



**Vermont Department of Environmental Conservation
Water Quality Division**

*Strategy Overview and Approach to
Implementation*

*National Water Quality Monitoring
Council 5/3/2011*



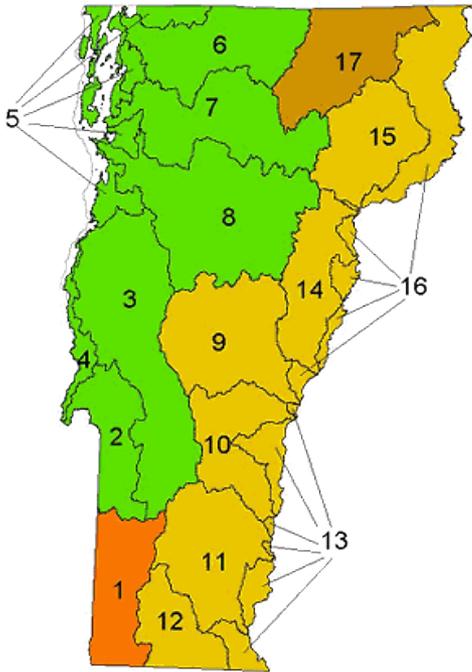
Outline

- Brief basin planning history
- Evolution of the Water Quality Division in DEC
- The Statewide Surface Water Management Strategy
- Tactical Planning Process
- Bring it together – Targeted protection and restoration using Tactical Planning.

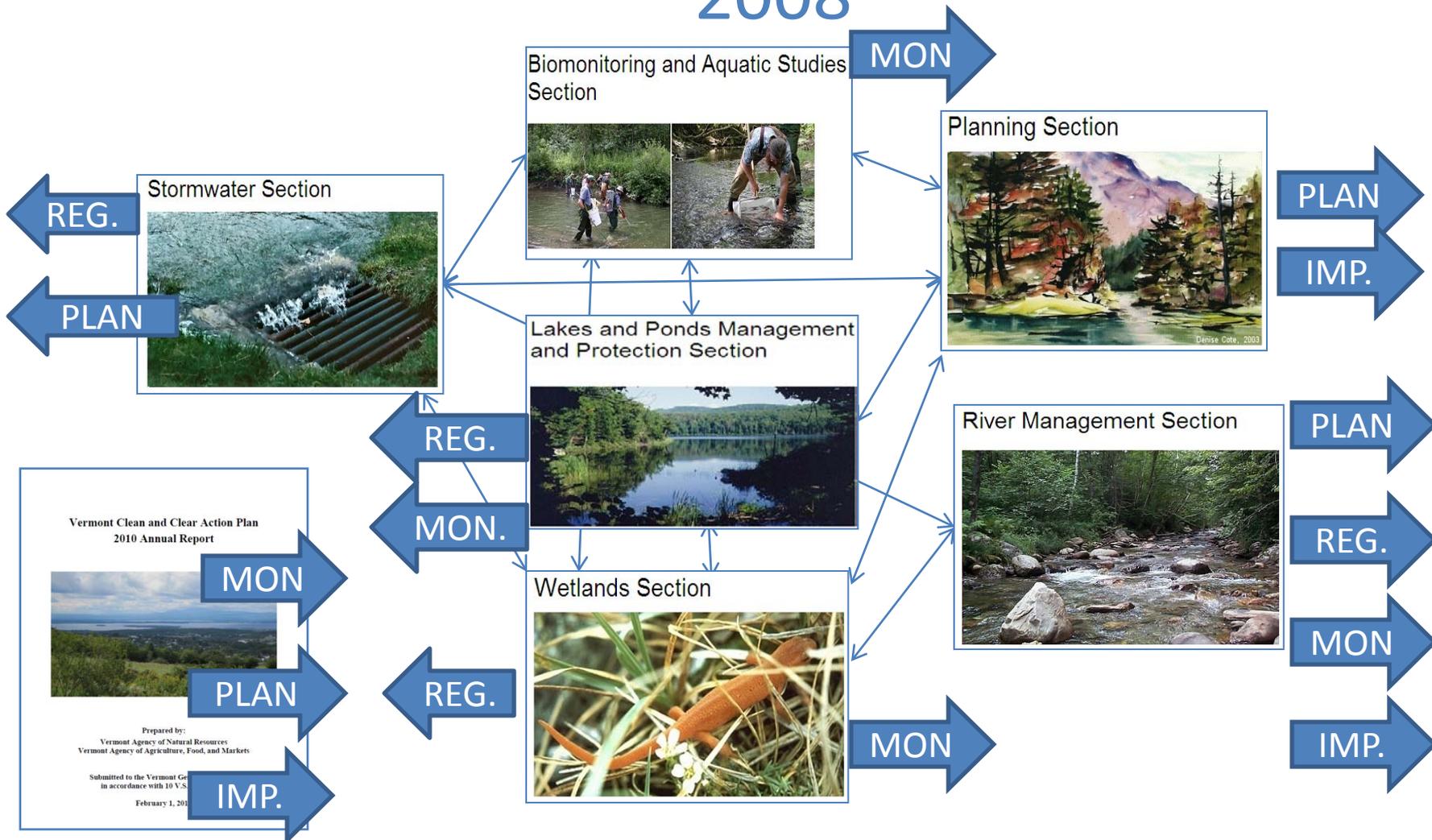


Surface Water Planning Timeline

- Water Quality Management Plans
 - Required by CWA and State statute for the 17 Planning Basins in VT.
 - Early Plans completed in the 1980's, which led to the construction of many WWTF's.
 - Revised planning process implemented in 2000.
 - Statewide Strategy builds on lessons learned from the past decade
 - Targeted implementation approach gets back to the intent of the 1980's plans, for nonpoint sources.



The Water Quality Division's Evolution by 2008



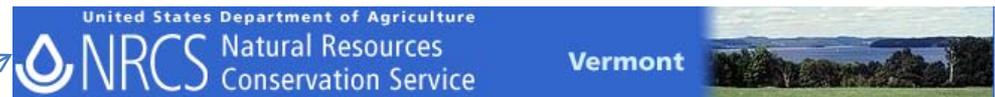
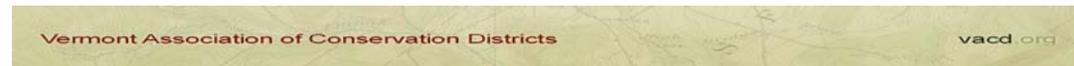
DEC's Water Quality Division in 2011



- Regulatory structure (media programs)
- Monitoring and assessment structure (MAPP)
- Single coordinated “tactical planning process” (MAPP)
- Prioritized implementation as a direct outcome of tactical plans (Ecosystem Restoration Program)



Strategy Describes How WQD Interacts with Partners to Protect and Improve Surface Waters



Basin Commissions
Watershed Associations
Local Groups

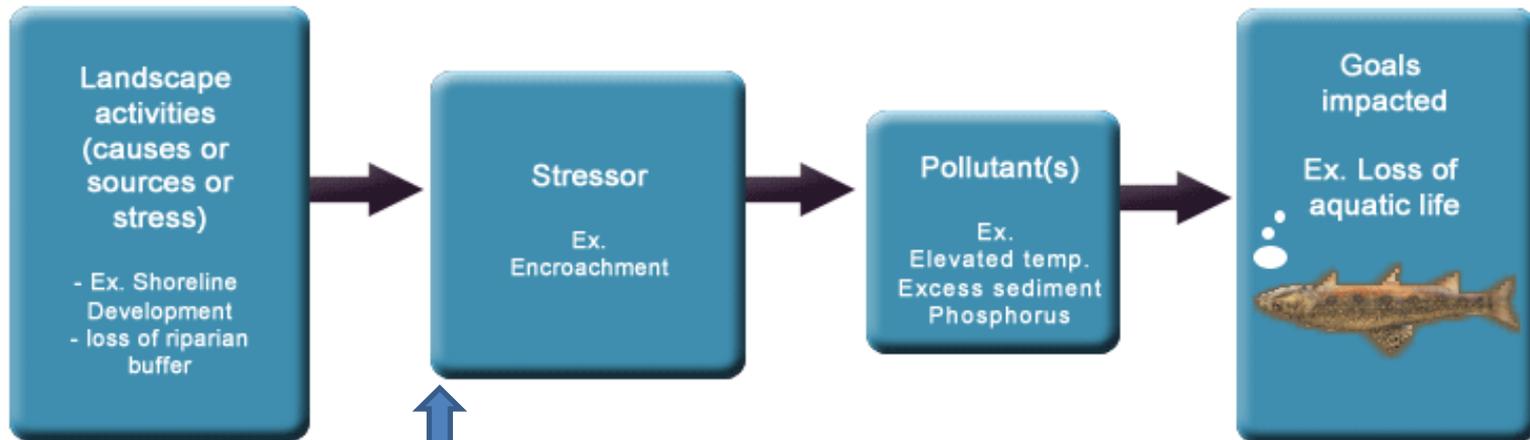


The Architecture of the Strategy

- Clear, defined **Goals and Objectives**
- Supported by a sound **Conceptual Model**
- Component Chapters and Appendices
 - Different lenses to approach the plan depending on what the user wants to know.



Conceptual Model of the Strategy



Management intervention happens here
Each Stressor has an intervention “recipe.”



The Architecture of the Strategy

- Clear, defined **Goals and Objectives**
- Supported by a sound **Conceptual Model**
- Component Chapters and Appendices:

Structural components (Chapters)	Supporting documents (Appendices)
Framework of Surface Water Mgmt Managing Stressors Division Roles and Gap Analysis Tactical Planning Process	Activities that cause stressors Pollutants that result from stressors Surface Water Program roster Monitoring Strategy



Surface Water Stressors



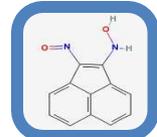
Invasive Species



Acidification



Channel Erosion



Toxic Substances



Encroachment



Flow Alteration



Thermal Stress



Nutrient Loading (non-erosion)



Land Erosion



Pathogens



By managing stressors, we address pollutants –

Chapter 2

- Central feature of the Surface Water Management Strategy are 10 stressor evaluation whitepapers.
- They document:
 - Importance (empirically where possible);
 - Objectives met when stressor addressed;
 - Pollutants that result from the stressor;
 - Causes of stressors;
 - Key strategies to address the stressor, in the form of M+A, Tech. Assistance, Funding, Regulatory, and I+E tools.



Bringing it together: Water Quality Division Roles, and Key Next Steps – Chapter 3

- Summarizes Stressor Plan Documents w/ respect to WQD's specific role.
- Reviews strategies, gaps, and next steps by stressor.
- Integrates Next Steps across stressors for:
 - Monitoring and Assessment
 - Technical Assistance
 - Regulatory
 - Funding
 - Education and Outreach

This is similar to the integration conducted to develop the LC TMDL Implementation Plan





Water Quality Monitoring Strategy 2011-2020



- Who, what, when, where, why
- Programs
- Partnerships
- Assessment approaches
- Data access



- Surface Water Management Strategy
 - ▶ Chapter 1 - Intro
 - ▶ Chapter 2 - Stressors
 - ▶ Chapter 3 - Next Steps
 - ▶ Chapter 4 - Tactical Planning Process
 - ▶ Appendix A - Regulations
 - ▶ Appendix B - Pollutants
 - ▶ Appendix C - Activities
 - ▶ Appendix D - Programs
- Lakes & Ponds
- Monitoring, Assessment & Planning (MAPP)
 - ▶ MAPP - Basin Planning
 - ▶ MAPP - Biomonitoring & Aquatic Studies
 - ▶ River Management
 - ▶ Stormwater
 - ▶ Wetlands



Learn About Water Quality Protection in Vermont

[dec home](#) - [wqd home](#)

The Vermont Surface Water Management Strategy has been prepared to address pollutants and stressors that affect uses and values of Vermont Surface Waters. On this page you can access:

1. Goals and Objectives for managing Vermont surface waters in light of the goals of the federal Clean Water Act and Vermont's state surface Water Quality Policy;
2. Activities and Stressors that affect water, as well as individual pollutants;
3. Tools and Resources (Tool Kit) used to protect, and maintain and restore surface waters; and,
4. Planning Process for individual watershed management.

New visitors to this site are encouraged to review the Introduction first, to understand the layout of the Strategy. The buttons shown below provide access to introductory pages for each section of the Strategy, and drop down lists provide links to specific information within each section.



[Powerpoint presentation from December 20, 2010 Stakeholder meeting](#)
[Glossary](#)
[Master List of Acronyms](#)

Strategy Website
WWW.VTWATERQUALITY.ORG

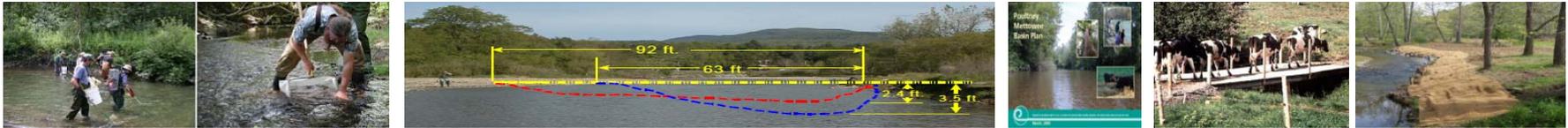


Implementing the Strategy

- Two basic types of implementation
 - Internal and external organizational coordination to implement regulatory or policy options of statewide scope: *‘Capital “P” planning’*
 - Targeted implementation within each planning basin: *Tactical Basin Planning*



Implementing the Strategy



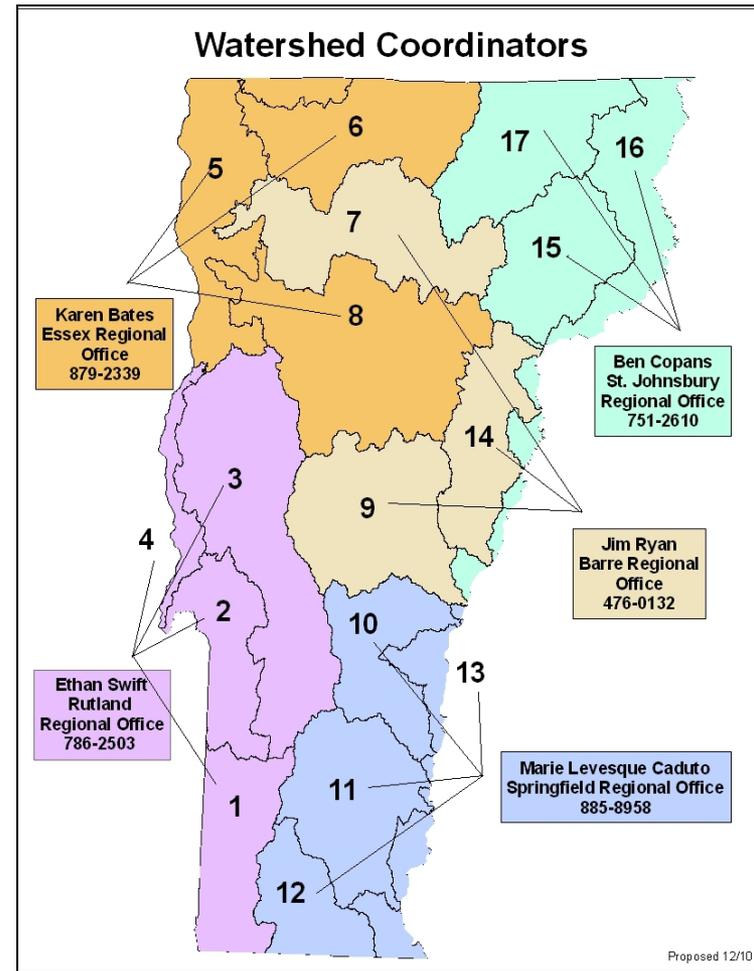
Tactical Basin Planning

Chapter 4: Managing Waters Along a Gradient of Condition



Tactical Planning

- 15 Planning Basins
- 5 Planners
 - 3 Basins each
 - Basin A in M+A
 - Basin B in Plan Development
 - Basin C in Implementation

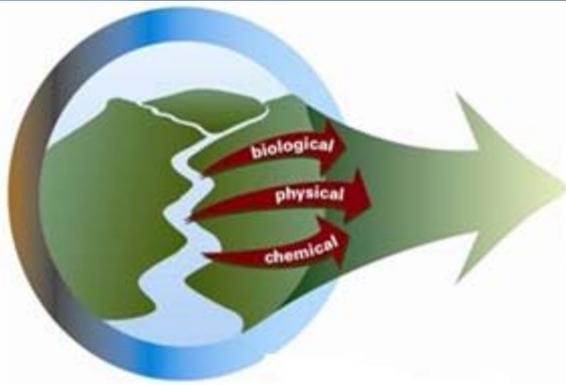


Tactical Planning Process

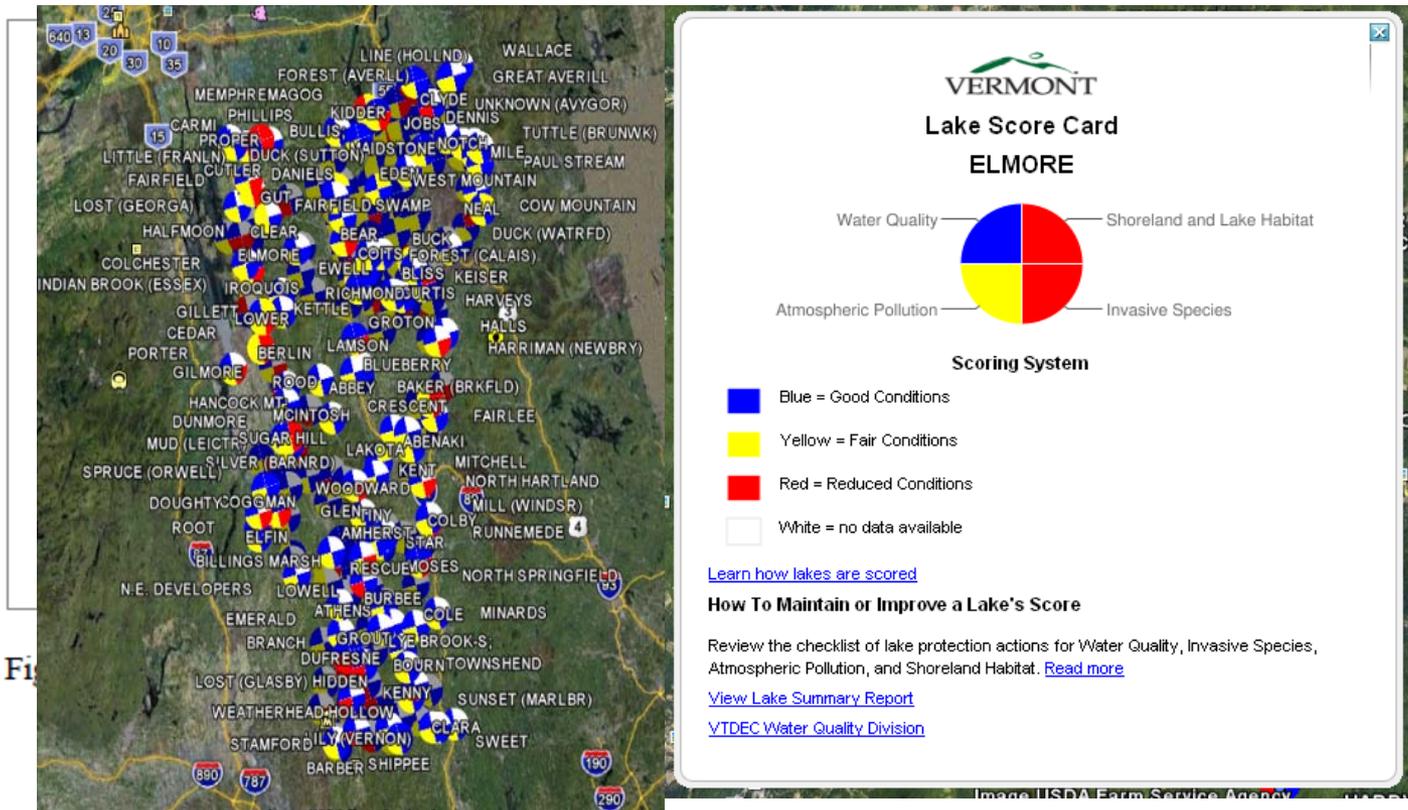
Process

- Step 1 – Scoping and information gathering (monitoring and basin assessment)
- Step 2 – Prioritization and Targeting of Resources (both internal and external)
- Step 3 – Public Outreach and Awareness of the Basin Planning Process
- Step 4 – Development of Tactical Basin Plans and Attendant Strategies
- Step 5 – Implementation of Tactical Basin Plans
- Step 6 – Adaptive Management to Inform the Implementation Process



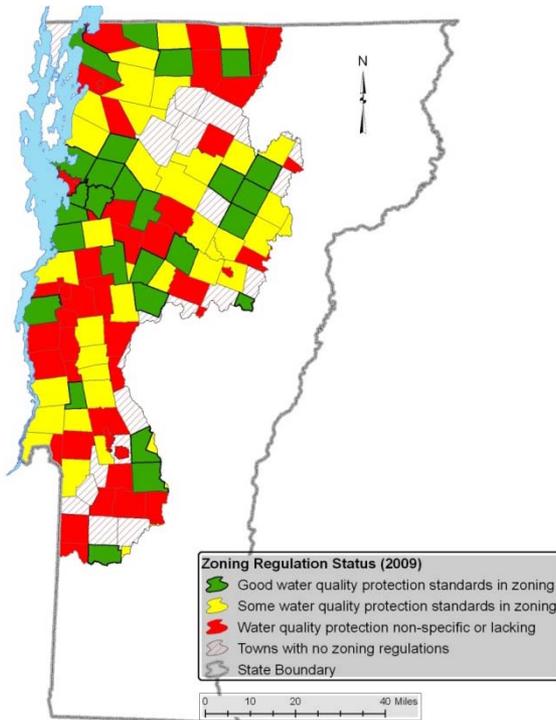


WQ Assessment using Monitoring Data

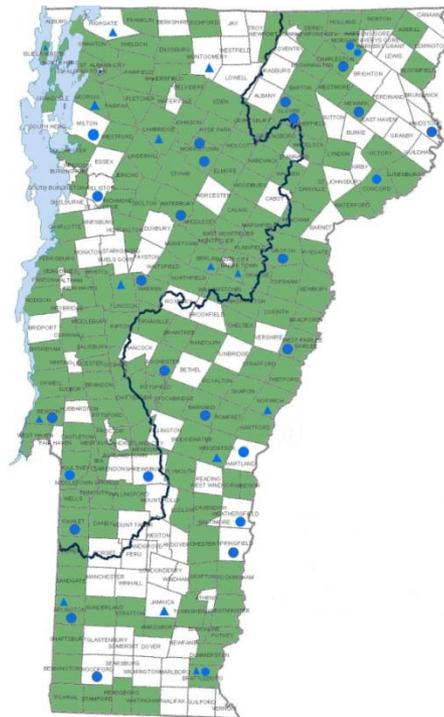


Tactical Planning Process

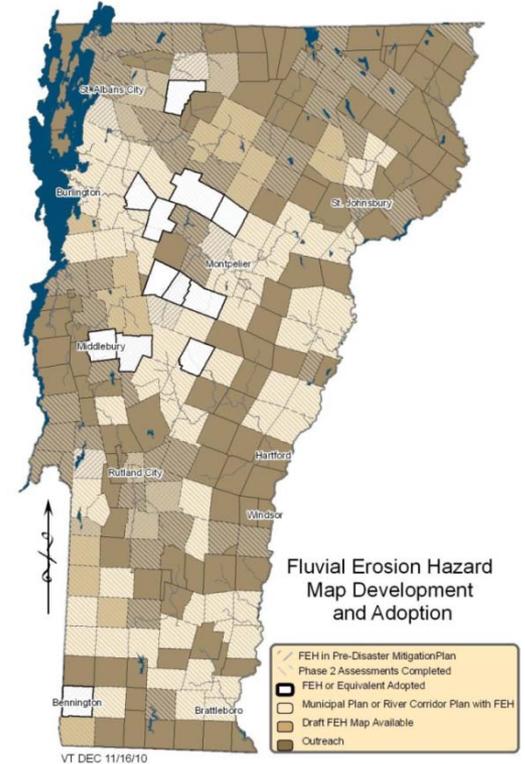
Use of Other Types of Assessment Data and Indicators



Town Plans & Zoning



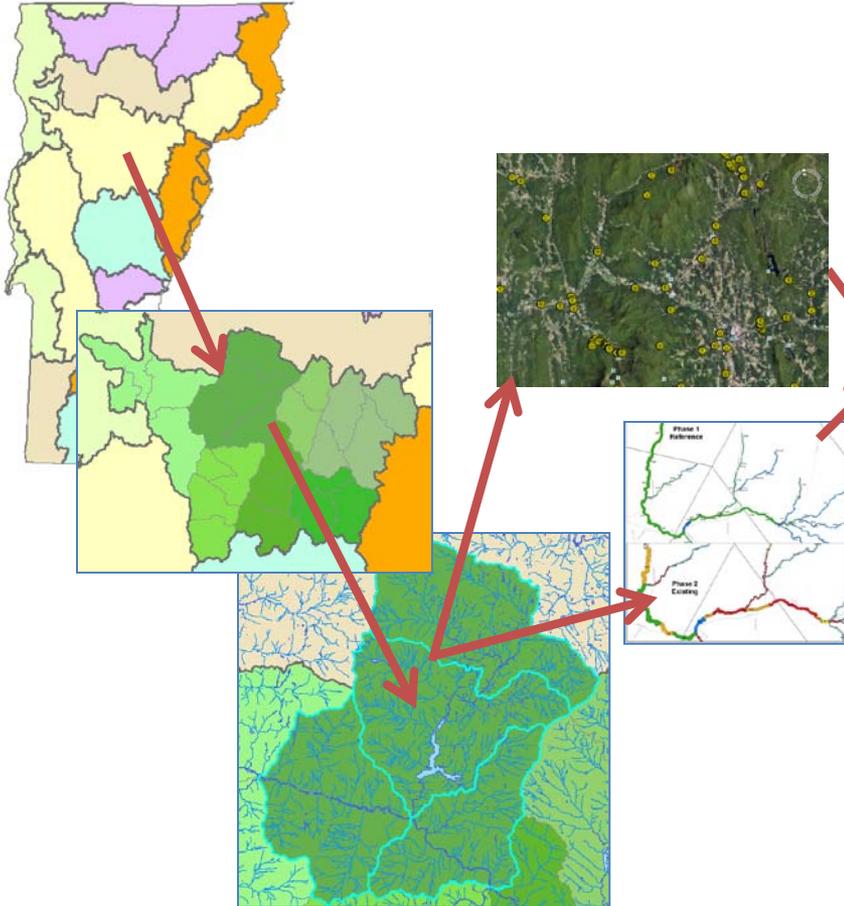
Better Backroads Program



FEH Development & Adoption



Targeted implementation menus are outcomes of Tactical Plans



Protection Actions	Project or Action	Lead Partner(s)	Funding Source	Target Implementation	Performance Metric	Completed?
Waterbody A	Easement on Reach 1.2.3	RMP	ERP	2012	A	
Waterbody B	Floodplain Restoration on reach 4.5.6	RMP	ERP	2012	A	
Waterbody C	Conservation acquisition for subwatershed to Frog Pond Lake	VRC	LARC, ERP, Foundation	2013	B	
Waterbody D	Wetland Reserve/CREP Project on Reach 7.8.9 and adjacent wetlands	DU	NRCS-WRP	2011	C	✓
Restoration Actions						
Waterbody E	Corridor beltwidth acquisition and fencing project on Reach 2.3.5	WNRC, LCA, AAFM	ERP, AAFM, NRCS	2011	A	✓
Waterbody F	Culvert replacement at XYZ Road to reduce sediment at Reach 4.6.4	VYCC, Municipality B	Vtrans Local Roads, ERP	2013	D	
Waterbody F	Fabric/rocklining of ditch along ABC Road draining to Reach 4.6.5	Municipality B	BBR	2013	D	
Mon. Assess., Planning Actions						
Watershed G	Phase 2 Geomorphic Assessment and Corridor Plan	WNRC, RMP	ERP	2011	E	✓
Watershed H	Ambient Biomonitoring and LaRosa Partnership Monitoring	MAPP	WQD	2013	E	
Watershed I	Comprehensive AEM Evaluation for 6 farms	AAF, NRCD	AAF	2013	F	
Municipal Planning Actions						
Municipality A	FEH Zone Delineation and Protection	--	--	2012	G	
Municipality A	Better Backroads Inventory	--	--	2011	E	✓
Municipality A	Bridge and Culvert Inventory	--	--	2012	E	
Municipality B	Revised town road design and maintenance standards	--	--	2012	H	
Municipality B	Revision of DRB Procedure to adhere to new floodplain zoning	--	--	2013	H	
Waterbody A	Easement on Reach 1.2.3	RMP	ERP	2012	A	
Waterbody B	Floodplain Restoration on reach 4.5.6	RMP	ERP	2012	A	
Waterbody C	Conservation acquisition for subwatershed to Frog Pond Lake	VRC	LARC, ERP, Foundation	2013	B	
Waterbody D	Wetland Reserve/CREP Project on Reach 7.8.9 and adjacent wetlands	DU	NRCS-WRP	2011	C	✓
Restoration Actions						
Waterbody E	Corridor beltwidth acquisition and fencing project on Reach 2.3.5	WNRC, LCA, AAFM	ERP, AAFM, NRCS	2011	A	✓
Waterbody F	Culvert replacement at XYZ Road to reduce sediment at Reach 4.6.4	VYCC, Municipality B	Vtrans Local Roads, ERP	2013	D	
Waterbody F	Fabric/rocklining of ditch along ABC Road draining to Reach 4.6.5	Municipality B	BBR	2013	D	
Mon. Assess., Planning Actions						
Watershed G	Phase 2 Geomorphic Assessment and Corridor Plan	WNRC, RMP	ERP	2011	E	✓
Watershed H	Ambient Biomonitoring and LaRosa Partnership Monitoring	MAPP	WQD	2013	E	
Watershed I	Comprehensive AEM Evaluation for 6 farms	AAF, NRCD	AAF	2013	F	
Municipal Planning Actions						
Municipality A	FEH Zone Delineation and Protection	--	--	2012	G	
Municipality A	Better Backroads Inventory	--	--	2011	E	✓
Municipality A	Bridge and Culvert Inventory	--	--	2012	E	
Municipality B	Revised town road design and maintenance standards	--	--	2012	H	
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Waterbody A	Easement on Reach 1.2.3	RMP	ERP	2012	A	
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Waterbody E	Corridor beltwidth acquisition and fencing project on Reach 2.3.5	WNRC, LCA, AAFM	ERP, AAFM, NRCS	2011	A	✓
Waterbody F	Culvert replacement at XYZ Road to reduce sediment at Reach 4.6.4	VYCC, Municipality B	Vtrans Local Roads, ERP	2013	D	
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Mon. Assess., Planning Actions						
Watershed G	Phase 2 Geomorphic Assessment and Corridor Plan	WNRC, RMP	ERP	2011	E	✓
Watershed H	Ambient Biomonitoring and LaRosa Partnership Monitoring	MAPP	WQD	2013	E	
Watershed I	Comprehensive AEM Evaluation for 6 farms	AAF, NRCD	AAF	2013	F	
Municipal Planning Actions						
Municipality A	FEH Zone Delineation and Protection	--	--	2012	G	
Municipality A	Better Backroads Inventory	--	--	2011	E	✓
Municipality A	Bridge and Culvert Inventory	--	--	2012	E	
Municipality B	Revised town road design and maintenance standards	--	--	2012	H	
Municipality B	Revision of DRB Procedure to adhere to new floodplain zoning	--	--	2013	H	



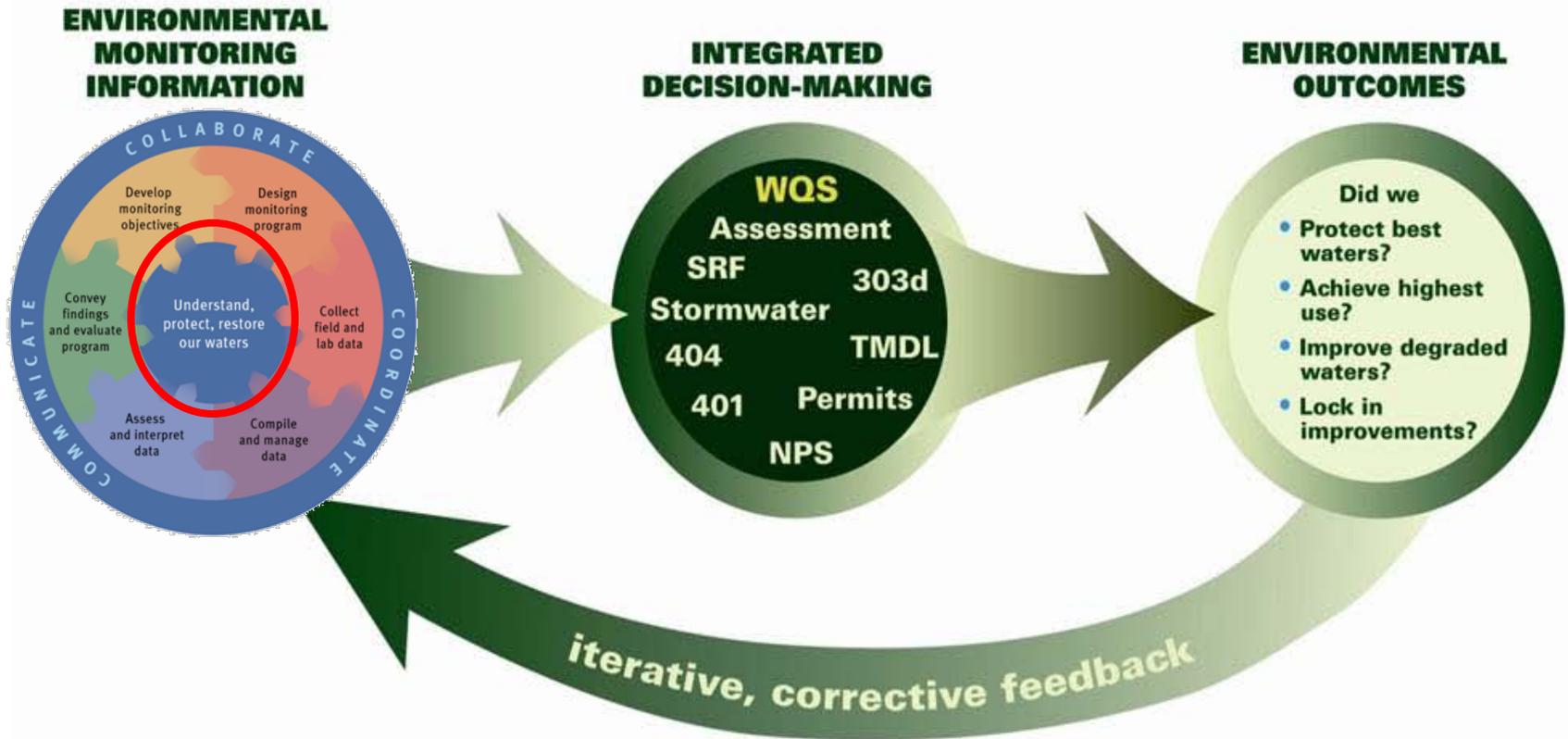
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Waterbody E	Corridor beltwidth acquisition and fencing project on Reach 2.3.5	WNRCD, LCA, AAFM	ERP, AAFM, NRCS	2011	A	✓
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Mon, Assess, Planning Actions						
Watershed G	Phase 2 Geomorphic Assessment and Corridor Plan	WNRCD, RMP	ERP	2011	E	✓
Watershed H	Ambient Biomonitoring and LaRosa Partnership Monitoring	MAPP	WQD	2013	E	
Watershed I	Comprehensive AEM Evaluation for 6 farms	AAFM, NRCD	AAFM	2013	F	
Municipal Planning Actions						
Municipality A	FEH Zone Delineation and Protection	--	--	2012	G	
Municipality A	Better Backroads Inventory	--	--	2011	E	✓
Municipality A	Bridge and Culvert Inventory	--	--	2012	E	
Municipality B	Revised town road design and maintenance standards	--	--	2012	H	
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Waterbody C	Conservation acquisition for subwatershed to Frog Pond Lake	VRC	LARC, ERP, Foundation
Waterbody D	Wetland Reserve/CREP Project on Reach 7.8.9 and adjacent wetlands	DU	NRCS-WRP



Use of Monitoring & Assessment Data

Adaptive Management



Questions?

