Feral Hogs in a Watershed Context

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North Texas Regional Feral Hog Conference, November 7, 2017

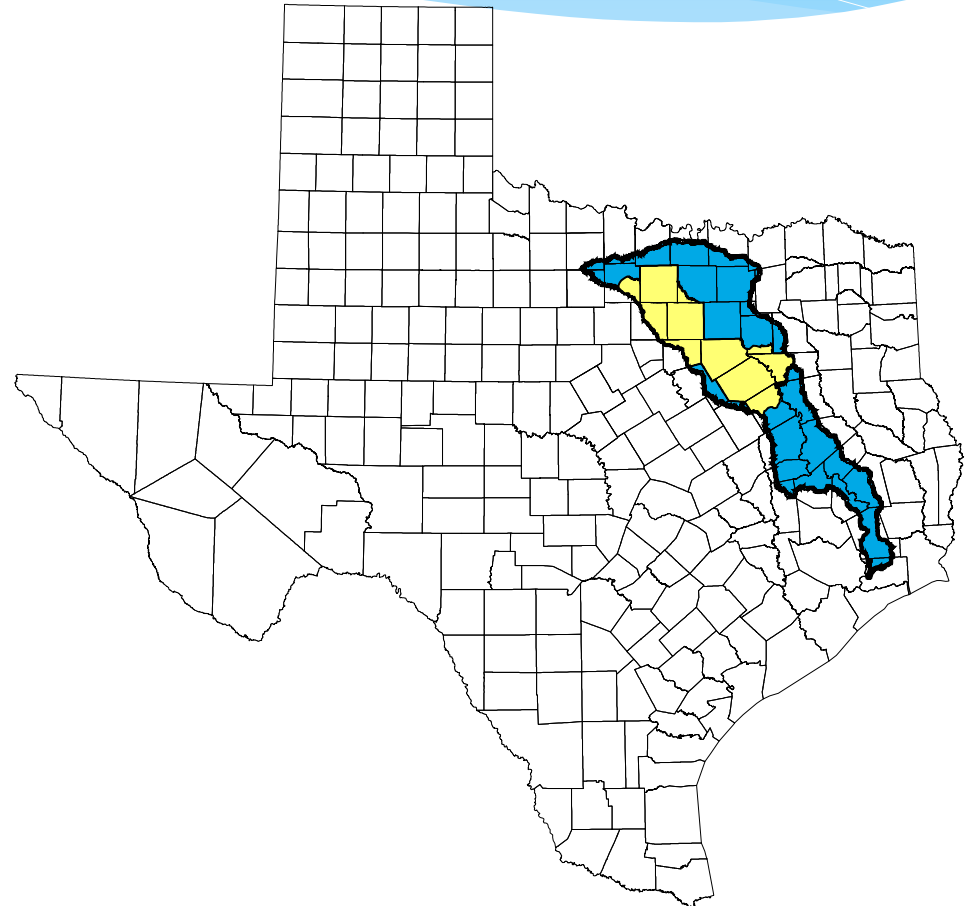*Azle Library, Azle, Texas*

Tarrant Regional Water District

Located in the Trinity River basin

Authorized in 1924 for
- Flood Protection
- Water Supply

Today…
- Eleven county service area
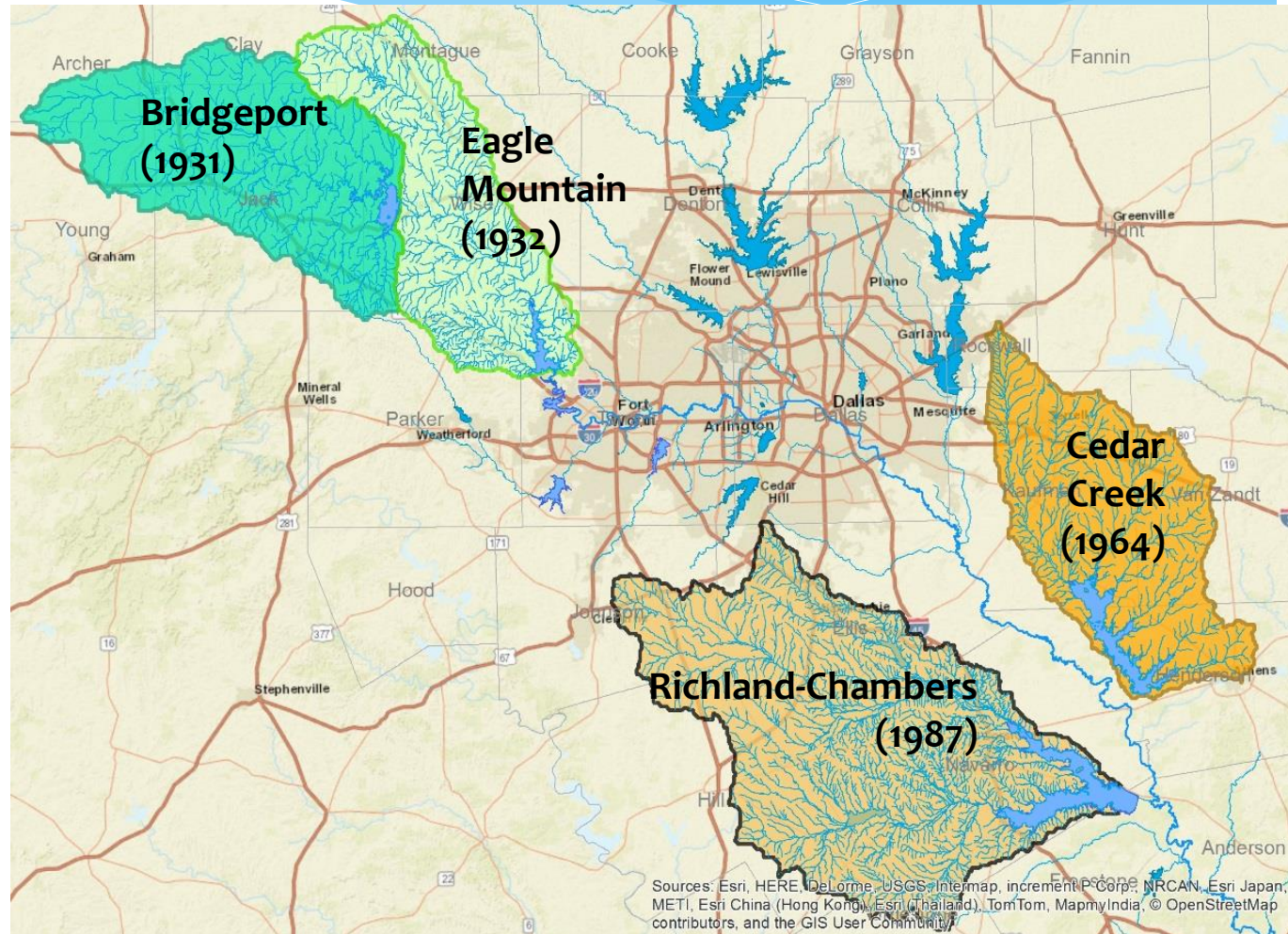- > 2 million people
- > 30 wholesale customers

trwd
Tarrant
Regional
Water
District

TRWD Reservoir Development

4 Major Reservoirs

Watersheds
>5,000 mi^2
>5,500 stream mi.

Bridgeport (1931)

Eagle Mountain (1932)

Cedar Creek (1964)

Richland-Chambers (1987)

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.

Eagle Mountain Lake Watershed

Watershed (sq mi)	859
Streams (mi)	975

Land Use

Cropland 3%

Forest 18%

Urban 10%

Pasture 9%

Rangeland 60%
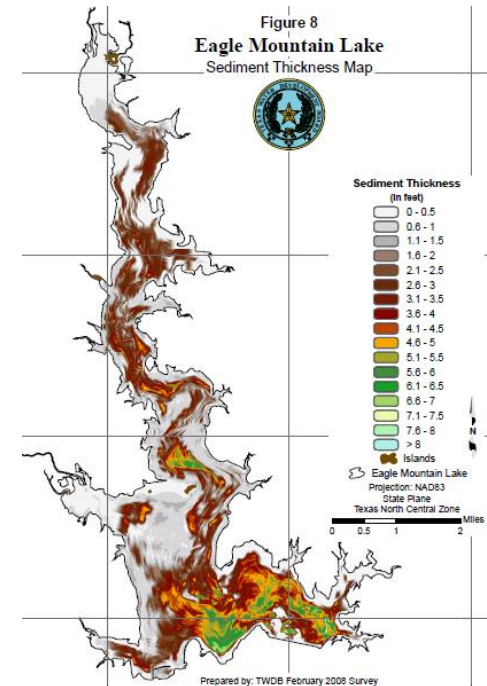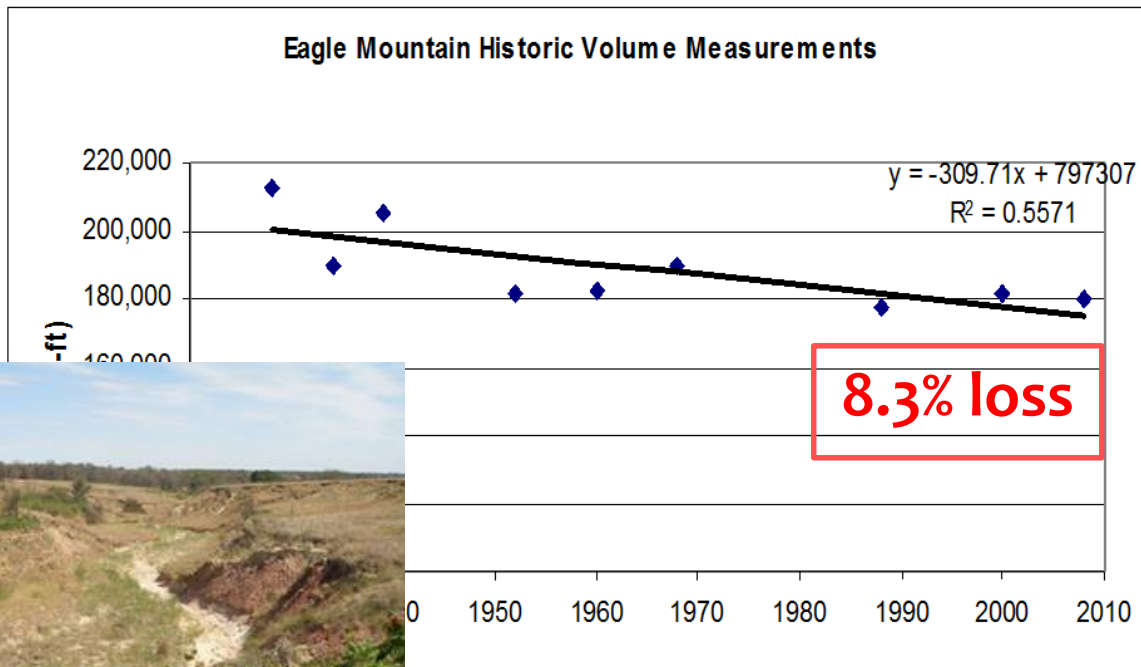

trwd
Tarrant Regional Water District
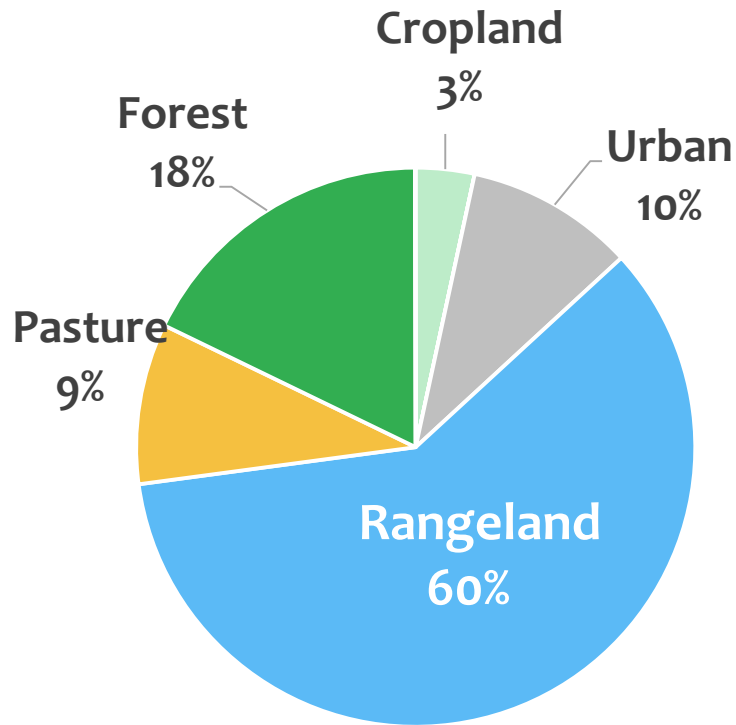
Water Resource Challenges
Threats to Drinking Water Supplies

Sedimentation and *water quality*
changes caused by stormwater *runoff* and *erosion*.

Eagle Mountain Historic Volume Measurements

$y = -309.71x + 797307$
$R^2 = 0.5571$

8.3% loss

Figure 8
Eagle Mountain Lake
Sediment Thickness Map

Sediment Thickness
(In feet)
0 - 0.5
0.6 - 1
1.1 - 1.5
1.6 - 2
2.1 - 2.5
2.6 - 3
3.1 - 3.5
3.6 - 4
4.1 - 4.5
4.6 - 5
5.1 - 5.5
5.6 - 6
6.1 - 6.5
6.6 - 7
7.1 - 7.5
7.6 - 8
>8
Islands
Eagle Mountain Lake
Projection: NAD83
State Plane
Texas North Central Zone

0 0.5 1 2
Miles
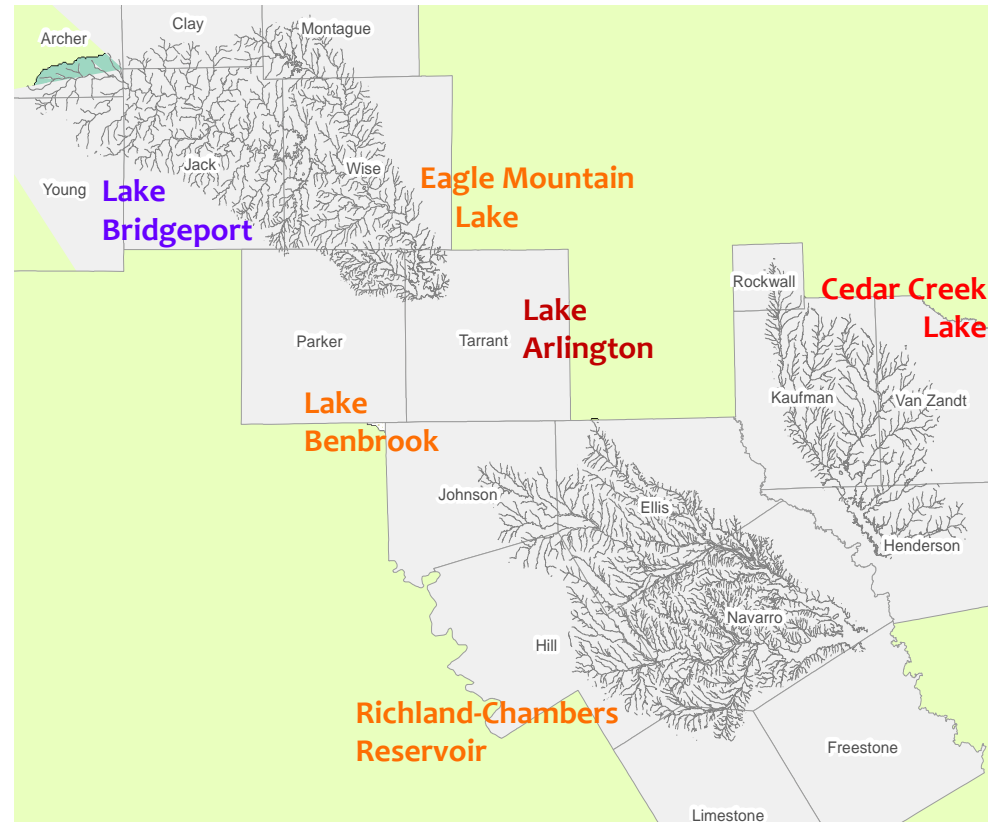
Prepared by: TWDB February 2008 Survey

Water Resource Challenges

Water Quality - Eutrophication

20 Yr Trend Study of Chlorophyl-a

Lake	Median (u/gL)	⬆Trend (%APR)
Arlington	27.5	6.23
Cedar Crk	20.0	3.60
Eagle Mtn	18.8	2.84
Richland	11.4	2.70
Benbrook	16.7	2.48
Bridgeport	3.5	1.79

Protecting Water Quality

Watershed Protection Plans

Stakeholder driven process

Source and load modeling
- ✓ Landscape
- ✓ Instream
- ✓ Reservoir

BMPs and Education/Outreach

Economic Analysis

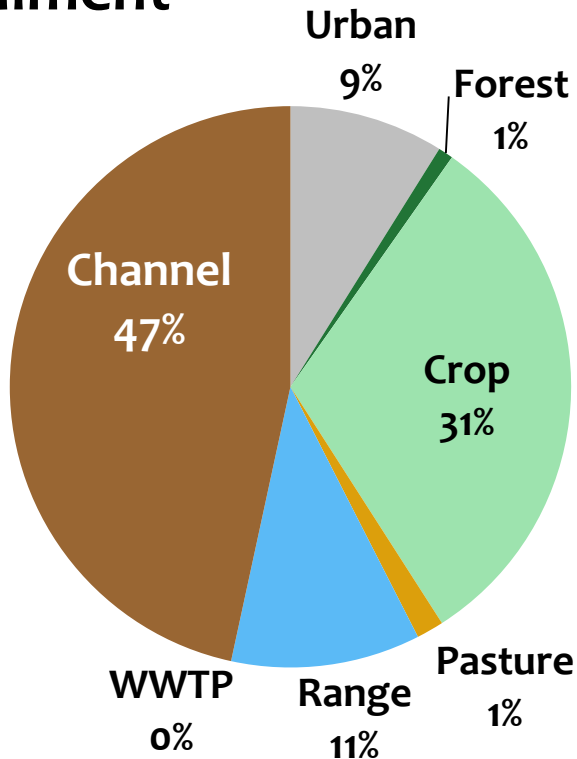Implementation Plan
- ✓ Schedule
- ✓ Milestones

Acceptance of plan by State and EPA may open opportunities for future funding.
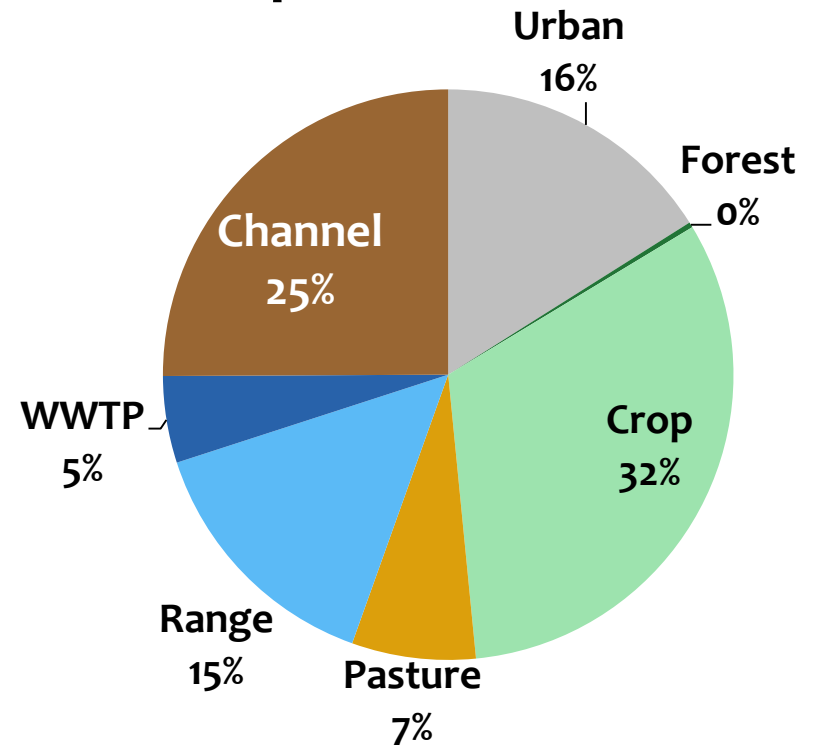
Factors Affecting Water Quality
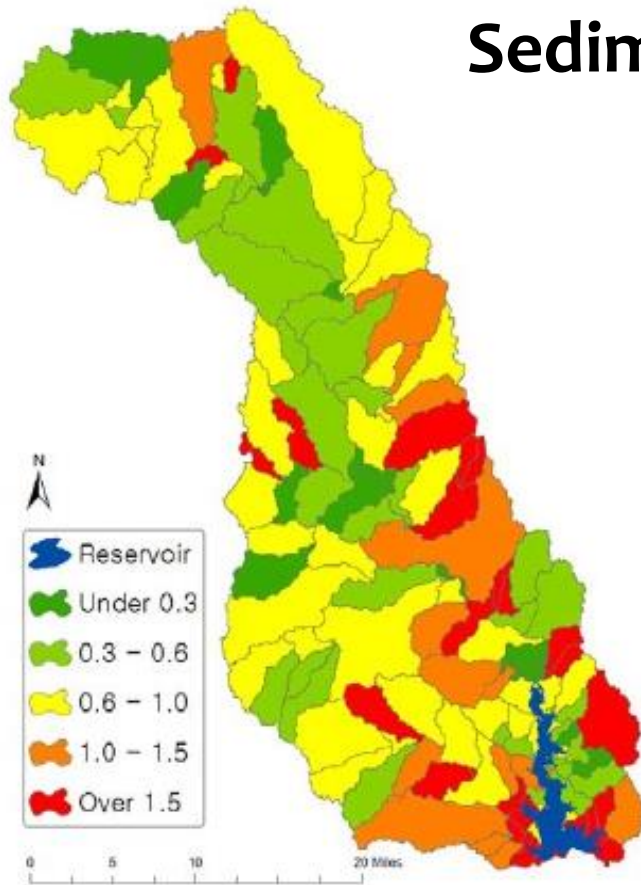
Eagle Mountain Lake
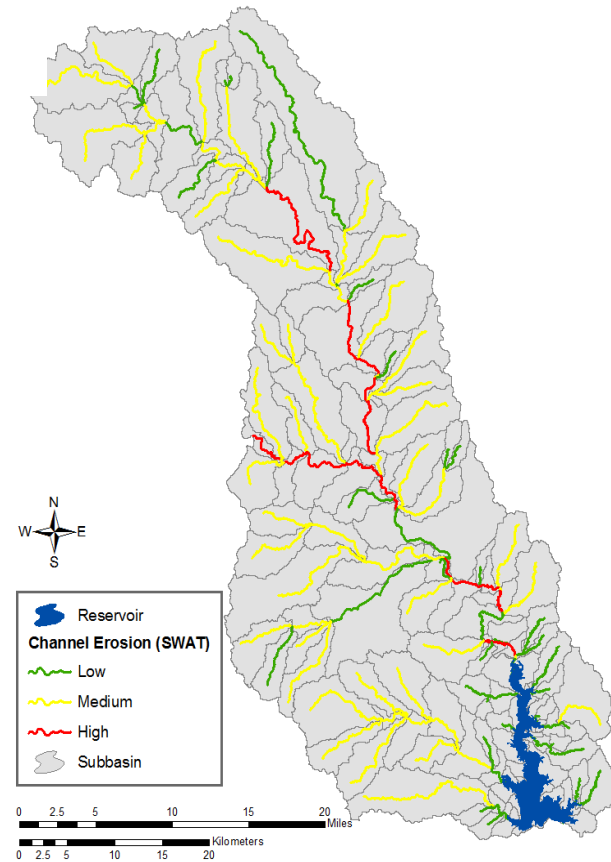
Sources of loads to the lake:

Sediment

Urban 9%
Forest 1%
Channel 47%
Crop 31%
Pasture 1%
Range 11%
WWTP 0%

Total Phosphorus

Urban 16%
Forest 0%
Channel 25%
Crop 32%
Pasture 7%
Range 15%
WWTP 5%

Factors Affecting Water Quality

Eagle Mountain Lake

Sediment

Load from uplands (tons/ha)

Relative loading from channel reaches

2011 SWAT Technical Report

Factors Affecting Water Quality

Eagle Mountain Lake

Total Phosphorus

Total Nitrogen
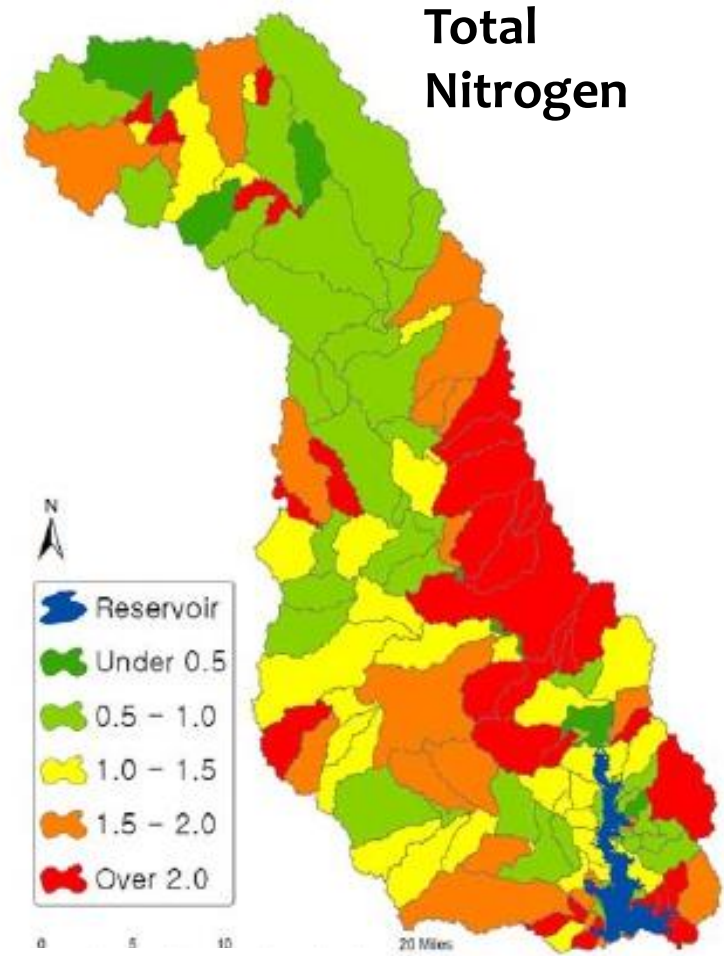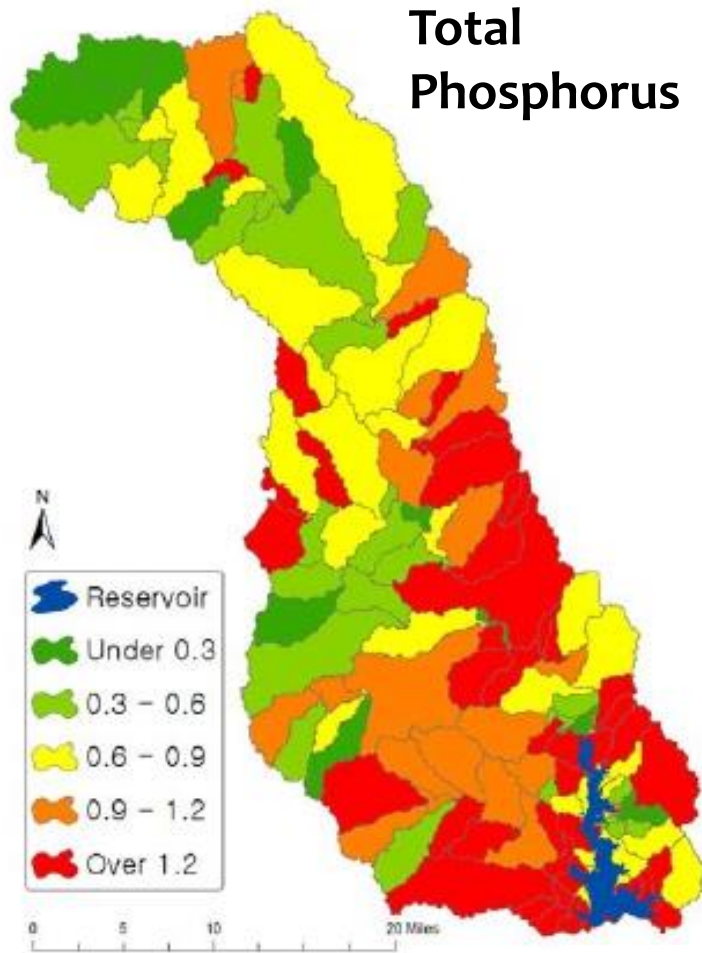
Loading from uplands (kg/ha)

Factors Affecting Water Quality

Eagle Mountain Lake
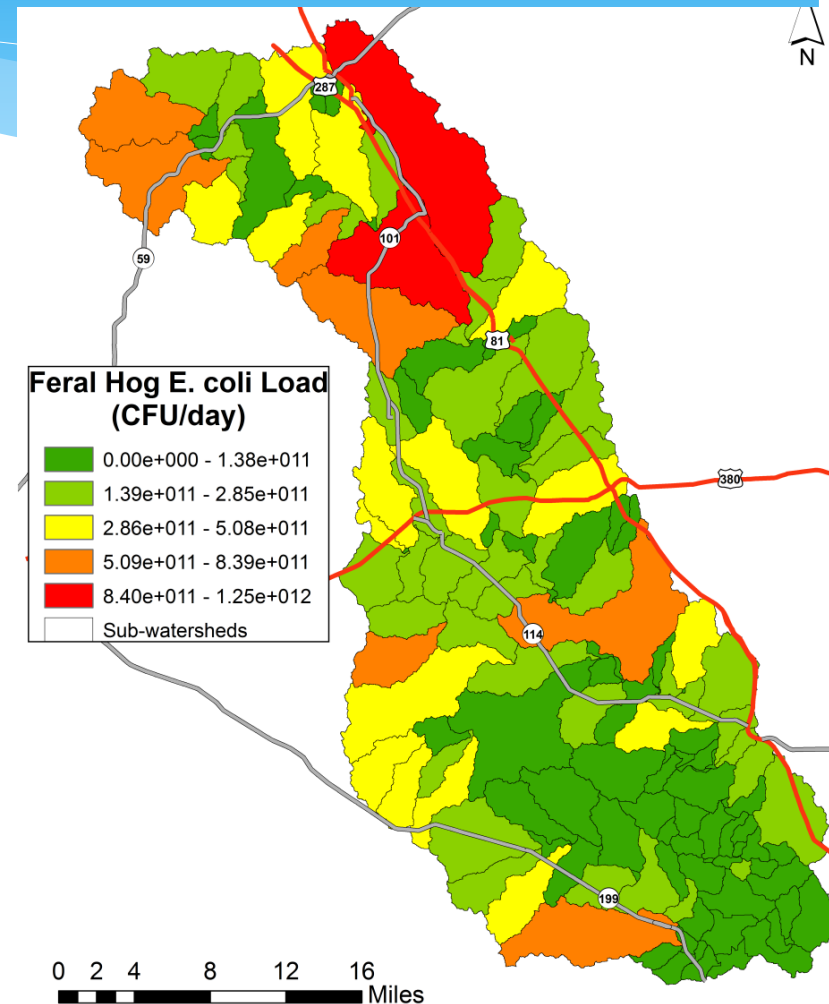
SELECT Analysis

Density: 20 acres per animal

Estimated Population: 4,814

"Home Territory" Land Uses

    Mixed Forest

    Deciduous Forest

    Evergreen Forest

Feral Hog E. coli Load (CFU/day)

■	0.00e+000 - 1.38e+011
■	1.39e+011 - 2.85e+011
■	2.86e+011 - 5.08e+011
■	5.09e+011 - 8.39e+011
■	8.40e+011 - 1.25e+012
□	Sub-watersheds

0   2   4   8   12   16   Miles

From 2012 SELECT Report

Factors Affecting Water Quality

Feral Hogs – Equal Opportunity Destroyers

Agricultural Land

Stream Channels

Urban Areas

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