

# Learning and Adaptive Management for the Provision of Water Quality:

practices, policies, & tools

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# Research Overview

- Crowdsourced Delphi: stakeholder solutions to complex problems
- Environmental Policy for Working Farms: analysis of adaptive management at producer and program scales
- Adaptive Learning and Management on Farms: soil health as an indicator
- Residential Survey of Green Infrastructure: adoption and barriers



Source: Gange, L. & Mansfield Heliflight .  
<http://www.mansfieldheliflight.com/flood/>

# Crowdsourced Delphi: Stakeholder Solutions and Feedback for Adaptive Management of Complex Environmental Problems

(Coleman et al., 2016; to be submitted to *Global Environmental Change*)

## Key Findings:

- Creative Solutions Proposed
  - 55 interventions, 10 critical
- Guide research process
  - Scenario planning for IAM
  - Governance and institution network inquiry process
- Create ‘community of practice’
  - Inform policy discussions
- Utilize crowdsourcing and citizen science innovations

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### Popular Discussions

Created by member: #48 2014-03-03 14:00:17	Domain	Created by member: #179 2014-03-09 22:37:13	Domain	Created by member: #159 2014-03-14 10:37:24	Domain
<b>Give Property Tax Incentives for Enhanced Sto ...</b> Comments (4) ★★★★☆	 Stormwater	<b>Reducing Runoff from Small Farms</b> Comments (4) ★★★★★	 Agriculture	<b>Lakeshore Buffers</b> Comments (3) ★★★★☆	 Development and Land Use

Created by member: #184 2014-03-13 11:01:32 Primary Domain

**Avoid and minimize flooding impacts by identifying flood generation zones and attenuating flows across the landscape**  
Comments (1)  
★★★★★

  
River Mgt.

Created by member: #184 2014-03-13 10:28:17 Primary Domain

**Strengthen local zoning regulations and bylaws by incorporating low impact development principles**  
Comments (0)  
☆☆☆☆☆

  
Development and Land Use

Created by member: #189 2014-03-11 13:28:43 Primary Domain

**Develop cropping strategies to mine soil phosphorus**  
Comments (0)  
★★★★☆

  
Agriculture

Created by member: #189 2014-03-11 13:04:51 Primary Domain

**Manage barriers to water flow (causeways) in Lake Champlain to mitigate sediment and nutrient accumulation**  
Comments (2)  
★★★★★

  
Other

# Environmental Policy for Working Farms: analysis of adaptive management at producer and program scales

- Does funding for adaptive management of BMP's through USDA NRCS Environmental Quality Incentives Program (EQIP) promote learning across producer, policy, and program scales?  
BMP's with Adaptive Management Funding:
  - Nutrient Management Planning,
  - Cover Cropping,
  - Reduced Tillage
- Methods: Producer Surveys, Focus Groups, Contract and Prioritization Program Data
- Adaptive capacity of governance rule structures and decision making to meet water quality and agricultural goals at producer, watershed and national levels.



# Adaptive Learning and Management on Farms: soil health as an indicator

- To what extent do producers monitor & adaptively manage soil health to promote agricultural production and water quality?
- Methods: Producer Survey and Focus Groups
- Value of Soil Health to promote multiple services
  - Management Implications
  - Adoption of Water Quality BMP's



# Residential Survey of Green Infrastructure: adoption and barriers

(Hurley et al., in preparation)

- 581 households surveyed across Vermont
- GSI Adoption: intent and barriers
  - Rain gardens
  - Permeable pavement
  - Infiltration trenches
  - Tree box filters
- 35% willing to pay \$90-\$120 annually for town to make green stormwater infrastructure improvements
- Inform Urban Agent Based Model for residential and business best management decisions

# Thank You!

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