



Recovery Potential Screening: Innovative Assessments in State “Laboratories of Democracy”

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NWQMC – Portland, OR – May 2012

1: EPA; 2: ORISE; 3: MN; 4: MI; 5: MA; 6: Cadmus; 7: PA; 8: MD; 9: VT

What is Recovery Potential Screening?

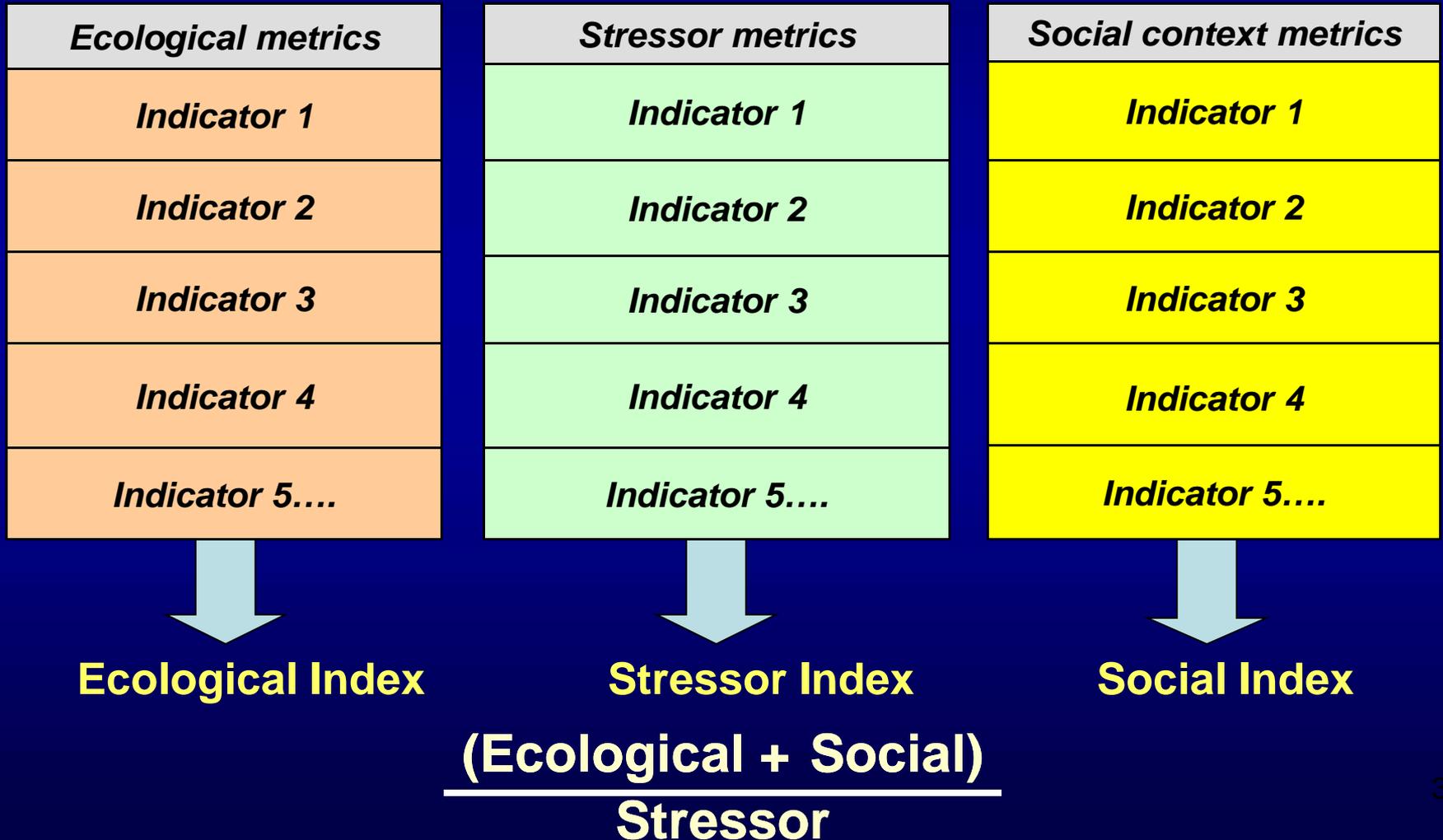
A method to compare differences in restorability and identify the underlying factors that explain them

- Origins in impaired waters program (TMDLs, 303(d) listing)
- Systematic, comparative, and very flexible approach
- Science-based, indicator-driven

Recovery potential is the likelihood of an impaired water to reattain WQS or other desired condition, given its

- **ecological capacity**,
- **exposure to stressors**, and
- the **social context** affecting efforts to improve its condition.

Recovery Potential Screening - Basic Concept



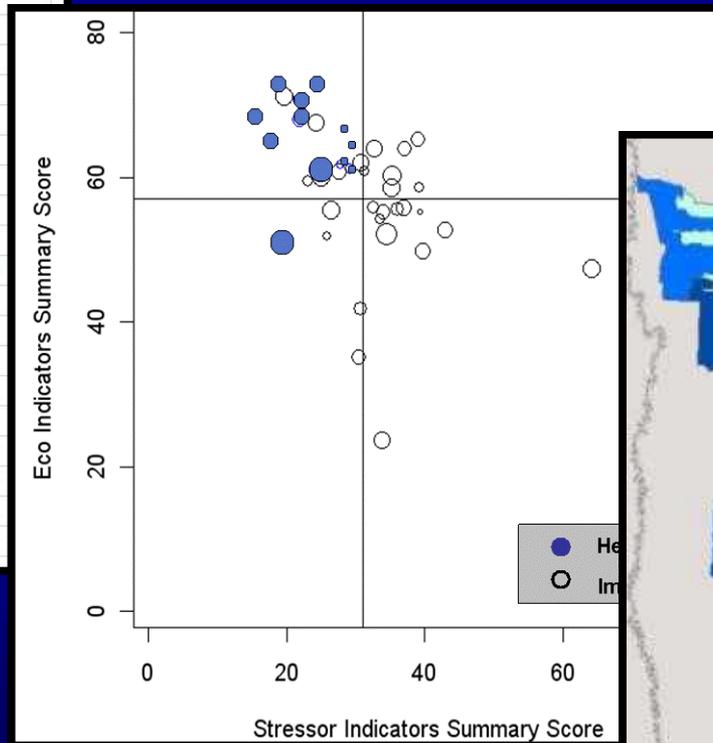
Indicator Selection and Weighting: Flexibility within Common Themes

<i>Ecological</i>	<i>Stressor</i>	<i>Social</i>
watershed natural structure	watershed disturbance & sources	leadership, organization, engagement
corridor condition	corridor or shorelands disturbance	protective ownership or regulation
flow and channel dynamics	flow or channel alteration	level of information, planning, certainty
biotic community integrity	biological stressors	cost, complexity
aquatic connectivity	severity, complexity of pollution	socio-economic factors
ecological history	land use legacies	human health, uses, incentives

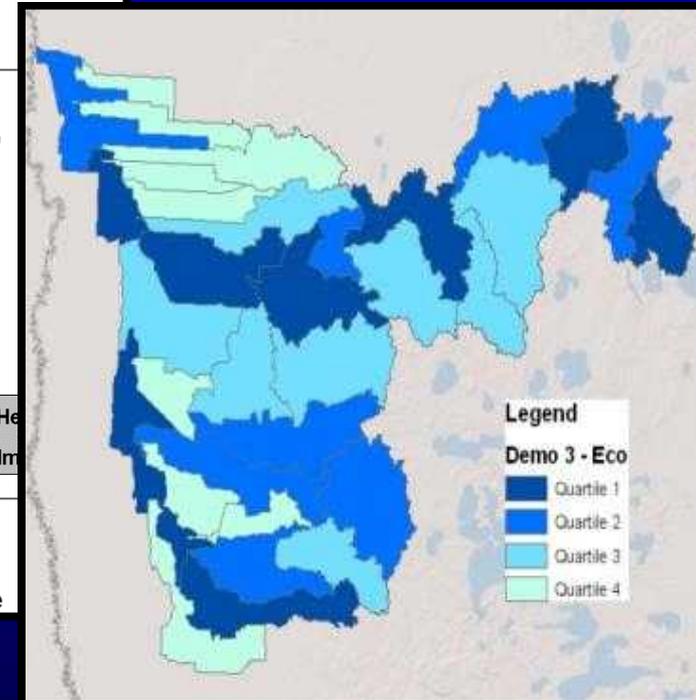
Three Types of Recovery Potential Screening Products

	A	B	C	D
1	HUC12ID	NAME	SUMFORMULA	SUMRANK
2	010802040205	Ware River-Barre F	35.31	1
3	011000050203	Hubbard Brook	3.84	2
4	010900020206	Sagamore groundw	3.74	3
5	010802040102	East Branch Swift F	3.74	4
6	010802070204	West Branch Farmi	3.63	5
7	010802060101	Westfield River-hea	3.56	6
8	010700040205	Nashua River-Cata	3.44	7
9	010900020203	Chequesset ground	3.43	8
10	010802060103	Dead Branch West	3.39	9
11	010802040202	East Branch Ware f	3.38	10
12	010802060202	West Branch West	3.37	11
13	010802060201	West Branch West	3.35	12
14	010900020301	Sippican River	3.25	13
15	011000050105	Housatonic River-V	3.23	14
16	010802020206	Millers River-Orcut	3.23	15
17	010802070201	Otis Reservoir	3.23	16
18	011000050204	Housatonic mainst	3.21	17
19	010802020203	Tully River	3.21	18
20	010802040206	Muddy Brook	3.18	19

Rank Ordering

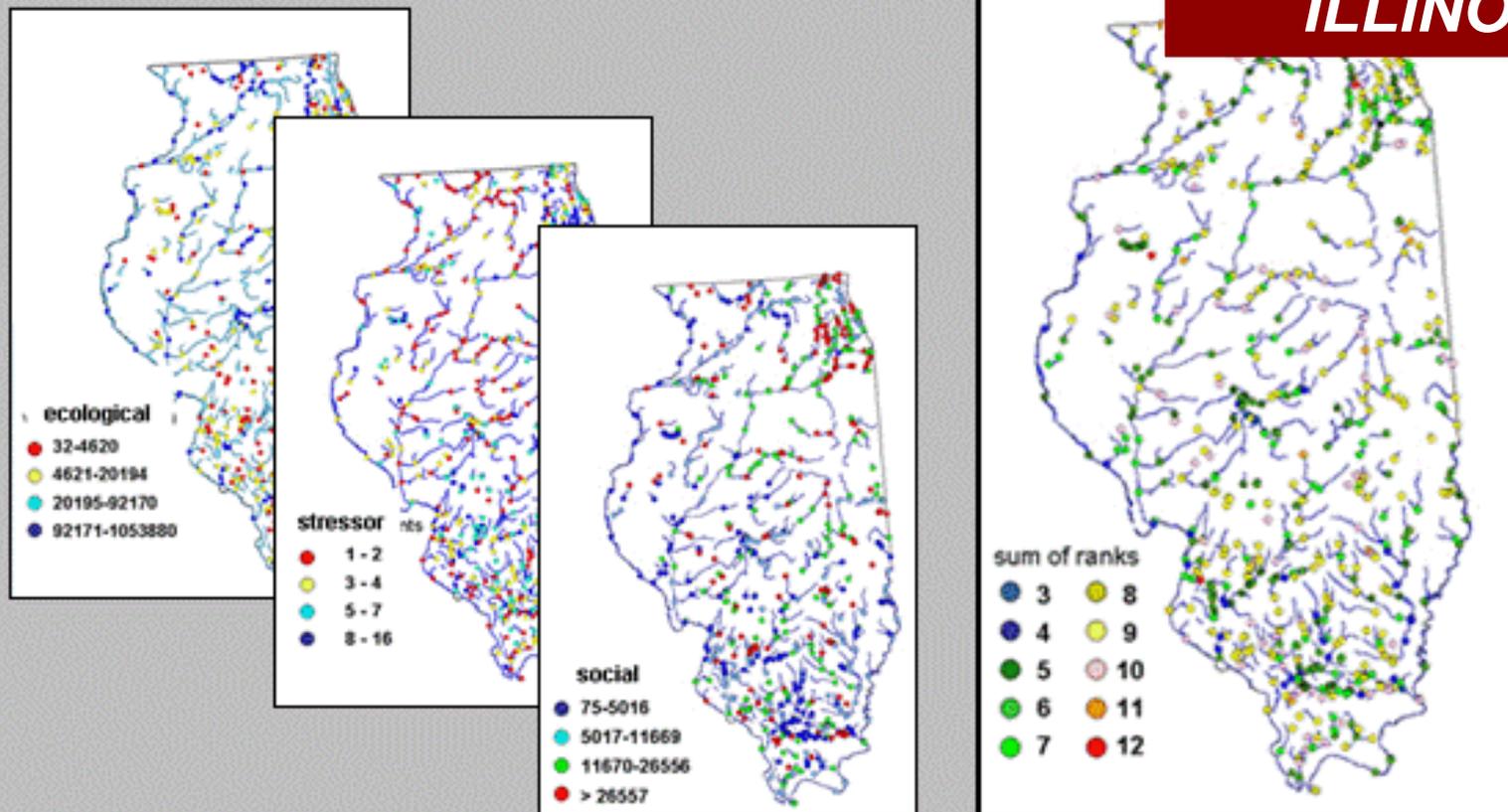


Bubble Plotting



Mapping

State Examples

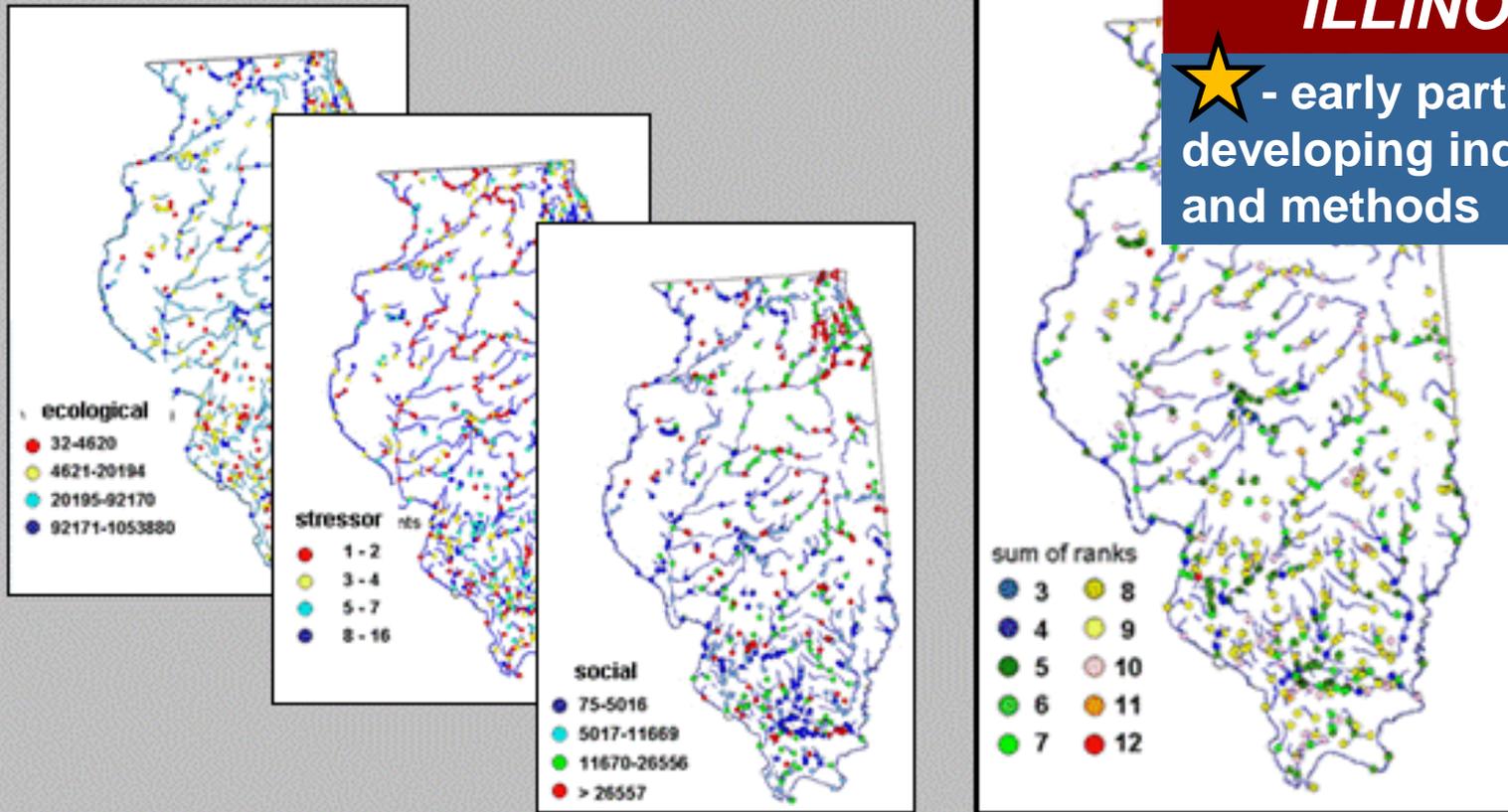


Illinois impaired waters prioritization pilot study

- originated to develop 303(d) list 'prioritized schedule' support tool
- developed and mapped 104 ecological, stressor and social indicators
- trial application of one statewide index, multiple scenarios and combinations

ILLINOIS

★ - early partners in developing indicators and methods

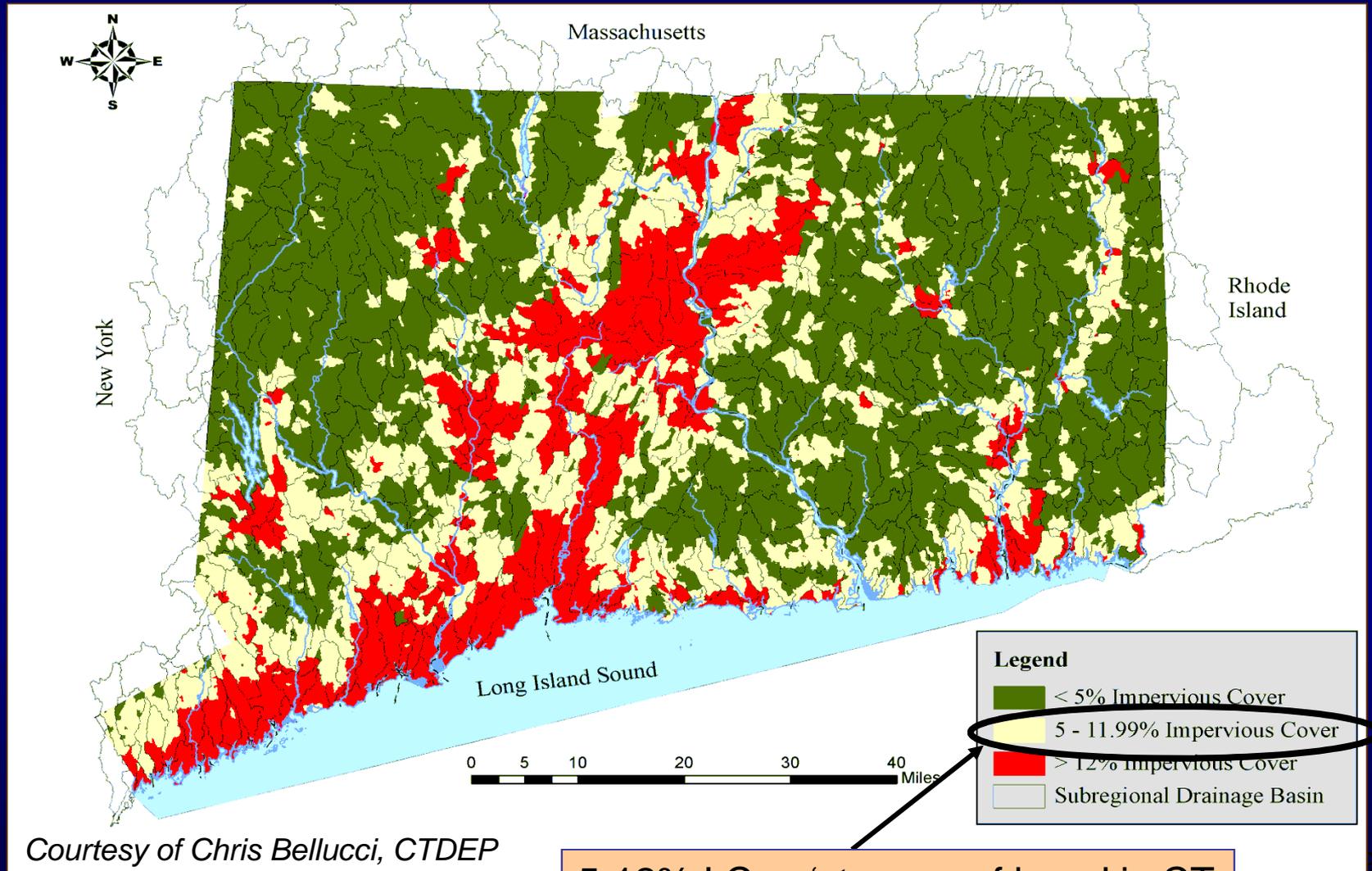


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State pioneers in RPS: impervious cover x biotic index

CONNECTICUT

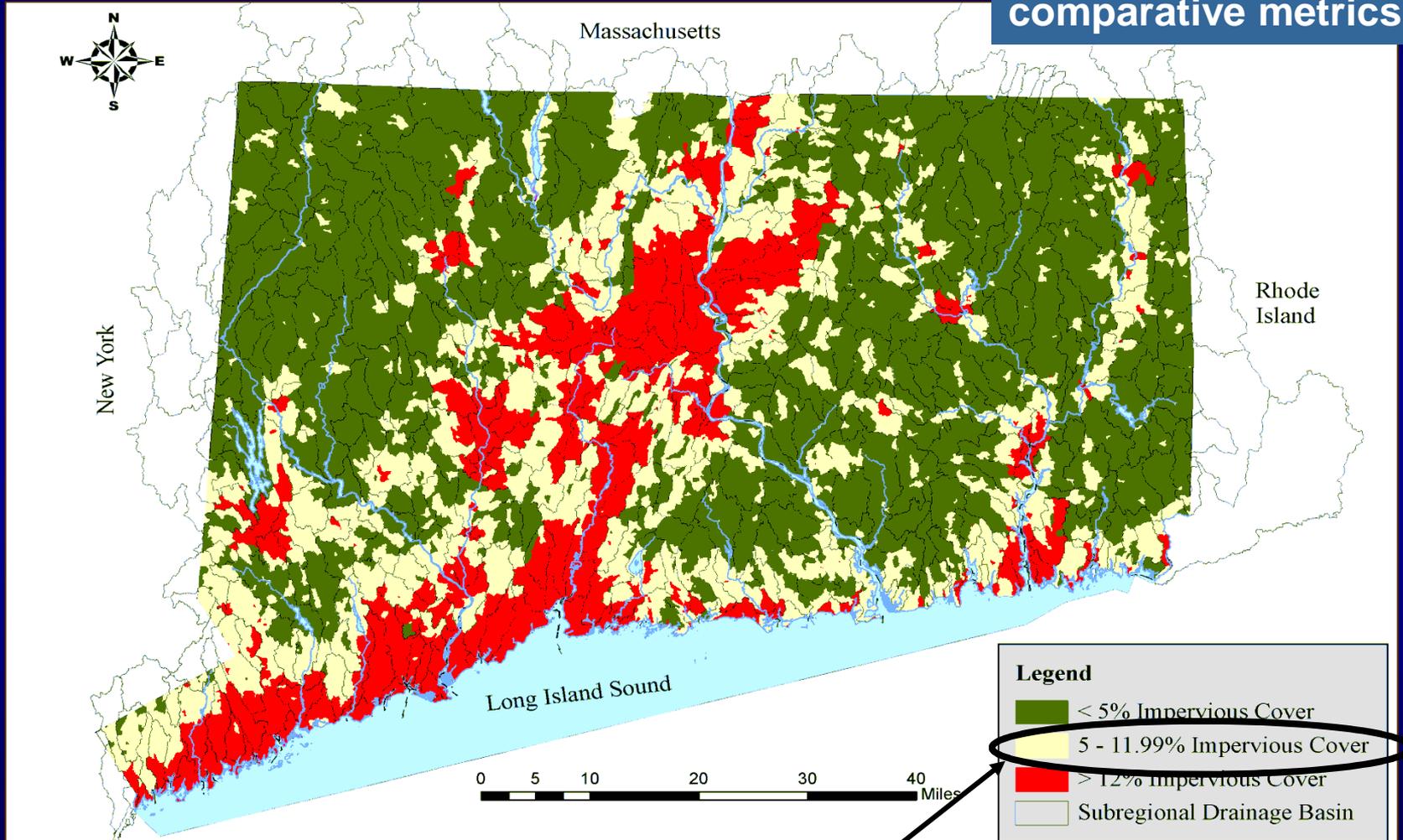


5-12% I.C. = 'streams of hope' in CT

State pioneers in RPS: impervious cover x biotic index

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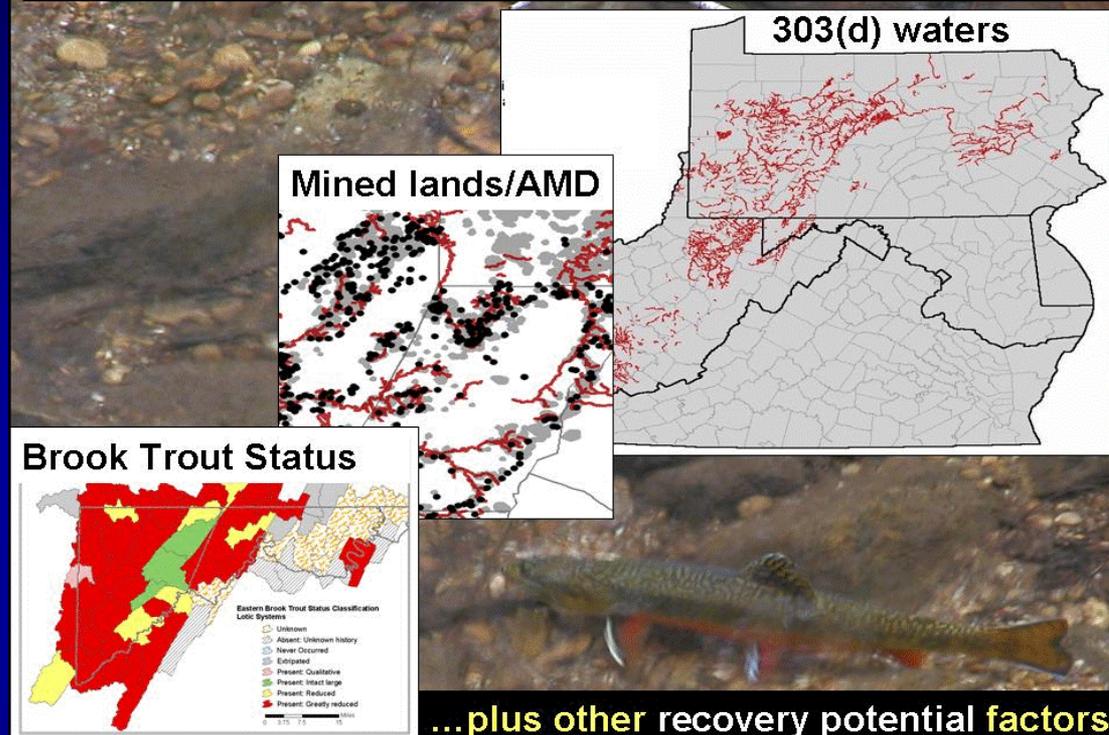
★ - looking beyond condition to prediction, comparative metrics



Courtesy of Chris Bellucci, CTDEP

5-12% I.C. = 'streams of hope' in CT

GIS data reveal the common interest areas:



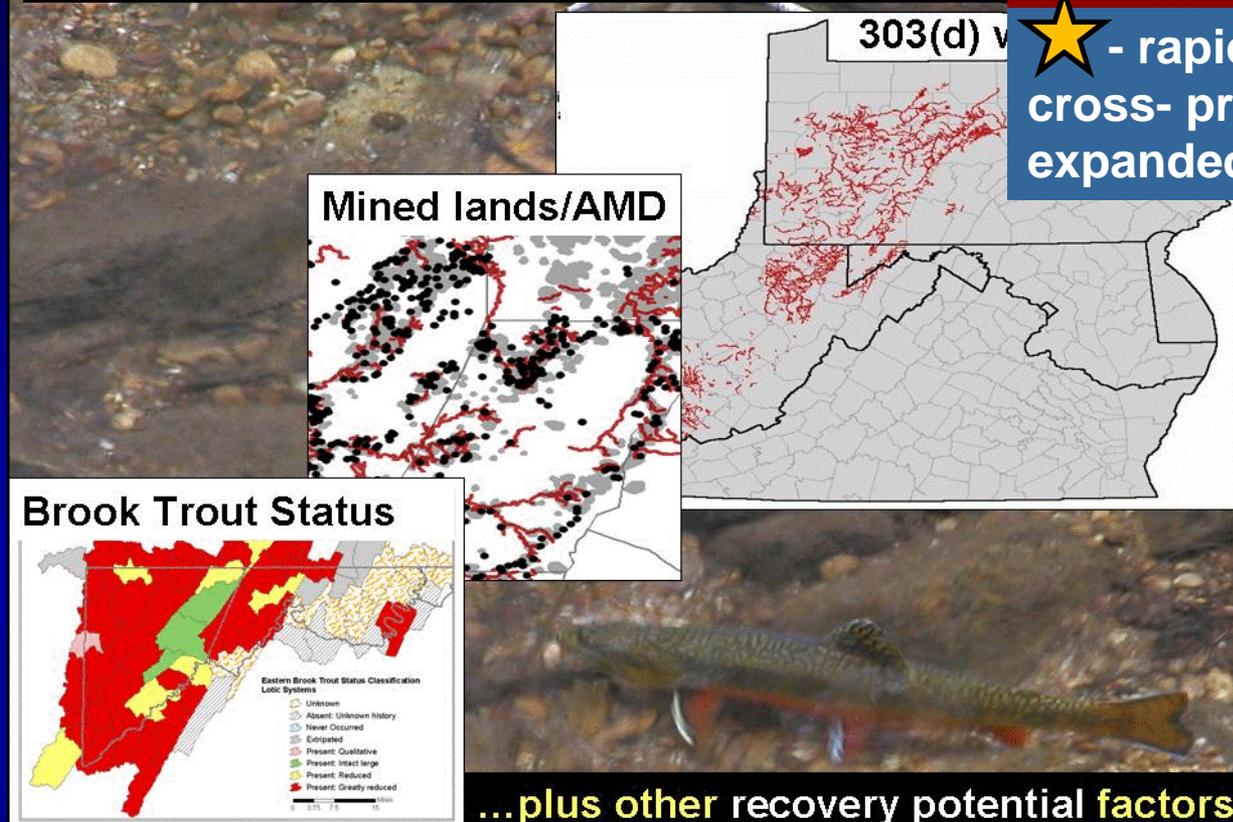
Mid-Atlantic states recovery screening

- narrowly focused on native trout recovery factors
- rapidly completed by states, EPA Region 3
- priority waters have won new restoration funds in PA

GIS data reveal the common interest

PENNSYLVANIA

★ - rapid analysis;
cross-program focus;
expanded user base

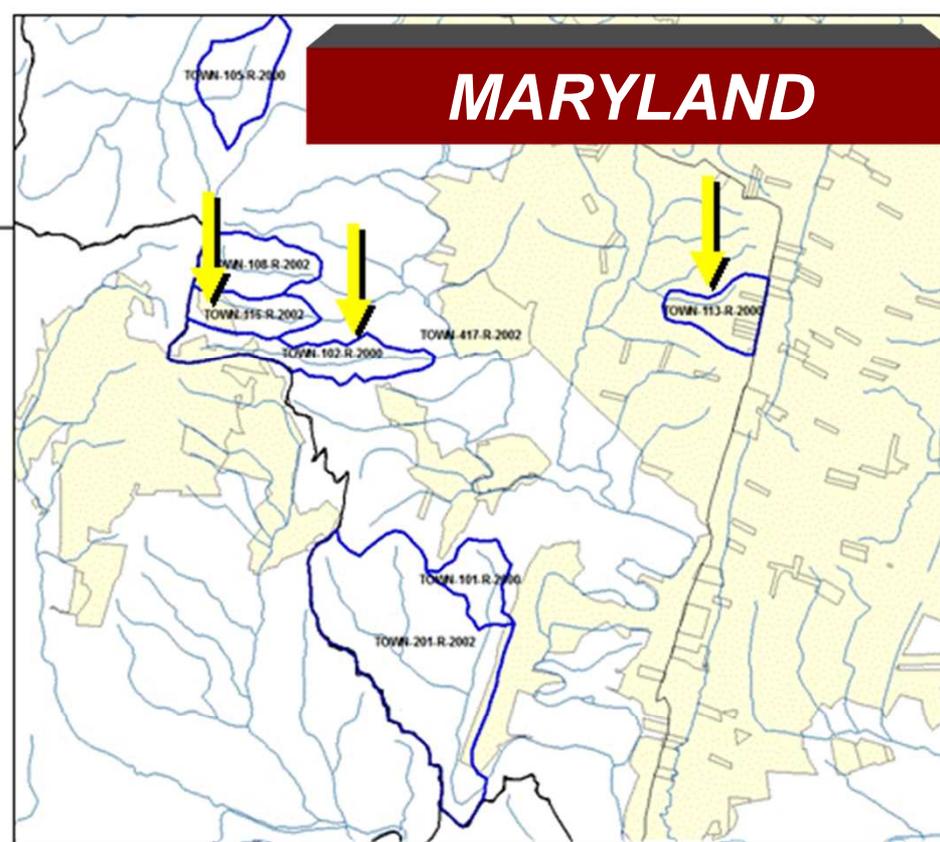
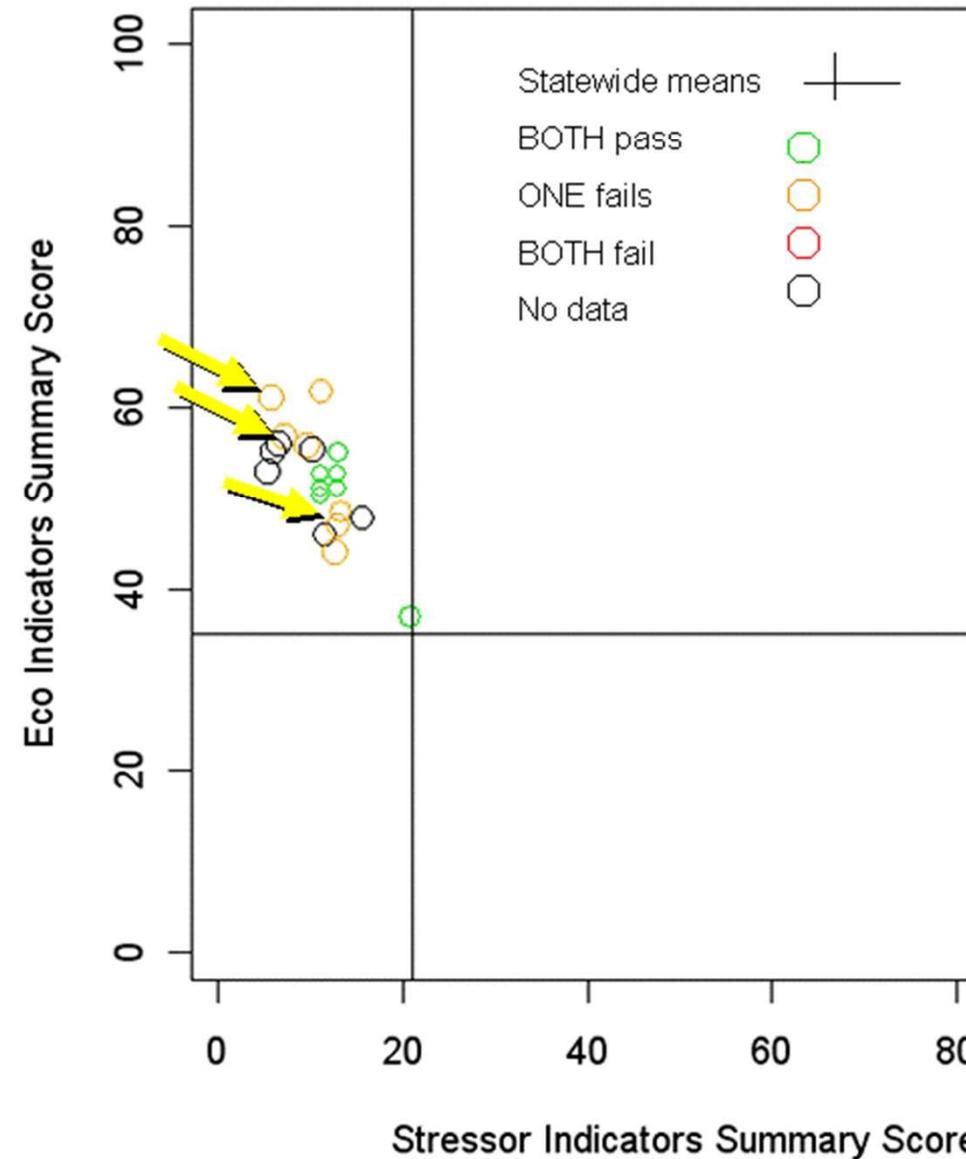


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Town Creek MBSS Recovery Potential X DNR buffer potential

(3 sites high RP + DNR land + stream)

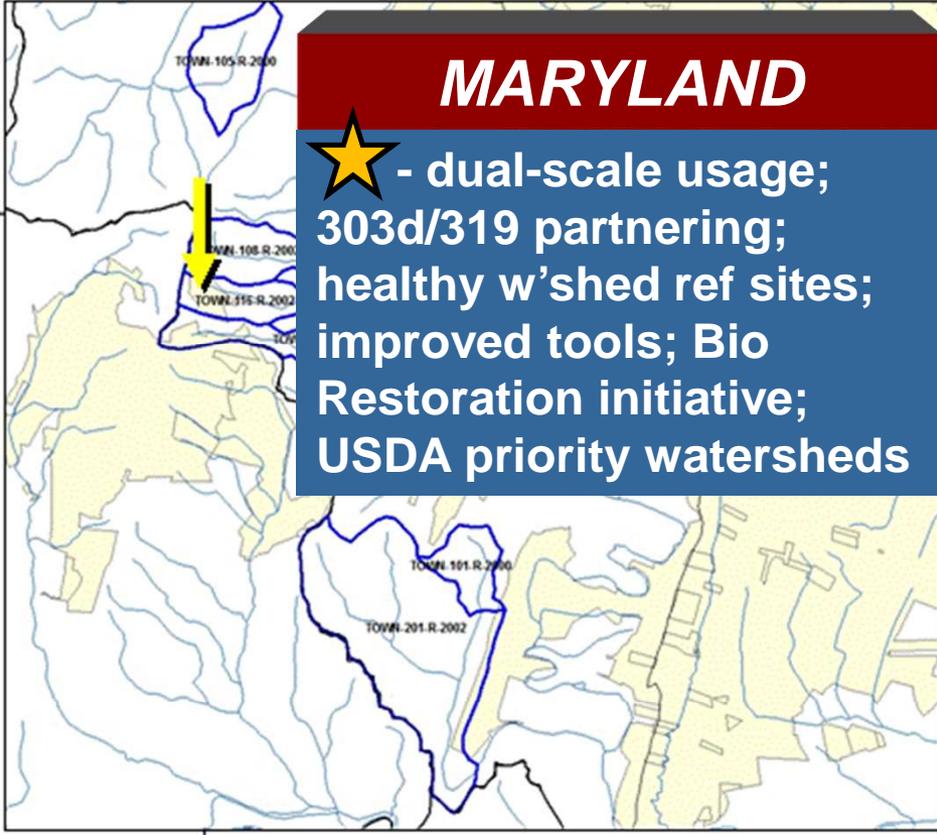
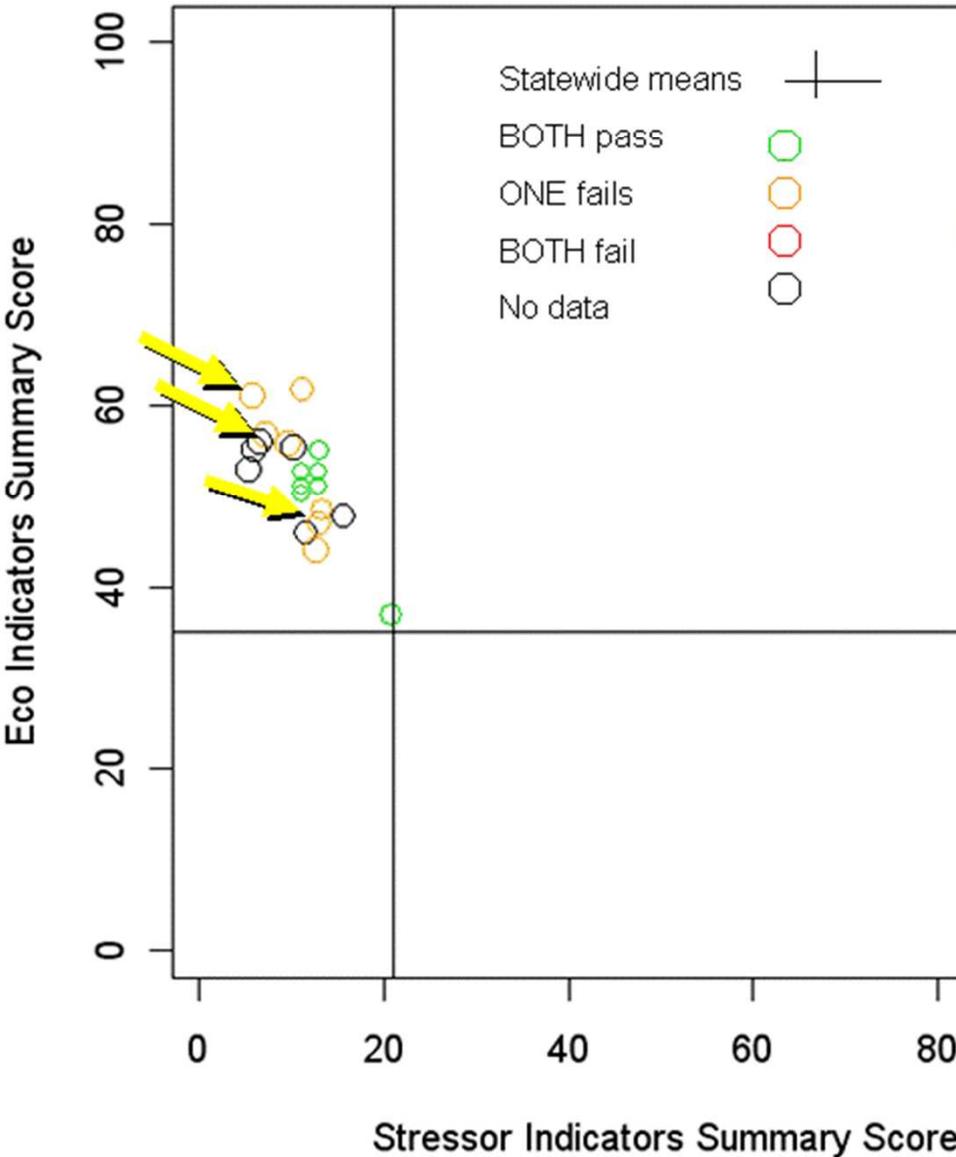


TOWN CREEK DNR LANDS X RECOVERY POTENTIAL			
MBSS fails	Recovery Potential	% DNR-admin lands	NHD stream x DNR
TOWN-101-R-2000	high	1%	N
TOWN-102-R-2000	high	15%	Y
TOWN-105-R-2000	high	0	N
TOWN-108-R-2002	high	6%	N
TOWN-113-R-2000	high	100%	Y
TOWN-116-R-2002	high	26%	Y
TOWN-201-R-2002	high	4%	N

Circle size increases with Social Context summary score value

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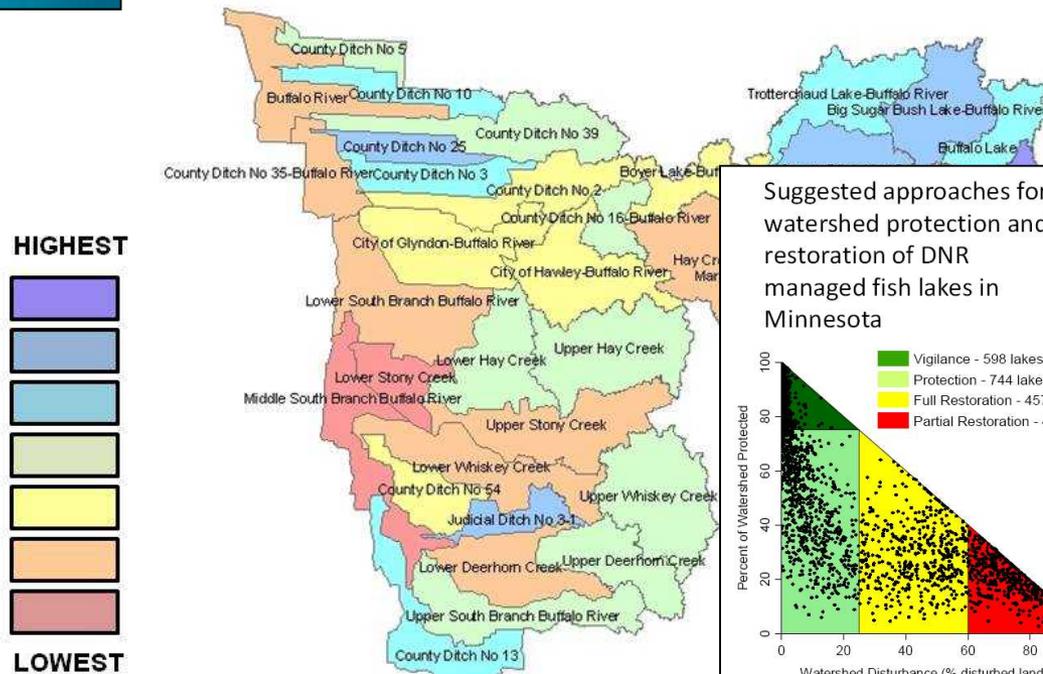
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A Comparative Analysis of Recovery Potential for Impaired Waters in the Buffalo River Watershed

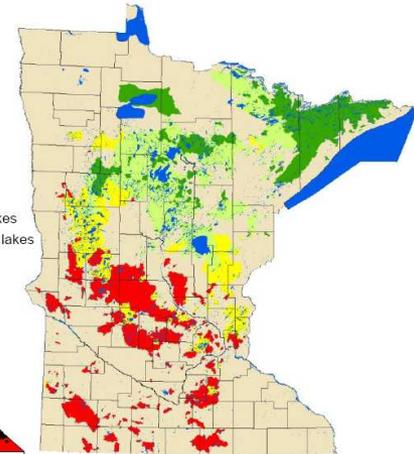
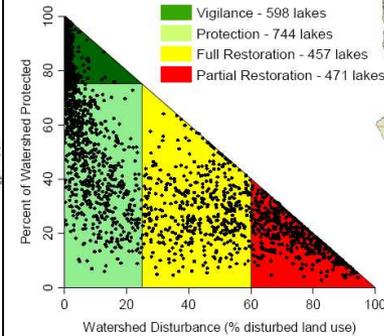


Pete Knutson, MPCA
Peter Mead, NRCS

Recovery Potential Integrated Score (RPI Score) for Buffalo River, Minnesota sub-watersheds [courtesy of Minnesota Pollution Control Agency]



Suggested approaches for watershed protection and restoration of DNR managed fish lakes in Minnesota



- Evaluate restorability to inform dialogue on priority setting
- USDA, EPA, MPCA, MDNR involvement

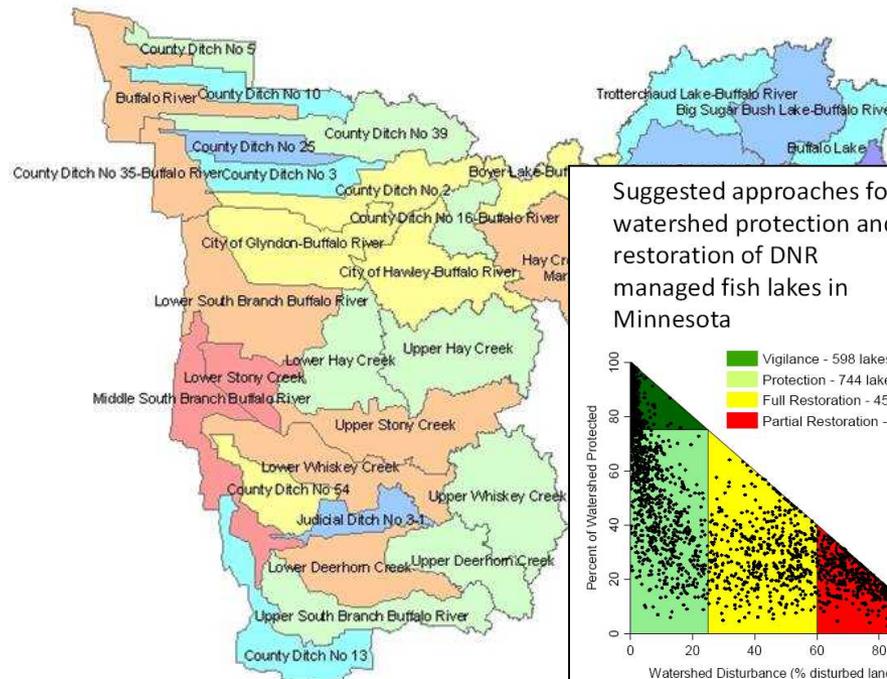
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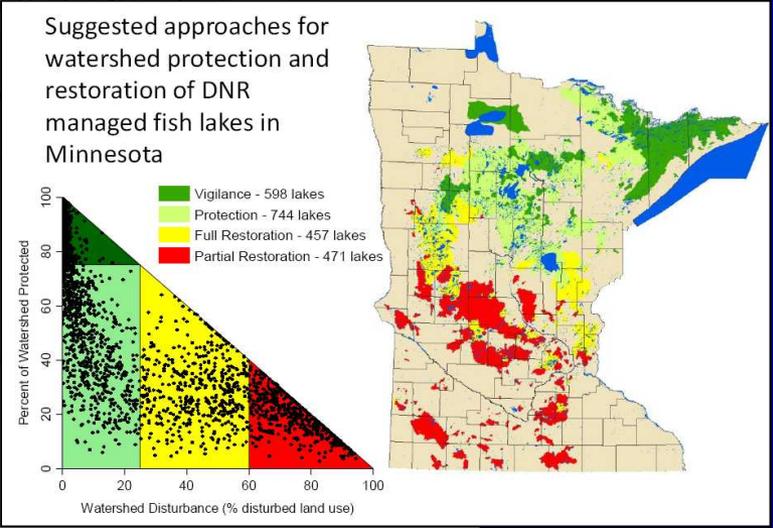
Recovery Potential Integrated Study for Buffalo River, Minnesota sub-watershed

[courtesy of Minnesota Pollution Control Agency]



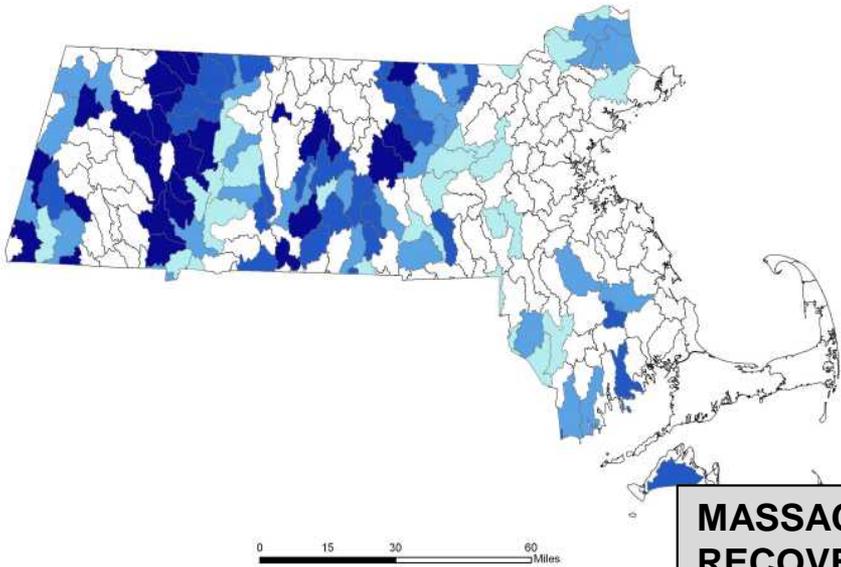
MINNESOTA

★ - first entirely remote RPS users; social indicators; partnering with USDA; more to come

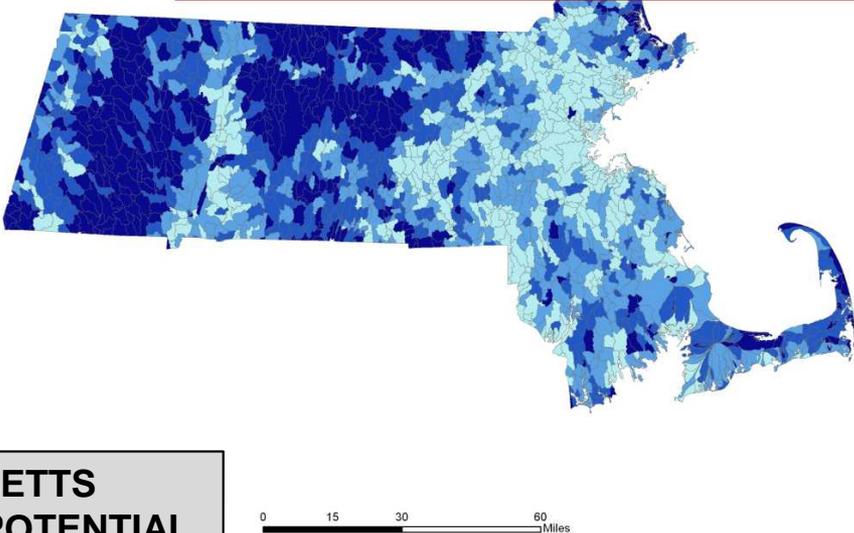


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Priority Agricultural Watersheds for Nutrient TMDL Development

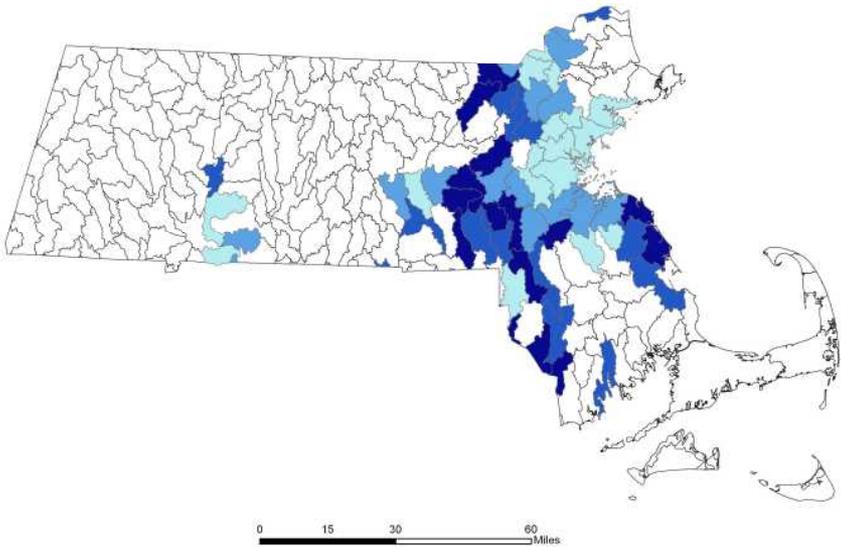


MASSACHUSETTS

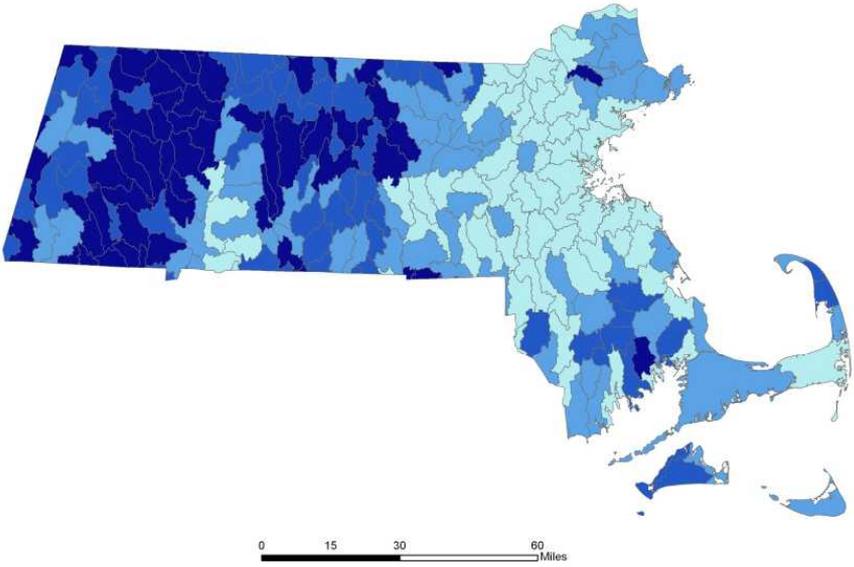


**MASSACHUSETTS
RECOVERY POTENTIAL
SCREENING**
Draft data

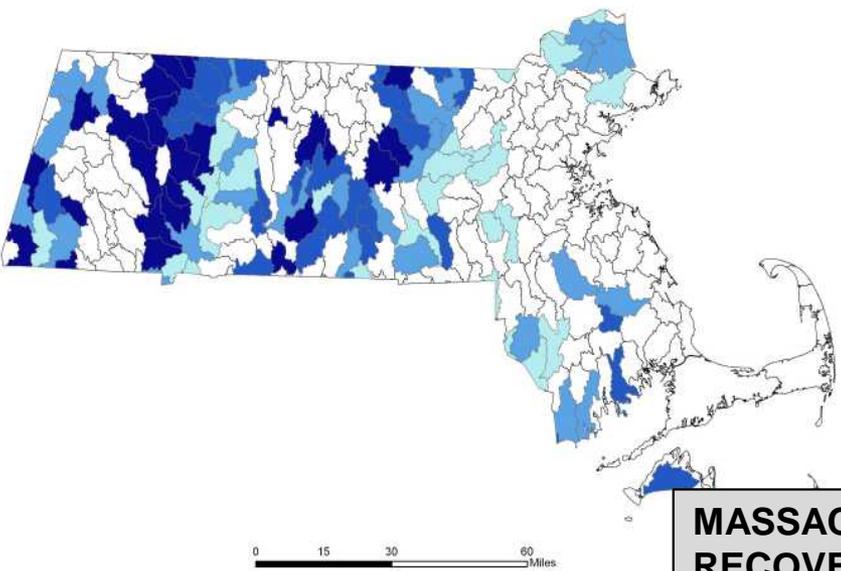
Priority Urban Watersheds for Nutrient TMDL Development



319 Target Watersheds

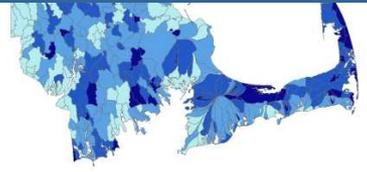
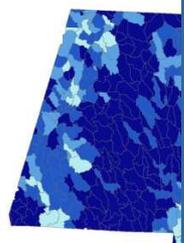


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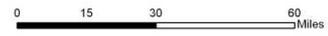


MASSACHUSETTS

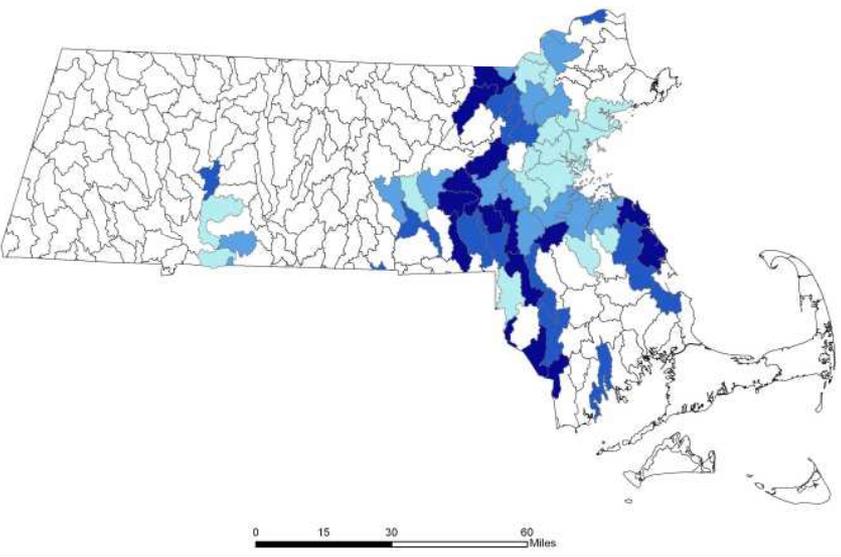
★ - exceptional flow data; NPS program lead; 12+ uses and counting; 'routine' tool use approach



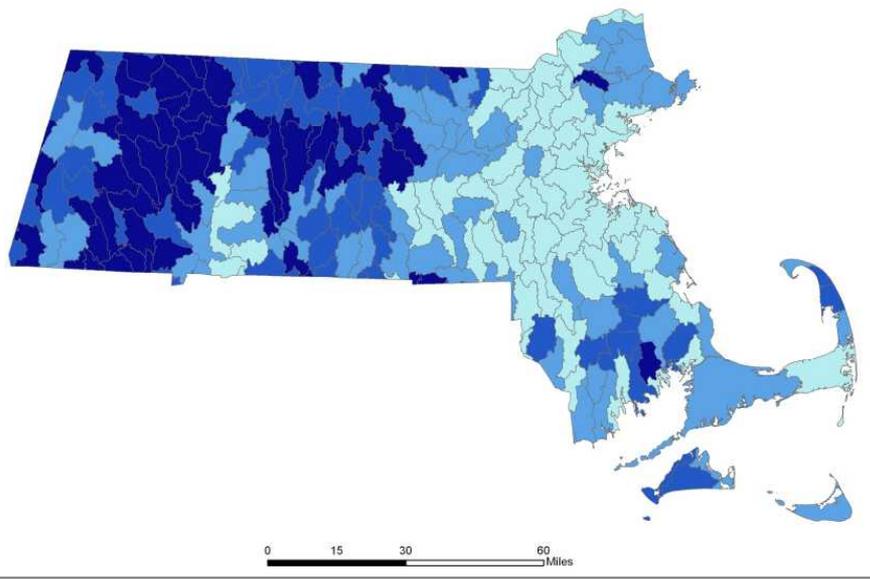
MASSACHUSETTS RECOVERY POTENTIAL SCREENING
Draft data



Priority Urban Watersheds for Nutrient TMDL Development



319 Target Watersheds



*Other RPS **Rising Stars** Still in Progress...*

 **EPA REGION 4** *watershed indexing tool,
lower 48 states HUC12 data*

 **VERMONT** *river morphology indicators,
poss. use in state WQ planning*

 **MINNESOTA** *advancing social indicators,
relating RPS to HWI, BCG*

 **KENTUCKY** *new startup; 32 potential
applications listed in kickoff*

 **MICHIGAN** *interactive prioritization between
state and districts*

 **TENNESSEE** *new startup; synergies with HWI*

 **Others TBD....** *EPA assistance in watershed
prioritization for nutrients, 2012*

...congratulations and thank you to our innovative state users!

The screenshot shows the EPA website's 'Recovery Potential Screening' page. At the top, the EPA logo and navigation menu are visible. The main heading is 'Recovery Potential Screening' with the subtitle 'Tools for Comparing Impaired Waters Restorability'. Below the heading is a large image with a grid of five small images and the same subtitle. The text below the image describes the website's purpose: 'Monitoring programs under the Clean Water Act have identified tens of thousands of US water bodies that do not meet Water Quality Standards and are in need of restoration. This website provides technical assistance for restoration programs to help them consider where to invest their efforts for greater likelihood of success, based on the traits of their own geographic area's environment and communities. There are three main website components: Step-by-step instructions in recovery potential screening provide watershed managers with a methodology for comparing restorability differences among their waters. The steps in the methodology link to several online tools and resources that are used in recovery potential screening. A library of recovery potential indicators offers technical information on specific recovery-related factors (ecological, stressor, and social), how they influence restorability, and how to measure them. More ...' Below the text is a 'Quick Links' section with two columns of links.

EPA United States Environmental Protection Agency

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Recovery Potential Screening

Tools for Comparing Impaired Waters Restorability

Recovery Potential Screening

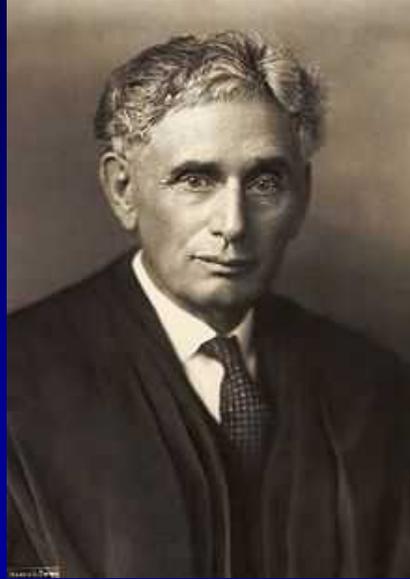
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Quick Links

Home	Recovery tools & resources
Overview	Literature database
Screening methodology	Indicators & reference sheets
Step-by-step screening example	Scoring techniques
Example projects	Displaying screening results
Contact Us	Share

www.epa.gov/recoverypotential/



Supreme Court Justice Louis Brandeis envisioned the states as "laboratories of democracy" willing to tackle new and innovative approaches in meeting the needs of society