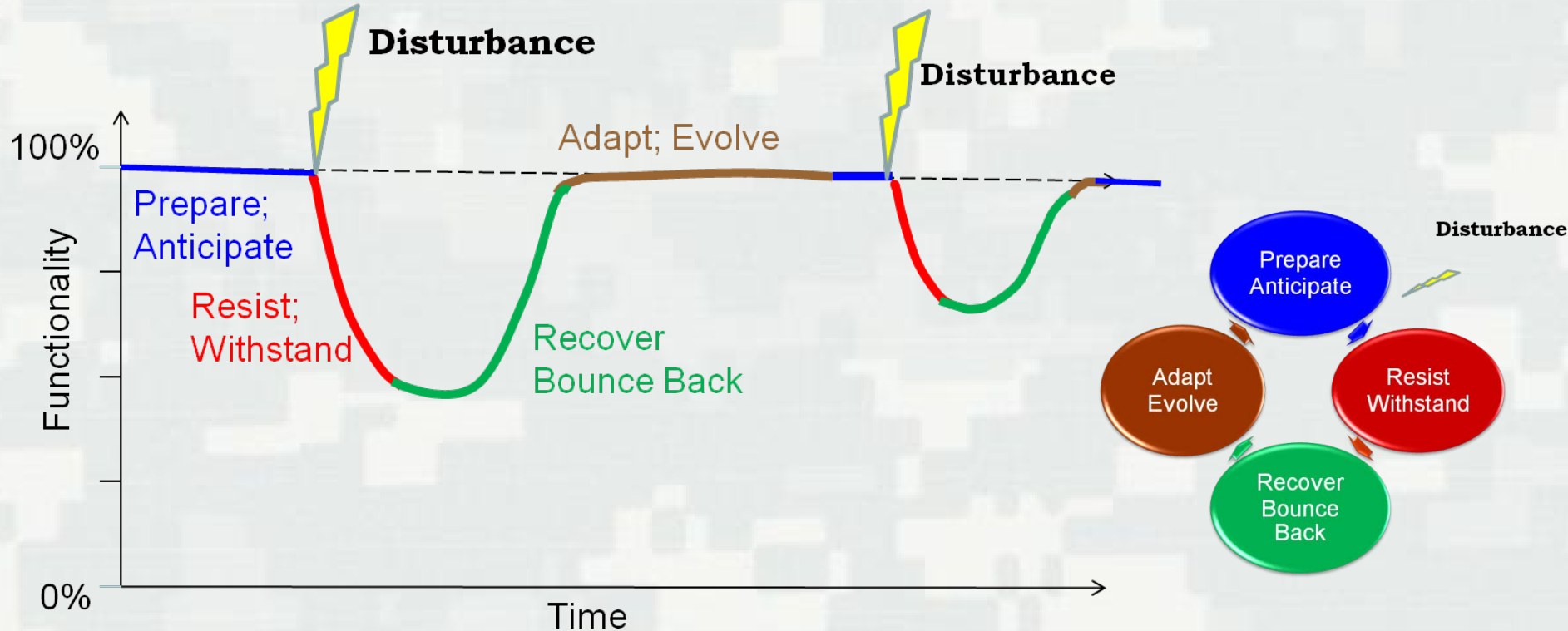
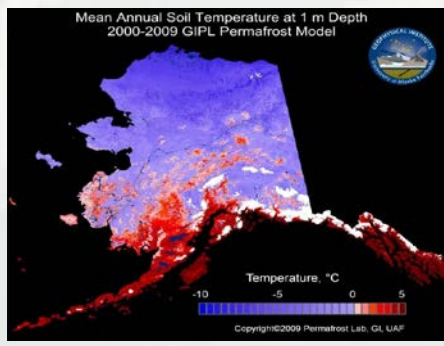
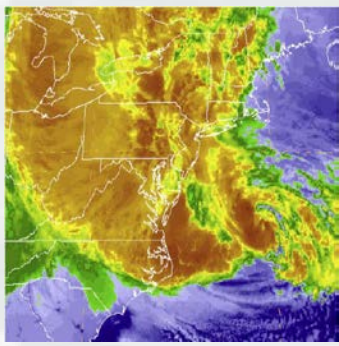
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WEDA
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ERDC
Engineer Research and
Development Center





Resilience: the ability of a *system* to **Prepare for**, **Resist**, **Recover**, and **Adapt** to achieve functional performance under the stress of disturbances through time.

Engineering With Nature®

...the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaborative processes.

Key Elements:

- Science and engineering that produces operational efficiencies
- Using natural process to maximum benefit
- Broaden and extend the benefits provided by projects
- Science-based collaborative processes to organize and focus interests, stakeholders, and partners



ERDC

Natural and Nature-Based Features

NNBF provide engineering functions relevant to flood risk management while producing additional economic, environmental and social benefits.



International Guidelines on the Use of Natural and Nature-Based Features for Sustainable Coastal and Fluvial Systems

Purpose: Develop guidelines for using NNBF to provide engineering functions relevant to flood risk management while producing additional economic, environmental and social benefits.

- Publish NNBF technical guidelines by 2020:
 - ▶ Multi-author: government, academia, NGOs, engineering firms, construction companies, etc.
 - ▶ Addressing the full project life cycle
 - ▶ Guidelines in 4 Parts
 - Overarching
 - Coastal Applications
 - Fluvial Applications
 - Conclusions



Building on Momentum

- Opportunities to scale-up progress?
- How to best leverage partnerships across sectors and interests?
- How to integrate diverse benefits provided by projects and systems?
- How to evaluate, design for and adaptively manage the engineering performance of projects?
- What form of guidance is needed for different functional areas?
- How to incentivize, institutionalize progress?

