Cooperative Extension
and
Volunteer Monitoring:
Rhode Island's Experience

Linda Green,
University of RI Watershed Watch
Extension Volunteer Monitoring Network
2014 National Water Quality Monitoring Conference

Cooperative Extension
Connections to Volunteer Monitoring

- Educational materials
- Technical assistance
- Conducts trainings
- Provides equipment, manpower
- Umbrella organization/service provider
- Collaborator (no funding)
- Program sponsor or co-sponsor
- Funding source

URI Cooperative Extension

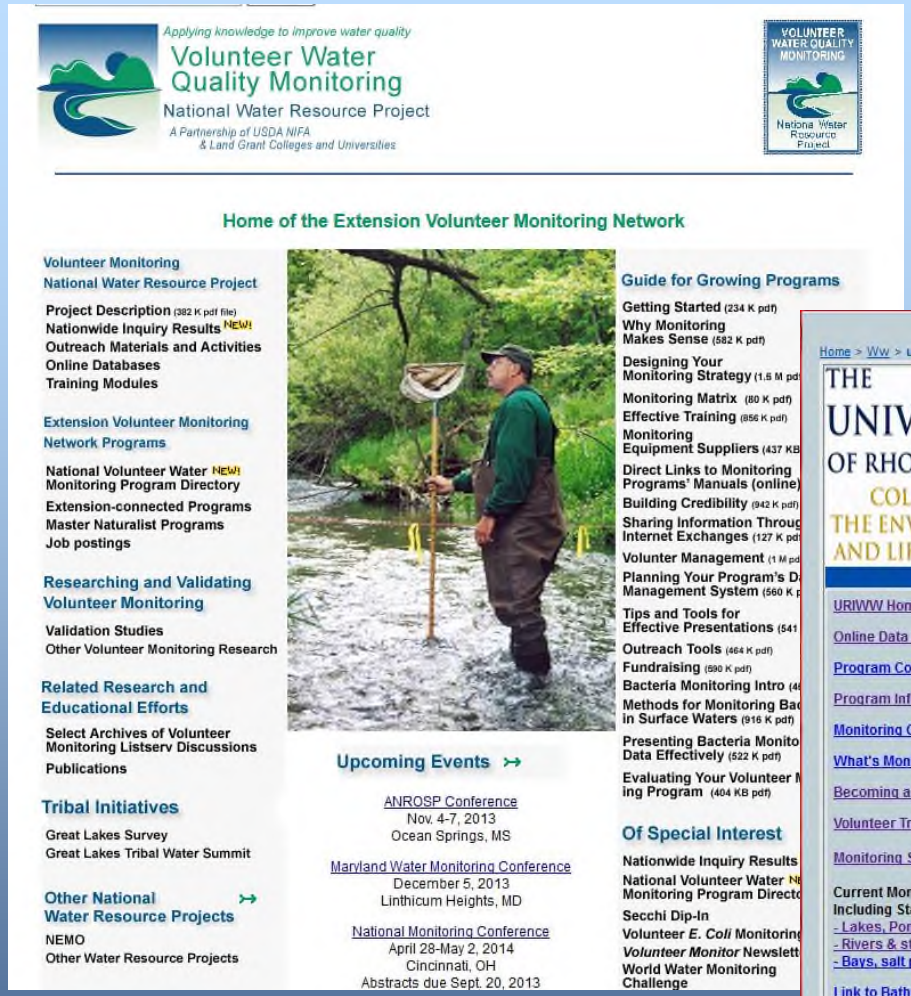
Connections to URI Watershed Watch

- Educational materials
- Technical assistance
- Conducts trainings
- Provides equipment, manpower
- Umbrella organization/service provider
- Collaborator (no funding)
- **Program sponsor or co-sponsor**
- **Funding source**

URIWW,

an Extension volunteer monitoring program

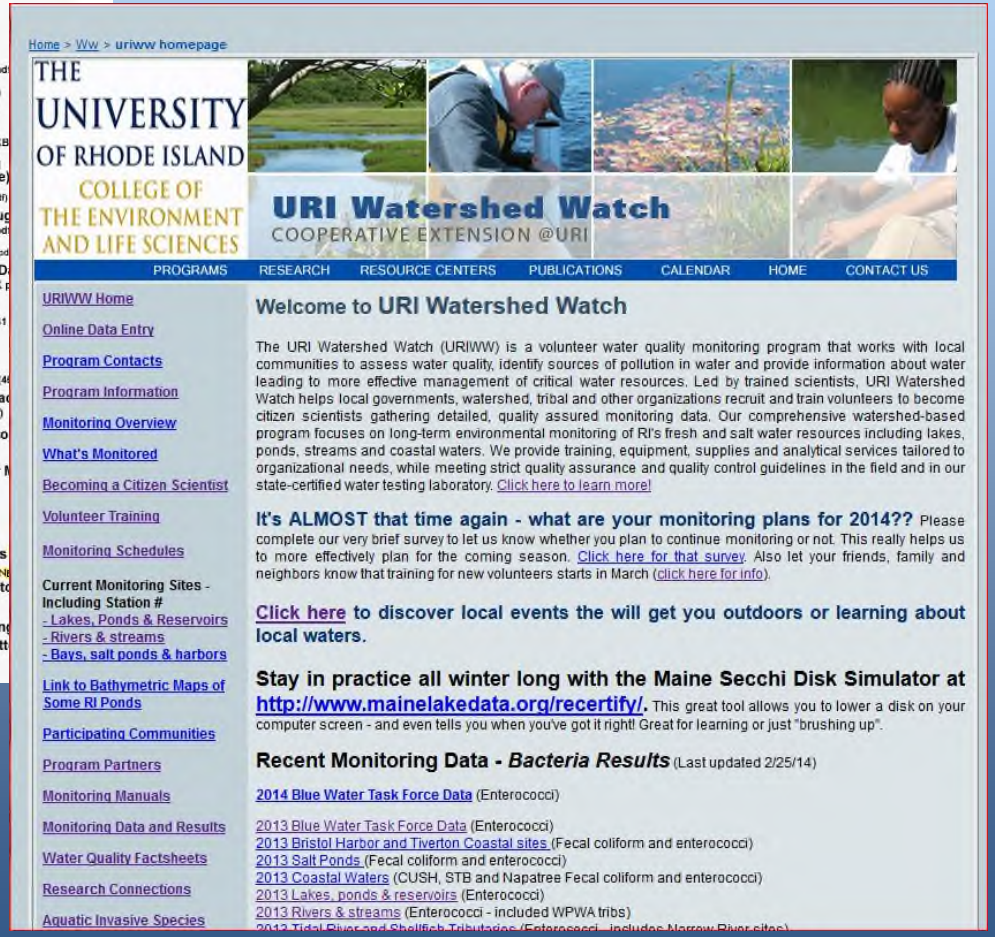
- Educational materials
- Technical assistance
- Conducts trainings
- Provides equipment, manpower
- **Umbrella organization/service provider**
- **Collaborator** (no funding, but some freebies)
- Program sponsor or co-sponsor
- Funding source



www.usawaterquality.org/volunteer

Applying knowledge to improve water quality
Volunteer Water Quality Monitoring
National Water Resource Project
A Partnership of USDA NIFA & Land Grant Colleges and Universities

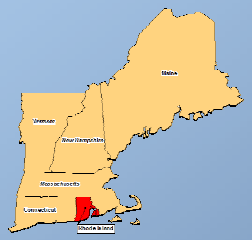
URI WATERSHED WATCH



www.uri.edu/ce/wq/ww

Watershed Watch Trifecta

Wood-Pawcatuck
Watershed Association



URI
WATERSHED
WATCH

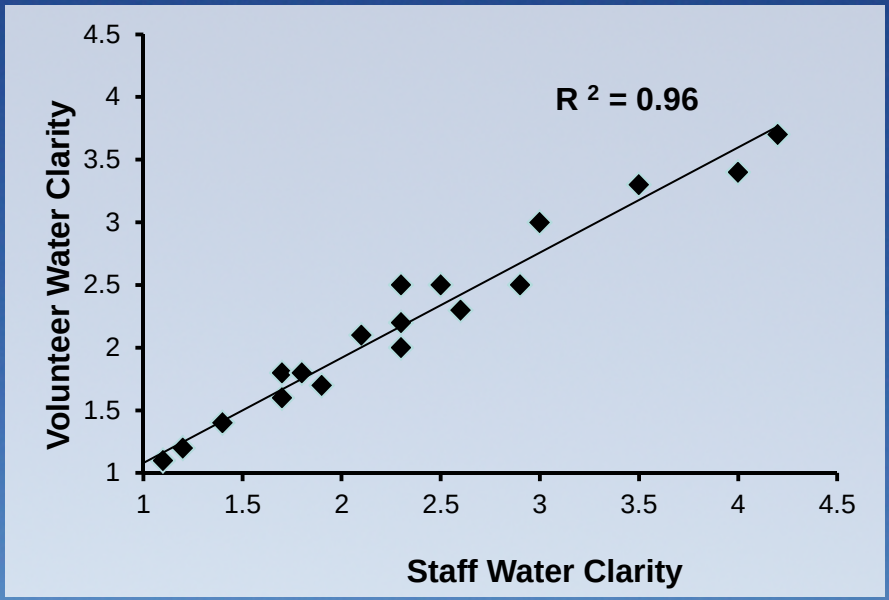
RI Dept. Environmental
Management

URI Watershed Watch: Essential Ingredients

- science-based
- bottom up approach
- get the public involved
- educational, not regulatory
- provide good, useful information
- stable funding, supportive organization
- amazing staff & students, great boss

Image from Feedthemrealfood.com

DEM provided grant to compare volunteers with professionals



URIWW data quality equivalent to professional data

DEM becomes a partner and major sponsor

URIWW Lab becomes state-certified

THE UNIVERSITY OF RHODE ISLAND COOPERATIVE EXTENSION

Program Sponsors*

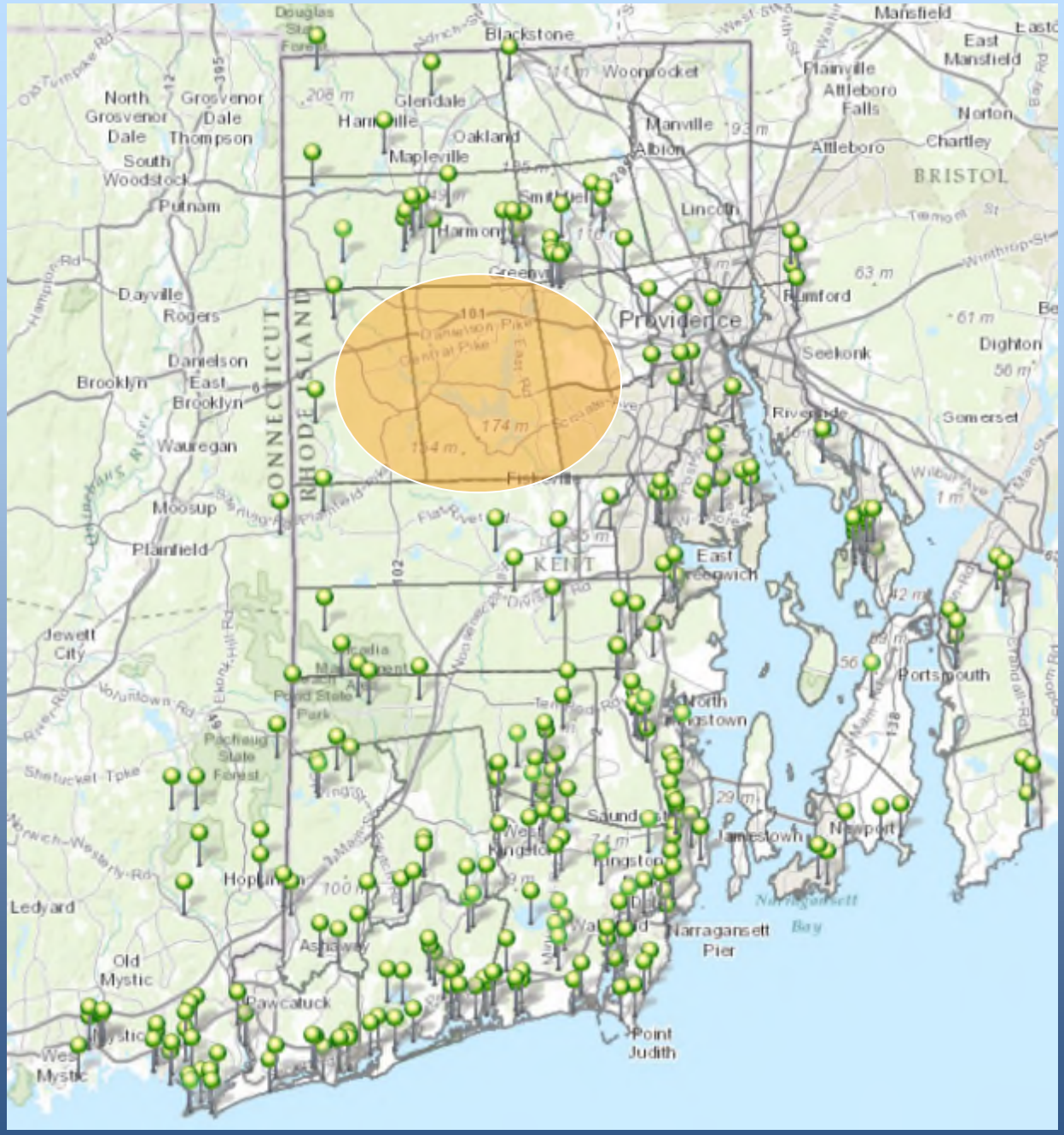
D·E·M

- Lake/watershed Associations
- Municipalities
- Narragansett Indian Tribe
- Environmental Organizations SAVE THE BAY
- Sporting Organizations TROUT UNLIMITED
- Fire Districts
- Businesses Green Airport
- Endowments
- Individuals

77 since 1988

45+ currently

*= annual per site fee


Douglas State Forest
Blackstone
Woonsocket
Mansfield
East Mansfield
Plainville
Attleboro Falls
Norton
Chartley
Attleboro
BRISTOL
North Grosvenor Dale
Grosvenor Dale
Thompson
South Woodstock
Putnam
Glendale
Harrisville
Oakland
Mapleville
Manville
Albion
Lincoln
Harmony
Smithfield
Greenville
Rumford
Providence
Seekonk
Dighton
Somerset
Riverside
Dayville
Rogers
Danielson
Brooklyn
East Brooklyn
Wauregan
Moosup
Plainfield
CONNECTICUT
RHODE ISLAND
KENT
East Greenwich
Jewett City
Portsmouth
North Kingstown
Pachaug State Forest
Sound
Jamestown
Newport
Hopkinton
Ledyard
Narragansett Pier
Narragansett Bay
Ashaway
Old Mystic
Pawcatuck
Point Judith
West Mystic

Volunteers prefer to monitor decent water quality sites

Opening day, Silver Spring Lake
Providence Journal photo

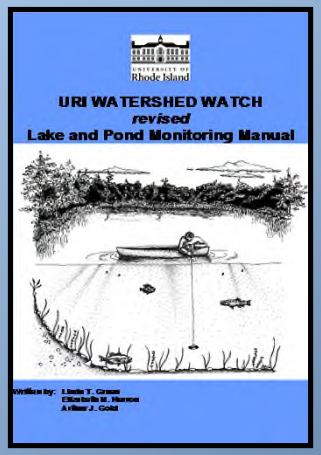
What's Monitored

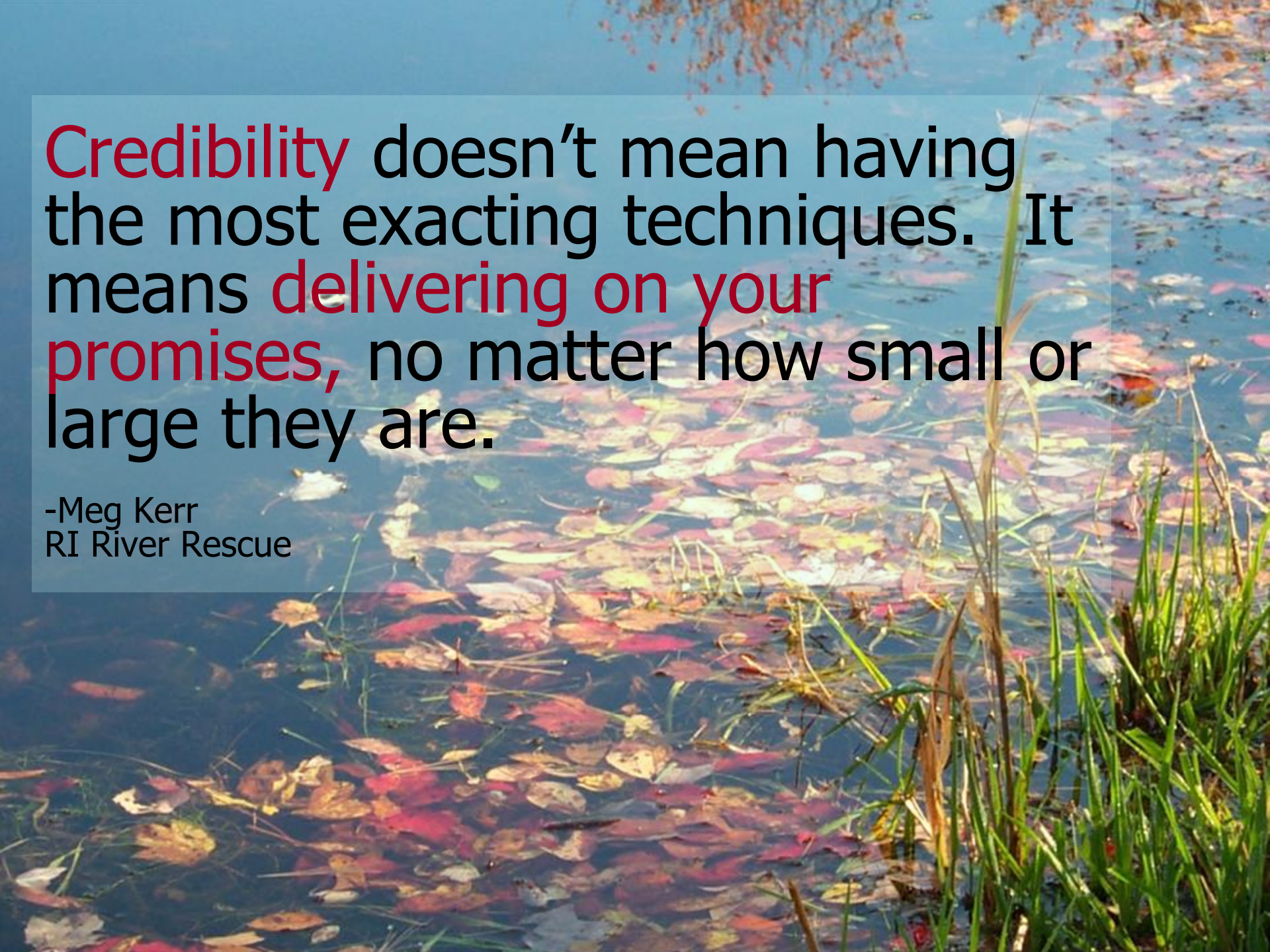
Field

- Water Clarity (Secchi Depth)
- Water Temperature
- Dissolved Oxygen
- Algae (Chl–a)

Laboratory

- Nutrients
- Bacteria
- Chl-a
- pH & alkalinity
- Chlorides

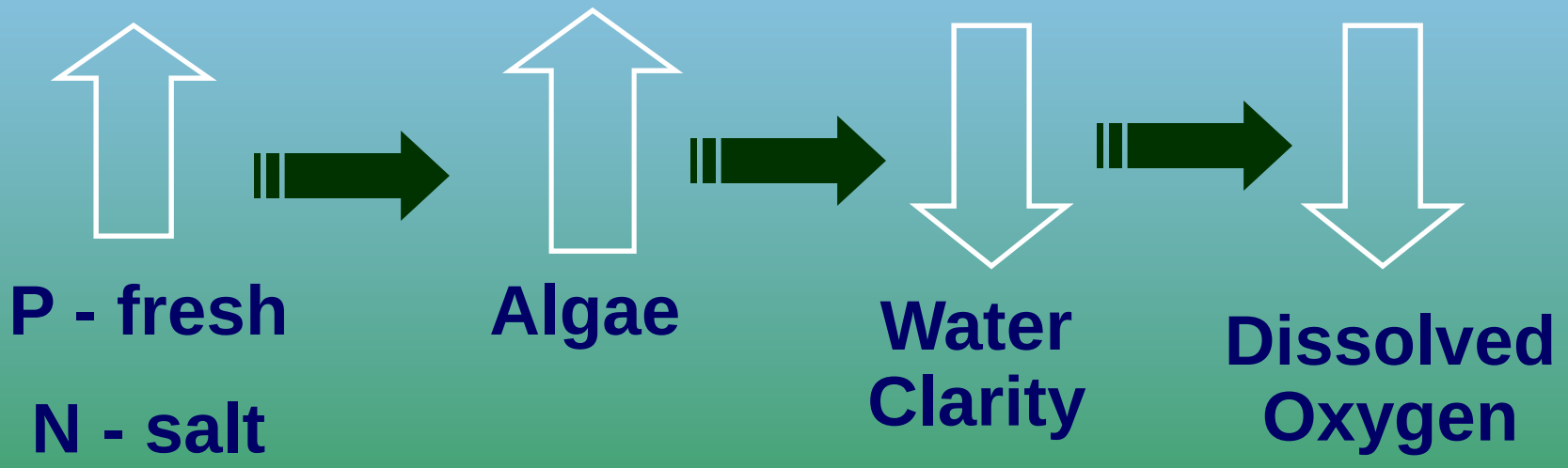




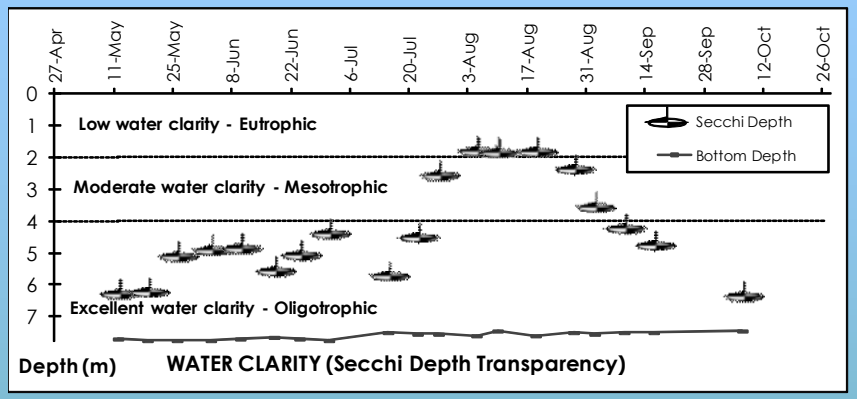
Credibility doesn't mean having the most exacting techniques. It means delivering on your promises, no matter how small or large they are.

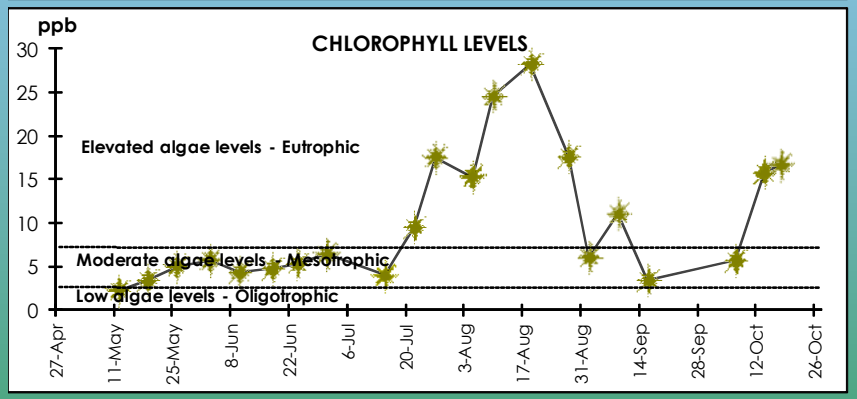
-Meg Kerr
RI River Rescue

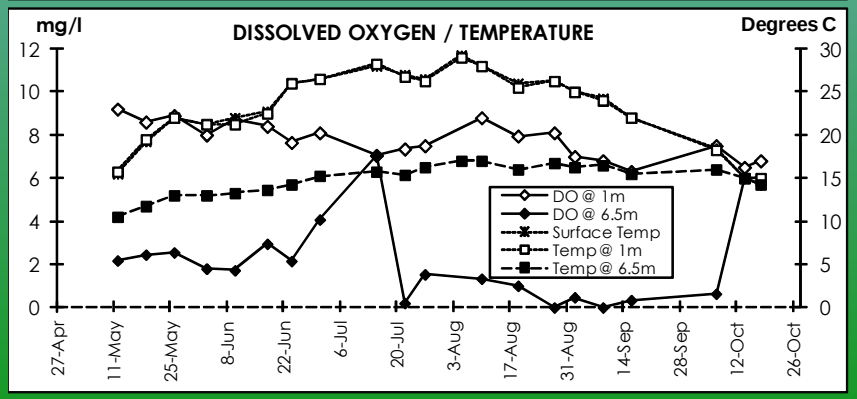
Eutrophication = increase in nutrient enrichment and its effects on water quality

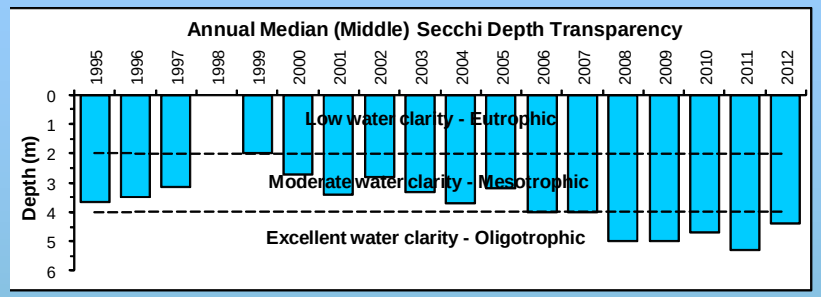


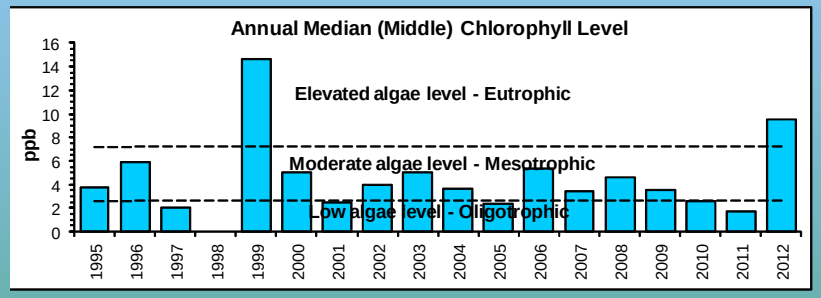
Annual & Multi-Year Summaries

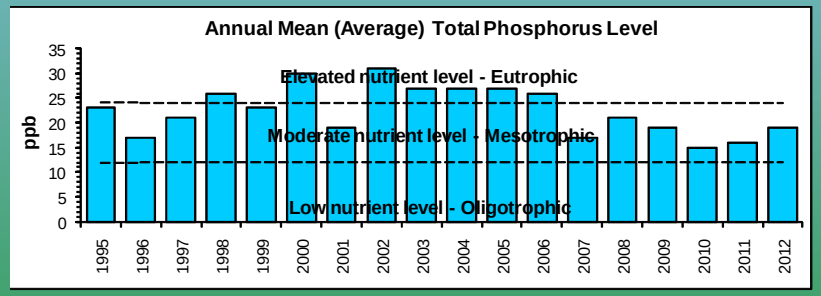


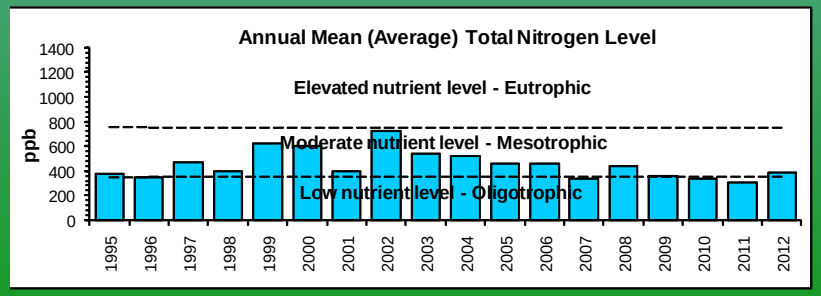




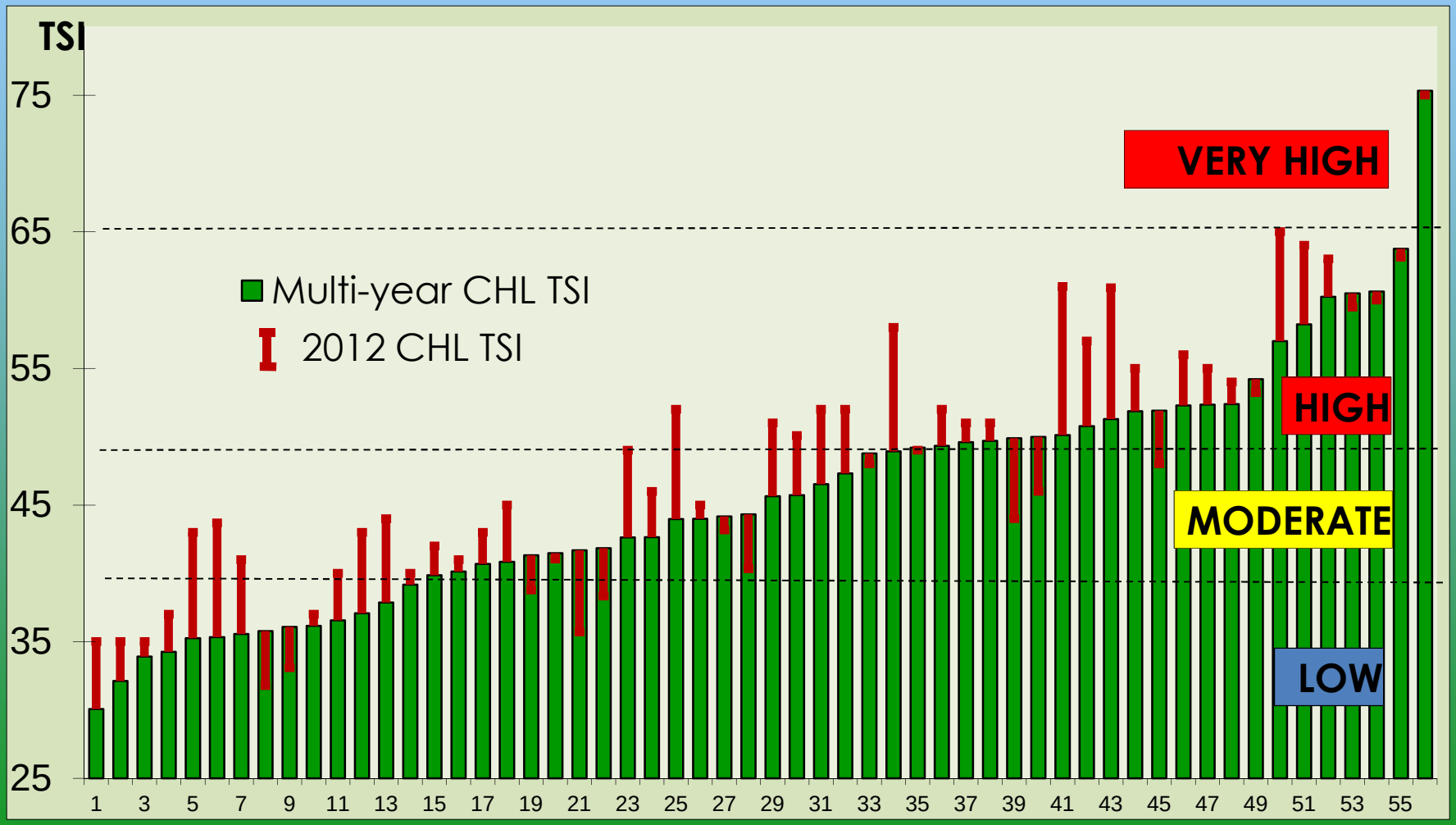




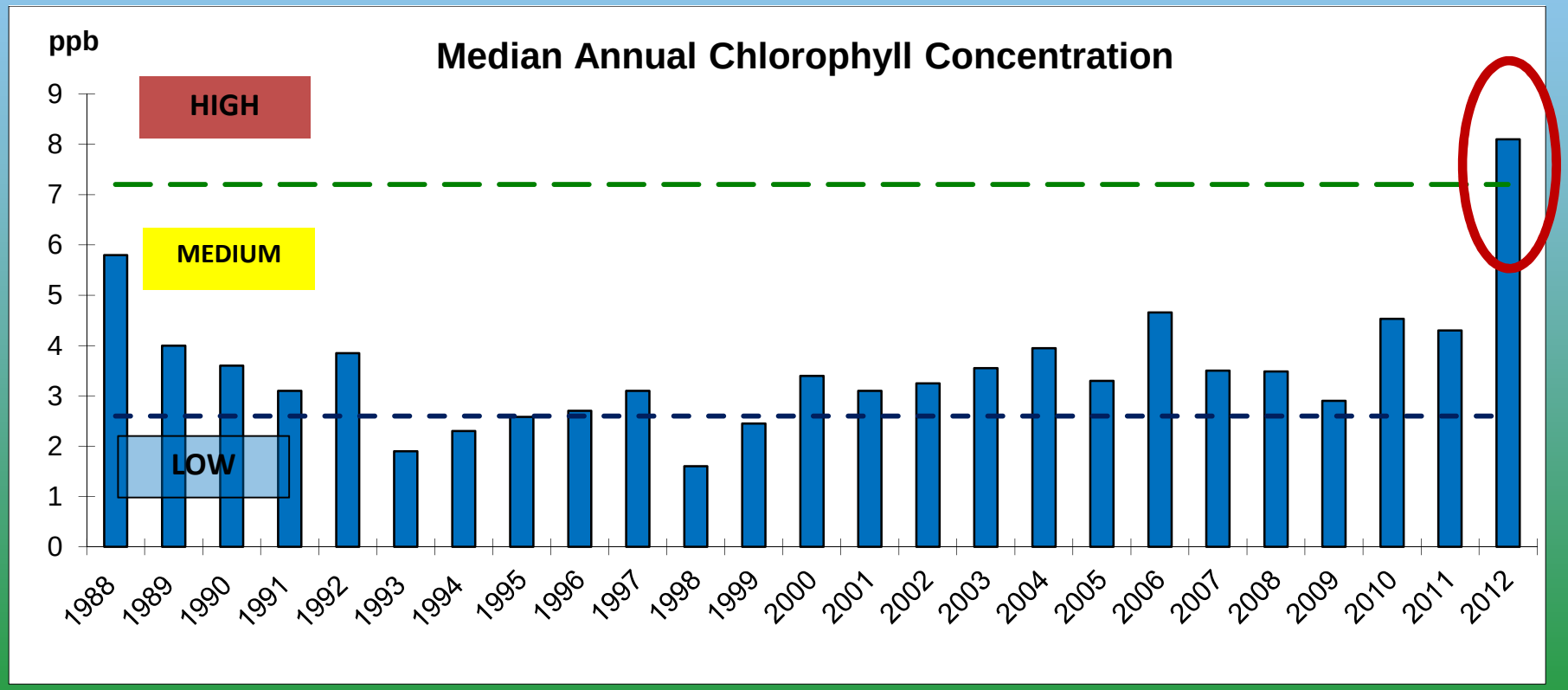




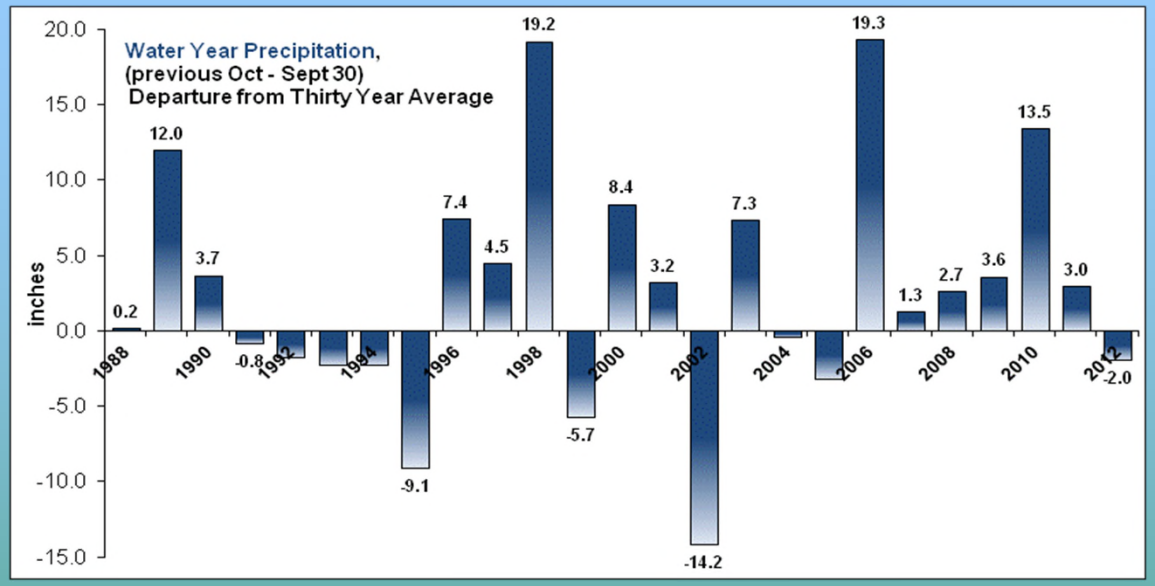
Lake Algae Levels, 2012 Compared to Average



Chlorophyll - Algae



Weather

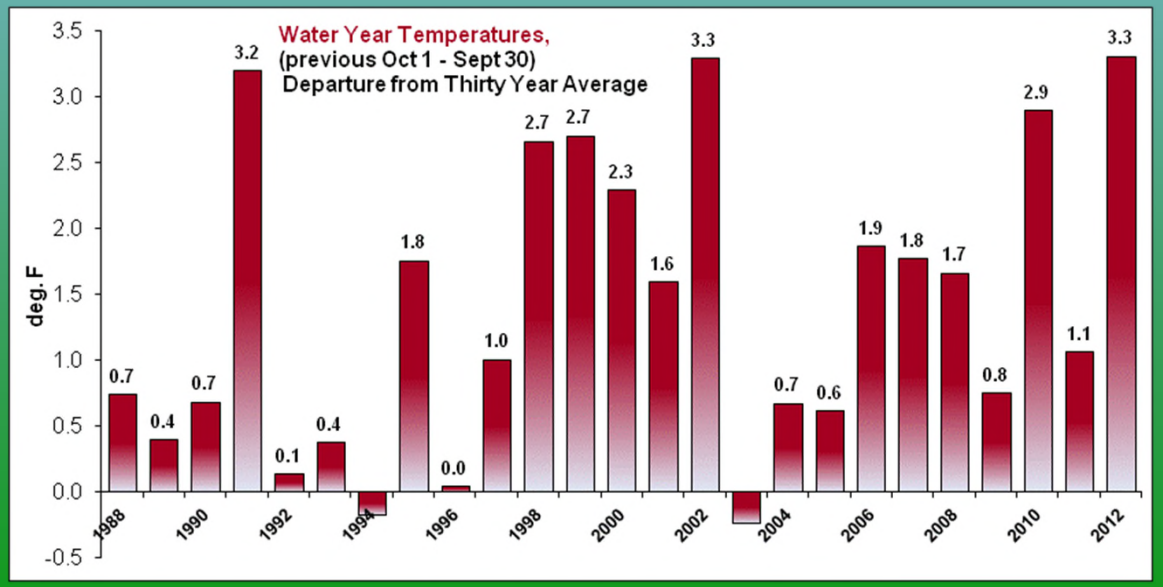


Precipitation

30 yr normal

Temperature

30 yr normal



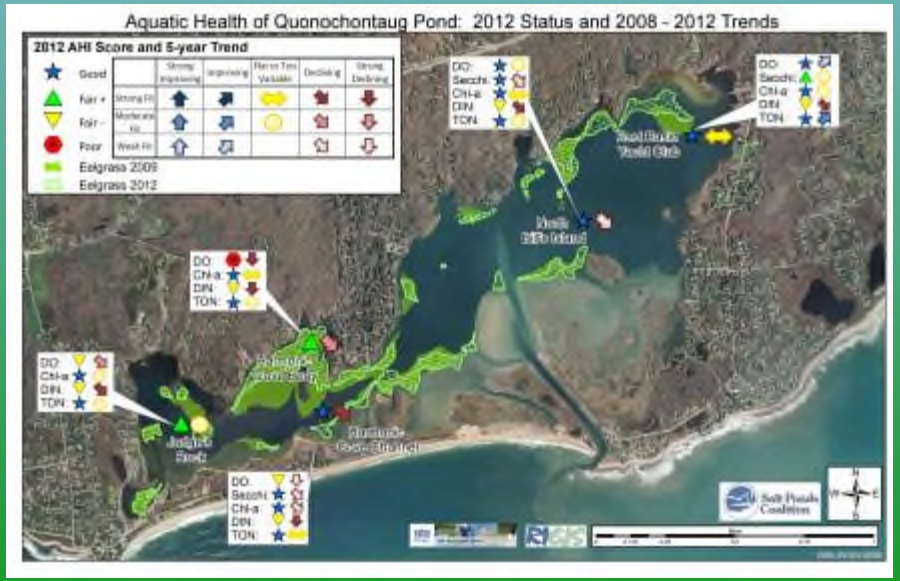
Bacteria

- Dry weather -swimming areas generally OK
- Rain increases bacteria levels everywhere

Watershed code	MONITORING LOCATION	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	GEOMEAN
		----	Most Probable Number of Enterococci per 100 mL					----
A	Annaquatucket - Belleville @ RR Xing	232.4	165.8	150	60	274.8	84.4	141.6
NA	Buckeye Brook #1 @ Novelty Rd	82	6970	487	284	146	132	339.3
NA	Buckeye Brook #2 @ Lockwood Brk	185	857	1632.8	775	583	96	473.2
NA	Buckeye Brook #3 @ Warner Brook	170	3640	60	-	-	-	333.6
NA	Buckeye Brook #4 @ Mill Cove	-	6240	4155	498	435	-	1539.3
WD	Falls River D - Step Stone	22	31.2	285.1	66	59.8	69.7	61.4
WD	Falls River C - Austin Farm	14.8	68.3	144.5	118	117.9	30.6	63.0
WD	Falls River B - Sand Banks	29.2	75.4	200.5	201	95.9	22.2	75.7
WD	Falls River A - Twin Bridges	19.6	109.1	94.5	101	98.7	15	55.8
GB	GB #2 - Burger King	31	>2419.6	157.2	3106	399	17329	>795
GB	GB #3 - Pipe @ Rte 115	62	>2419.6	80.4	27	41	19863	>253
GB	GB #4 - Mill Creek	52	>401	448	394	272	1091	>320
GB	GB #5 - Hardig Upstream	63	3465.8	258.6	345	288	8664	604.1
GB	GB #6 - Tuscatucket Br	20.8	194.8	96.4	<2	30	47.2	21.9
GB	GB #7 - Southern Creek	132	1511.2	813	192	187	9804	620.4
A	Himes River	4	147.6	278.8	48.6	73.6	1918	102.0
H	HW #1A - Scrabbletown Brk @ Falls	12.6	83.1	251.8	120.4	186	1553	144.7
H	HW #1B - Scrabbletown @ Rte 4 Bridge	16.8	118.4	90.4	59	90	19865	163.3
H	HW #5 - Sandhill Brook (Saw Mill Inlet)	62	201.4	471.8	333	112	2005	275.8
H	HW #6 - Hunt River @ Forge Rd.	85	123.6	90.4	63	81	75	84.4
TH	Moosup Upstream	20	1445	100	551	1317	>24196	>608
TH	Moosup A - Fairbanks Bridge	40.2	1445	112.6	48	144.6	19863	310.4
TH	Moosup C - Deerfield Drive	21.8	885	91.4	51	76.6	7701	193.7
WD	Pawcatuck River @ Bradford	21.6	54.8	114.6	16.4	21.6	79.8	39.6
PA	Pawtuxet River - near Rhodes	97	840	94	43.6	10	32	68.9
WD	Queen River @ Locke Brk	6.2	-	40.6	-	-	-	15.9
WD	Queen River @ Sherman Brk	<2	118.4	1454	215.2	143.4	-	63.9
WD	Shickasheen Brook @ Rte 2	135.4	DRY	DRY	26.8	48.4	4839	170.7
WD	Shickasheen @ Miskiania Road	11.9	22.2	437.4	167.8	-	10	45.8
WD	Shickasheen @ Barber Pond Outlet	109.1	4.2	3.1	8.7	25.3	<2	6.3
WD	Shickasheen Brook @ Rte 138	74.6	200.5	176	50	258	31	101
WD	Shickasheen Brook @ Liberty Lane	43.2	47.8	215.4	64.6	96.4	73	76.6
WD	White Horn Brook @ Bike Trail	52	28.8	305	32.4	30	53.9	53.7
WD	White Horn Brook @ Ministerial Rd.	31	42.9	556	84.5	31	98.5	75.9
WO	Woonasquatucket R. @ Greystone Pnd	86	380	305	15	62	857	141
WO	Woonasquatucket River @ Donigian	161	429	520	54.4	231	>9678	>404
WO	Woonasquatucket River @ Waterplace	30	697	6488	161.8	216	19863	675
GB	GrBay#6 - Ponaug Marina	120	486	41	226	99	551	176
GB	GrBay#13 - EG Town Dock	42	<10	30	10	30	124	19
WD	Pawcatuck River - North of WWTP	111	64	42	<10	-	<10	23
WD	Pawcatuck River - South of WWTP	99	20	<10	10	-	20	13
WD	Pawcatuck River - At the Mouth	64	<10	<10	<10	-	344	<10
SK	Sapowet Marsh #1	>2005	327	345	171	-	10	>208
SK	Sapowet Marsh #2	>2005	52	<10	10	-	88	>39
SK	Sapowet Tributary #1	-	-	2489	-	-	-	-
SK	Sapowet Tributary #2	-	-	5475	3130	-	-	4140
NA	Wickford Cove - West of Loop Dr	<10	10	127	Lab error	20	406	25
NA	Wickford Cove - East of Loop Dr	<10	10	99	Lab error	10	124	17

Wide Range of Data Uses

- **RIDEM State of the State's Water**
- **USEPA Lakes Assessment, Wildlife Database**
- **North Temperate Lakes Long Term Ecological Research (http://lter.limnology.wisc.edu/)**
- **RIDOH Climate Change Project**



Keys to Success

- Emulate successful programs
  - ME, VT, NH
  - learn from professionals & peers at conferences
- Home organization strong supporter
  - $, staff, expertise, lab
- Multiple funding sources provide stability
  - **Anything is expensive if it used to be free**

Applaud your volunteers…

…and feed ‘em!

Fire extinguisher optional