

Oh the Awesome Work We Will Now Be Able to Show – CWA 303(d) Measures “WQ-27 and WQ-28”

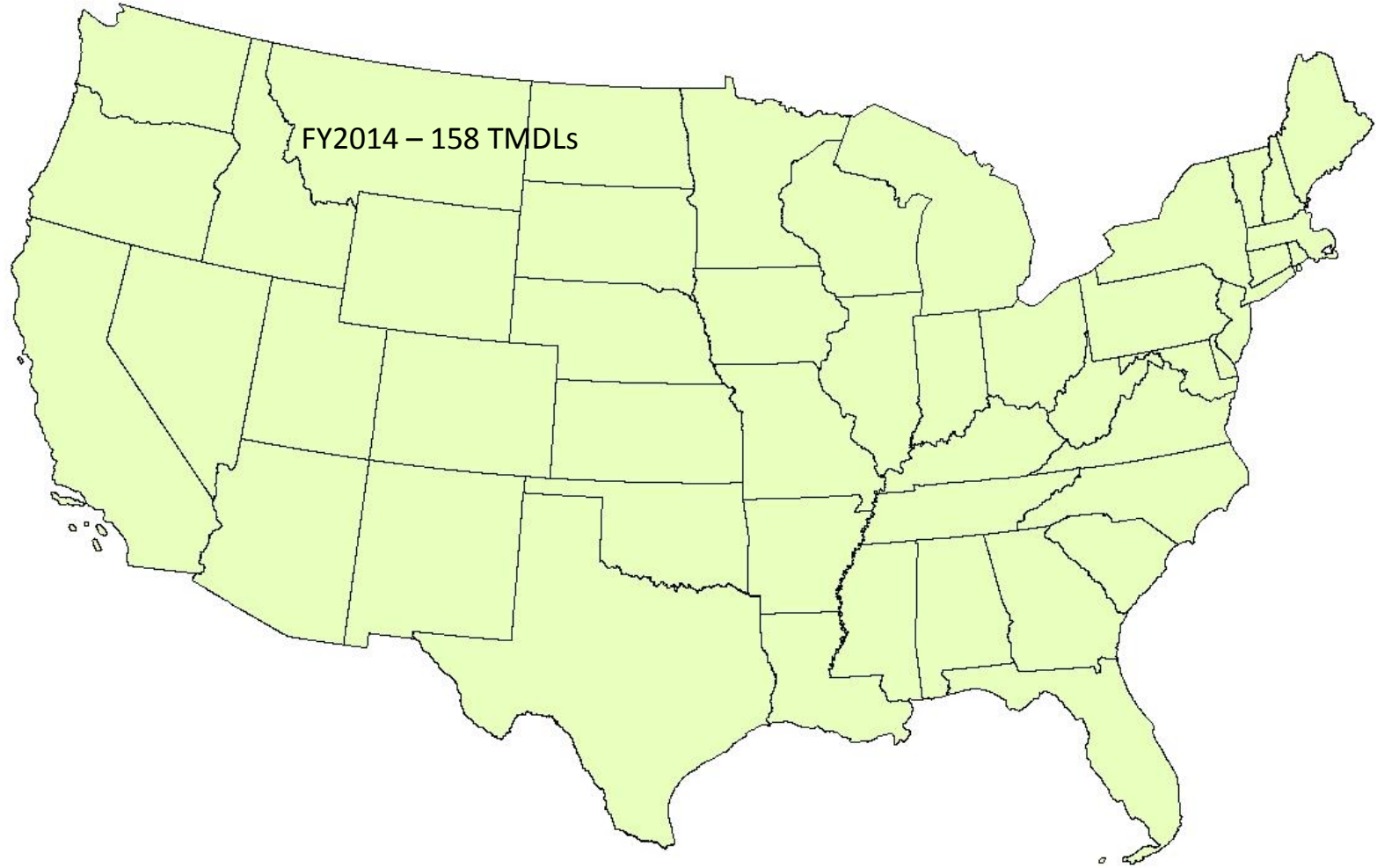
2015 NATIONAL TRAINING WORKSHOP ON
CWA 303(d) LISTING & TMDLS

SESSION #5 UPDATES ON THE MEASURES
APRIL 8, 2015

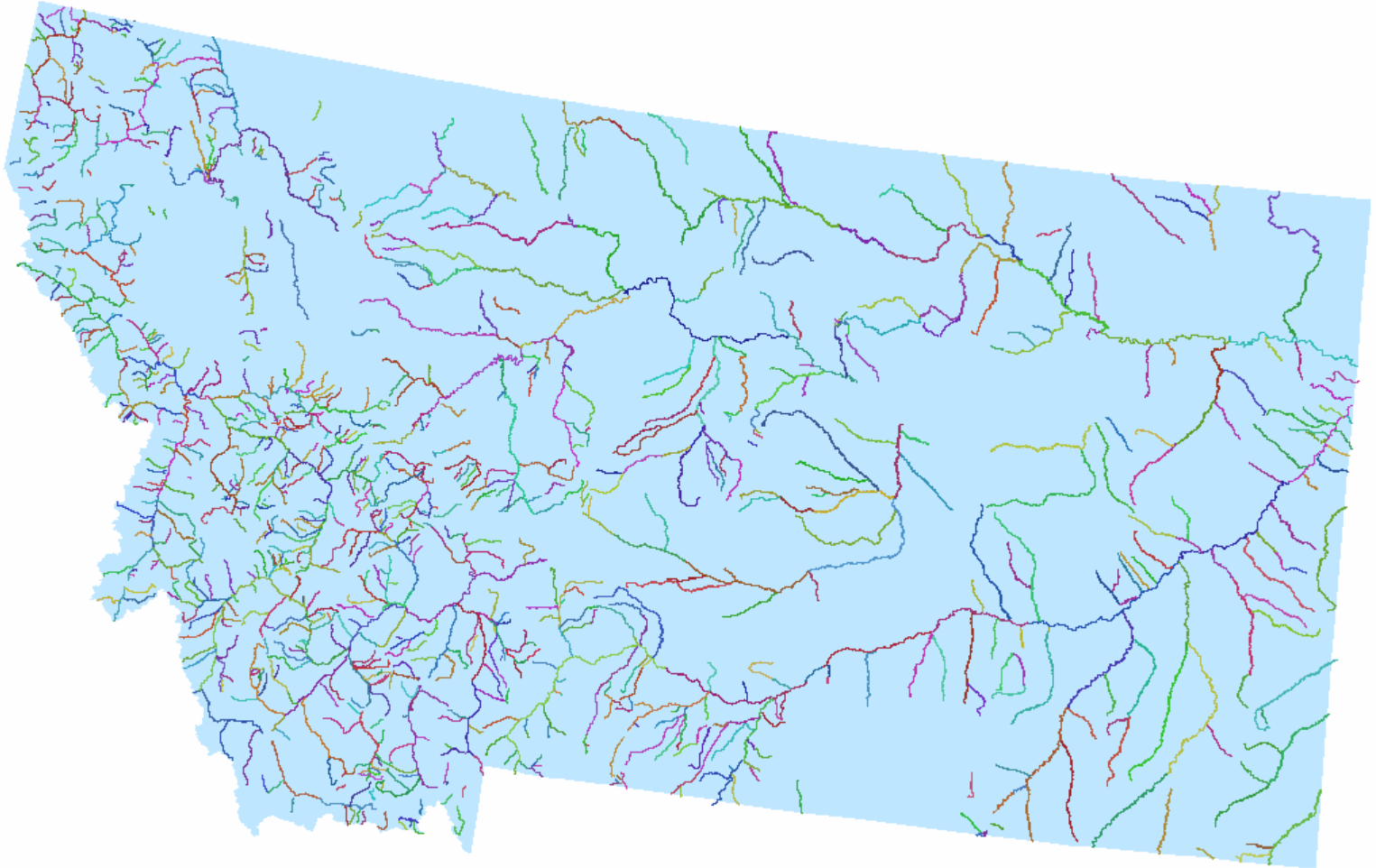
Overview of Wednesday

- Session #5: Oh the Awesome work we will now be able to show – CWA 303(d) Measures “WQ-27 and WQ-28”
- Session #6: Bringing It All Together: ATTAINS Redesign and CWA 303(d) Measures “WQ-27 and WQ-28”
- Session #7: Live Demonstrations of Measures Calculations
- Murie Lodge Lounge Area (5:00 to 6:00)
 - Draft Marine Catchments
 - Recovery Potential Screening Tool – Example KS
- Informal Evening Session: Murie Lodge Lounge Area (7:30 to 8:30)
 - Discuss Priorities Data Entry Tool

From Past...



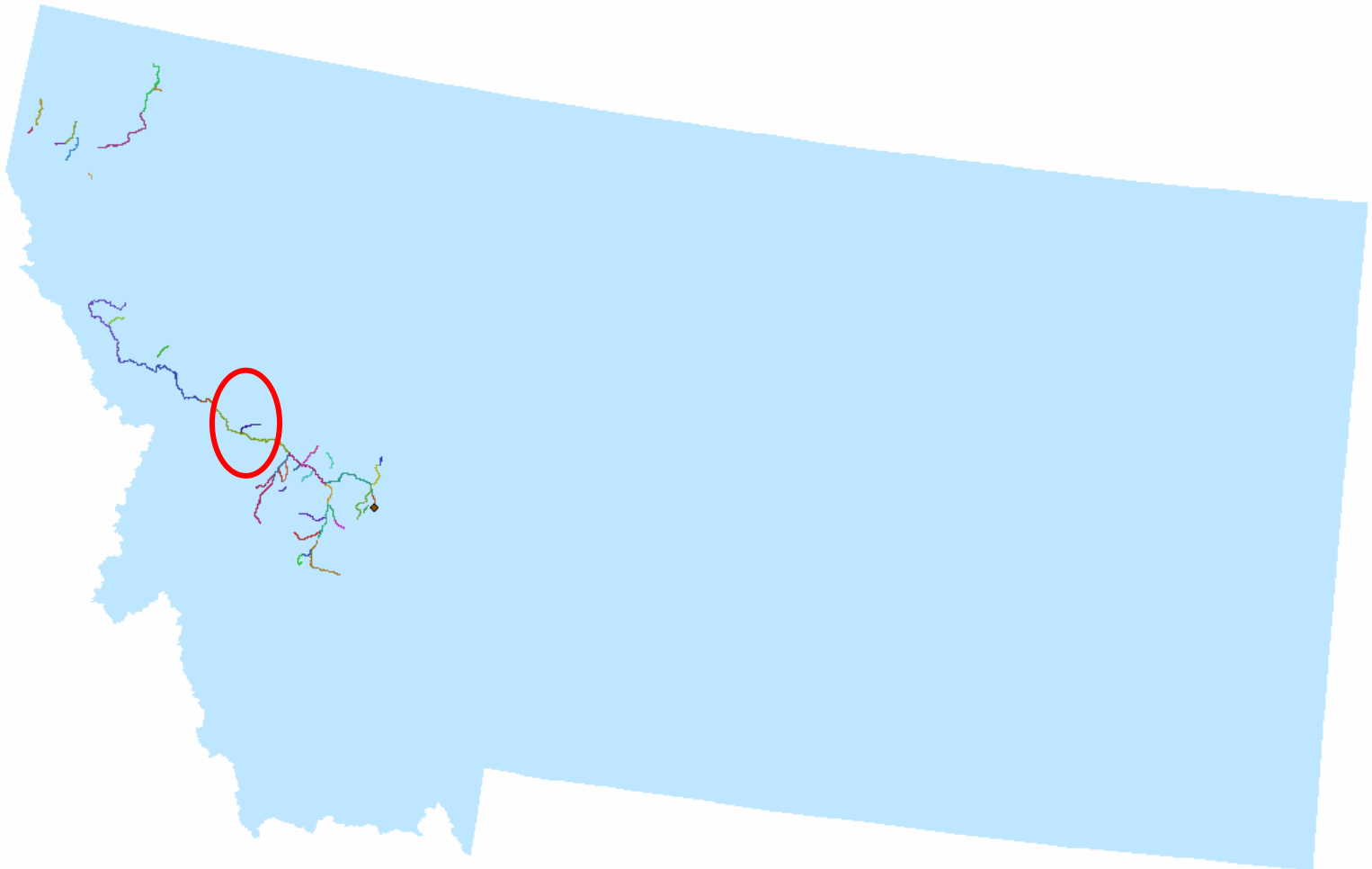
We looked at using a state's original source data



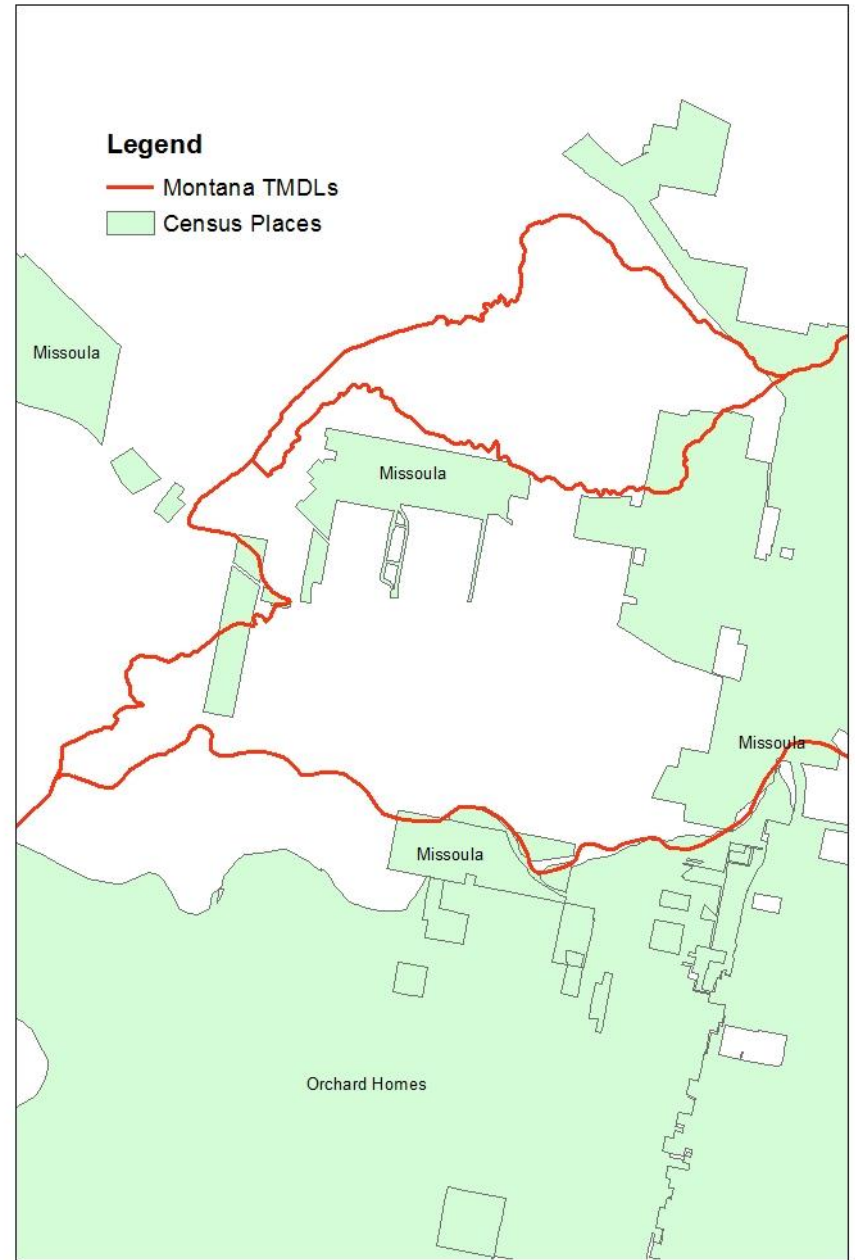
We looked at using a state's original source data (cont.)

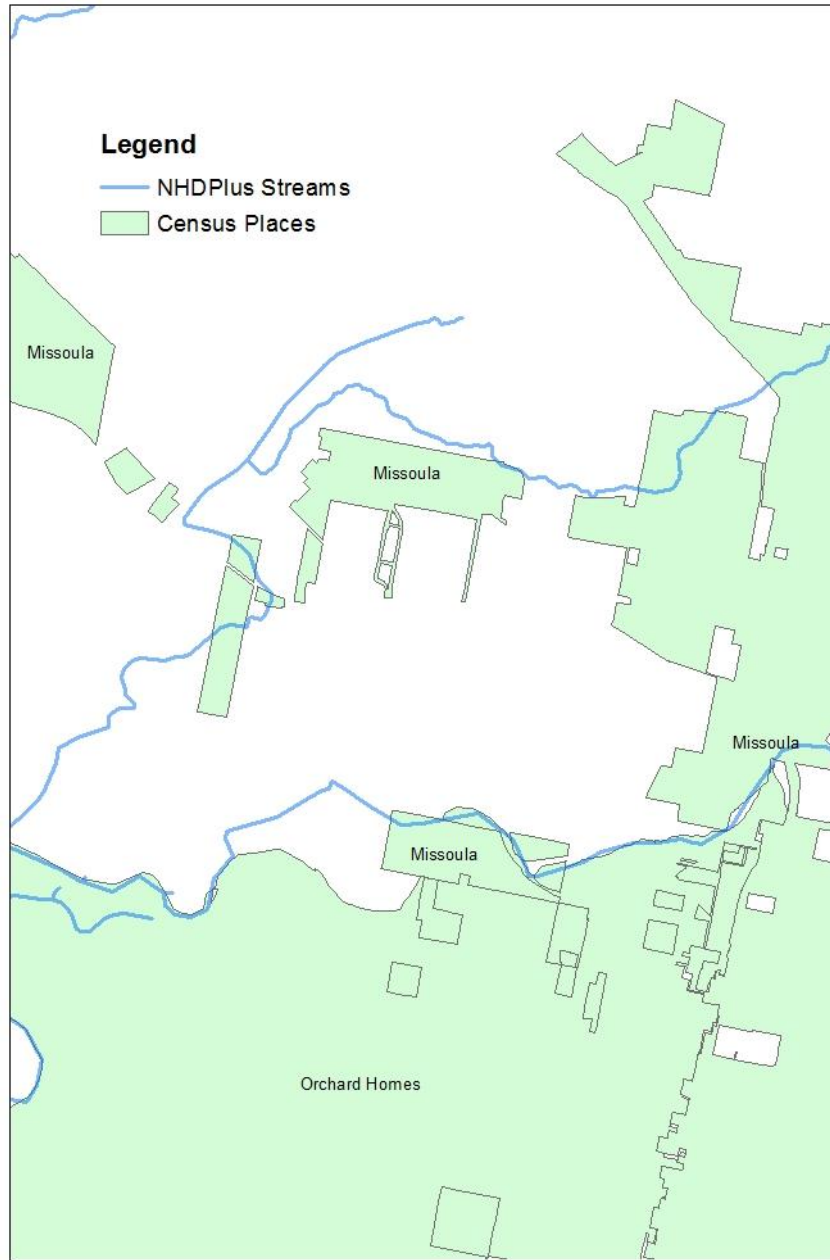


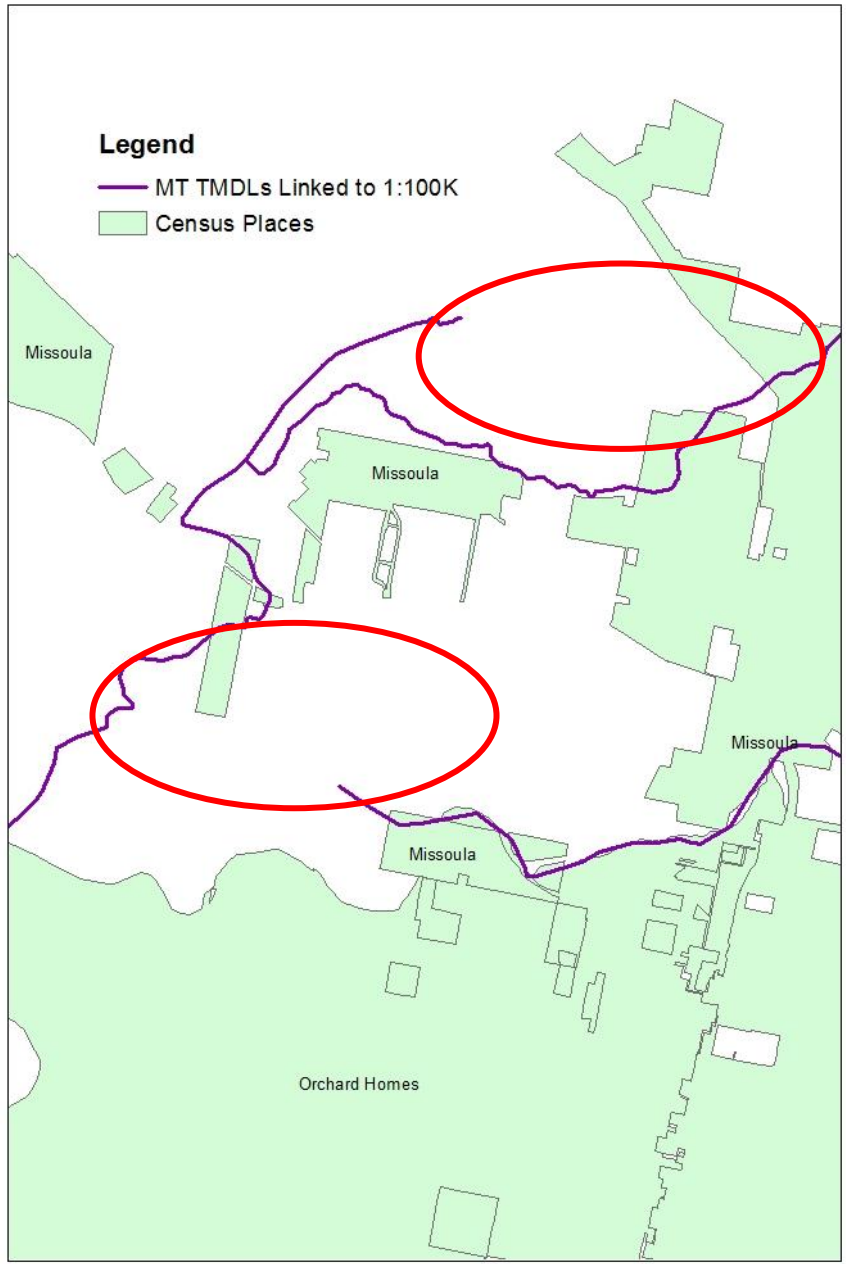
Then we looked at using the state's
original source data conflated to
1:100,000 NHDPlus

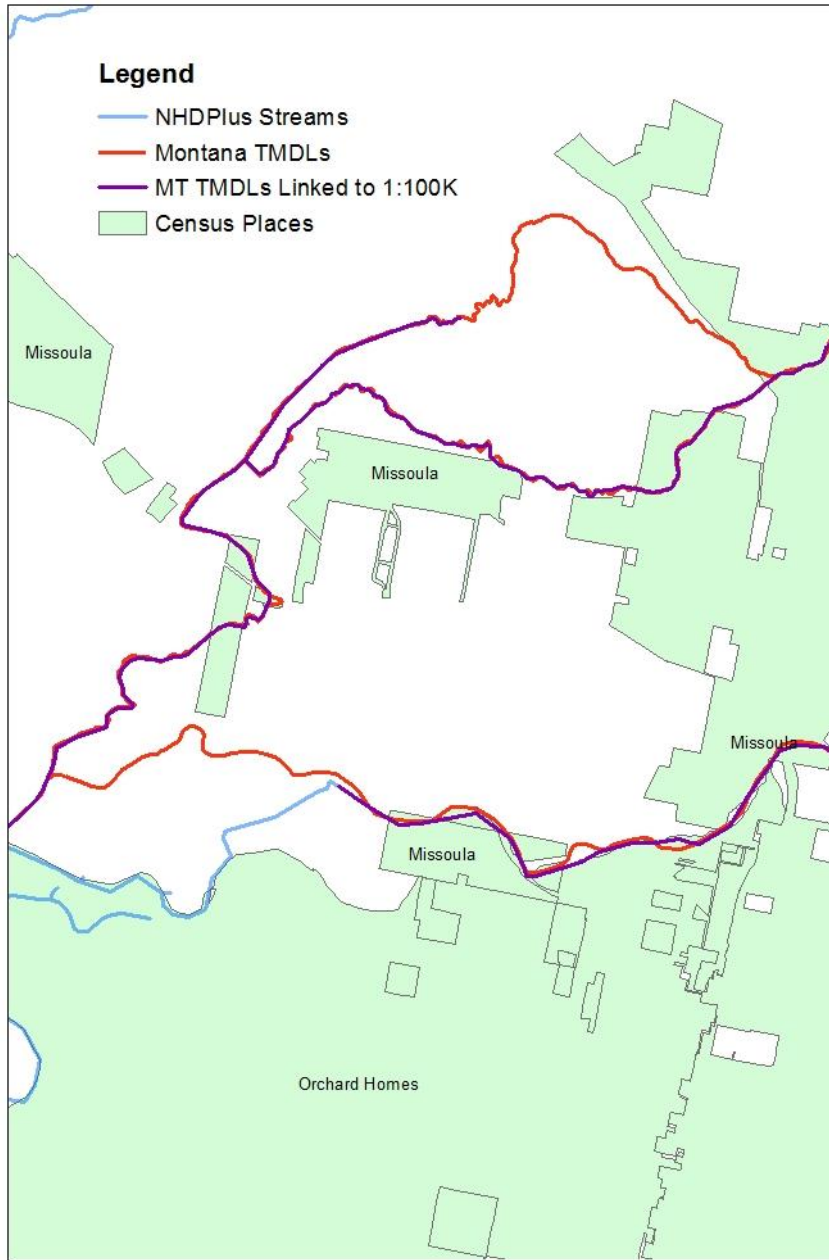


Example of a
Montana TMDL
that doesn't
correlate
well with 1:100K
Surface Water
(slides 8 to 11)

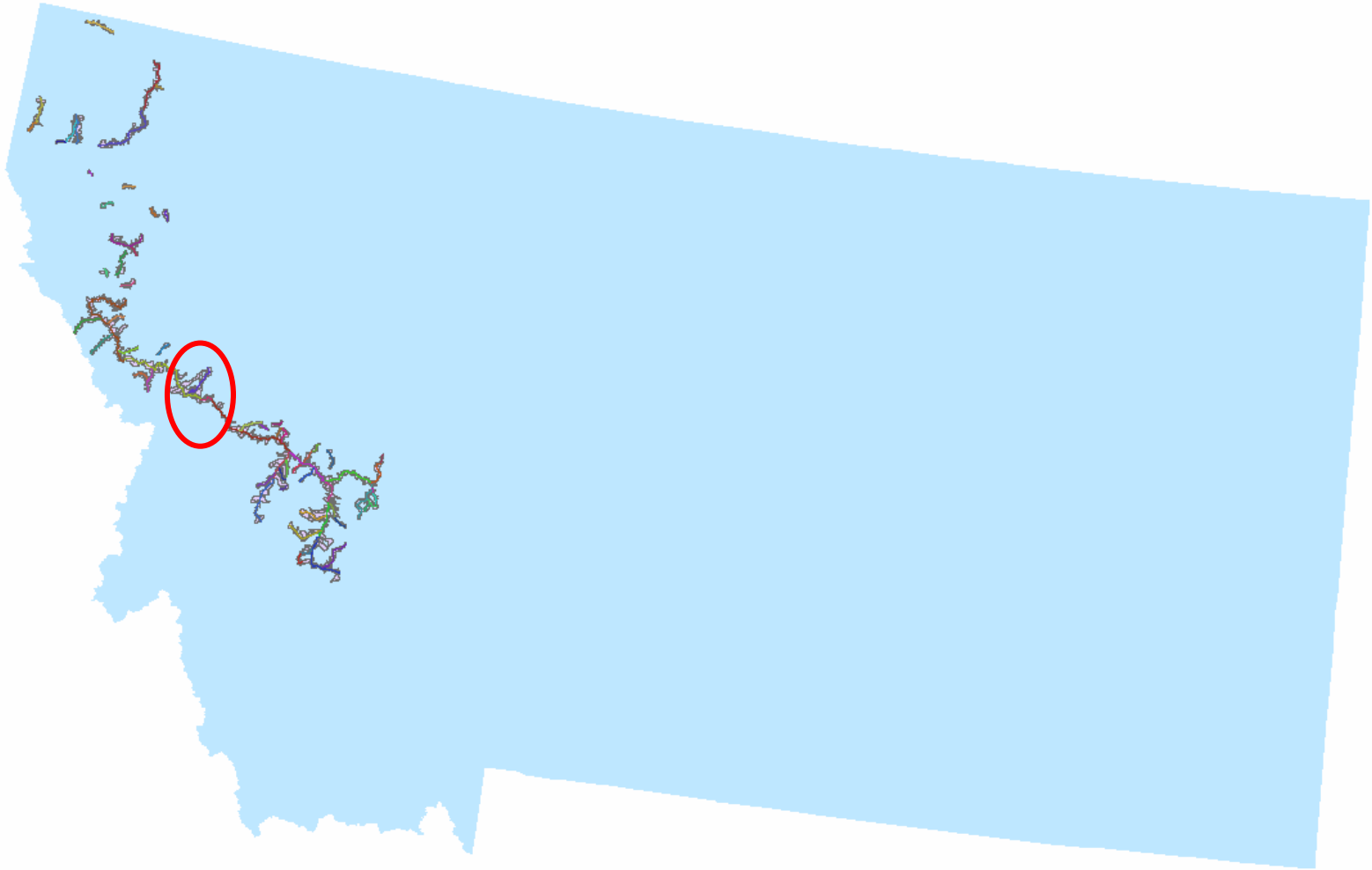




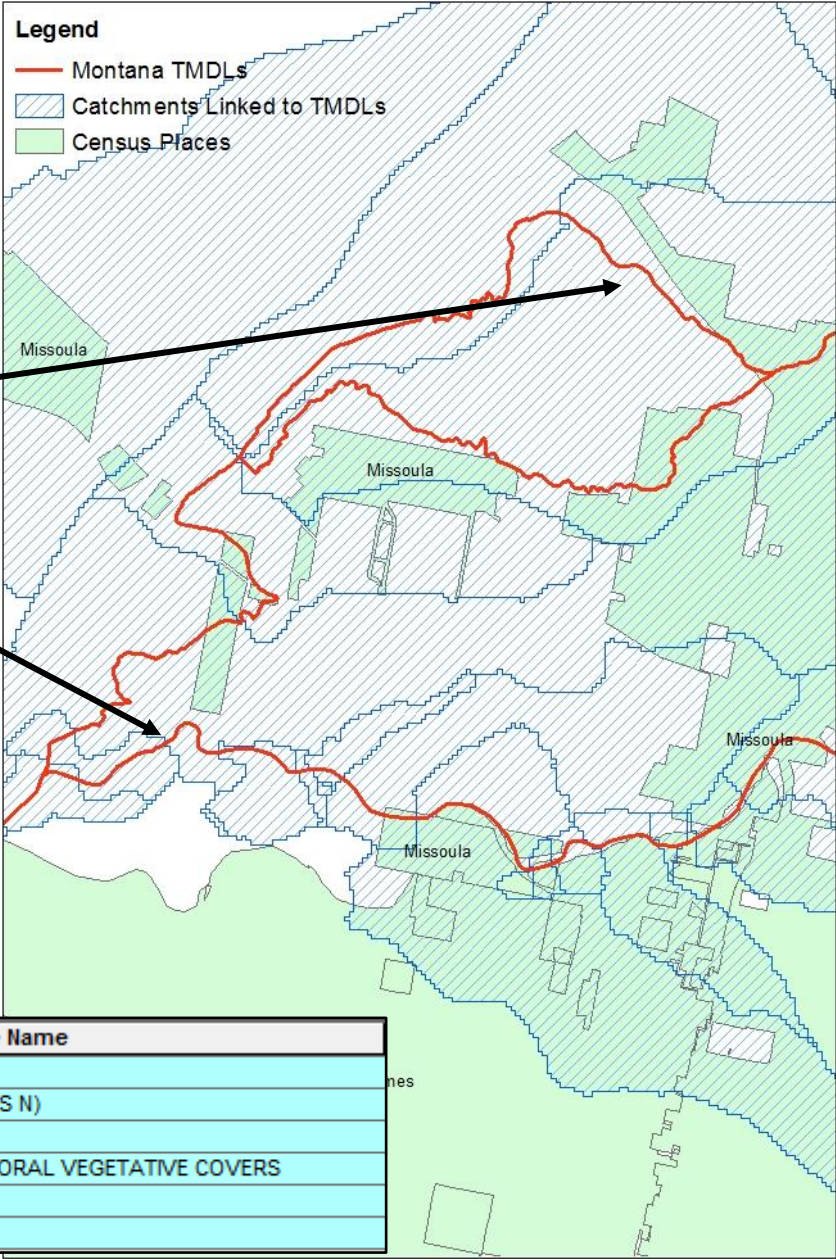




To Present: Why Catchments Make Sense



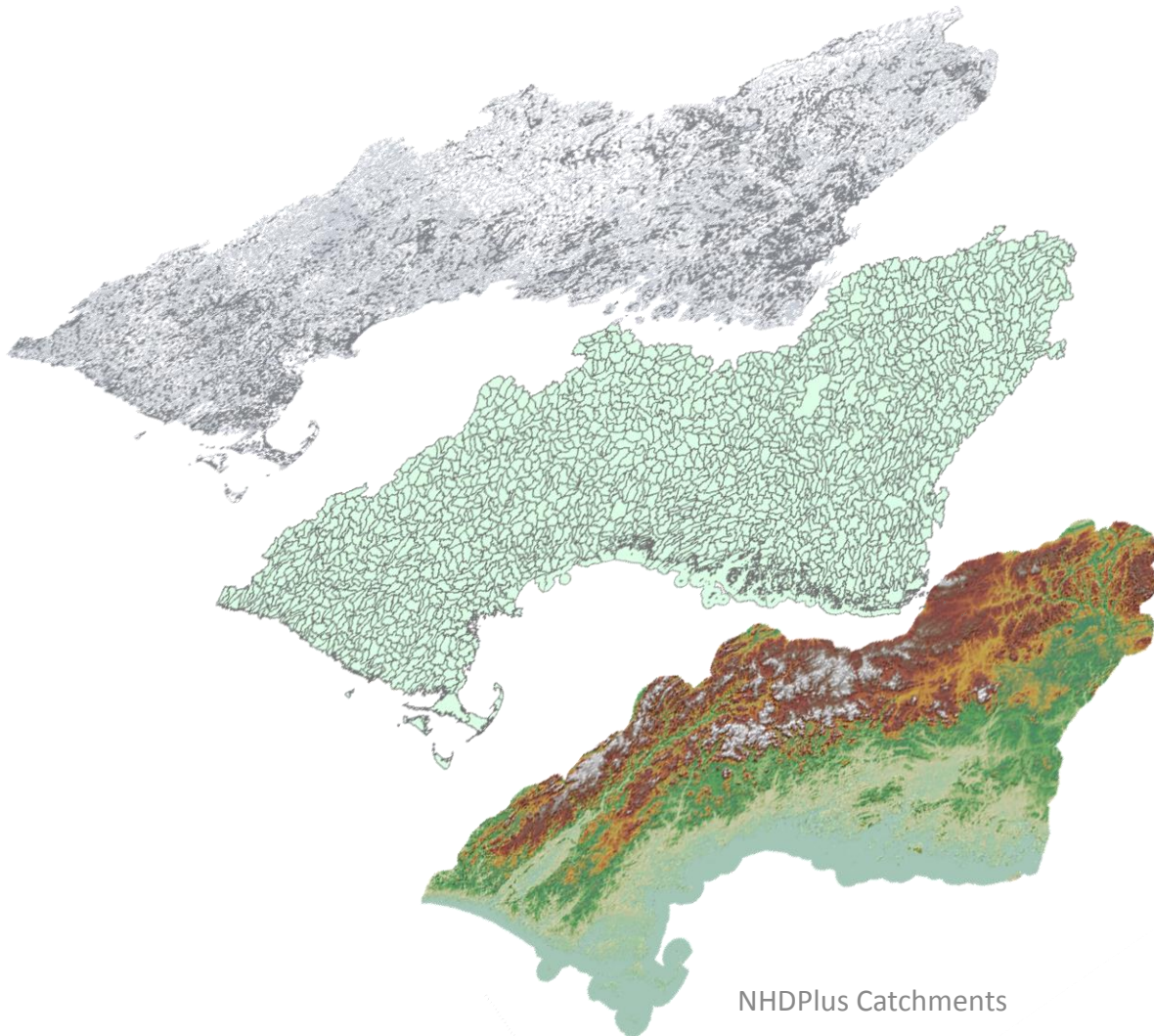
TMDL lines correlated to catchments that were not indexed to 1:100K streams



What are NHDPlus Catchments?

- Introduction to NHDPlus with a focus on NHDPlus Catchments
- Discussion of concerns about the use of NHDPlus catchments

NHDPlusV2 is the integration of 3 national datasets.



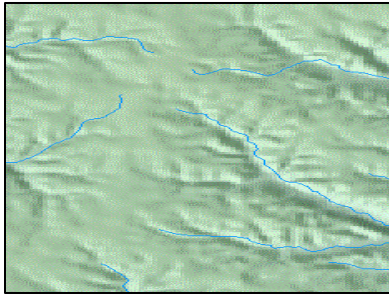
National
Hydrography
Dataset (NHD)
(1:100K and better)

Watershed
Boundary
Dataset (WBD)
(1:24K)

National
Elevation
Dataset (NED)
(10 meter and better
source resampled to 30
meter)

NHDPlusV2 catchments (light yellow lines) tie the landscape to the stream network forming a 'surface water geofabric'

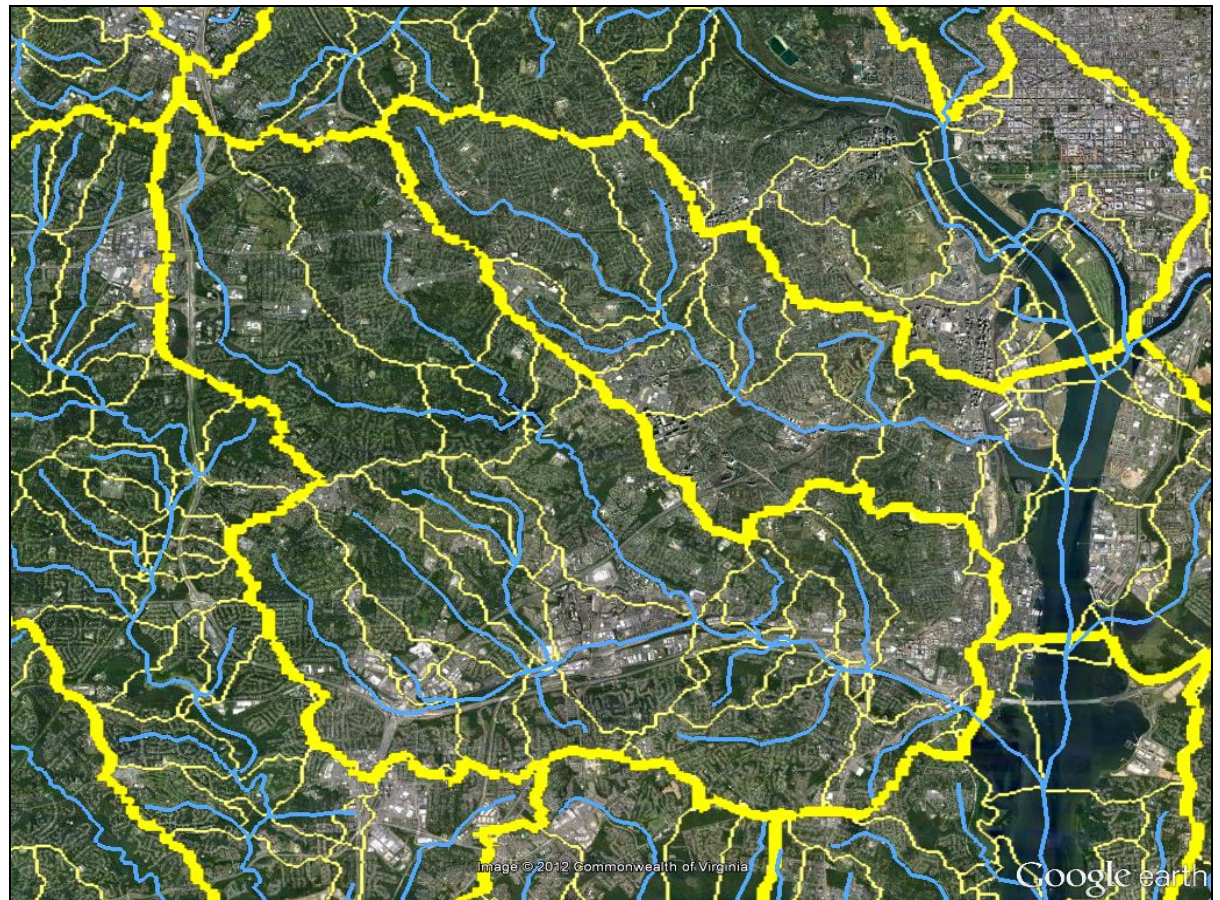
Elevation



Hydrologic Units
(HUC12)



Stream Network

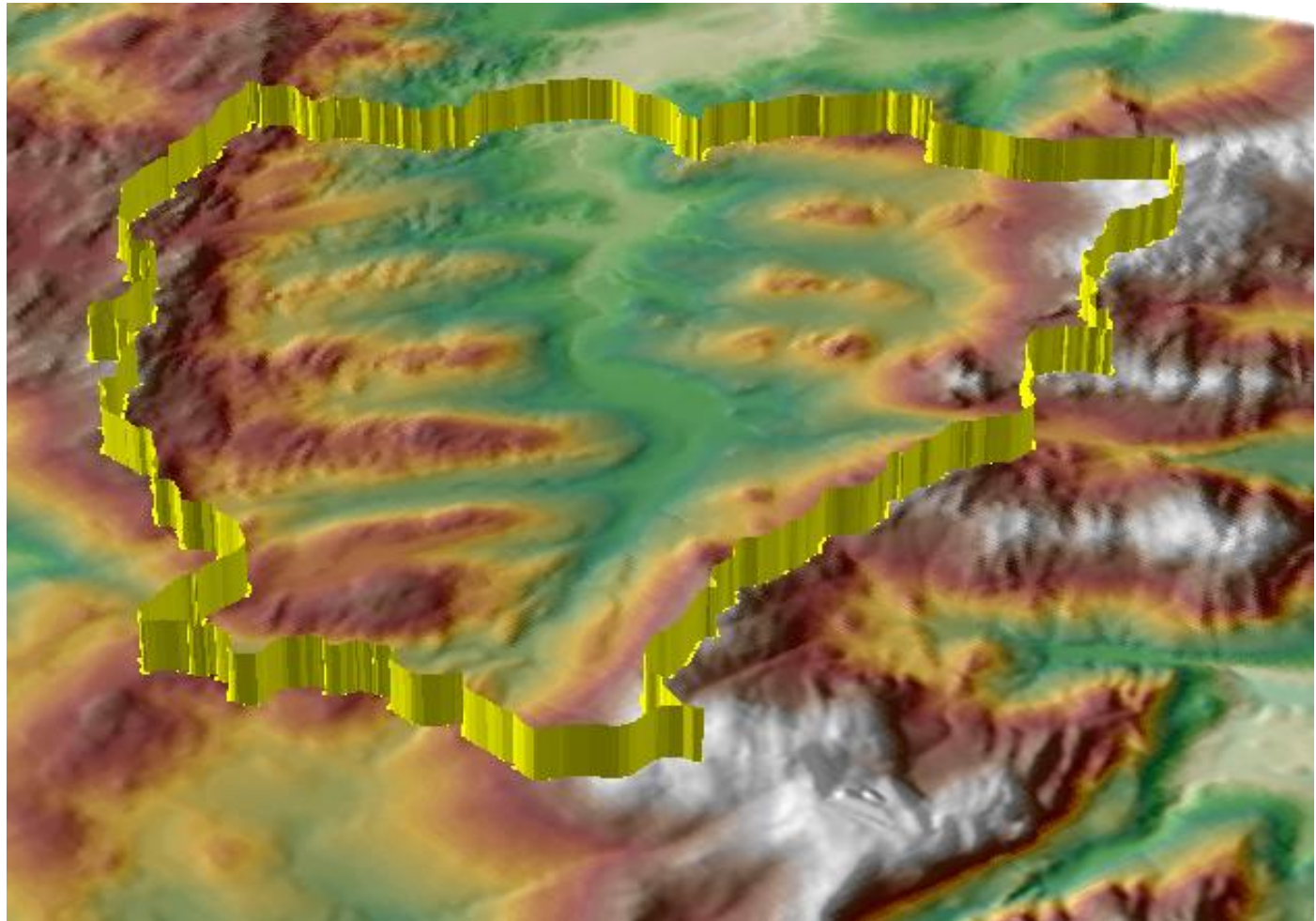


NHDPlus Catchments

NHDPlusV2 catchments correspond well to HUC12s and here is why.

WBD
HUC 12
Boundaries

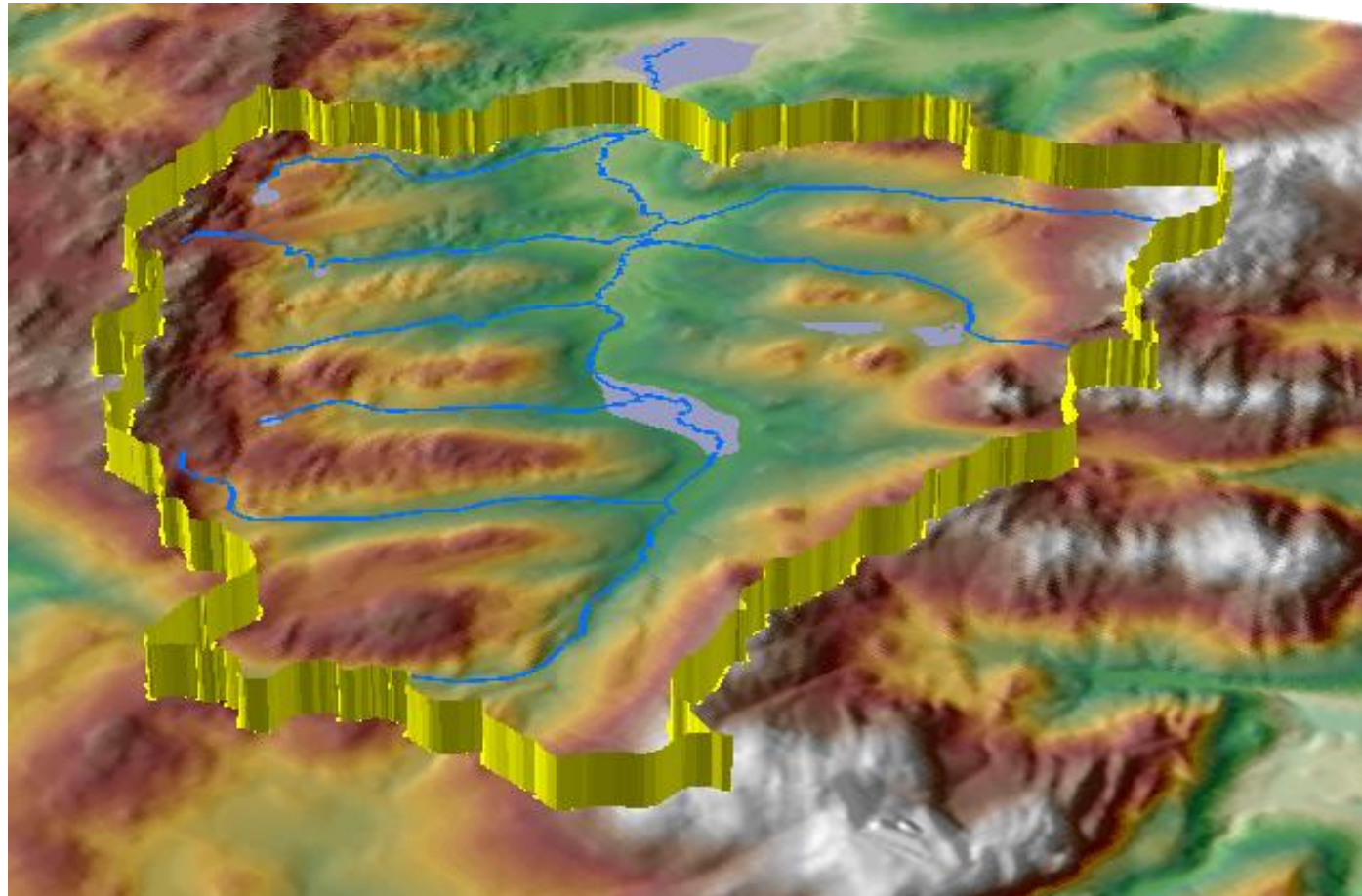
Used To Build
Walls



NHDPlusV2 catchments correspond well to the stream network and waterbodies and here is why.

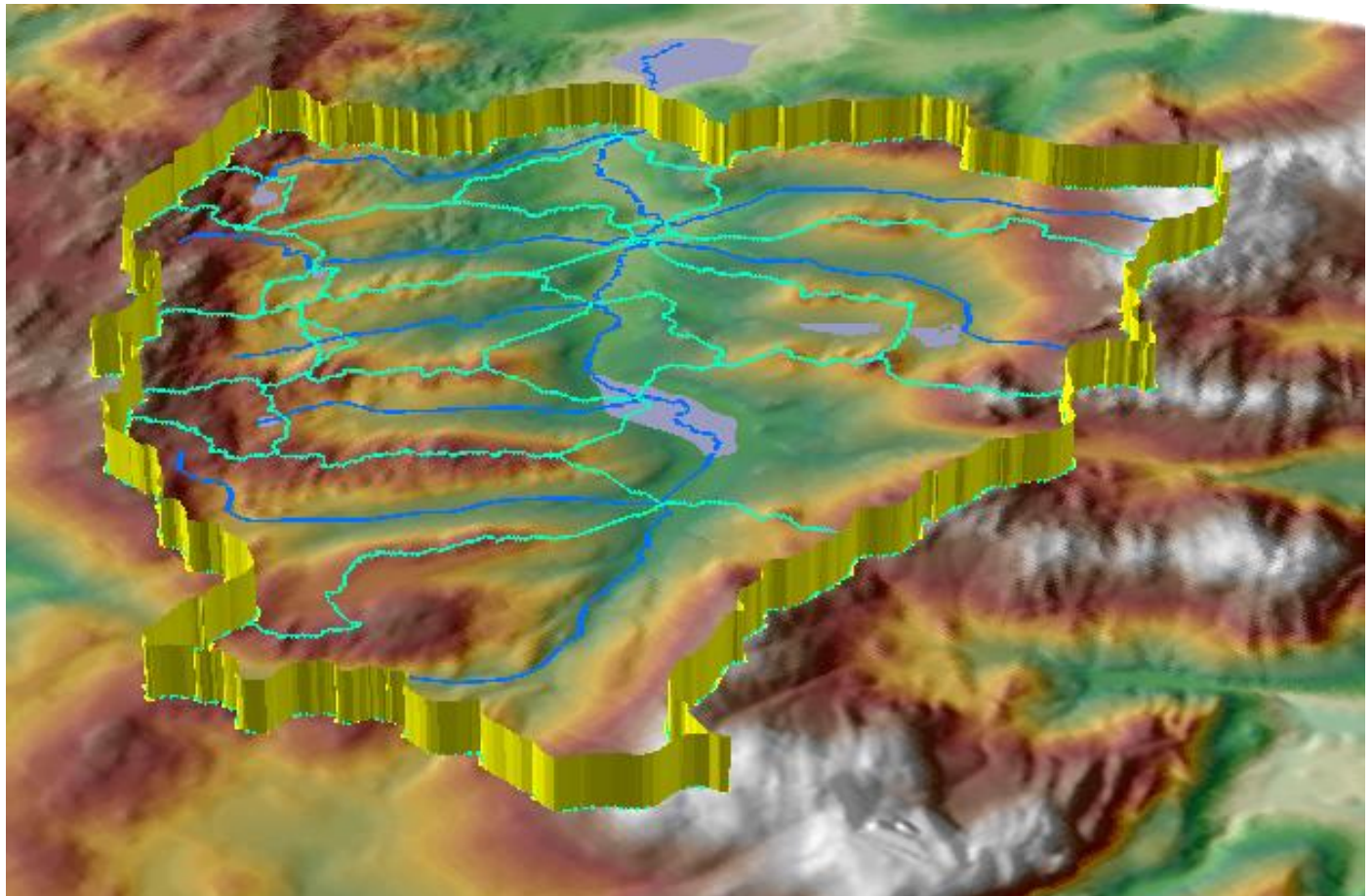
NHD Flowlines
and
Waterbodies
(Blue)

Used to Trench
And Scoop
Into the
Elevation



NHDPlusV2 catchments are local drainage areas.

Catchment
(green lines)
for each NHD
Network
Segment (blue
lines)



Concerns raised about the use of NHDPlus Catchments

- How do catchment boundaries relate to higher resolution hydrography?
- Catchments for a lake do not capture the problems from upstream, and how will watershed-based priorities translate to catchments?

Question Raised: How do catchment boundaries relate to higher resolution hydrography?

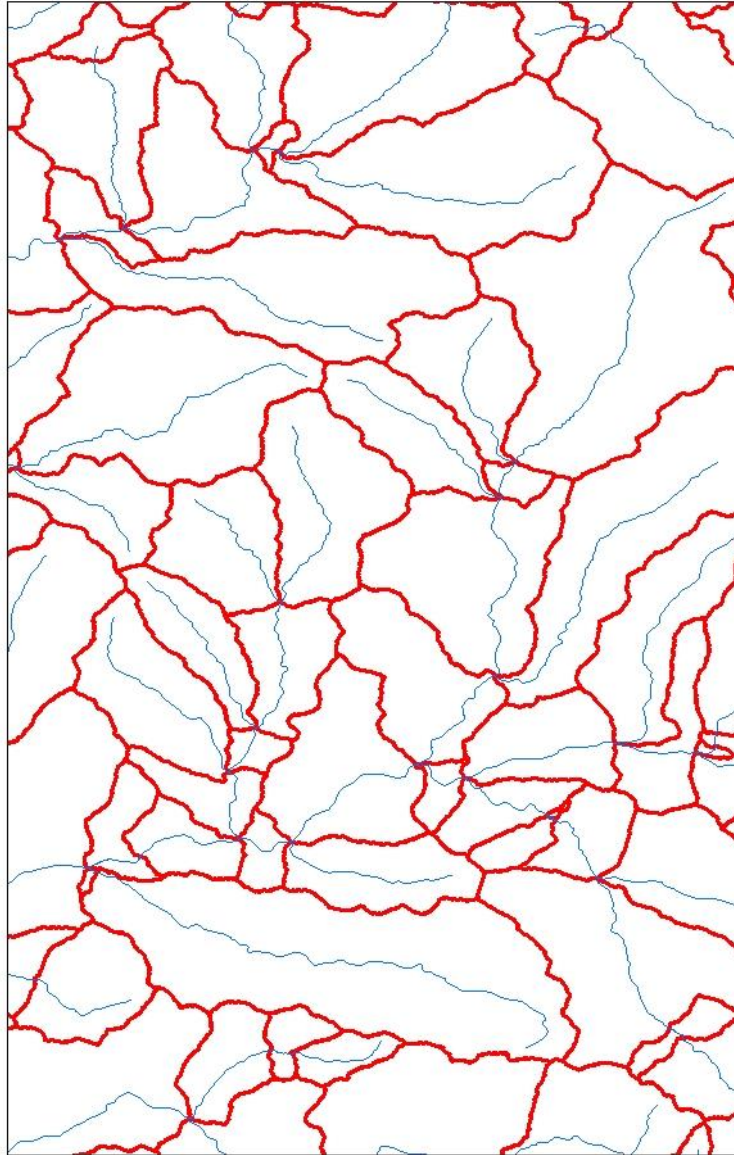
Area in New York
where NHD has
been updated from
1:100K to 1:24K



Legend

— NHDPlus Streams (1:100K)

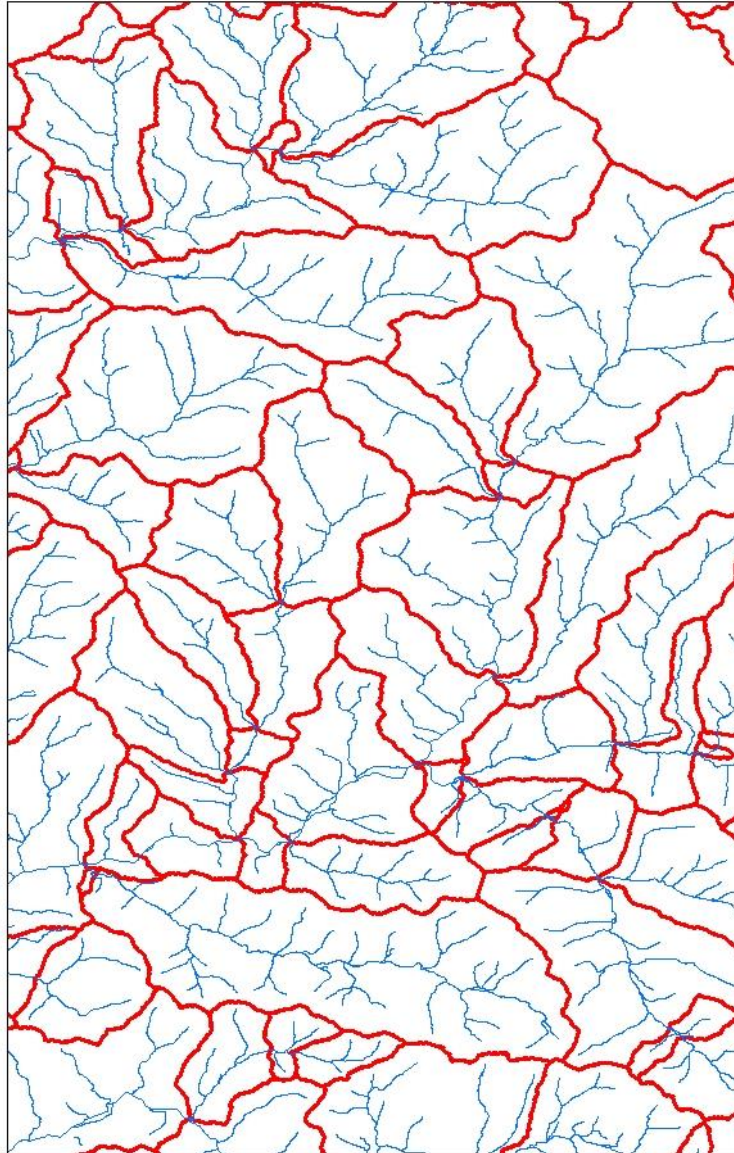
▭ NHDPlus Catchments



How do catchment boundaries relate to higher resolution hydrography?

Legend

- NHD Streams (1:24K)
- ▭ NHDPlus Catchments

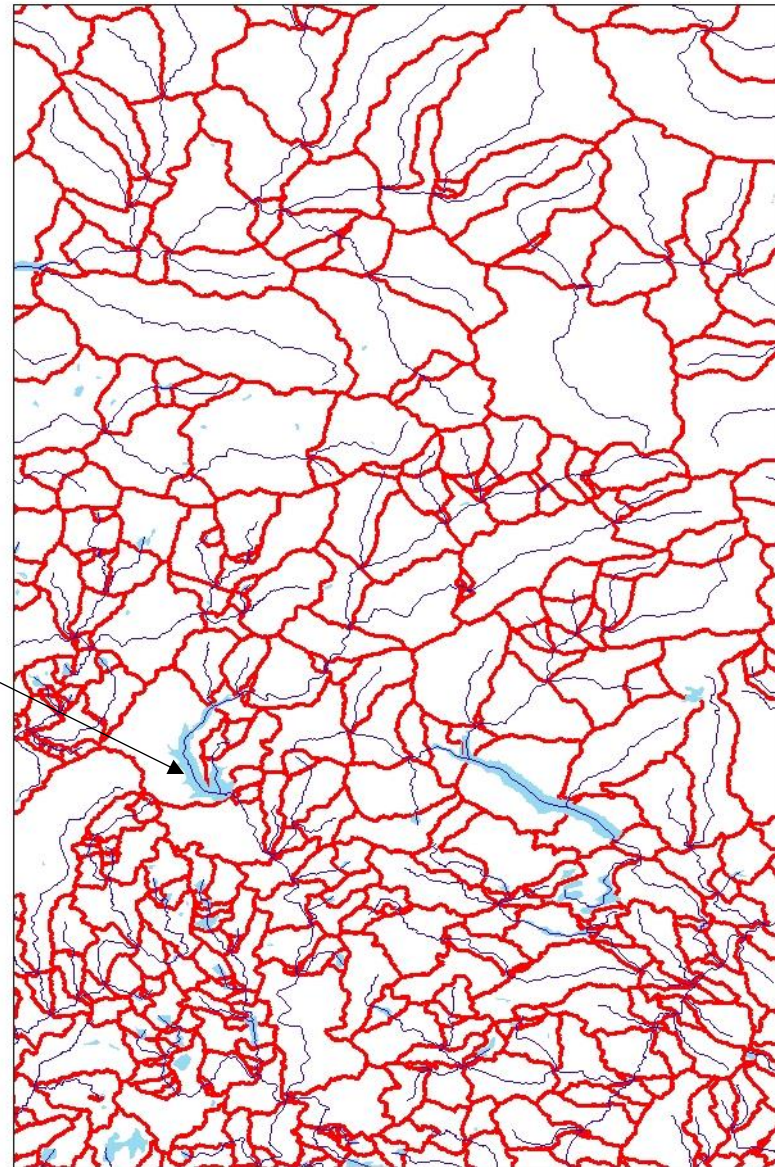


How do catchment boundaries relate to higher resolution hydrography?

Concern raised:
Catchments for a
lake do not
capture the
problems from
upstream

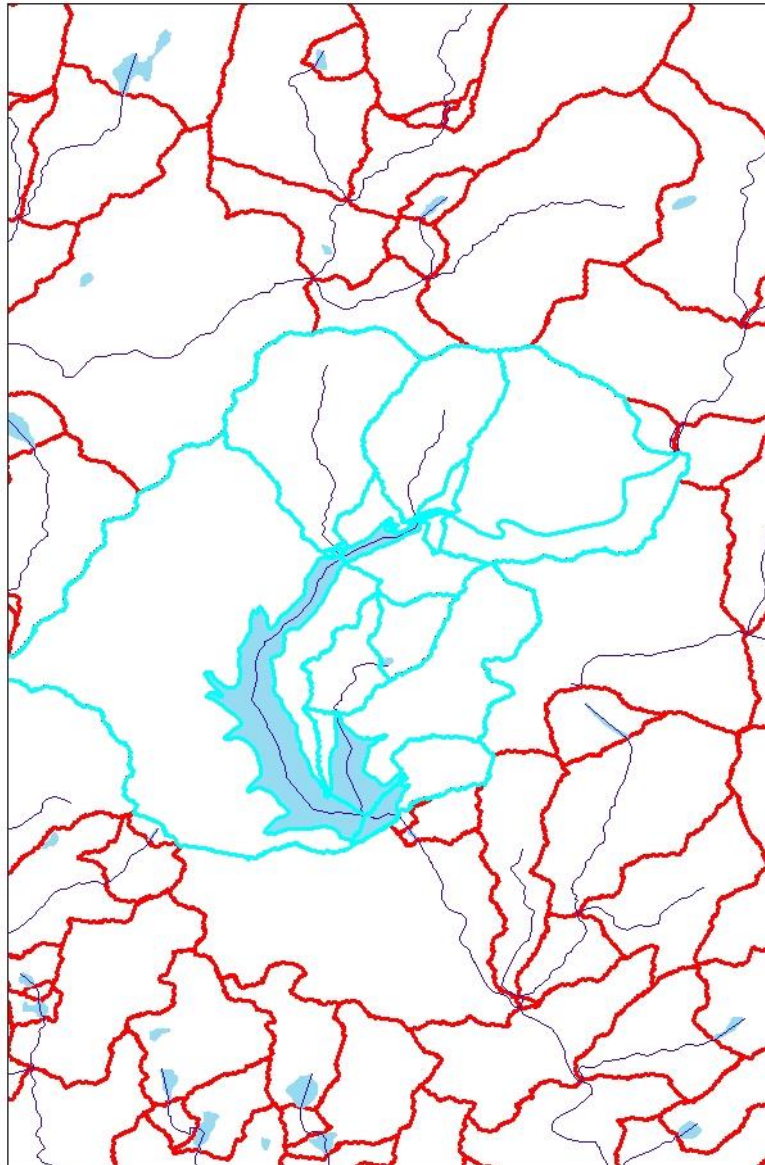
Legend

- NHDPlus Streams
- Lakes
- NHDPlus Catchments



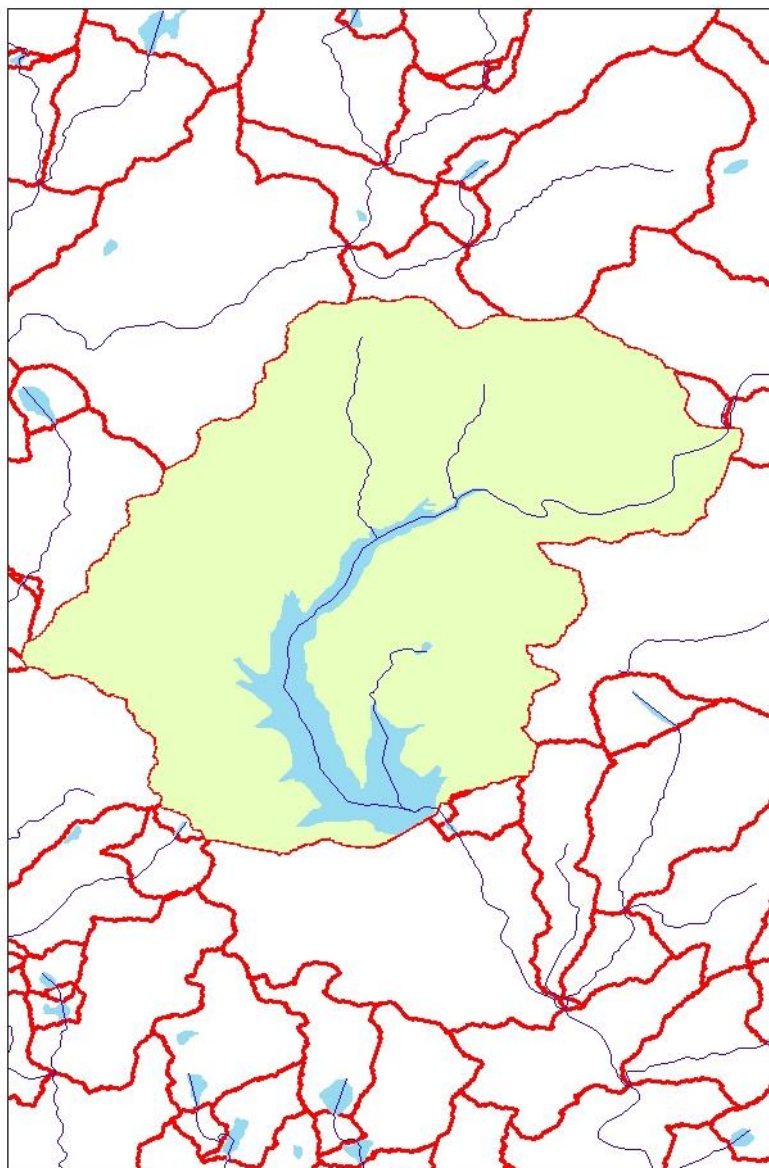
Legend

- NHDPlus Streams
- Lakes
- NHDPlus Catchments



Catchments for a lake do not capture the problems from upstream, and how will watershed-based priorities translate to catchments?

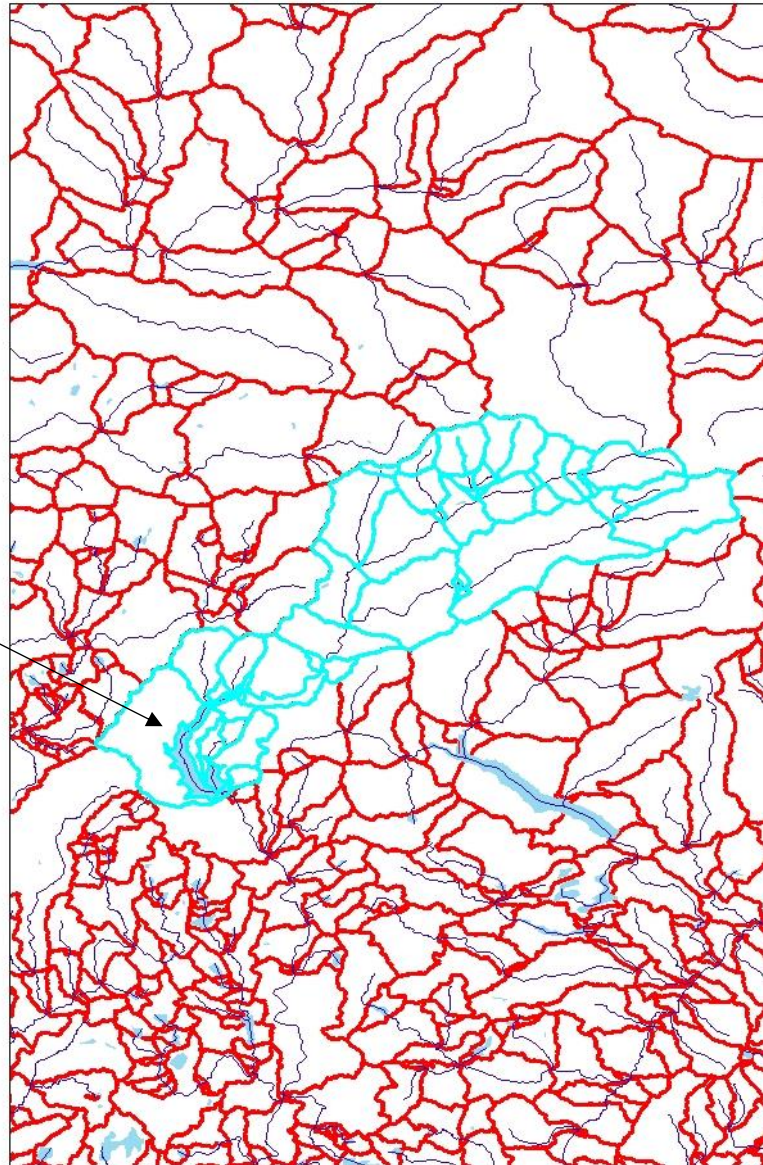
- Legend**
- NHDPlus Streams
 - Lakes
 - Lake Local Drainage
 - NHDPlus Catchments



Catchments for a lake do not capture the problems from upstream, and how will watershed-based priorities translate to catchments?

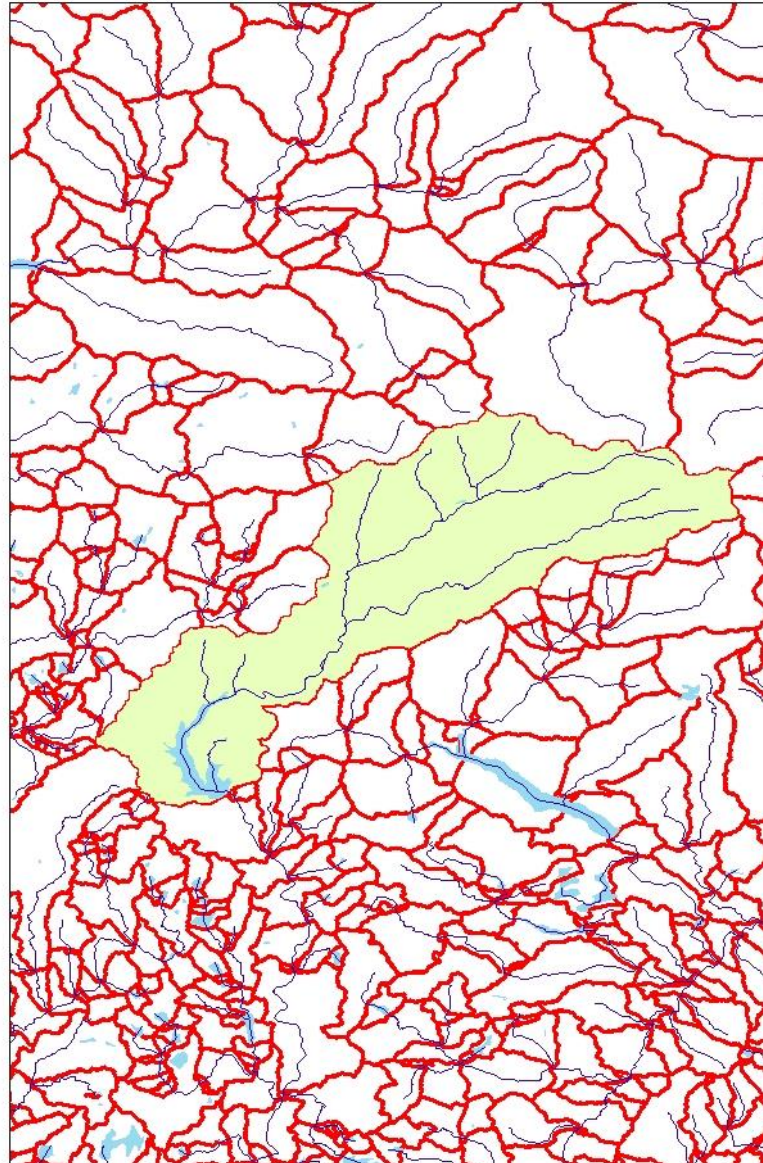
Legend

- NHDPlus Streams
- Lakes
- NHDPlus Catchments



Catchments for a lake do not capture the problems from upstream, and how will watershed-based priorities translate to catchments?

- Legend**
- NHDPlus Streams
 - Lakes
 - Lake Watershed
 - NHDPlus Catchments



Catchments for a lake do not capture the problems from upstream, and how will watershed-based priorities translate to catchments?

Questions

WQ-27 and WQ-28 Discussion

- Quick glance at the Draft Priorities Data Entry Tool
 - More discussion later today
- Quick glance at the Catchment Indexing Process
- WQ-27
 - Kansas
 - Montana
- WQ-28
 - Kansas
 - Montana

Draft Priorities Data Entry Tool

303(d) Program Vision Priority Data Entry System

[Home](#) | [Attribute Data Submission](#) | [GIS Submission](#) | [Statewide S](#)

[Home](#) | [State Priorities](#) | [Summary](#) | [Help](#) |

Welcome to the 303(d) Program Vision Priority Data Entry System. You will use this system to define your state's priorities information and submit the data to EPA HQ. This system provides a guided walkthrough to help you enter the information. On this page, you will define the Baseline Cycle and Goal Cycle, which will apply to all of your state's priorities. In addition, you can see the submission status for the state collection of priorities information being submitted to EPA HQ.

Define Baseline and Goal Cycles

To begin adding the state 303(d) Program Vision Priorities information, please first enter the baseline and goal cycles for your state.

If you have already started to add your 303(d) Program Vision Priorities, click the State Priorities tab to continue.

*State

*Baseline Cycle

*Goal Cycle

State Priorities Submission Status Report

The report below shows the submission status for the state collection of priorities information being submitted to EPA HQ. The default status is "Draft". After the information is submitted to EPA, the status will be updated to "Submitted".

State	Baseline Cycle	Goal Cycle	Status
MT	2014	2022	Draft

1 - 1

Draft Priorities Data Entry Tool (Cont.)

303(d) Program Vision Priority Data Entry System

Logout

Home | Attribute Data Submission | GIS Submission | Statewide Statistical Survey | NTTTS | **State Priority Measure**

Home | **State Priorities** | Summary | Help

On this page, you can add the information for each of your state's priorities. Fill out the form below and click the Submit button to add a priority to the List of Priorities Entered for Your State on the right. Once a priority is added, you can edit the priority information and add supporting data (GIS, Assessment Units, Causes, Uses) from the report. You will add supporting data for each priority separately; exception: you can upload GIS data and associate an entry with multiple priorities on the GIS page.

Add State Priorities

State:

Baseline Cycle:

Goal Cycle:

*Priority ID:

*Priority Name:

*Priority Description:

List of Priorities Entered for Your State

Click the Add supporting data link to add GIS, Assessment Units, Causes and/or Uses data for a priority (Note: On the GIS page, you can associate a file with multiple priorities). Click the pencil icon to edit previously entered priority information.

	State	Priority ID	Priority Name	Priority Description	
Add supporting data	MT	1	Assessment units with cause ALUMINIUM	Assessment units with cause ALUMINIUM	
Add supporting data	MT	2	Assessment units with cause AMMONIA (TOTAL)	Assessment units with cause AMMONIA (TOTAL)	
Add supporting data	MT	3	Assessment units with cause AMMONIA (UN-IONIZED)	Assessment units with cause AMMONIA (UN-IONIZED)	
Add supporting data	MT	4	Assessment units with cause ANTIMONY	Assessment units with cause ANTIMONY	
Add supporting data	MT	5	Assessment units with cause ARSENIC	Assessment units with cause ARSENIC	
Add supporting data	MT	6	Assessment units with cause BOTTOM DEPOSITS	Assessment units with cause BOTTOM DEPOSITS	
Add supporting data	MT	7	Assessment units with cause CADMIUM	Assessment units with cause CADMIUM	
Add supporting data	MT	8	Assessment units with cause CHROMIUM (TOTAL)	Assessment units with cause CHROMIUM (TOTAL)	
Add supporting data	MT	9	Assessment units with cause COPPER	Assessment units with cause COPPER	
Add supporting data	MT	10	Assessment units with cause DISSOLVED OXYGEN SATURATION	Assessment units with cause DISSOLVED OXYGEN SATURATION	
Add supporting data	MT	11	Assessment units with cause ESCHERICHIA COLI	Assessment units with cause ESCHERICHIA COLI	

Catchment Indexing Process

CIP Tool

Catchment Indexing Tool

State Abbreviation: MT

Program: 305b

Year: 2014

Input File (*.shp or *.zip): 305bStreams2014_std.shp

Username: _____

Database Password: _____

Program Subtype: _____

Assessment ID/Column name of event ID: STOrigID

Database Name: cip

Port (default: 5432): _____

Host (default: localhost): _____

Linear Length Threshold: _____

Area Percent X Threshold: _____

Area Percent Y Threshold: _____

Event is HUC-like

Export to DBF

Export to CSV

Running...

```
script main routine starting
bbr = MT
gram = 305b
type = None
r = 2014
utfile = D:/projects/cip/measures/mt/deliv
essment_id = STOrigID
gth threshold = None
a percent x threshold = None
a percent y threshold = None
abase = cip
t = 5432
t = havasu.rtp.rti.org
r = hbergenroth
-like = False
tem/logged in user = hbergenroth
cessing: D:/projects/cip/measures/mt/deliv
rted job ID 881
nt Type: Line
ional length, x, and y thresholds = None,
lied linear length threshold = 100
ex of STOrigID = 0
ture count = 1206
of events processed
of events processed
20% of events processed
30% of events processed
40% of events processed
50% of events processed
60% of events processed
70% of events processed
80% of events processed
90% of events processed
100% of events processed
Writing results to output DBF
All events processed, committing transaction
Job complete
```

```
INFO @ 2015-04-02 10:39:29.334: 20% of events processed
INFO @ 2015-04-02 10:39:41.763: 30% of events processed
INFO @ 2015-04-02 10:39:53.105: 40% of events processed
INFO @ 2015-04-02 10:40:16.795: 50% of events processed
INFO @ 2015-04-02 10:40:43.785: 60% of events processed
INFO @ 2015-04-02 10:40:56.845: 70% of events processed
INFO @ 2015-04-02 10:41:04.904: 80% of events processed
INFO @ 2015-04-02 10:41:13.825: 90% of events processed
INFO @ 2015-04-02 10:41:23.045: 100% of events processed
INFO @ 2015-04-02 10:41:23.045: Writing results to output DBF
INFO @ 2015-04-02 10:41:30.855: All events processed, committing transaction
INFO @ 2015-04-02 10:41:30.855: Job complete
```

```
Applied linear length threshold = 100
# Assessment Units: 1100
# Events: 1206
# Errors: 0
input filename:
D:/projects/cip/measures/mt/delivered/MT_305bStreams2014_std.shp
output filename:
D:/projects/cip/measures/mt/delivered/MT_305bStreams2014_std_2Catch_job881.dbf
time elapsed (H:M:S): 0:03:01.712000
```


Catchment Indexing Process QA

The screenshot displays the ArcMap interface with a map showing a catchment area. The map features a network of streamlines (blue) and catchment boundaries (red) overlaid on a green terrain. The Table of Contents on the left lists the layers: MT_305bStreams2014_std, Flowlines_MT, and Catchment_MT. The Table view at the bottom shows a list of features with columns for OID, EVENTID, FEATUREID, STORIGID, REVIEW, and AREA_SQKM. The status bar at the bottom right indicates the coordinates -104.628 45.091 Decimal Degrees.

OID	EVENTID	FEATUREID	STORIGID	REVIEW	AREA_SQKM
135	2380381	9794716	MT39F001_030	12	10.7613
505	2380379	9794659	MT39F001_030	12	3.4605
2496	2380387	9794648	MT39F001_030	12	0.6129
5783	2380389	9794640	MT39F001_030	12	1.0224
6121	2380383	9794710	MT39F001_030	12	3.7197
1022	2380378	9794652	MT39F001_030	12	3.9294
1056	2380384	9794708	MT39F001_030	12	3.7917
1105	2380385	9795216	MT39F001_030	12	1.7334
1187	2380377	9794616	MT39F001_030	12	0.1665
1338	2380390	9794642	MT39F001_030	12	0.0162
1459	2380390	9794626	MT39F001_030	12	0.6219
1747	2380382	9794714	MT39F001_030	12	2.5911
1756	2380386	9794674	MT39F001_030	12	2.4246
1814	2380388	9794630	MT39F001_030	12	0.0315

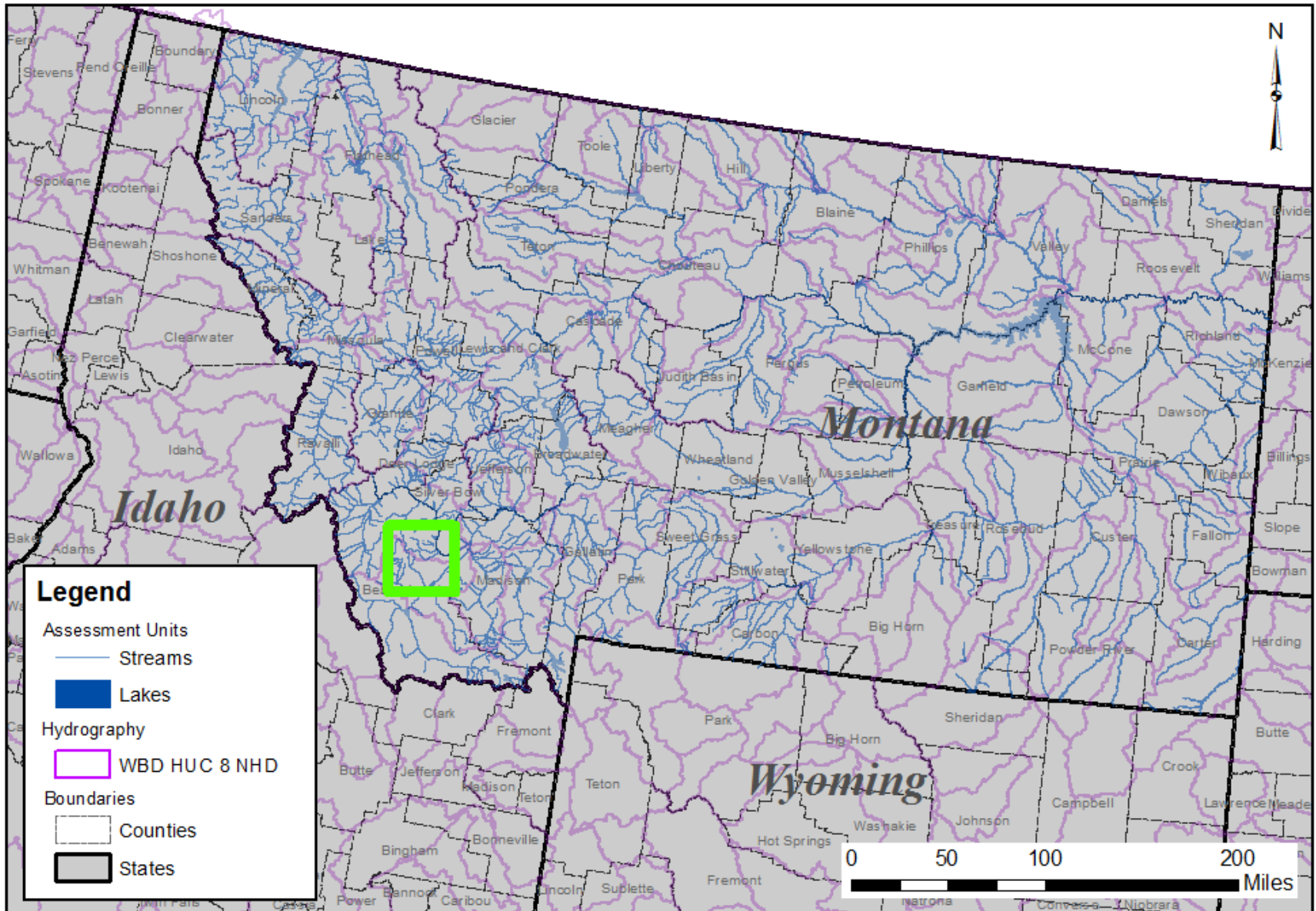
Calculating WQ-27

- Tracks “Plans in Place” for state Long-Term Priorities from 2016 to 2022
 - Priorities: Defined by state (assessment units, watersheds, ecoregions, or basins; pollutants; or designated uses)
 - Plans: TMDLs, Alternatives, Protection
 - Alternatives: Category 5-alt; Category 4b, Category 4c
 - Protection: Waters supporting designated uses
 - Flexibility to change long-term priorities
- Goal of 100% “Plans in Place” by 2022
 - Set annual targets/commitments
 - Report progress annually (end of each fiscal year)
 - Priority recognized under measure when all plans in place

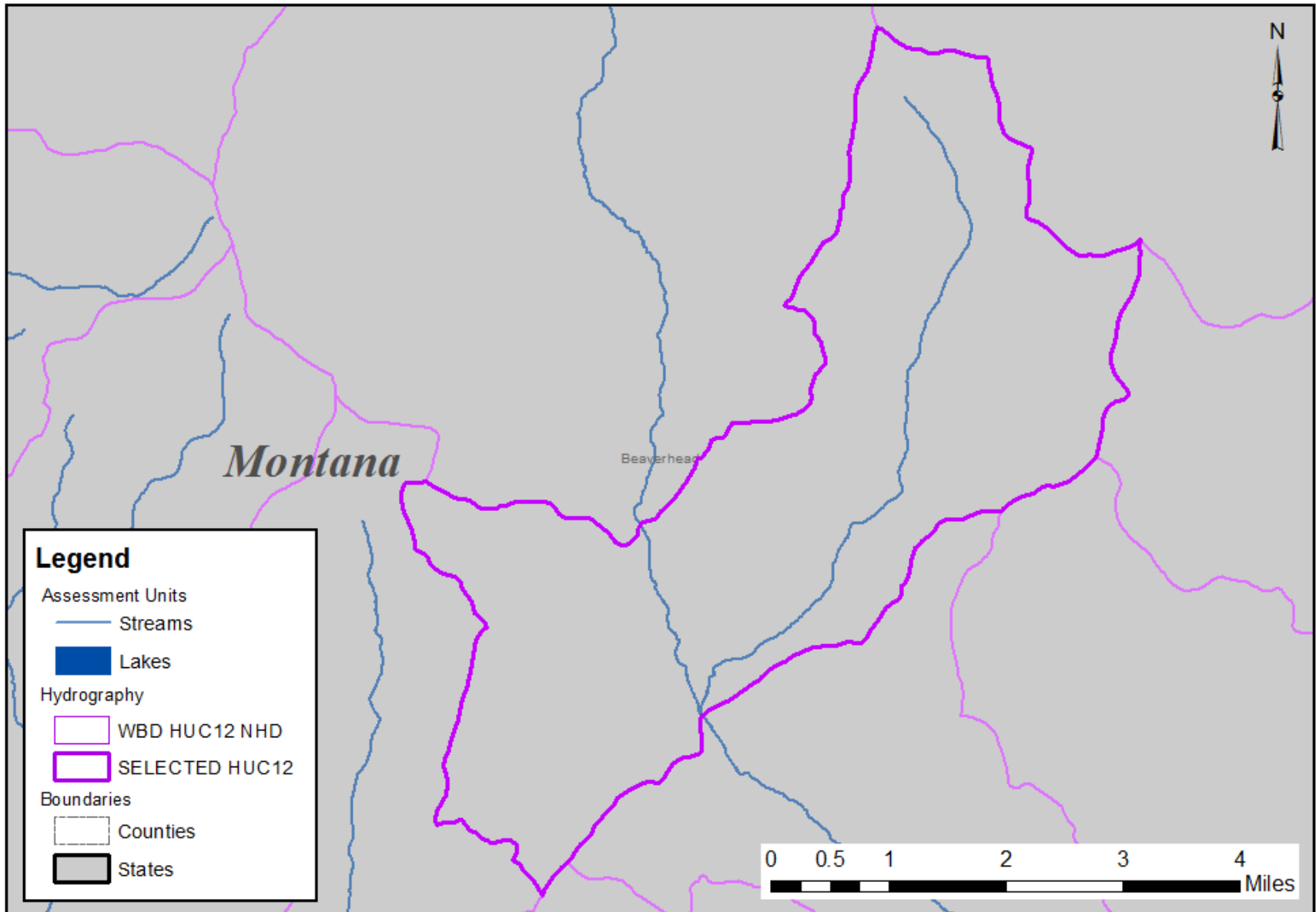
Calculating WQ-27 (Cont.)

- Montana
 - Priorities: Assessment Unit / Cause of Impairment Combinations
 - Used 2014 Integrated Reporting Cycle Geospatial Information for Baseline Cycle

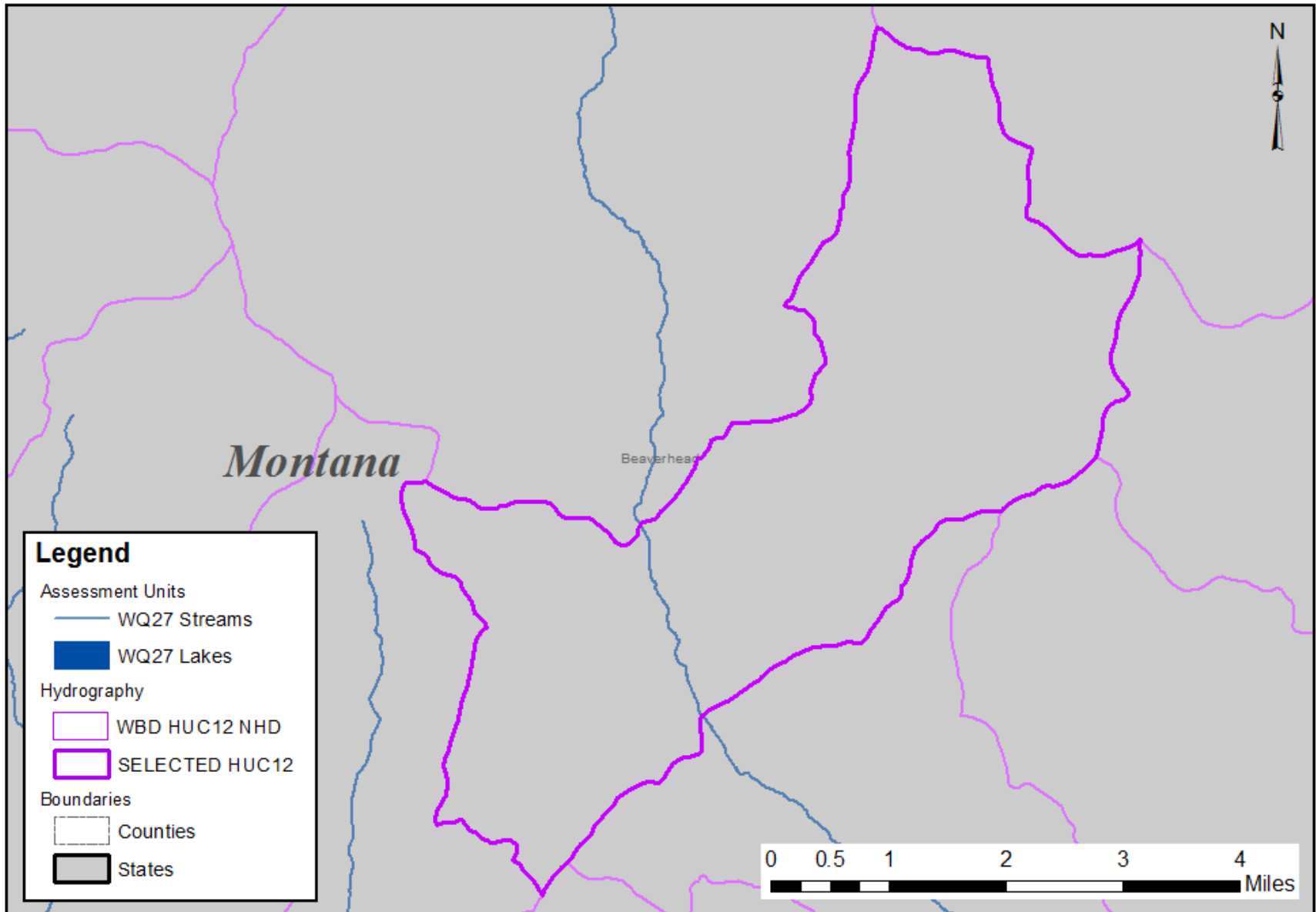
Calculating WQ-27 (Cont.)



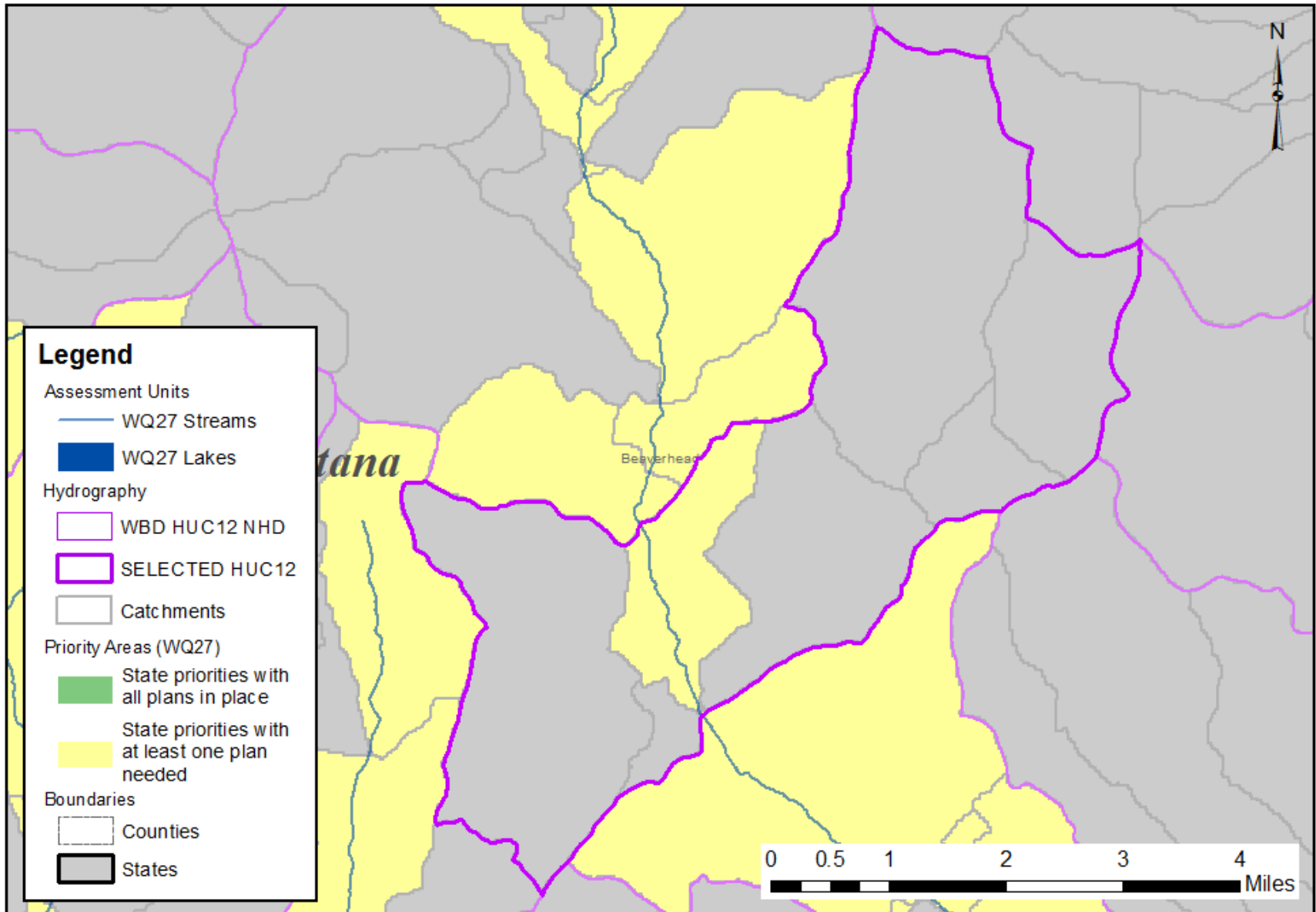
Calculating WQ-27 (Cont.)



Calculating WQ-27 (Cont.)



Calculating WQ-27 (Cont.)



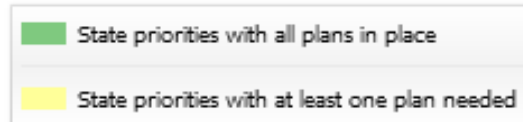
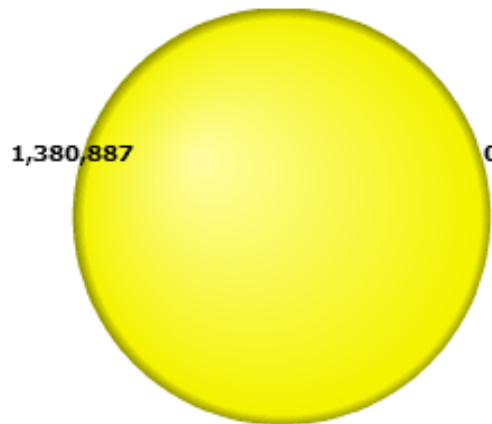
Calculating WQ-27 (Cont.)

DRAFT: For Demonstration Purposes Only

This information is based on analyzing priorities defined by the state under the 303(d) Vision. The data was associated with catchments to automate the calculation of and report out on this measure.

WQ-27 Universe and Baseline Info

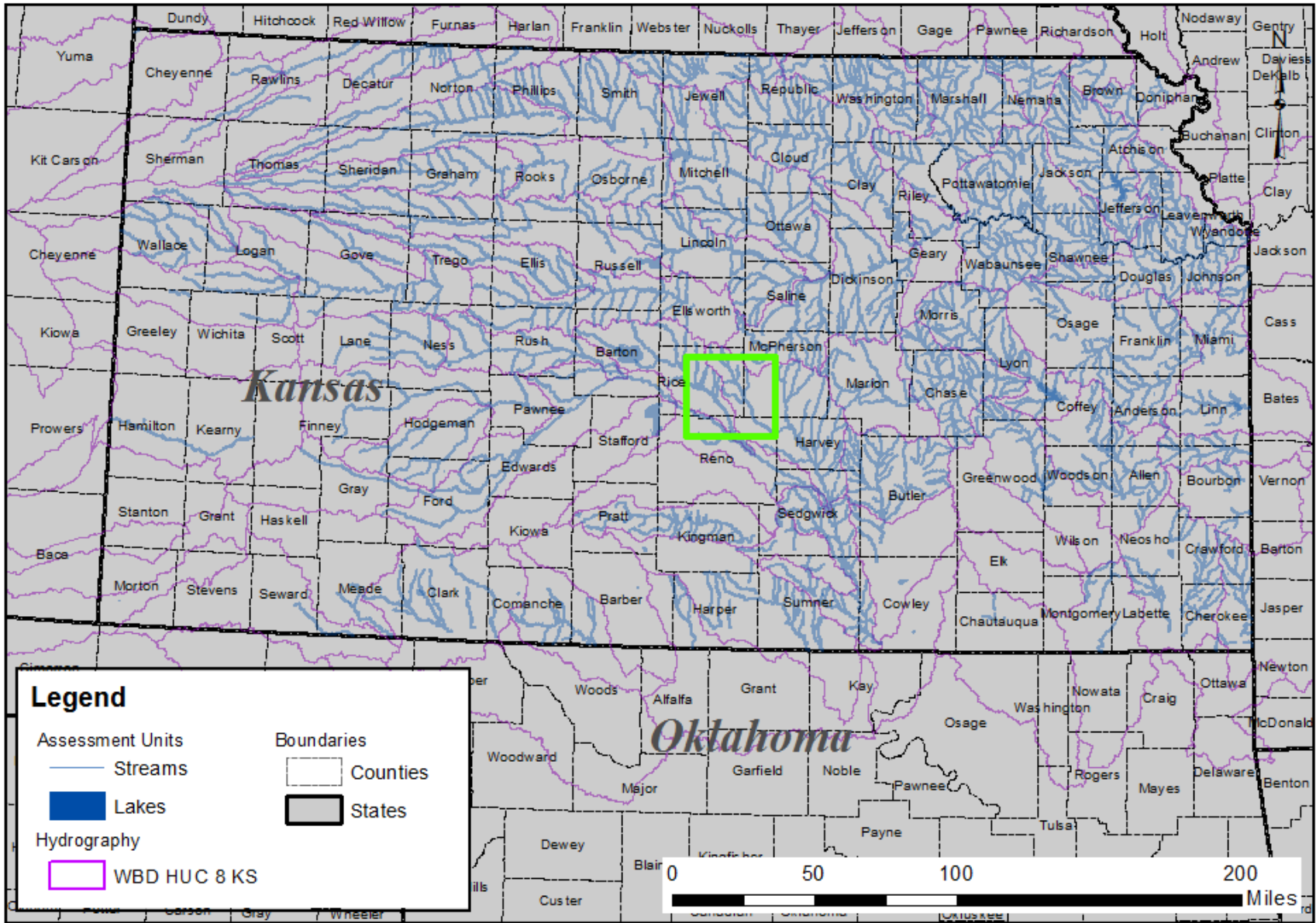
2014 IR Cycle	Catchment Acres
Universe area:	1,380,887.18
Baseline area:	.00
Baseline percent:	0%



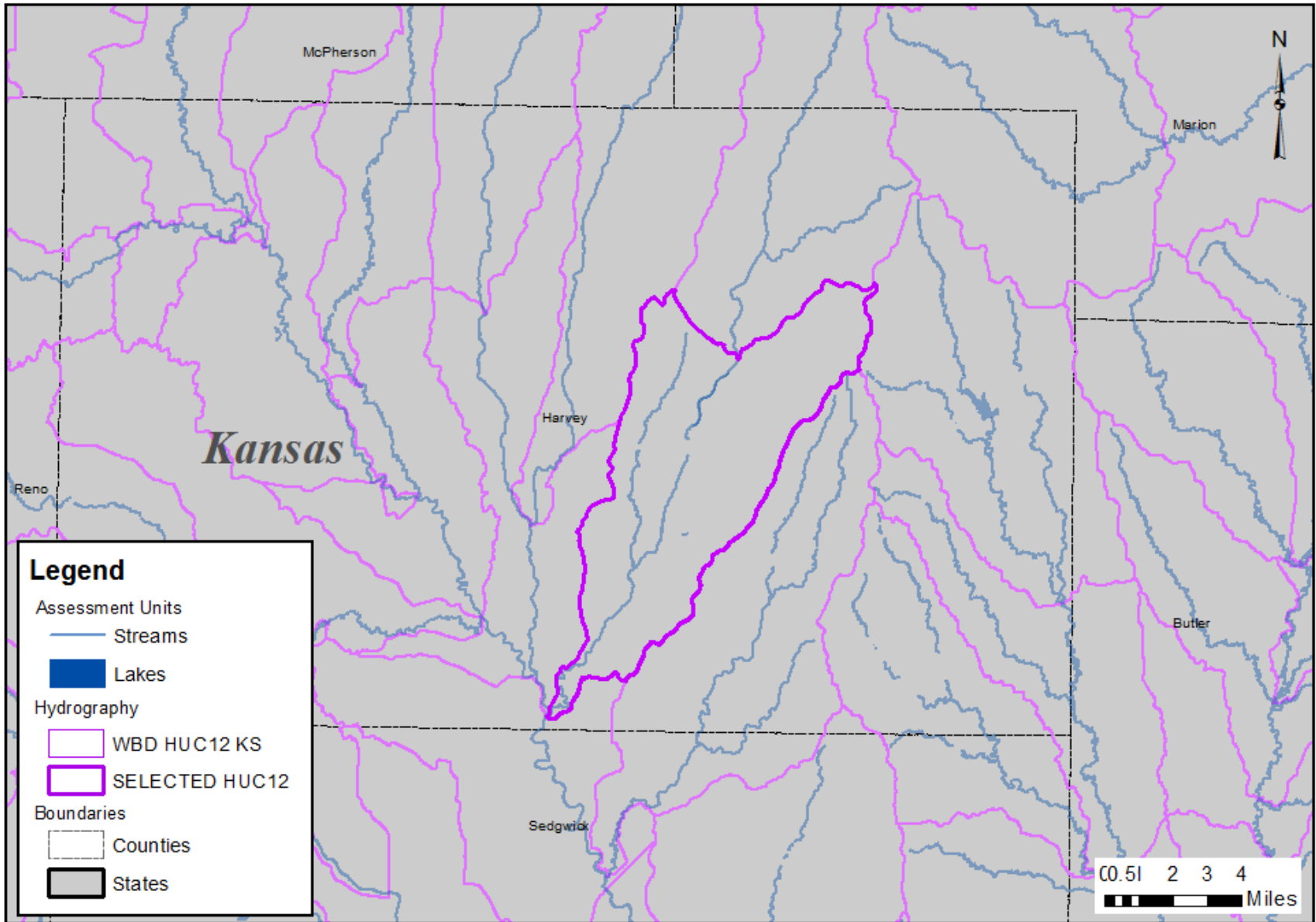
Calculating WQ-27 (Cont.)

- Kansas
 - Priorities: HUC 12s
 - EPA interpreted information provided as Assessment Units with Phosphorus and Nitrate Impairments
 - Discussion Point on Plan Area
 - Priorities included waters with TMDLs “Plans in Place”
 - Used 2014 Integrated Reporting Cycle Geospatial Information for Baseline Cycle

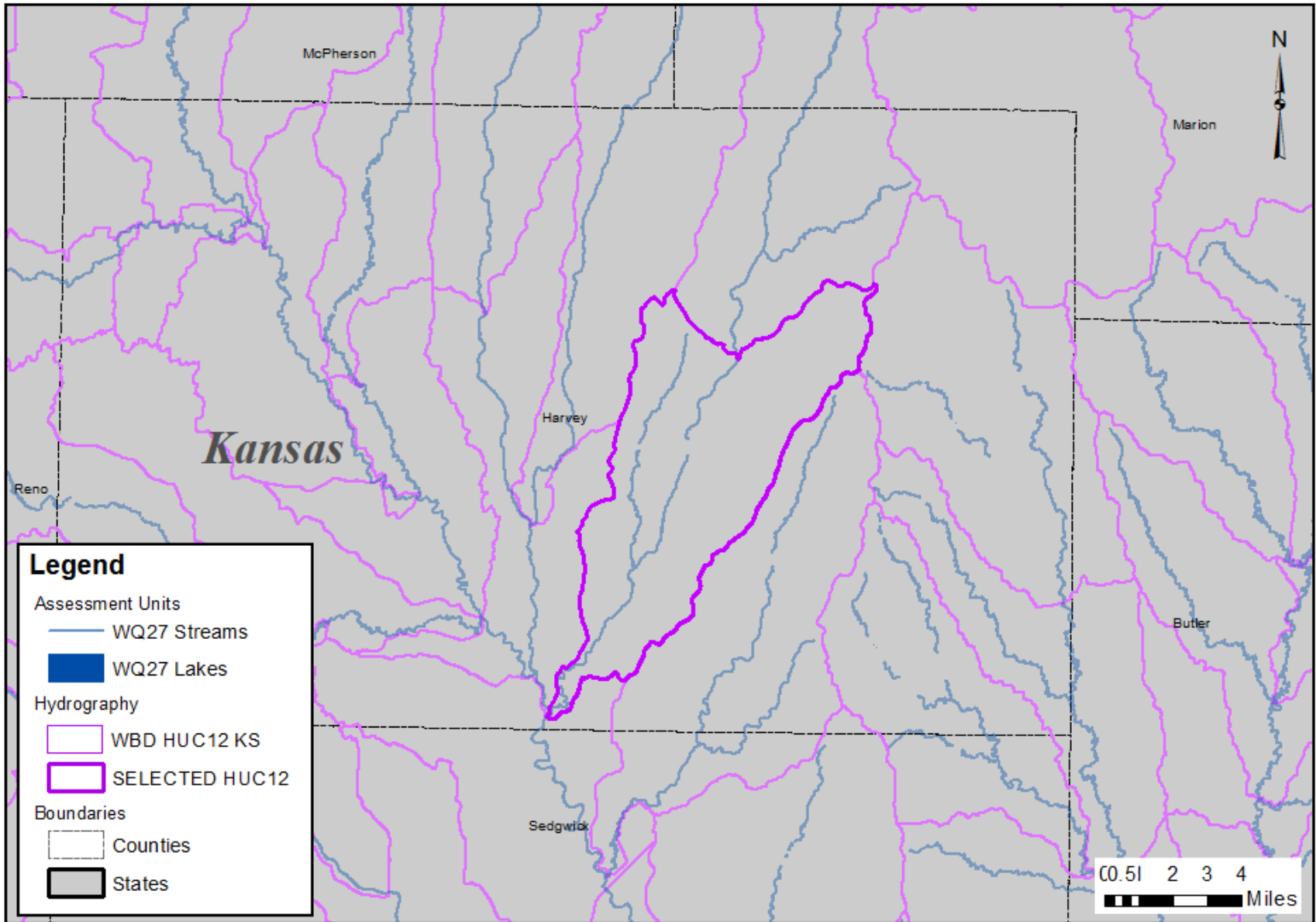
Calculating WQ-27



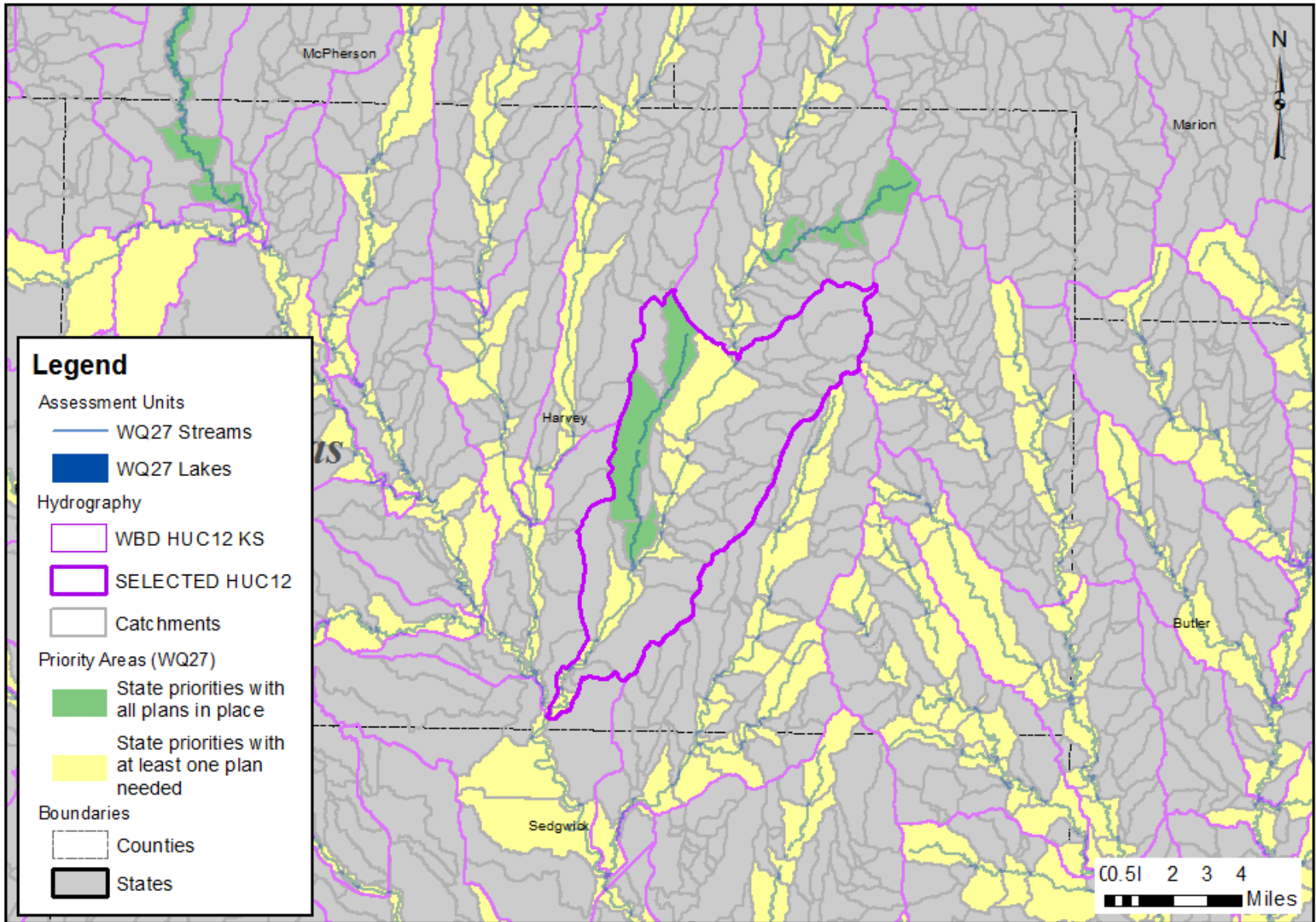
Calculating WQ-27 (Cont.)



Calculating WQ-27 (Cont.)



Calculating WQ-27 (Cont.)



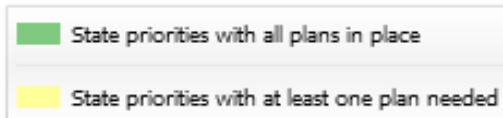
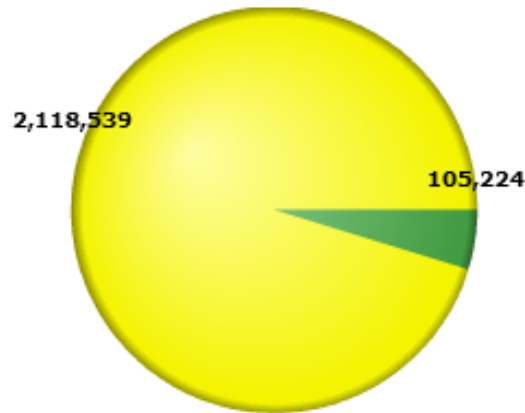
Calculating WQ-27 (Cont.)

DRAFT: For Demonstration Purposes Only

This information is based on analyzing priorities defined by the state under the 303(d) Vision. The data was associated with catchments to automate the calculation of and report out on this measure.

WQ-27 Universe and Baseline Info

2014 IR Cycle	Catchment Acres
Universe area:	2,223,762.74
Baseline area:	105,223.96
Baseline percent:	4.73%



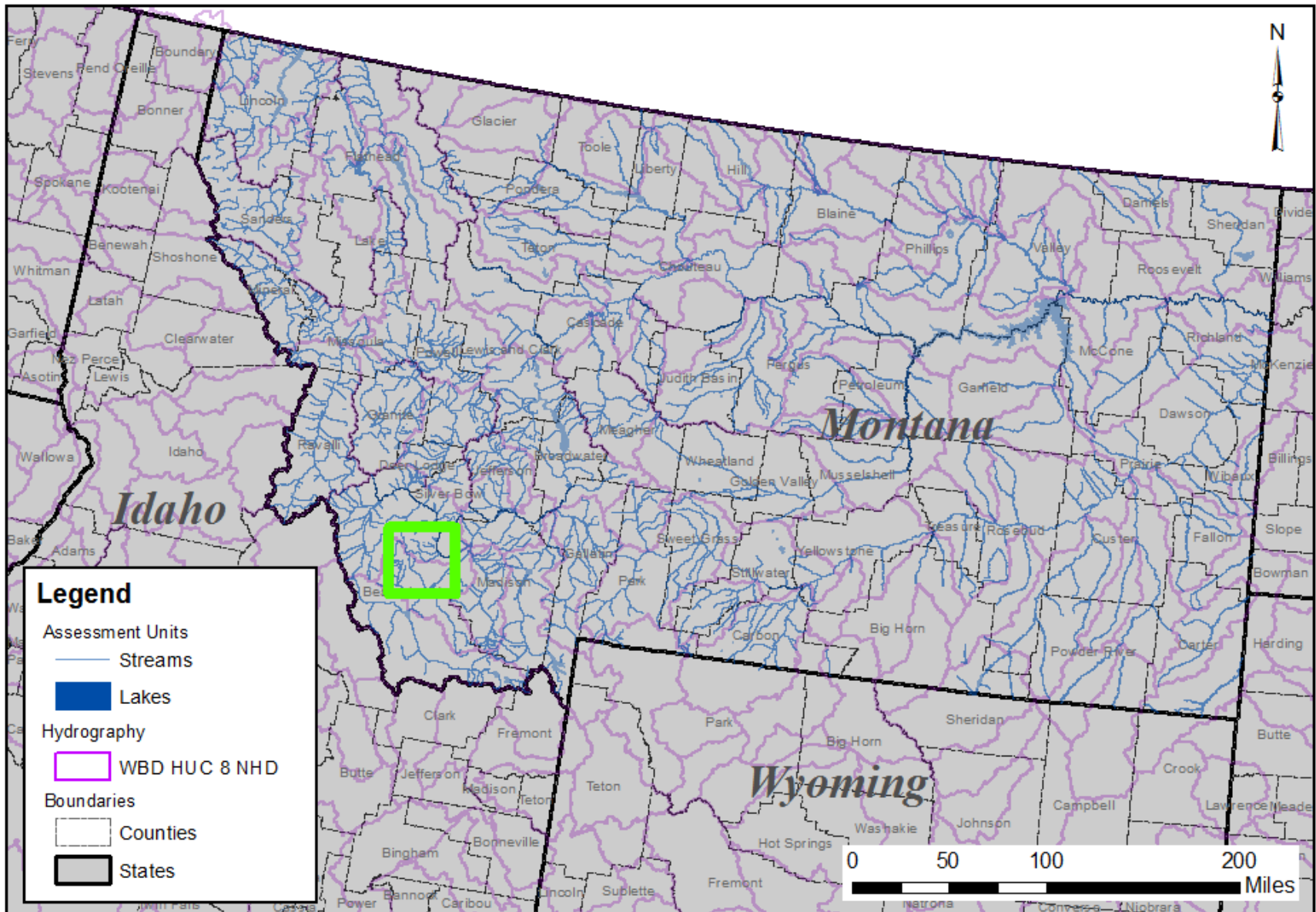
Calculating WQ-28

- Tracks “Plans in Place” and progress towards “Plans in Place” within and outside of priorities
 - Plans: TMDLs, Alternatives, Protection
 - Alternatives: Category 5-alt; Category 4b, Category 4c
 - Protection: Waters supporting designated uses
 - Progress: Planning and Developing
 - Based on information at assessment unit level
 - Uses a weighted approach
 - “Rolling” baseline
- Report progress annually (end of each fiscal year)
 - Universe and baseline updated with each new Integrated Report

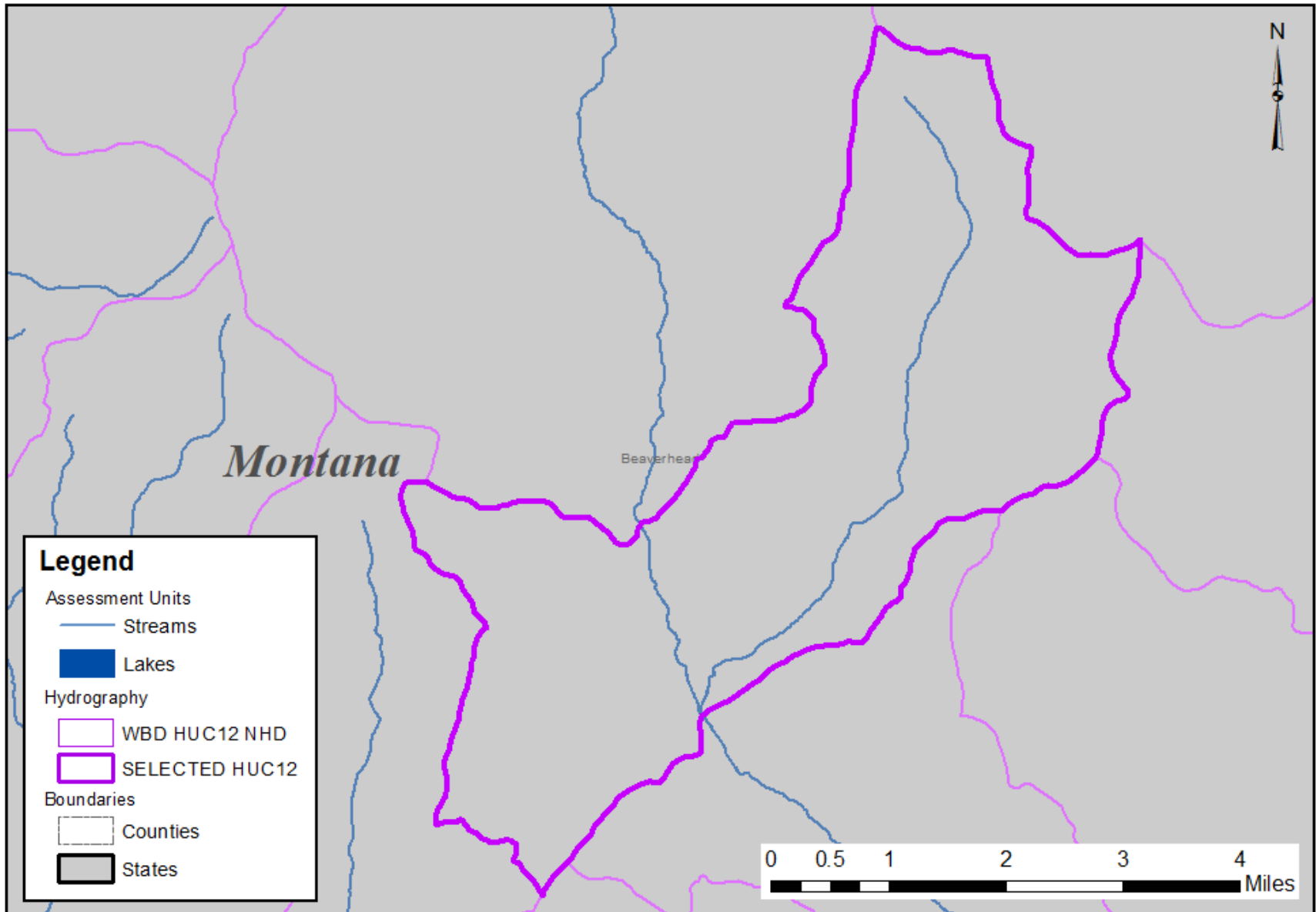
Calculating WQ-28 (Cont.)

- Montana
 - Entire state (within and outside of priorities)
 - Used 2014 Integrated Reporting Cycle Geospatial Information for Baseline Cycle

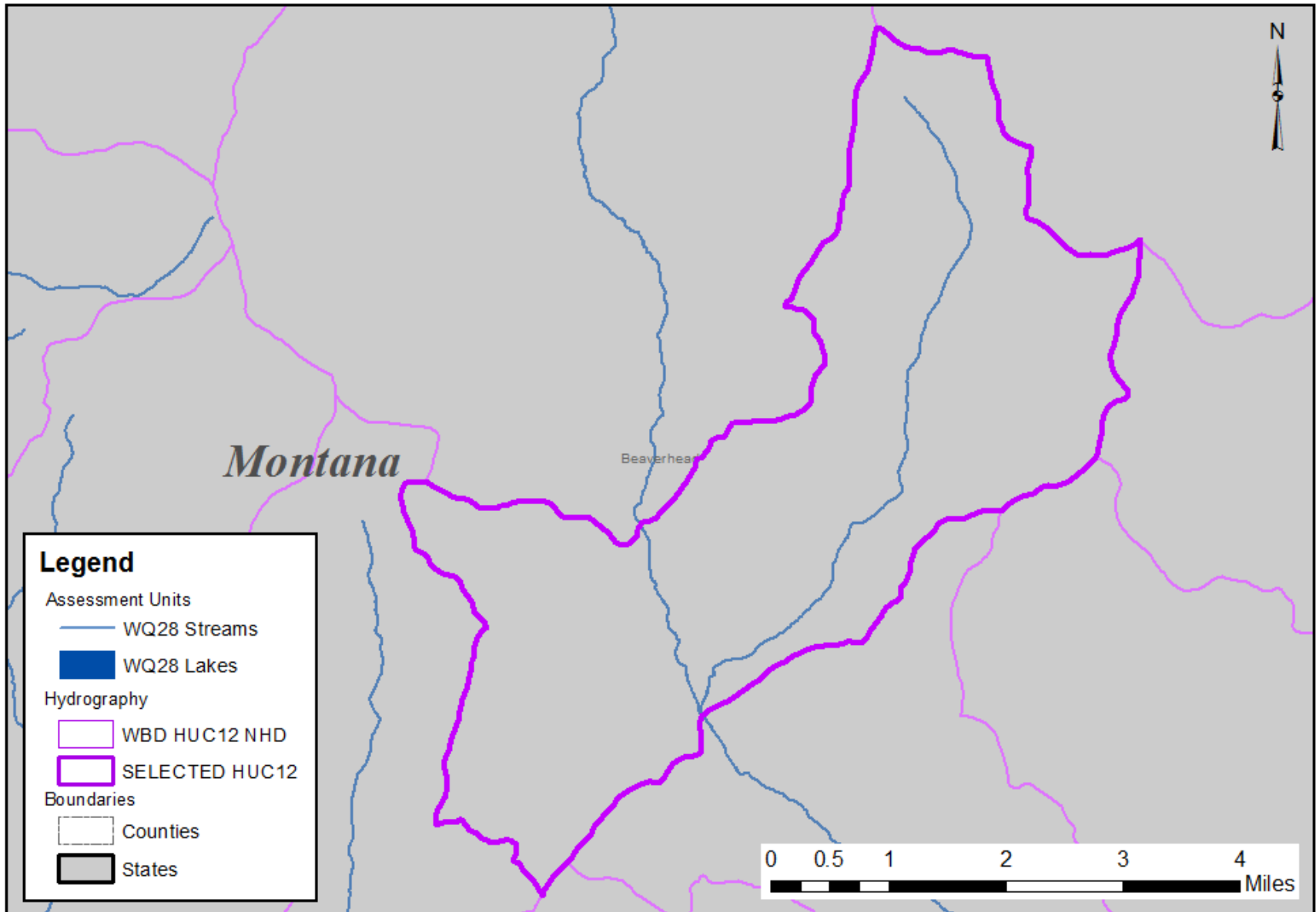
Calculating WQ-28 (Cont.)



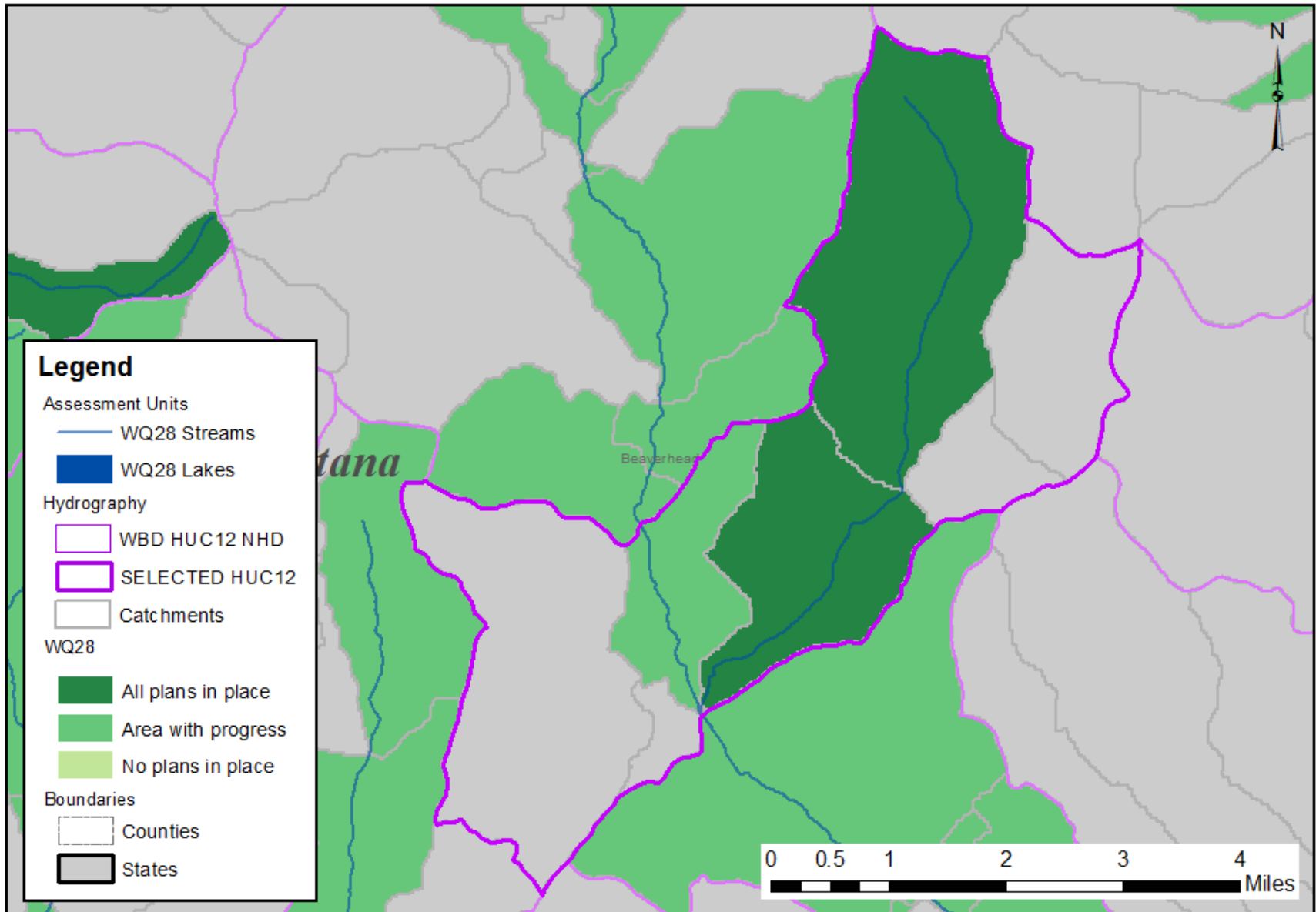
Calculating WQ-28 (Cont.)



Calculating WQ-28 (Cont.)



Calculating WQ-28 (Cont.)



Calculating WQ-28 (Cont.)

DRAFT: For Demonstration Purposes Only

This information is based on analyzing assessment unit information at the level it is managed by the state. The data was associated with catchments to automate the calculation of and report out on this measure.

WQ-28 Universe and Baseline Info

2014 IR Cycle	Catchment Acres
Universe area:	12,099,269.36
Baseline area (weighted):	1,656,035.67
Baseline percent:	13.69%

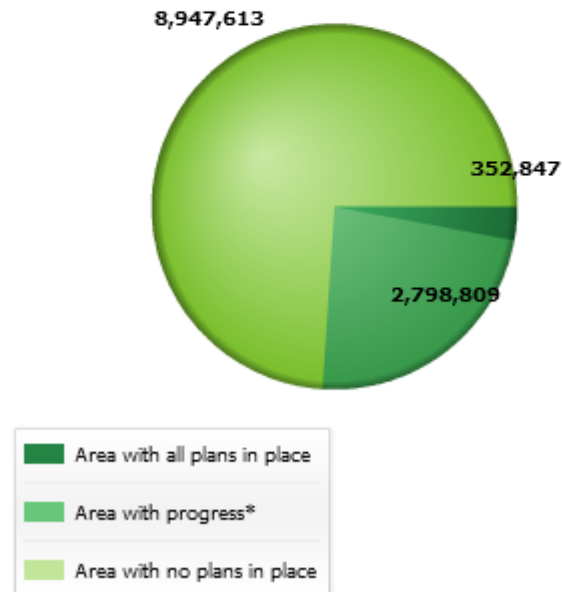
Current Measure Status

FY 2015	Catchment Acres
Universe area:	12,099,269.36
WQ-28 area (weighted):	1,656,035.67
WQ-28 percent:	13.69%

Calculating WQ-28 (Cont.)

WQ-28 Baseline Plan Breakdown

2014 IR Cycle	Catchment Acres
Universe area:	12,099,269.36
Area with all plans in place:	352,847.06
Area with progress*:	2,798,809.26
Area with no plans in place:	8,947,613.04

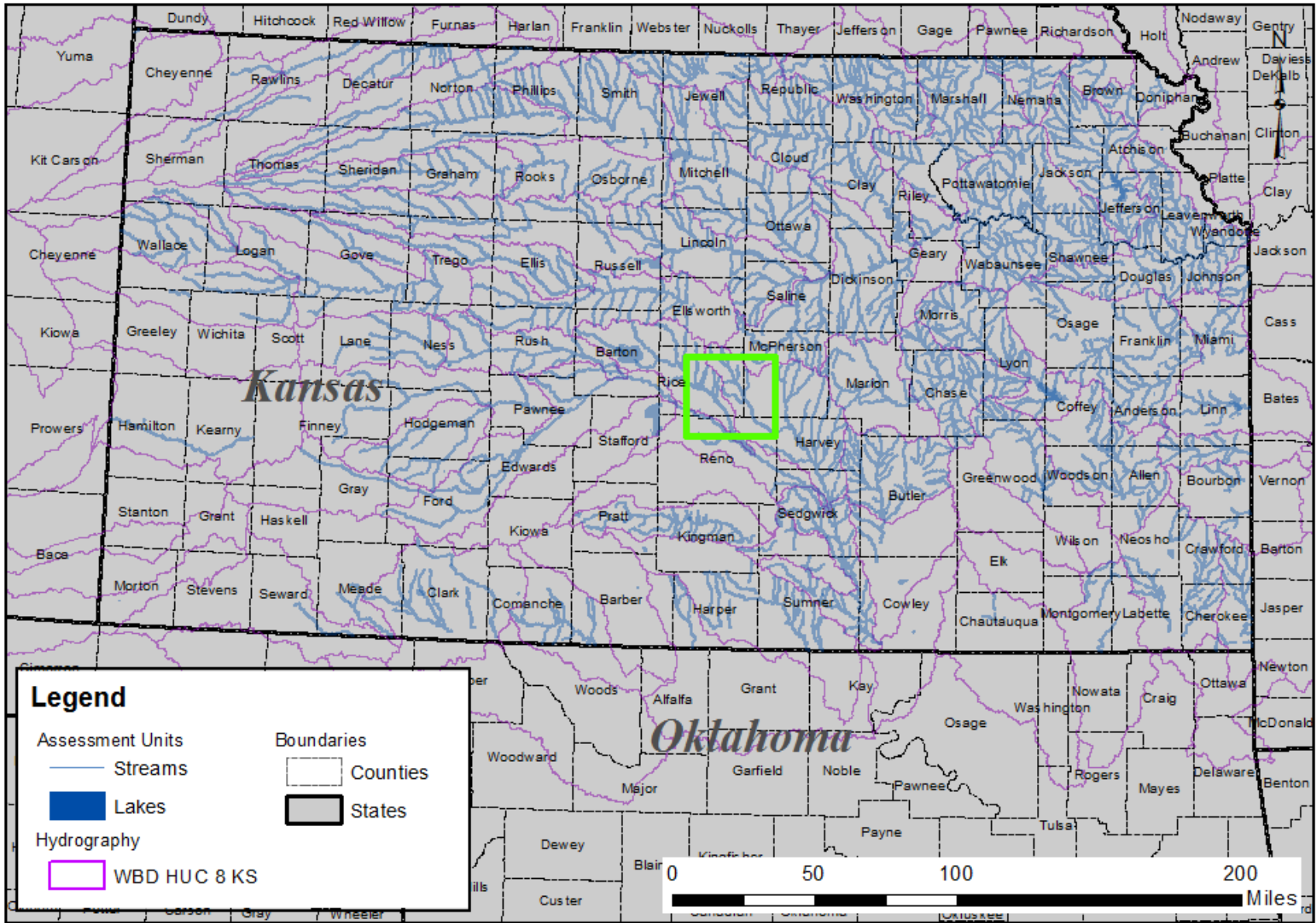


* "Area with progress" refers to the area in which some plans are in planning, in development, or in place.

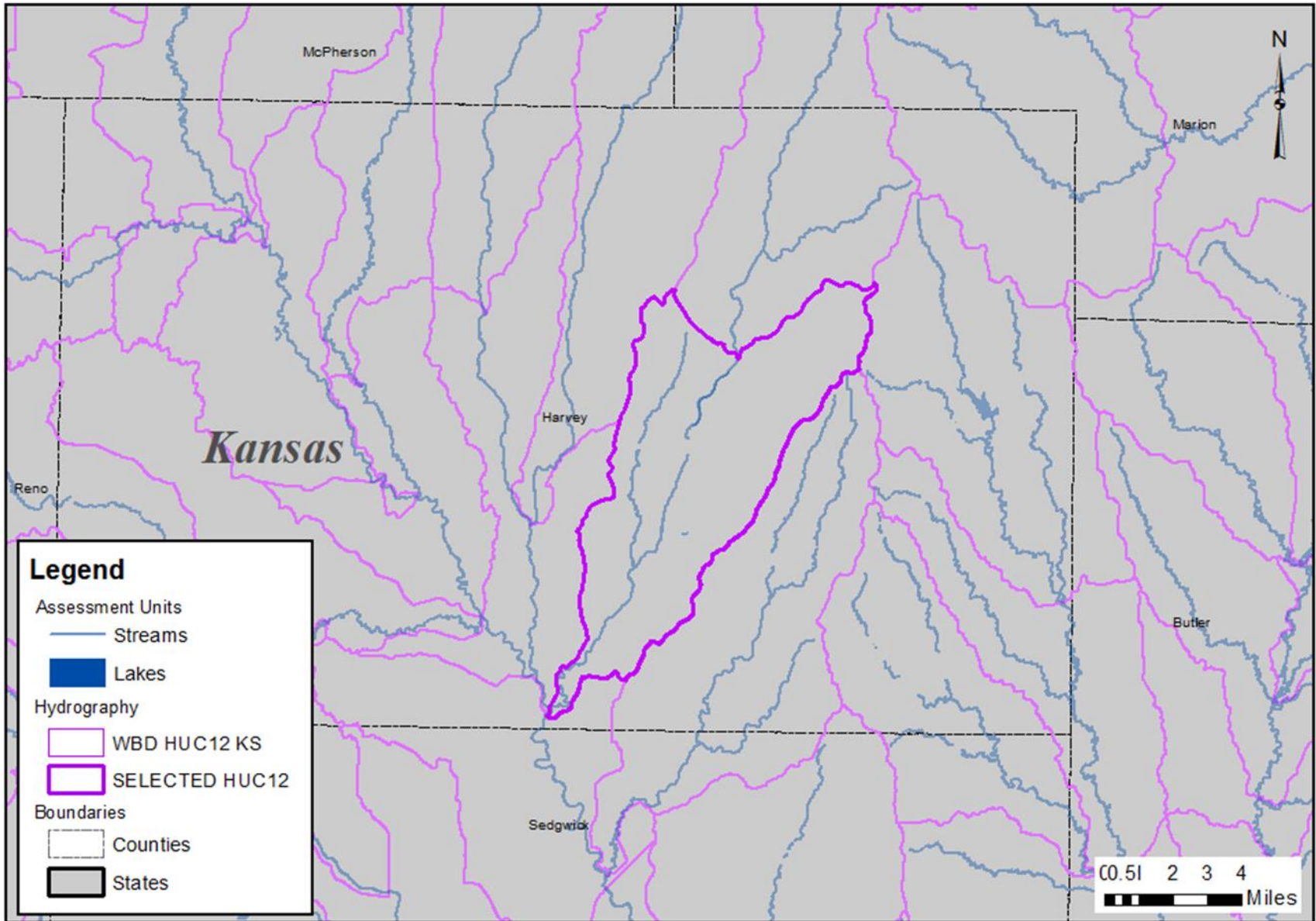
Calculating WQ-28 (Cont.)

- Kansas
 - Entire state (within and outside of priorities)
 - Used 2014 Integrated Reporting Cycle Geospatial Information for Baseline Cycle

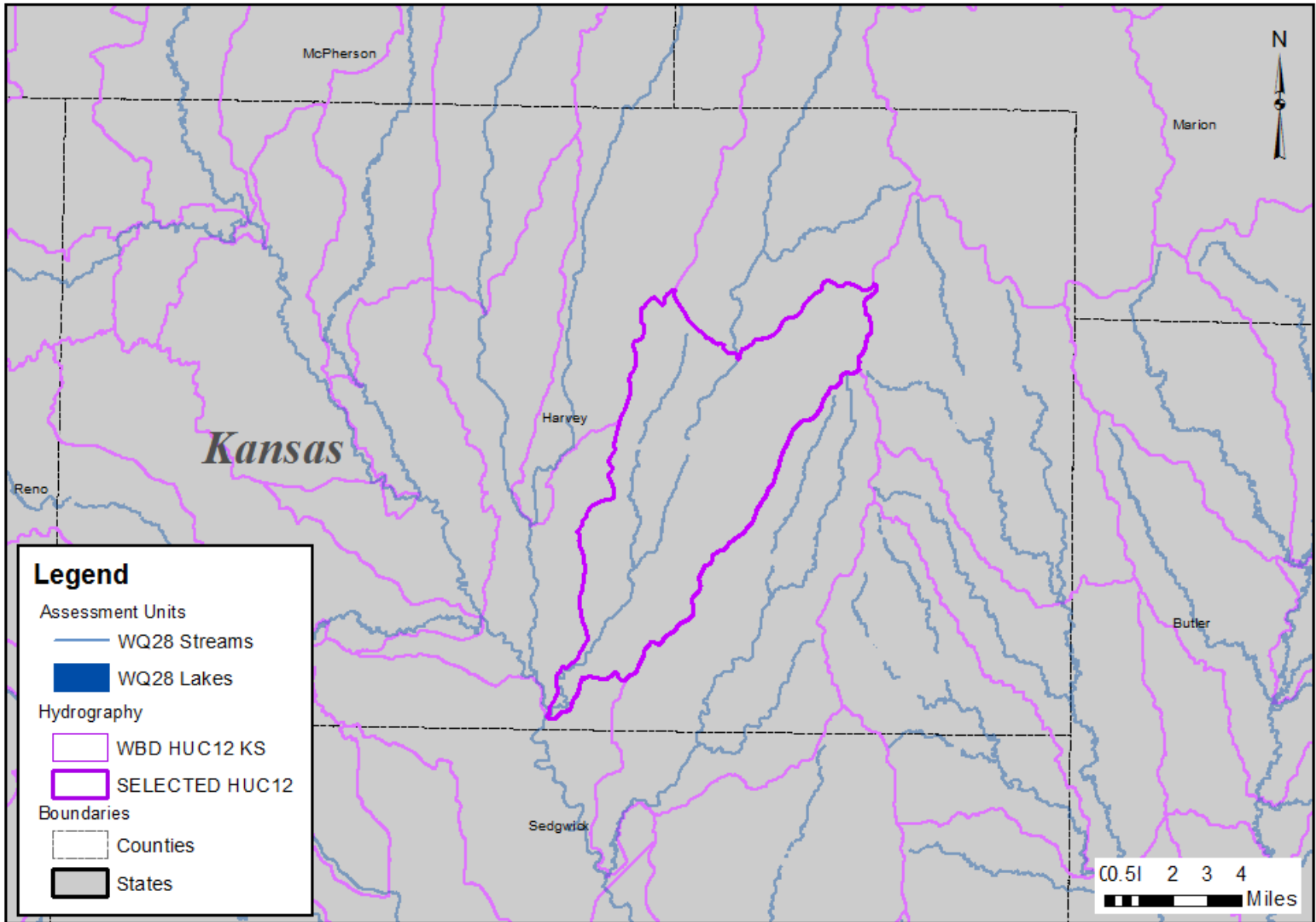
Calculating WQ-28 (Cont.)



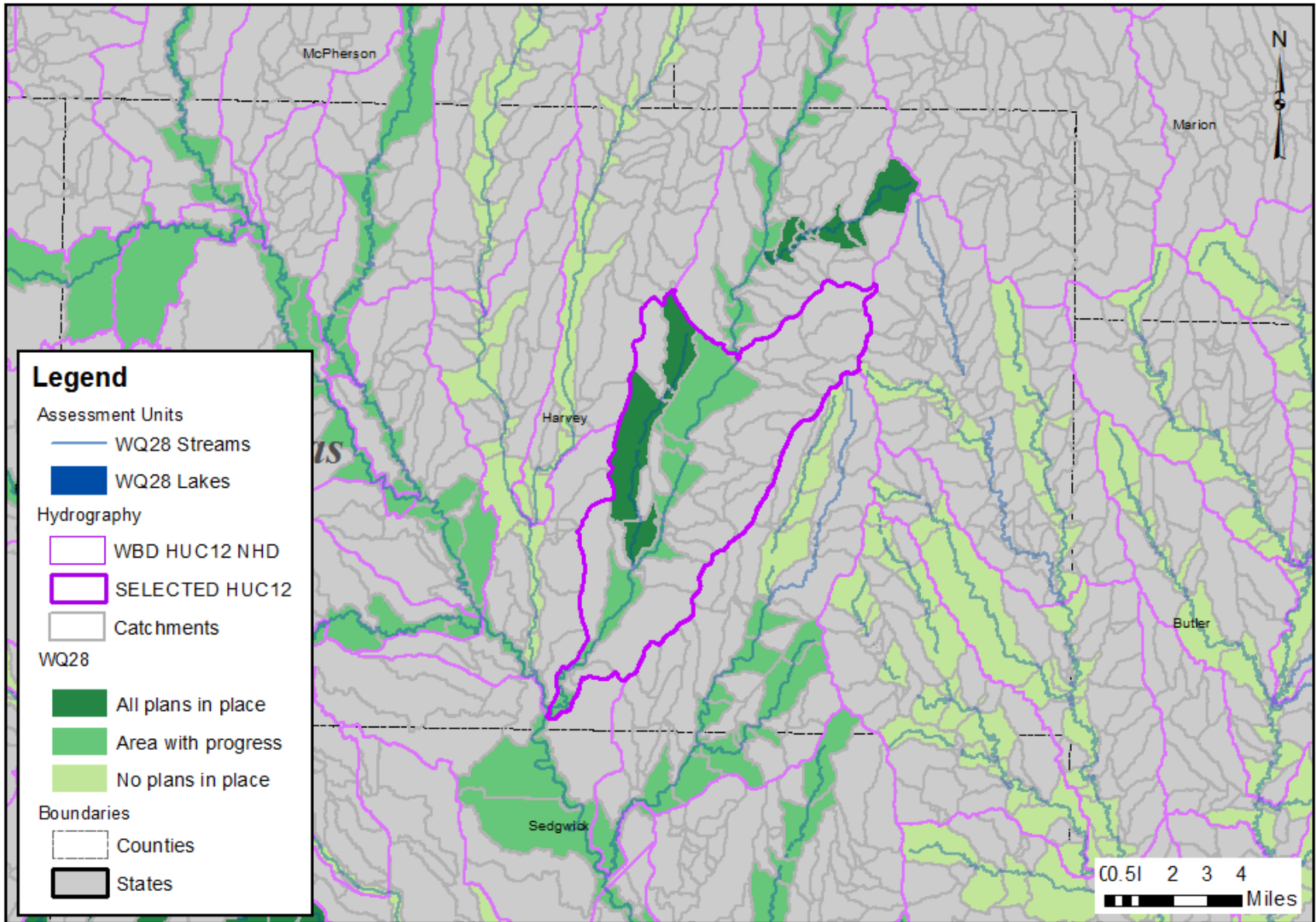
Calculating WQ-28 (Cont.)



Calculating WQ-28 (Cont.)



Calculating WQ-28 (Cont.)



Calculating WQ-28 (Cont.)

DRAFT: For Demonstration Purposes Only

This information is based on analyzing assessment unit information at the level it is managed by the state. The data was associated with catchments to automate the calculation of and report out on this measure.

WQ-28 Universe and Baseline Info

2014 IR Cycle	Catchment Acres
Universe area:	9,196,567.08
Baseline area (weighted):	2,308,999.17
Baseline percent:	25.11%

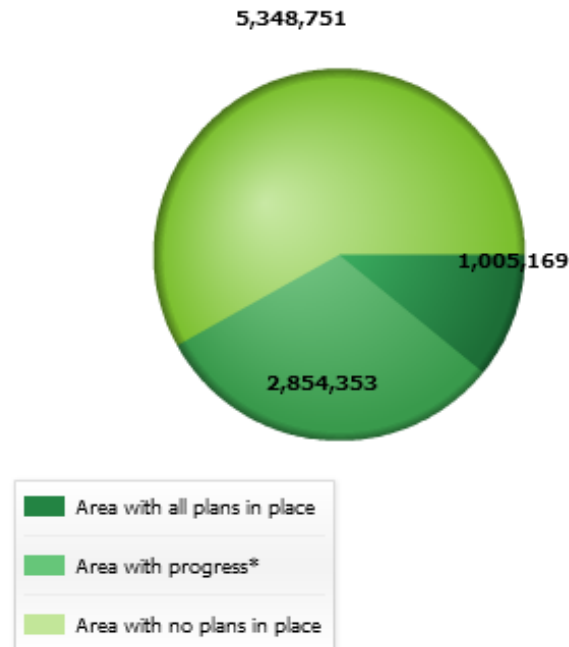
Current Measure Status

FY 2015	Catchment Acres
Universe area:	9,196,567.08
WQ-28 area (weighted):	2,341,058.18
WQ-28 percent:	25.46%

Calculating WQ-28 (Cont.)

WQ-28 Baseline Plan Breakdown

2014 IR Cycle	Catchment Acres
Universe area:	9,208,272.81
Area with all plans in place:	1,005,168.97
Area with progress*:	2,854,352.63
Area with no plans in place:	5,348,751.21



* "Area with progress" refers to the area in which some plans are in planning, in development, or in place.

Questions

Timeline for Reporting on WQ-27 in FY 2016

- States submit information (data) that outlines “draft” long-term priorities from now to July 2015

Timeline for Reporting on WQ-27 in FY 2016 (Cont.)

- EPA calculates universe and baseline
 - States work with EPA to QA universe and baseline results from now to September 2015
- States work through scenarios for developing “draft commitments” from now to September 2015

Timeline for Reporting on WQ-27 in FY 2016 (Cont.)

- States submit “draft final” FY 2016 commitments by late September/early October 2015

Timeline for Reporting on WQ-27 in FY 2016 (Cont.)

- Regions enter approved TMDLs into NTTTS from October 1, 2015 to September 30, 2016
- EPA works with states to design, build, and test the data entry tool for alternatives and protection plans from now to Spring/Summer 2016

Timeline for Reporting on WQ-27 in FY 2016 (Cont.)

- States submit 2016 Integrated Reports on April 1, 2016

- States inform EPA if adjustments should be made to WQ-27 universe, baseline, and “draft final” commitments set in October 2015. This should occur in April 2016
 - If yes, work with EPA to modify WQ-27 information in April and May 2016, and submit adjustments in May 2016
 - If no, nothing more to do at this time

Timeline for Reporting on WQ-27 in FY 2016 (Cont.)

- EPA to calculate end-of-year results based on plans in place that were entered into ATTAINS by September 30, 2016. This will occur during October 2016. Generally end-of-year results are due at the end of October or early November.
 - EPA will coordinate with states and Regions to confirm calculations and end-of-year results calculated are correct.
- October 2016
 - We survived the first year reporting on WQ-27
 - We did it!

Timeline for Reporting on WQ-28 in FY 2016

- EPA calculates universe and baseline
 - EPA will use most recent IR data available in ATTAINS
 - For “protection” waters, the state will need to identify these waters for EPA
- States work with EPA to QA universe and baseline results from now to July 2016

Timeline for Reporting on WQ-28 in FY 2016 (Cont.)

- Regions enter approved TMDLs into NTTTS from October 1, 2015 to September 30, 2016
- EPA works with states to design, build, and test the data entry tool for alternatives and protection plans from now to Spring/Summer 2016

Timeline for Reporting on WQ-28 in FY 2016 (Cont.)

- EPA to calculate end-of-year results based on plans in place that were entered into ATTAINS by September 30, 2016. This will occur during October 2016. Generally end-of-year results are due at the end of October or early November.
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Questions