Ware, Taskinas, & Skimino Creeks *Shellfish* Total Maximum Daily Load

Public Meeting
December 7, 2009

DEQ
Virginia Department of Environmental Quality

Public comment information

- Comment period ends on…
  - **January 5, 2010**
- Send comments to:
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  - 5636 Southern Blvd
  - Virginia Beach, VA 23462
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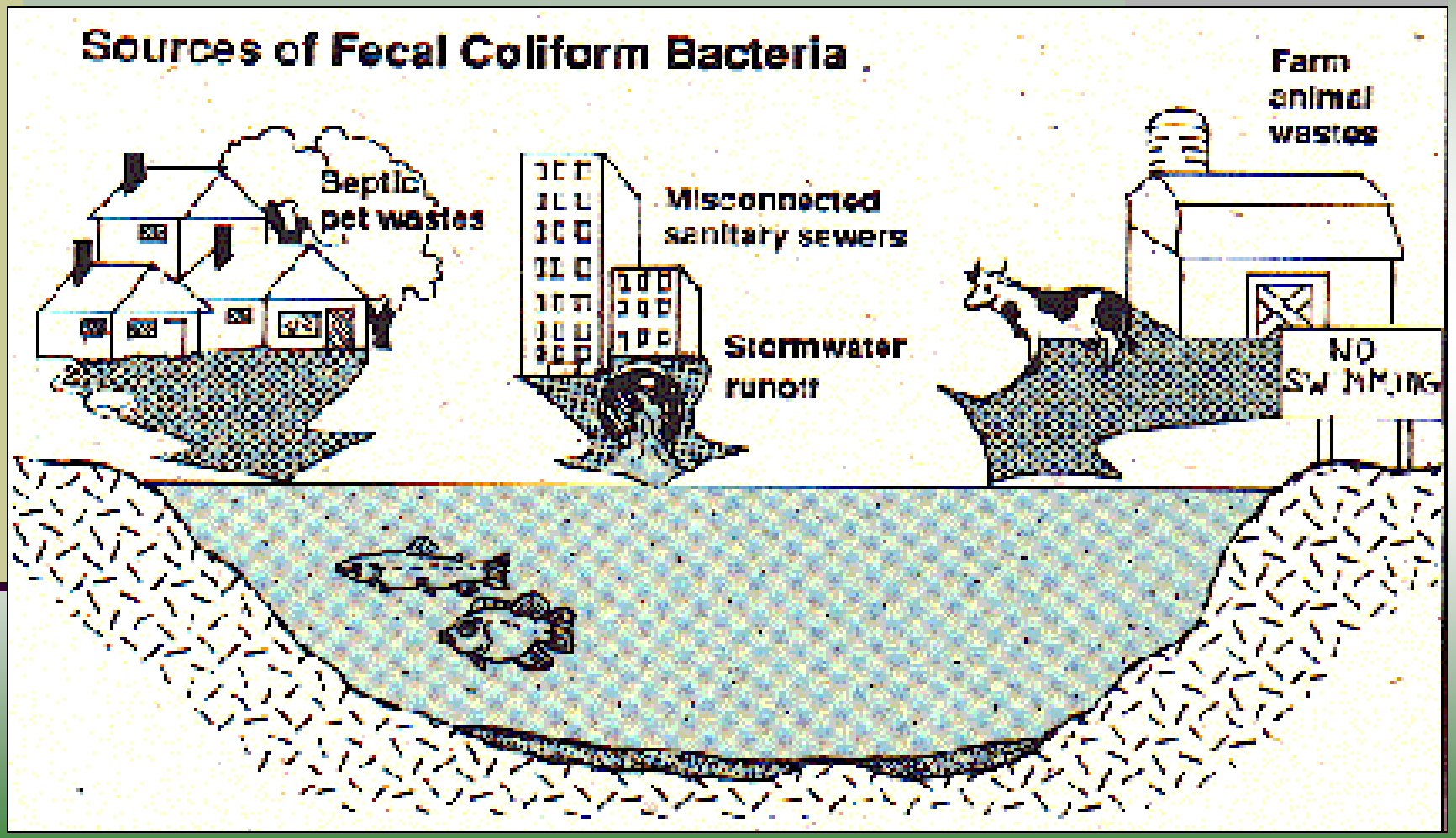
  - Fax: (757) 518-2003
  - Email: jennifer.howell@deq.virginia.gov

Meeting agenda

- Bacteria Source Assessment
- TMDL Development
- Waste Load and Load Allocations
- Required Reductions
- Questions

Shellfish Use

Pollutant of concern: fecal coliform



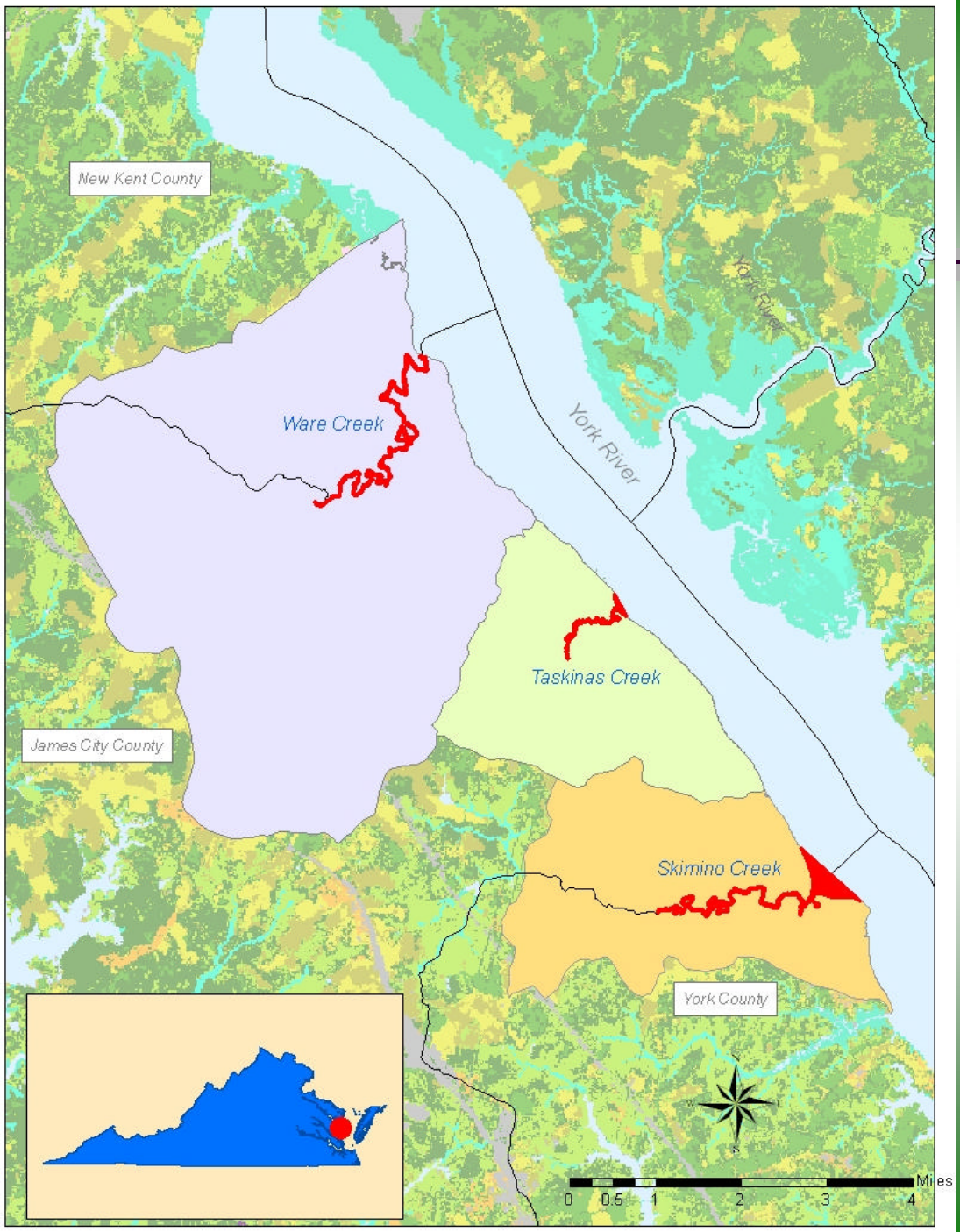
Water Quality Standards

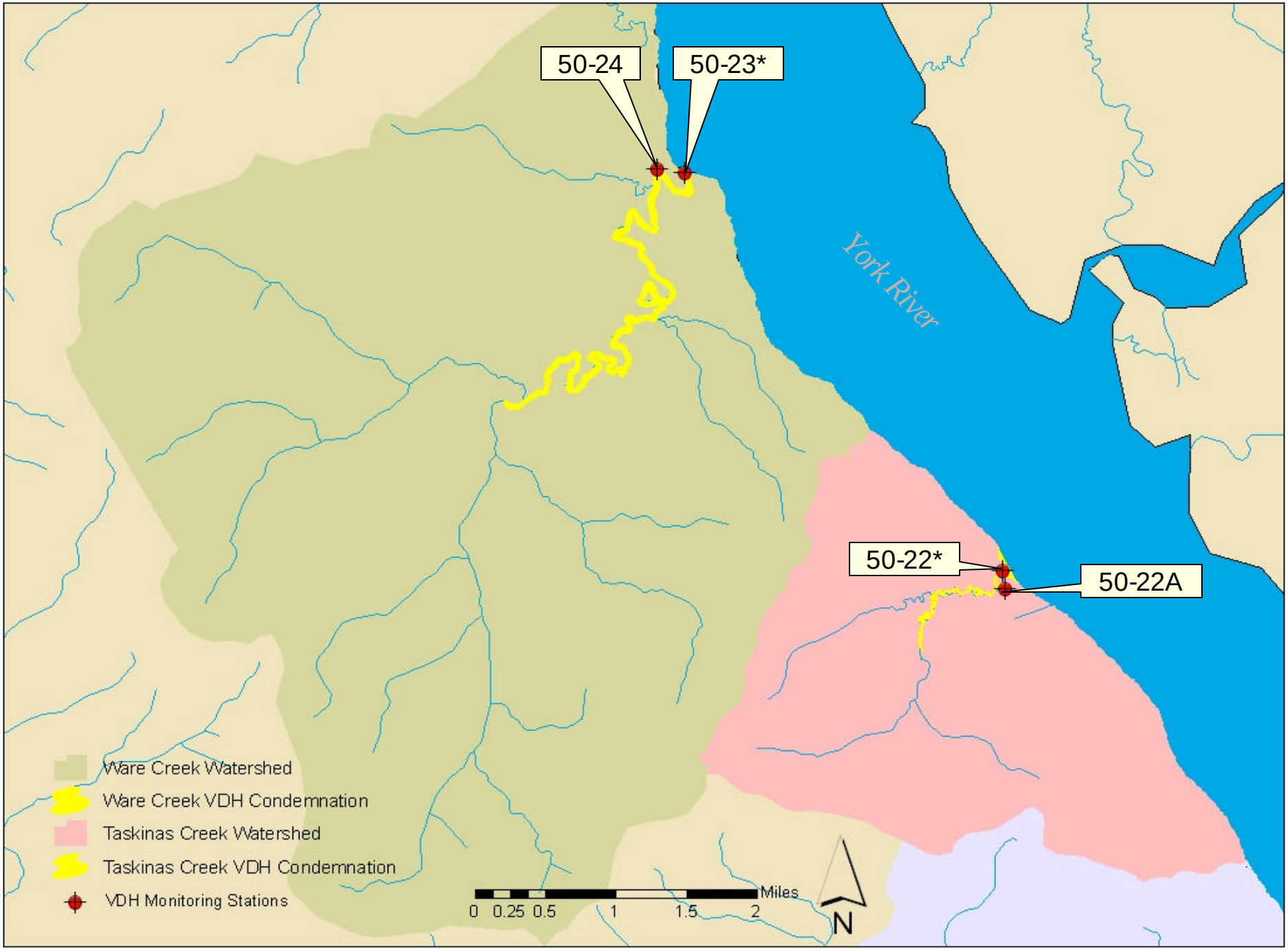
Shellfish Use Standard:

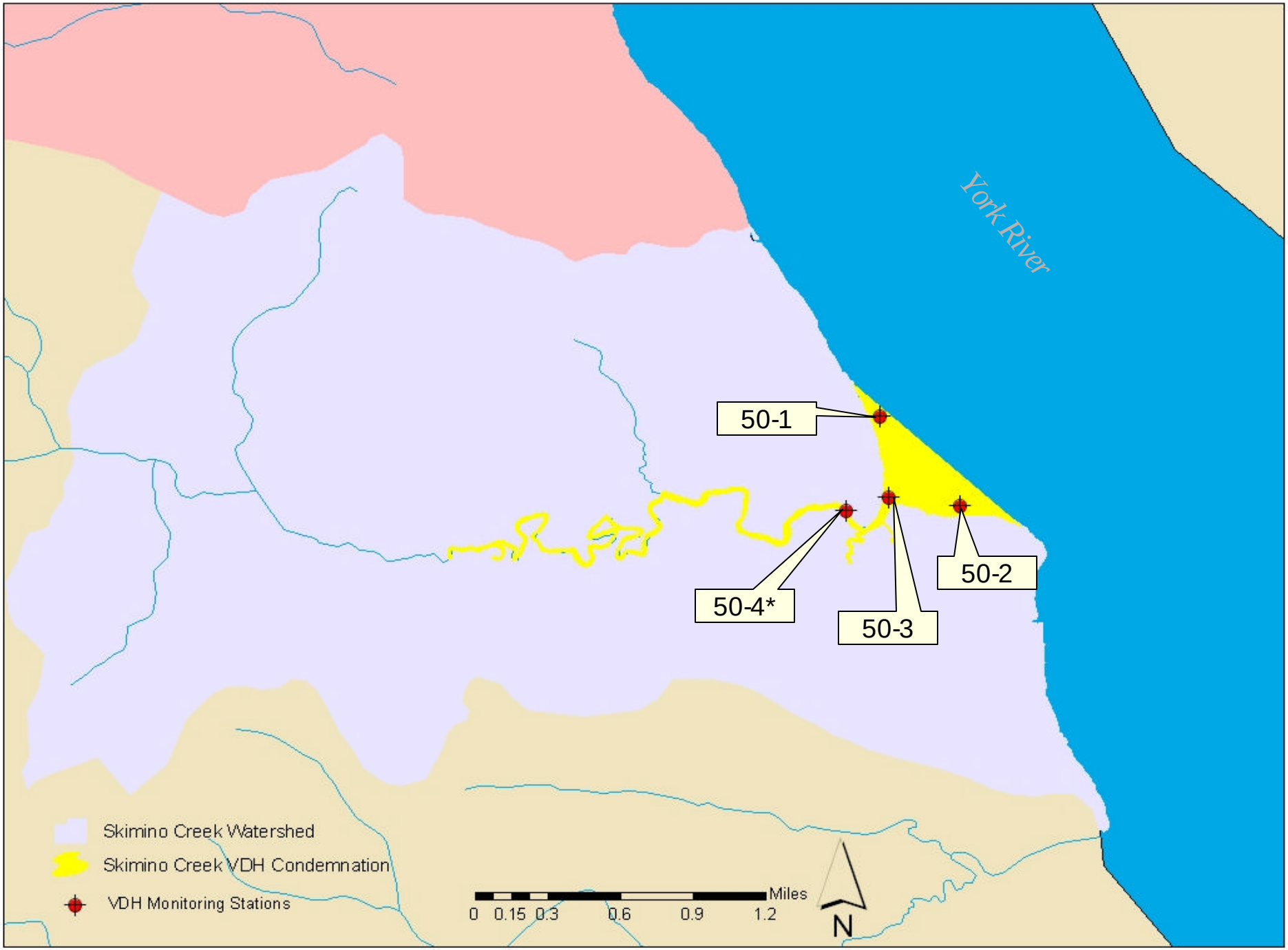
- Fecal coliform

  14 cfu/100ml (geometric mean: applies to 2 or more samples obtained in 1 calendar month)

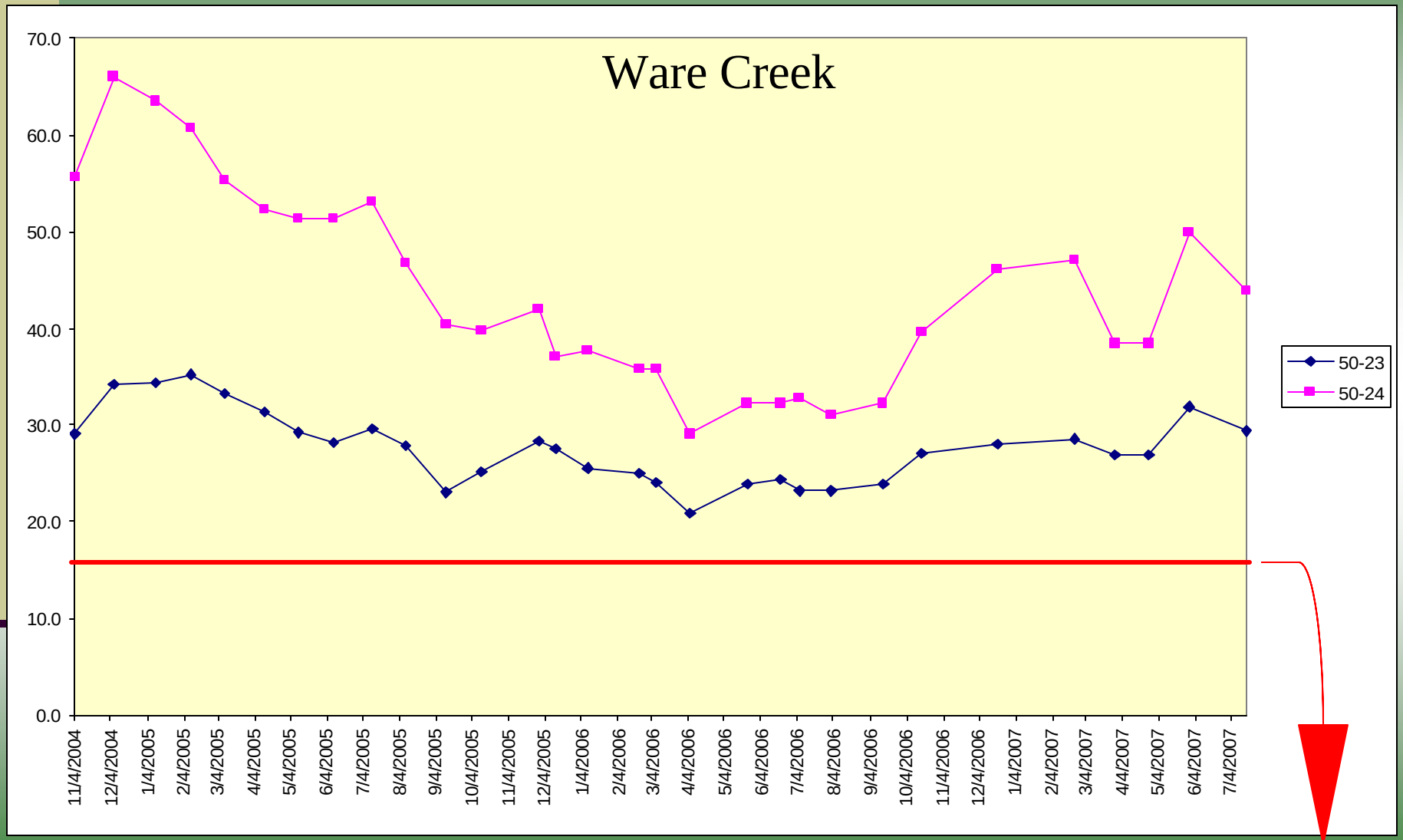
  49 cfu/100mL (90th percentile)


New Kent County
Ware Creek
York River
Taskinas Creek
James City County
Skimino Creek
York County
Miles
0
0.5
1
2
3
4


50-24
50-23*
York River
50-22*
50-22A
Ware Creek Watershed
Ware Creek VDH Condemnation
Taskinas Creek Watershed
Taskinas Creek VDH Condemnation
VDH Monitoring Stations
0 0.25 0.5 1 1.5 2
Miles
N

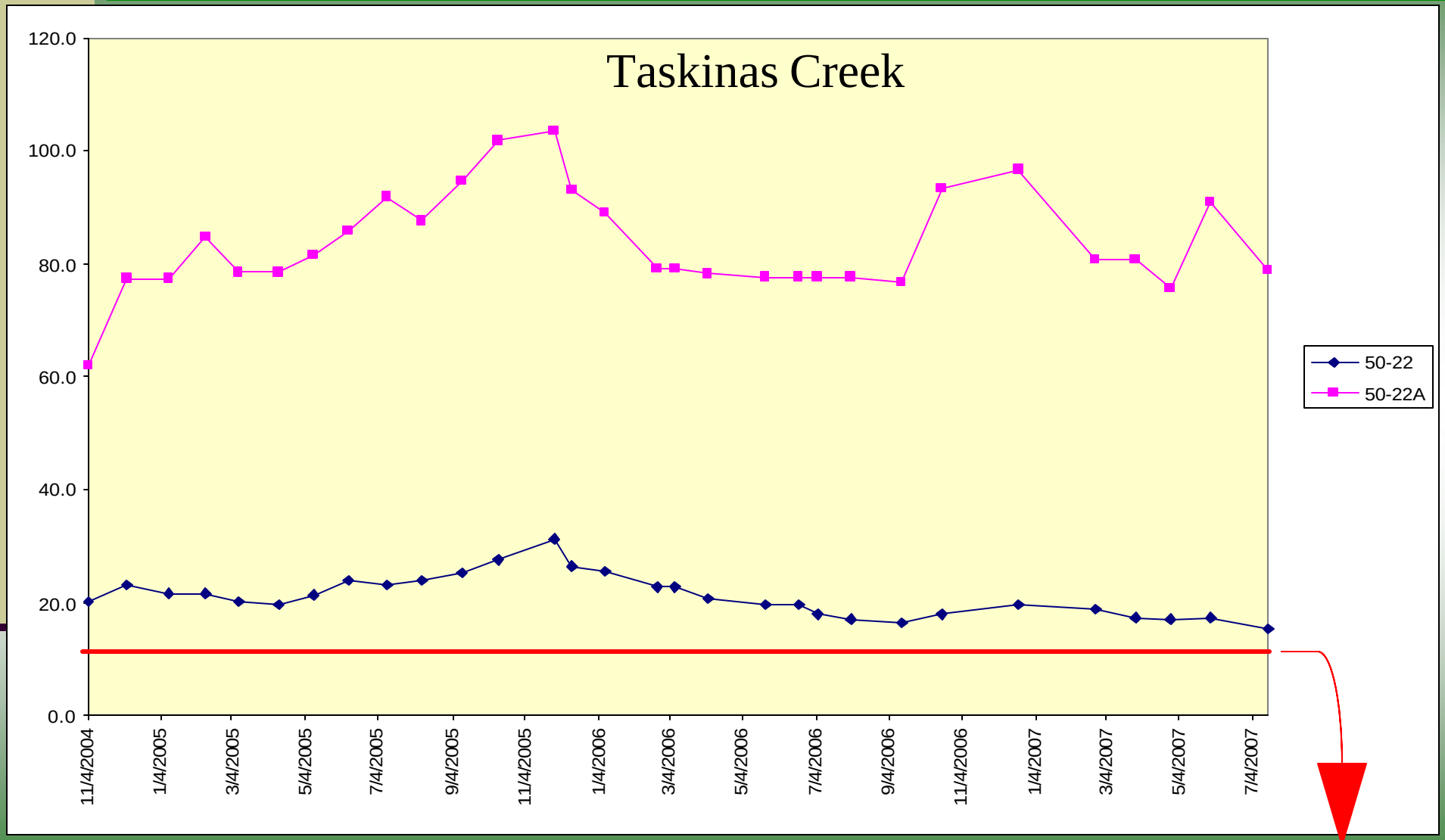

York River
50-1
50-2
50-3
50-4*
Skimino Creek Watershed
Skimino Creek VDH Condemnation
VDH Monitoring Stations
0 0.15 0.3 0.6 0.9 1.2
Miles
N

VDH-DSS 30-Sample Geometric Mean



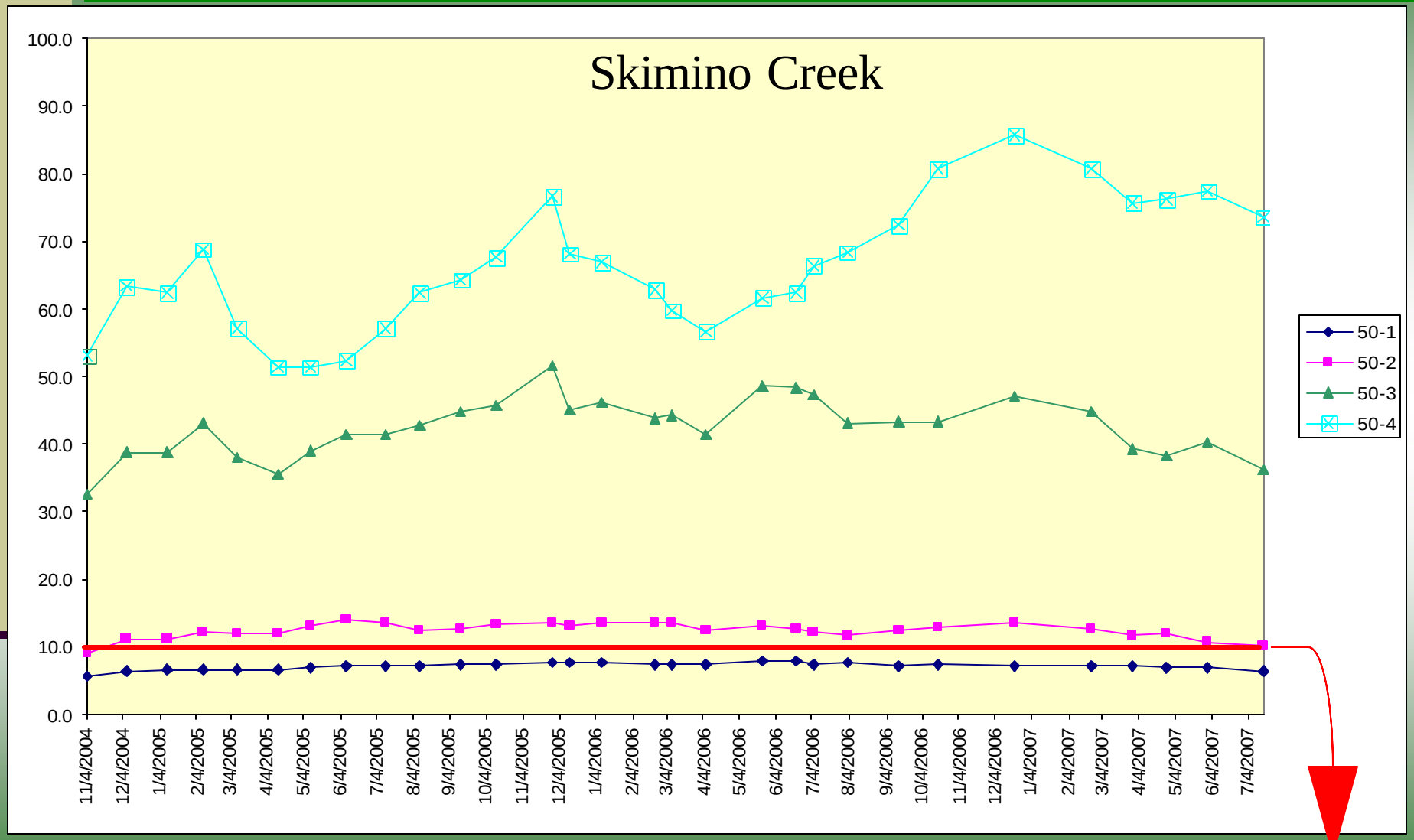
WQS 14 MPN

VDH-DSS 30-Sample Geometric Mean



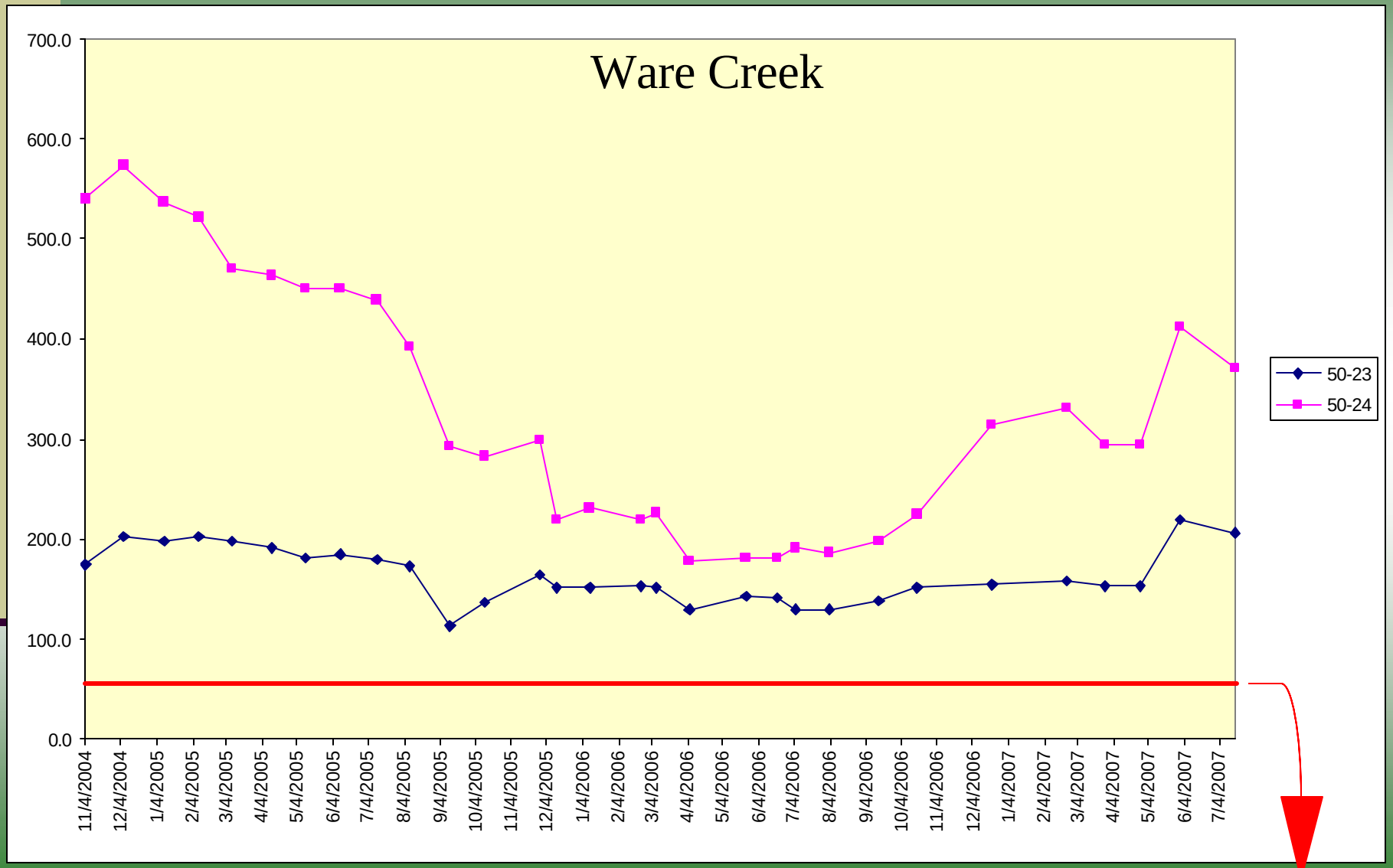
WQS 14 MPN

VDH-DSS 30-Sample Geometric Mean



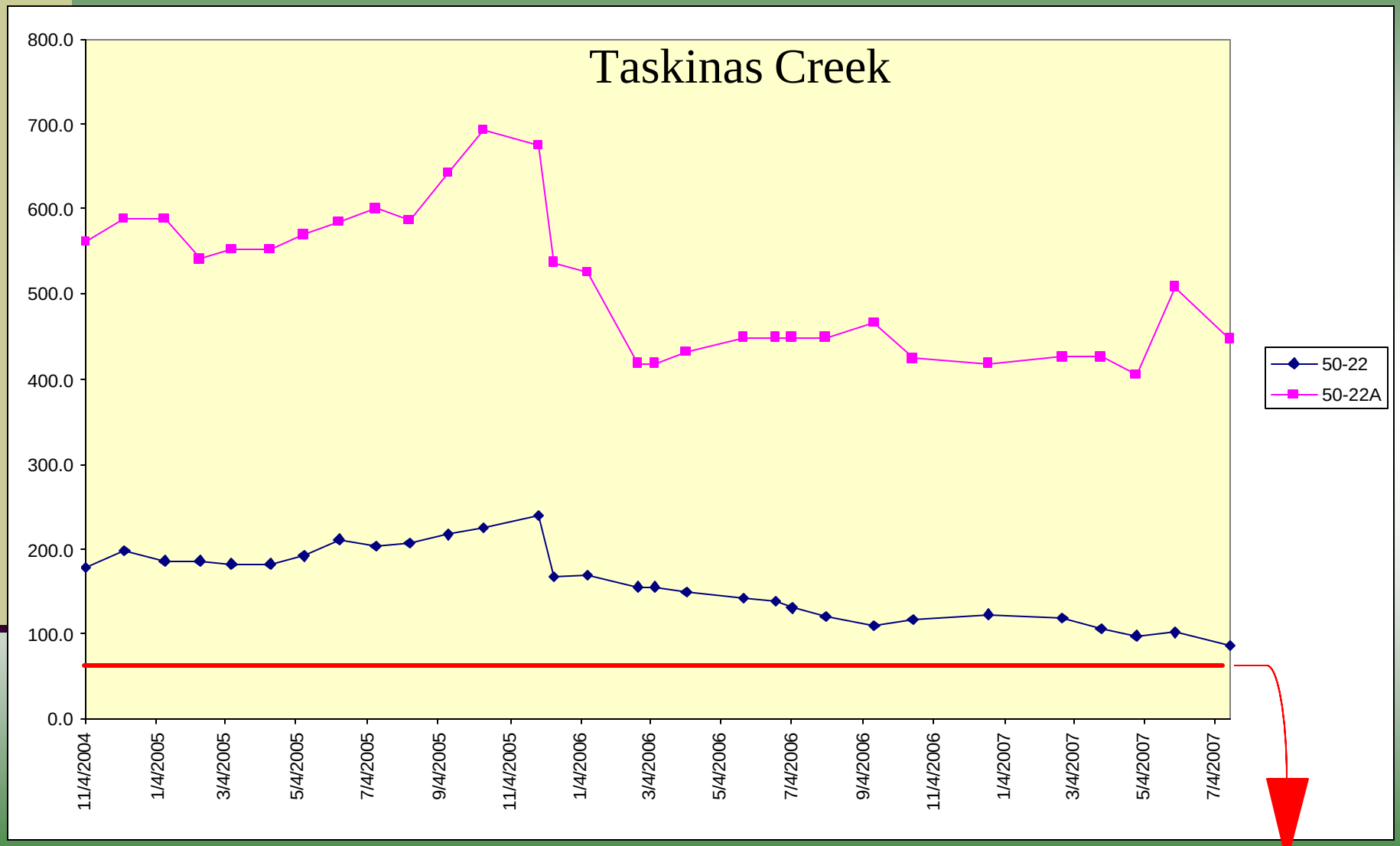
WQS 14 MPN

VDH-DSS 30-Sample 90th Percentile



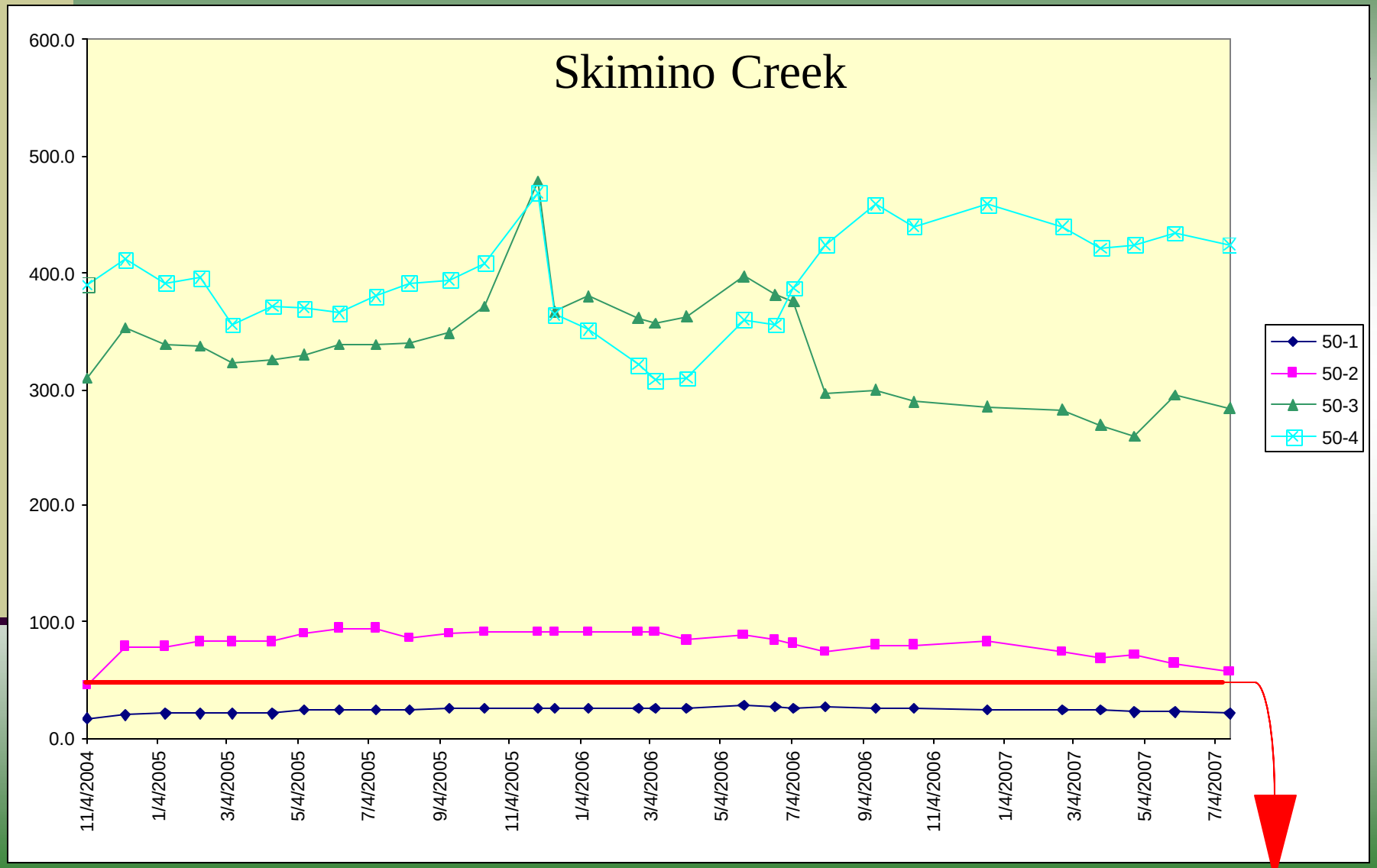
WQS 49 MPN

VDH-DSS 30-Sample 90th Percentile

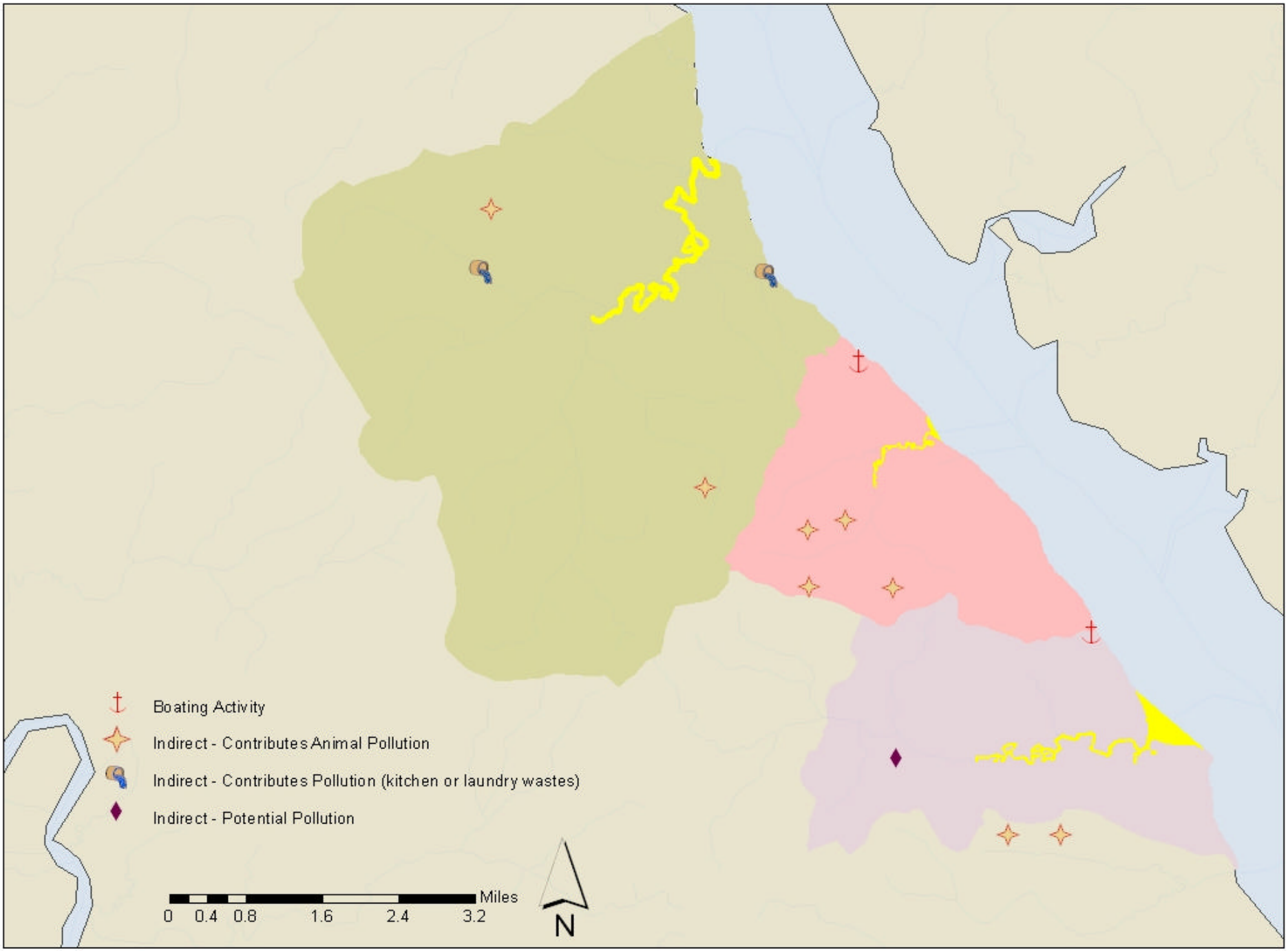


WQS 49 MPN

VDH-DSS 30-Sample 90th Percentile

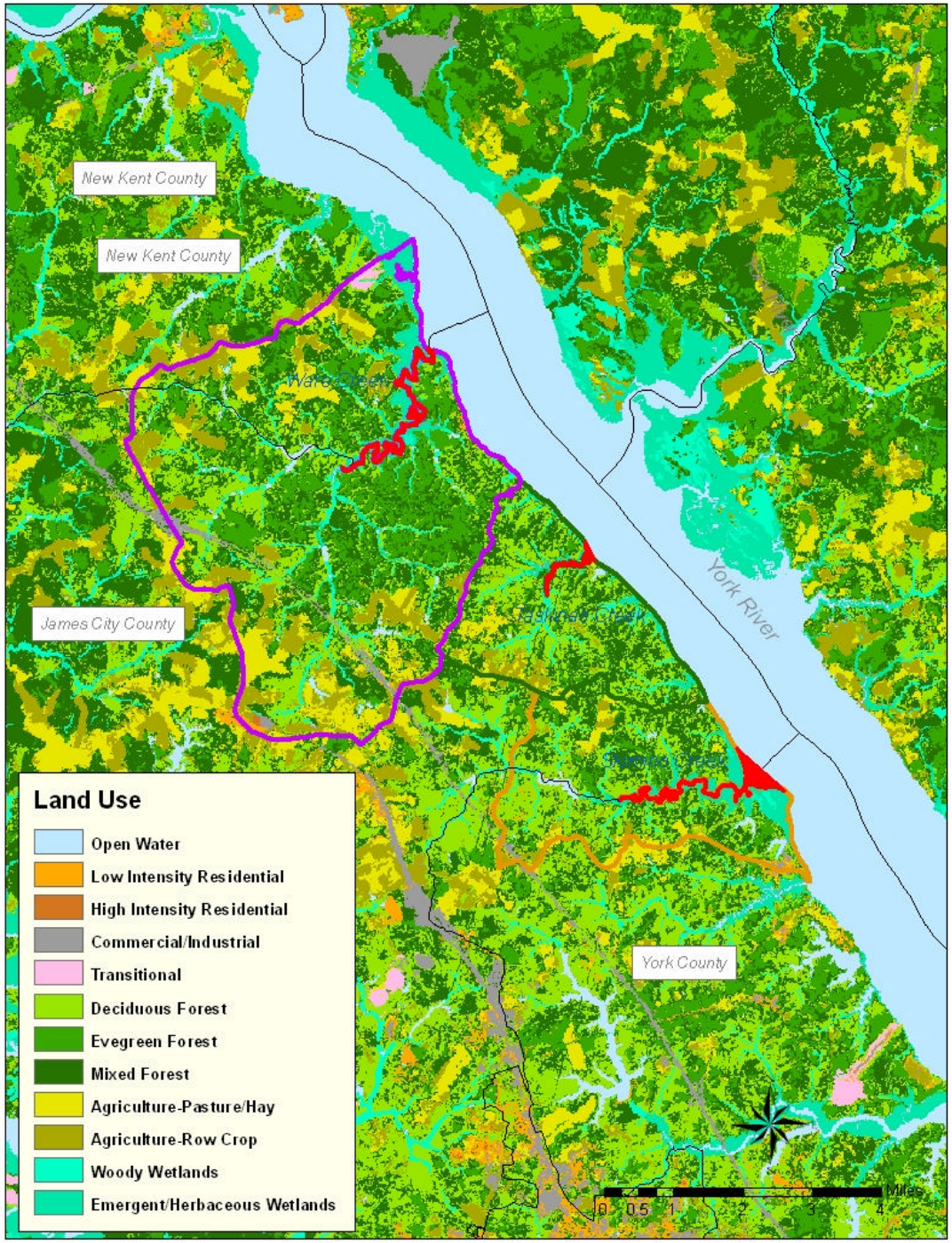


WQS 49 MPN

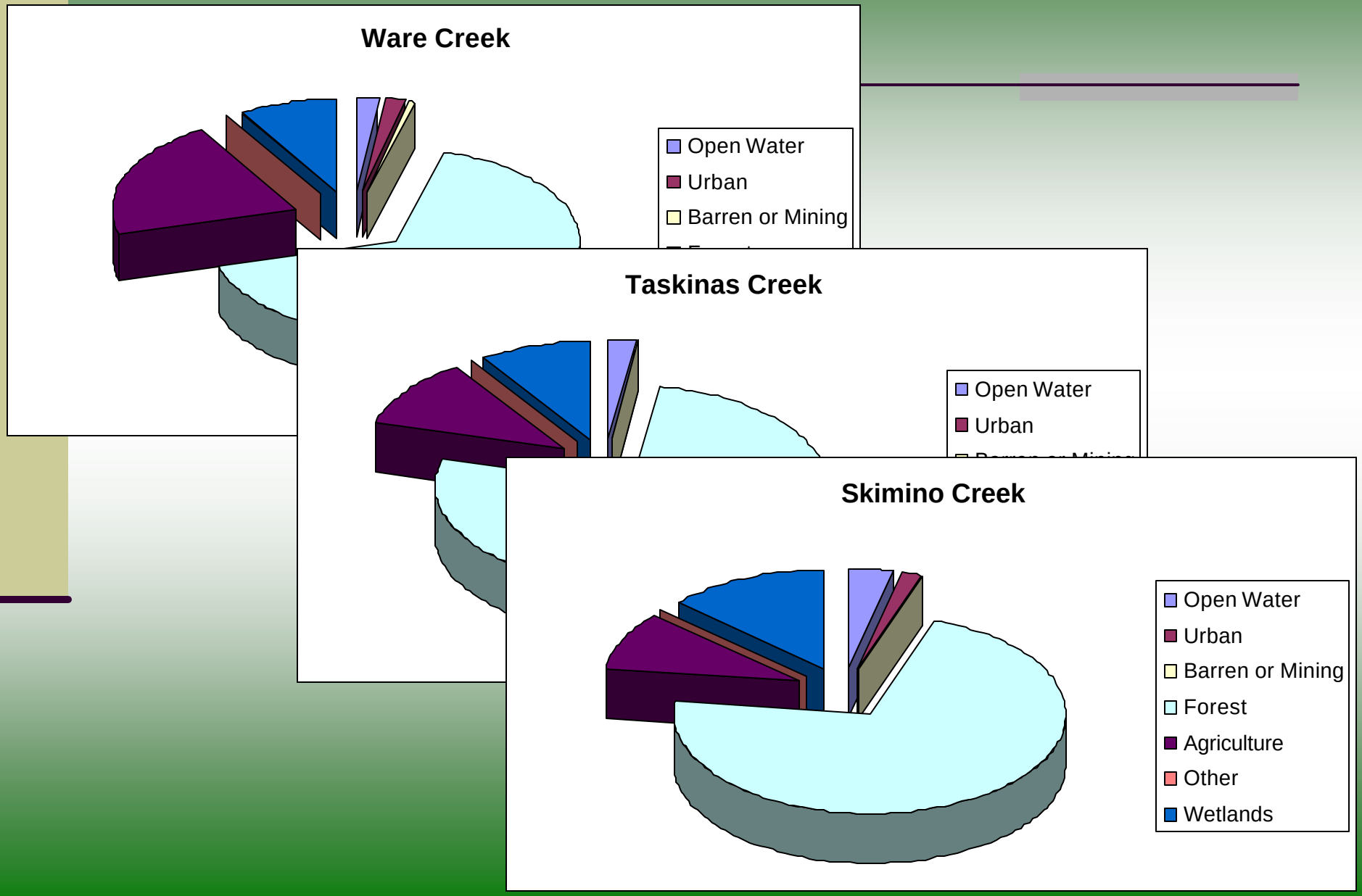

Boating Activity
Indirect - Contributes Animal Pollution
Indirect - Contributes Pollution (kitchen or laundry wastes)
Indirect - Potential Pollution
Miles
0 0.4 0.8 1.6 2.4 3.2
N

Estimated Fecal Coliform Source Populations

Fecal Coliform Source		Ware Creek	Taskinas Creek	Skimino Creek
Livestock	Cattle	10	5	8
	Chicken	12	8	10
	Pig	2	0	0
	Horse	40	36	22
Wildlife	Deer	1466	1258	997
	Raccoon	822	651	339
	Geese	778	704	359
	Duck	1045	1188	574
Pet	Dog	452	375	
Human	Septic	833	691	

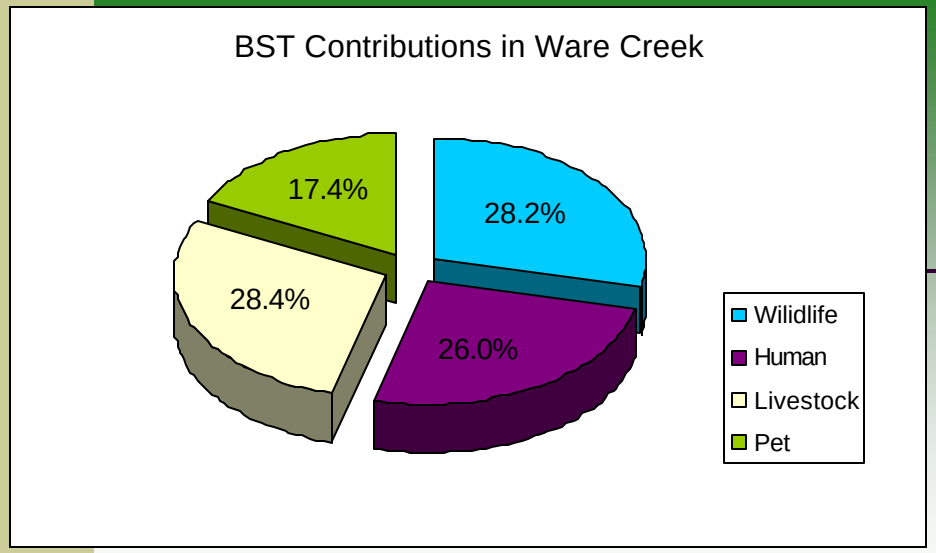

New Kent County
New Kent County
Ware Creek
James City County
Lakeview Creek
Skimino Creek
York River
York County
Land Use
Open Water
Low Intensity Residential
High Intensity Residential
Commercial/Industrial
Transitional
Deciduous Forest
Evegreen Forest
Mixed Forest
Agriculture-Pasture/Hay
Agriculture-Row Crop
Woody Wetlands
Emergent/Herbaceous Wetlands
0 0.5 1 2 3 4
Miles

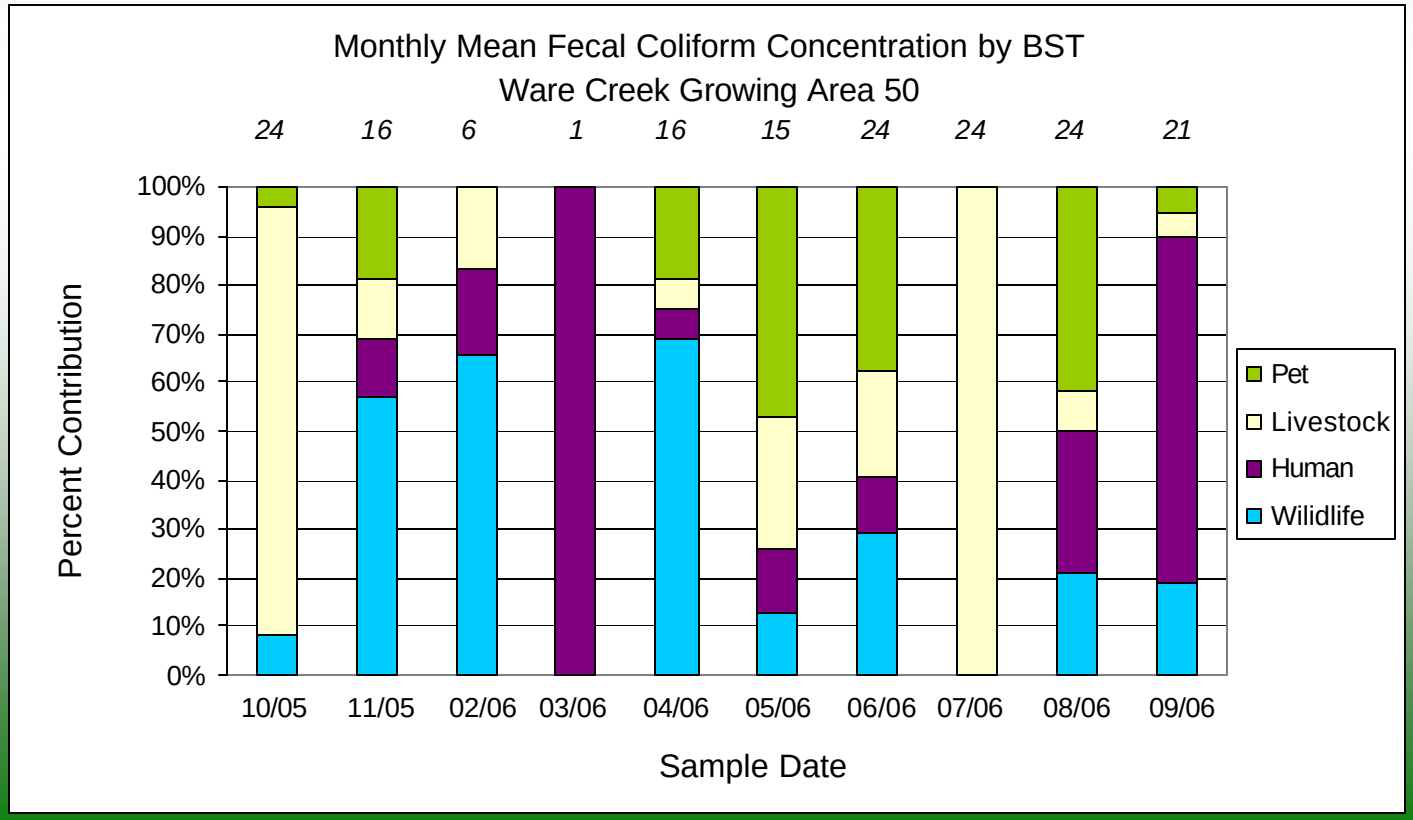
Land Use Distribution



Annual BST Results of Fecal Coliform Bacteria

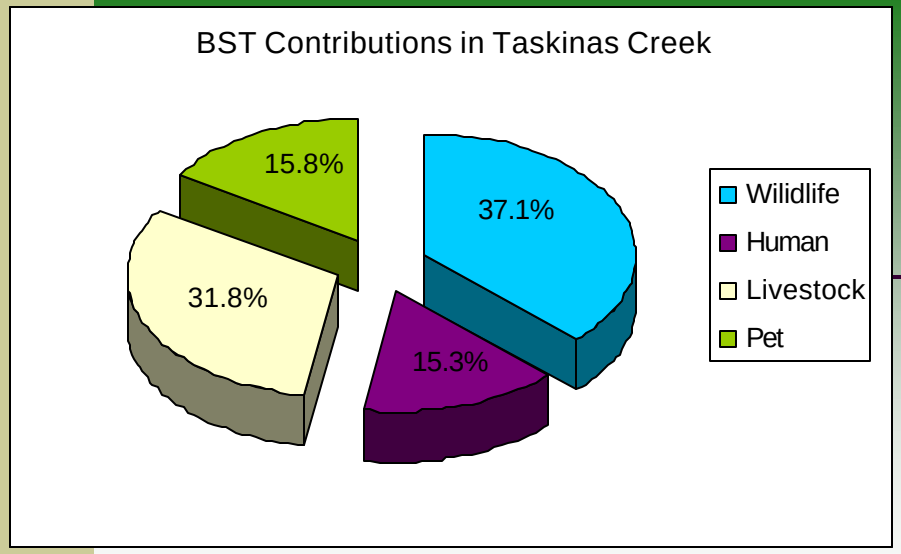
Ware Creek Station 50-23

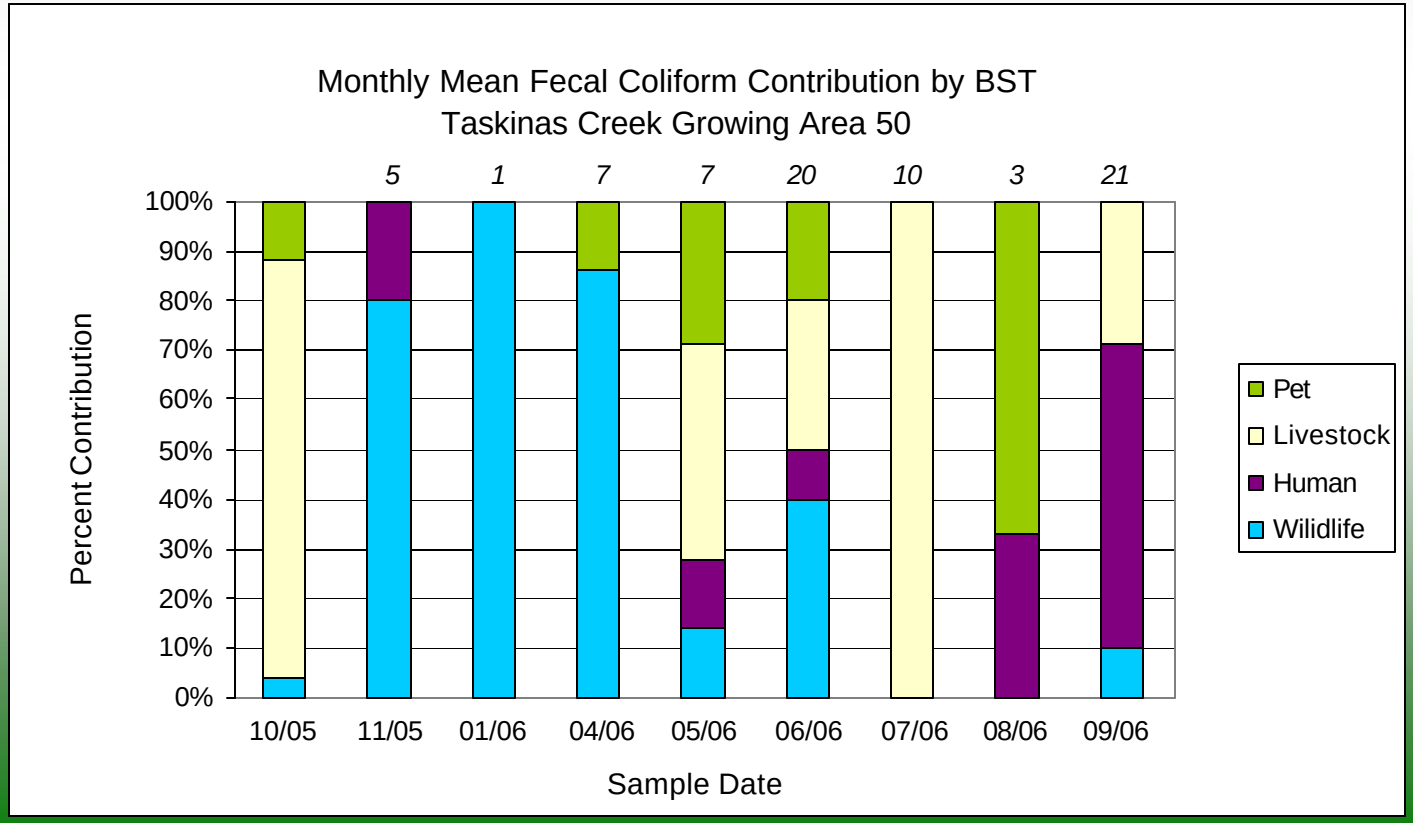




Annual BST Results of Fecal Coliform Bacteria

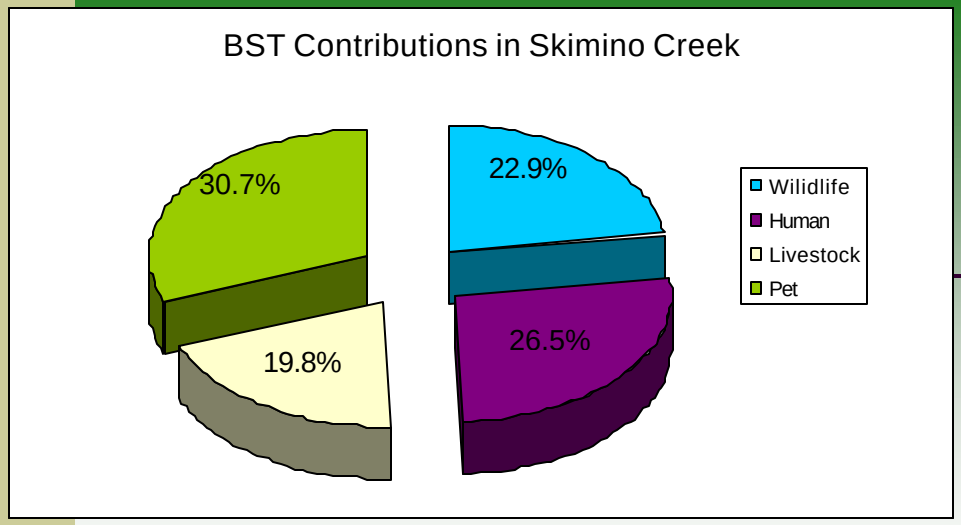
Taskinas Creek Station 50-22

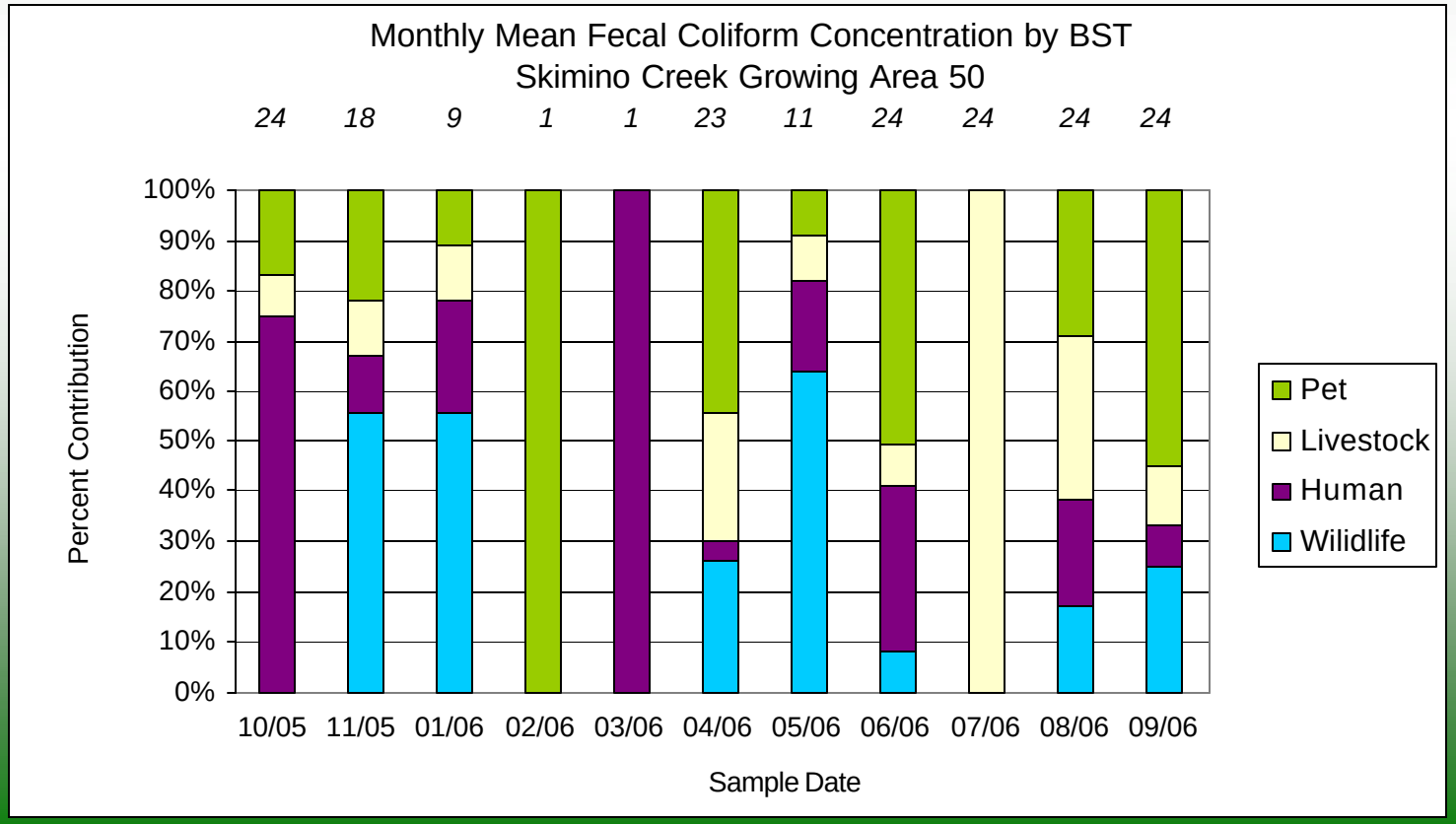




Annual BST Results of Fecal Coliform Bacteria

Skimino Creek Station 50-4





TMDL Summary Based on the Geometric Mean Standard

Condemnation Area	WLA* (Point Sources)	LA (Non-point Sources)	MOS (Margin of Safety)	TMDL
Ware Creek 50-073A (VAT-F26E-19)	3.89E+08	7.39E+09	Implicit	7.78E+09
Taskinas Creek 50-073B (VAT-F26E-18)	1.42E+08	2.69E+09	Implicit	2.84E+09
Skimino Creek 50-087A (VAT-F26E-17)	3.84E+08	7.28E+09	Implicit	7.67E+09

* Waste load allocations are represented as 5% of the calculated Total Maximum Daily Load to allow for future growth since there are no individual VPDES permitted facilities with bacteria effluent limitations in the watersheds

*Current Loads and Estimated Load Reductions Based upon the **Geometric Mean Standard***

Ware Creek

Source	**BST Allocation (% of Total Load)**	**Current Load (MPN/day)**	**Allowable Load (MPN/day)**	**Required Reduction (%)**
Livestock	28	1.03E+10	0.00E+00	100
Wildlife	29	1.06E+10	7.39E+09	27.4
Human	26	9.54E+09	0.00E+00	100
Pets	17	6.24E+09	0.00E+00	100
Point Source	-	-	3.89E+08	0
Total	**100.0**	**3.67E+10**	**7.78E+09**	**78.8**

Current Loads and Estimated Load Reductions Based upon the ***Geometric Mean Standard***

Taskinas Creek

Source	**BST Allocation (% of Total Load)**	**Current Load (MPN/day)**	**Allowable Load (MPN/day)**	**Required Reduction (%)**
Livestock	32	6.72E+09	0.00E+00	100
Wildlife	37	7.77E+09	2.69E+09	63.8
Human	15	3.15E+09	0.00E+00	100
Pets	16	3.36E+09	0.00E+00	100
Point Source	-	-	1.42E+08	0
Total	**100.0**	**2.10E+10**	**2.84E+09**	**86.5**

*Current Loads and Estimated Load Reductions Based upon the **Geometric Mean Standard***

Skimino Creek

Source	**BST Allocation (% of Total Load)**	**Current Load (MPN/day)**	**Allowable Load (MPN/day)**	**Required Reduction (%)**
Livestock	20	9.40E+09	0.00E+00	100
Wildlife	23	1.08E+10	7.28E+09	29.6
Human	27	1.27E+10	0.00E+00	100
Pets	30	1.41E+10	0.00E+00	100
Point Source	-	-	3.84E+08	0
Total	**100.0**	**4.70E+10**	**7.67E+09**	**83.7**

*TMDL Summary Based on the 90th Percentile Standard**

Condemnation Area	WLA* (Point Sources)	LA (Non-point Sources)	MOS (Margin of Safety)	TMDL
Ware Creek 50-073A (VAT-F26E-19)	1.36E+09	2.58E+10	Implicit	2.72E+10
Taskinas Creek 50-073B (VAT-F26E-18)	4.97E+08	9.44E+09	Implicit	9.94E+09
Skimino Creek 50-087A (VAT-F26E-17)	1.34E+09	2.56E+10	Implicit	2.69E+10

* Waste load allocations are represented as 5% of the calculated Total Maximum Daily Load to allow for future growth since there are no individual VPDES permitted facilities with bacteria effluent limitations in the watersheds

*Current Loads and Estimated Load Reductions Based upon the **90th Percentile Standard****

Ware Creek

Source	**BST Allocation (% of Total Load)**	**Current Load (MPN/day)**	**Allowable Load (MPN/day)**	**Required Reduction (%)**
Livestock	28	8.93E+10	0.00E+00	100
Wildlife	29	9.25E+10	2.58E+10	70.9
Human	26	8.29E+10	0.00E+00	100
Pets	17	5.42E+10	0.00E+00	100
Point Source	-	-	1.36E+09	0
Total	**100.0**	**3.19E+11**	**2.72E+10**	**91.5**

*Current Loads and Estimated Load Reductions Based upon the **90th Percentile Standard****

Taskinas Creek

Source	**BST Allocation (% of Total Load)**	**Current Load (MPN/day)**	**Allowable Load (MPN/day)**	**Required Reduction (%)**
Livestock	32	4.48E+10	0.00E+00	100
Wildlife	37	5.18E+10	9.44E+09	81.0
Human	15	2.10E+10	0.00E+00	100
Pets	16	2.24E+10	0.00E+00	100
Point Source	-	-	4.97E+08	0
Total	**100.0**	**1.40E+11**	**9.94E+09**	**92.9**

*Current Loads and Estimated Load Reductions Based upon the **90th Percentile Standard****

Skimino Creek

Source	**BST Allocation (% of Total Load)**	**Current Load (MPN/day)**	**Allowable Load (MPN/day)**	**Required Reduction (%)**
Livestock	20	5.24E+10	0.00E+00	100
Wildlife	23	6.03E+10	2.56E+10	55.9
Human	27	7.07E+10	0.00E+00	100
Pets	30	7.86E+10	0.00E+00	100
Point Source	-	-	1.34E+09	0
Total	**100.0**	**2.62E+11**	**2.69E+10**	**89.7**

Contact Information

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January 5, 2010

TMDL information: www.deq.virginia.gov/tmdl

WQ Assessment: www.deq.virginia.gov.wqa