

DRCR Water Quality Data

2016-2020

Mimi Fearn

January 19, 2021

Please mute your microphone. If you have questions as we go along, enter them in the chat box, and Debi will be the designated spokesperson.

Questions of concern posed in 2015

1. Is water getting better or worse over time?
2. Is it safe to swim in Dog River?
3. Is salt water intrusion a problem?
4. How bad is turbidity in Halls Mill Creek?

—●— Accumulative ■ Chemistry ■ Bacteria ■ Bioassessment

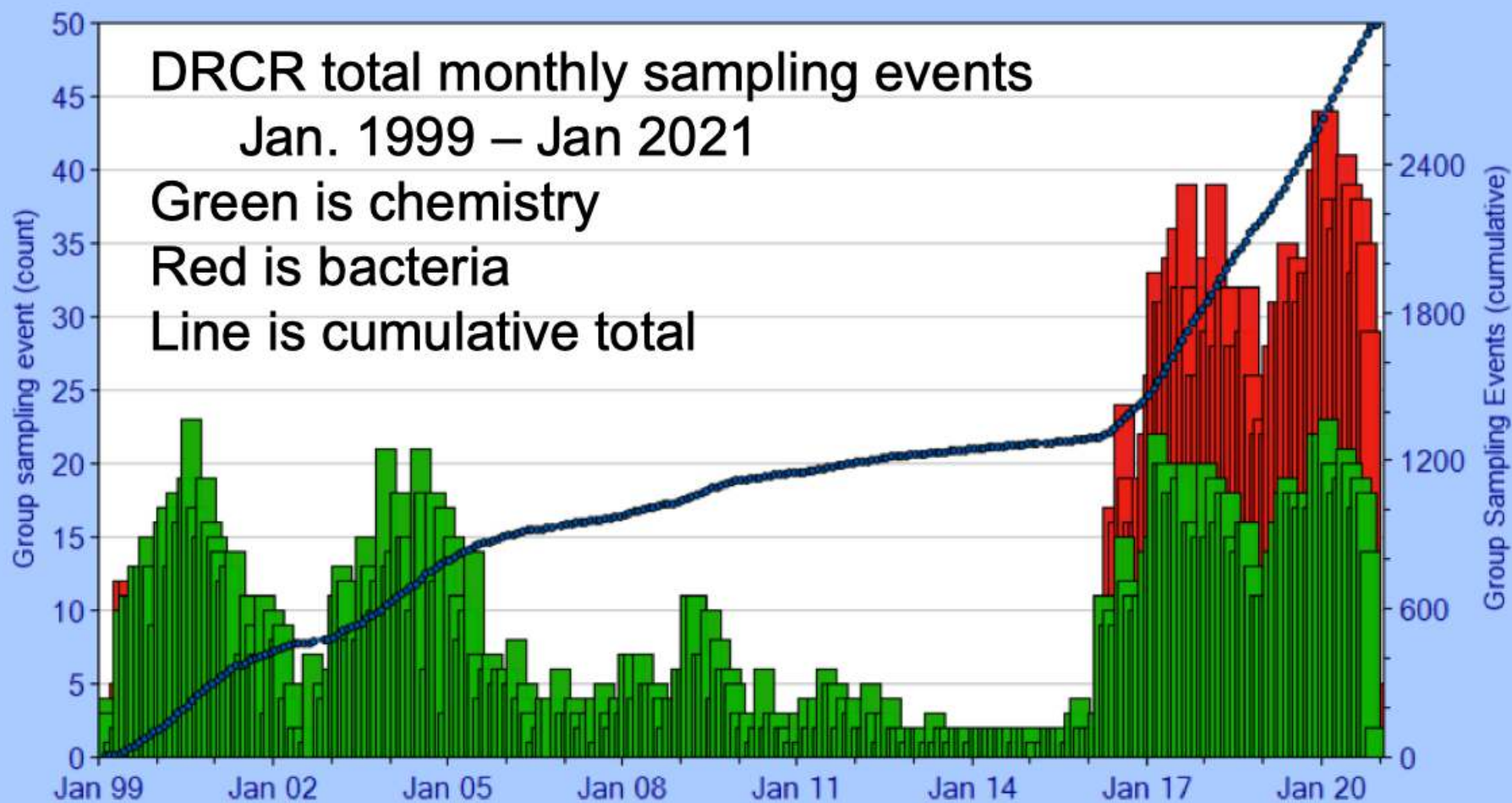
DRCR total monthly sampling events

Jan. 1999 – Jan 2021

Green is chemistry

Red is bacteria

Line is cumulative total



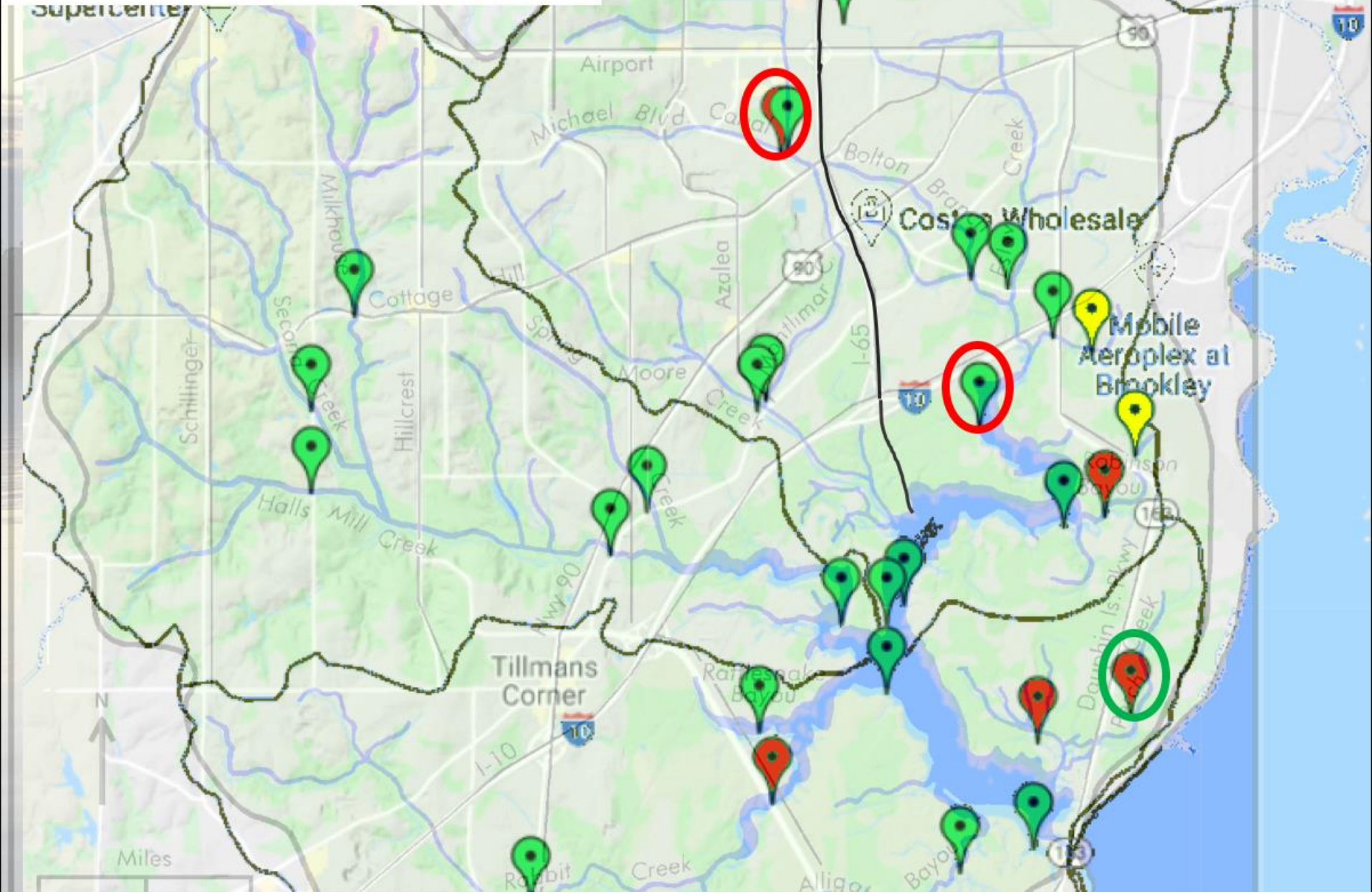
Last Date: 12/1/2020; Active Monitors: 17 Active sites: 27 Total Recs: 2962

Dog River Clearwater Revival

Last 5 years

DRCR Sampling Sites

Red need new monitors



Current monitors for DRCR and number of records submitted

Frank Vogtner (200)

Dan Coleman (67)

Eric Holladay (160)

Tim Gilbert (57)

Karen May (160)

Sherrie McGowan (35)

Mimi Fearn (150)

Chandler Ogburn (34)

Doug Williams (134)

Karen and Dianne Jordan (32)

David Strain (123)

Tom Lyon (32)

Jill Bockenstett (101)

Robert and Betty McArthur (29)

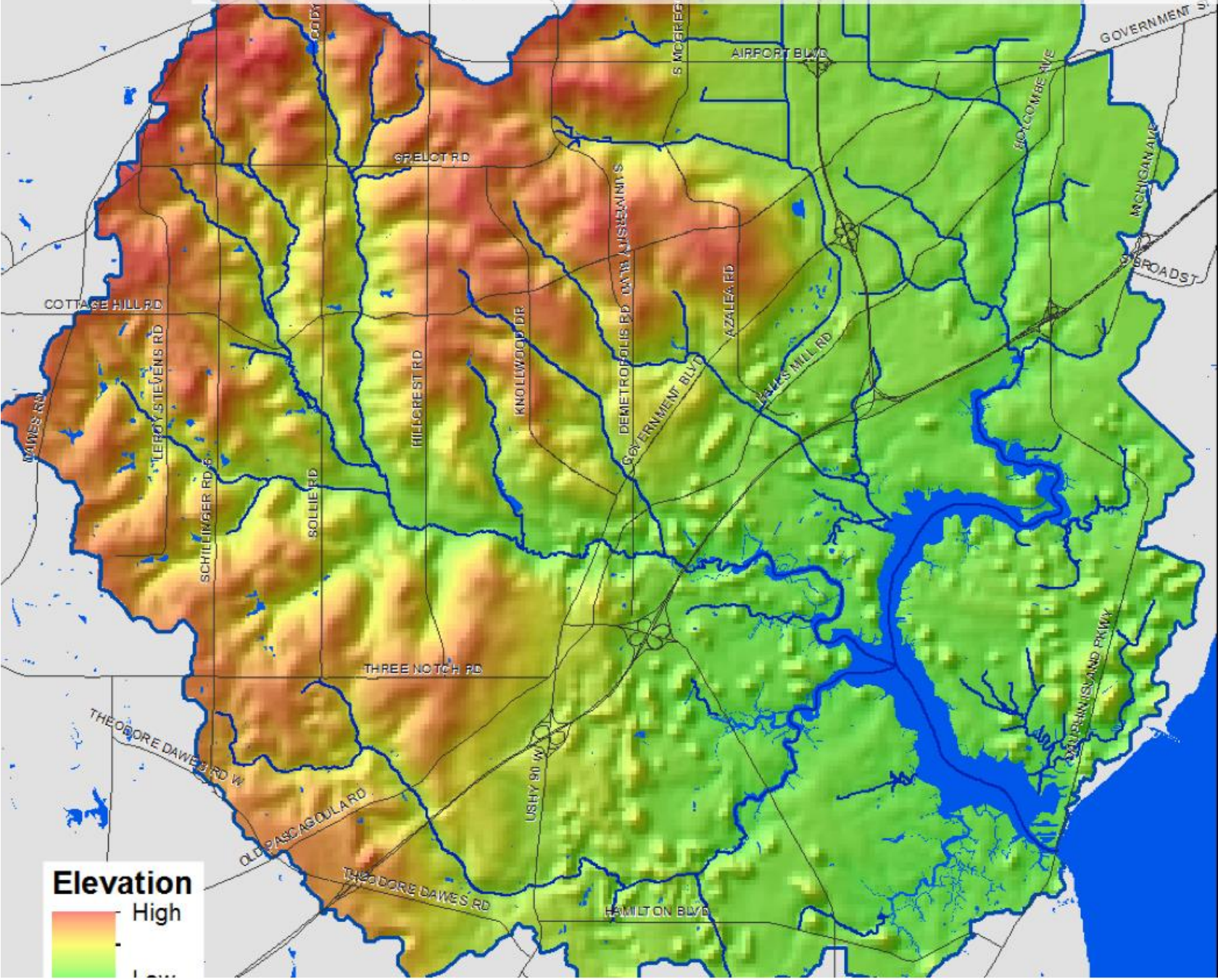
Marbury Buckhaults and

Tucker Deaton (20)

THANK YOU ALL !
Including past monitors

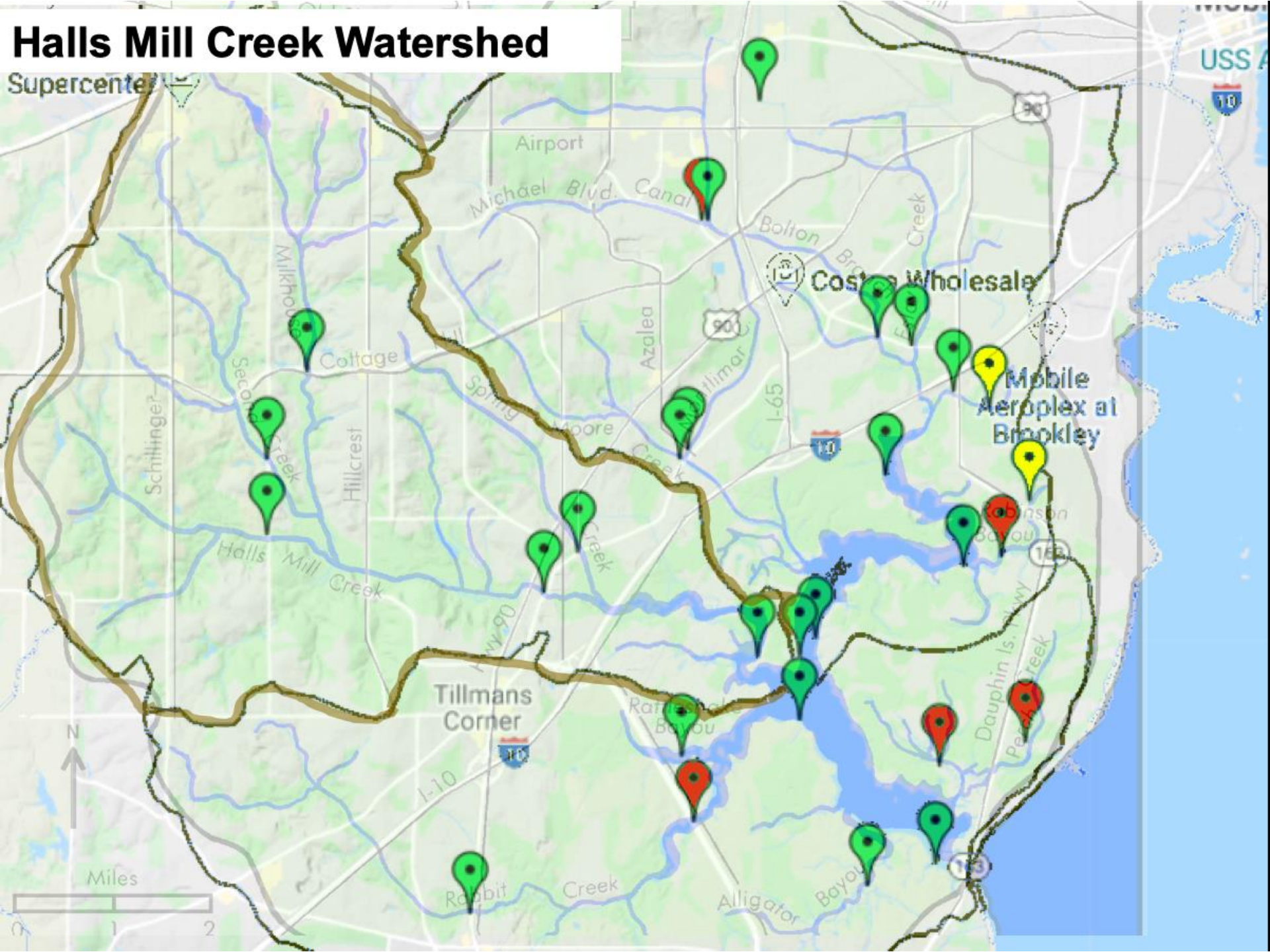


Lack of hydraulic head for Eslava & Bolton



Halls Mill Creek Watershed

Supercenter



An important indicator of water quality is Dissolved Oxygen

Affected by temperature and salinity

How does oxygen get into the water?

Diffuses into water from the air

Turbulence increases diffusion

Aquatic plant photosynthesis adds oxygen to water

What causes low oxygen levels in water?

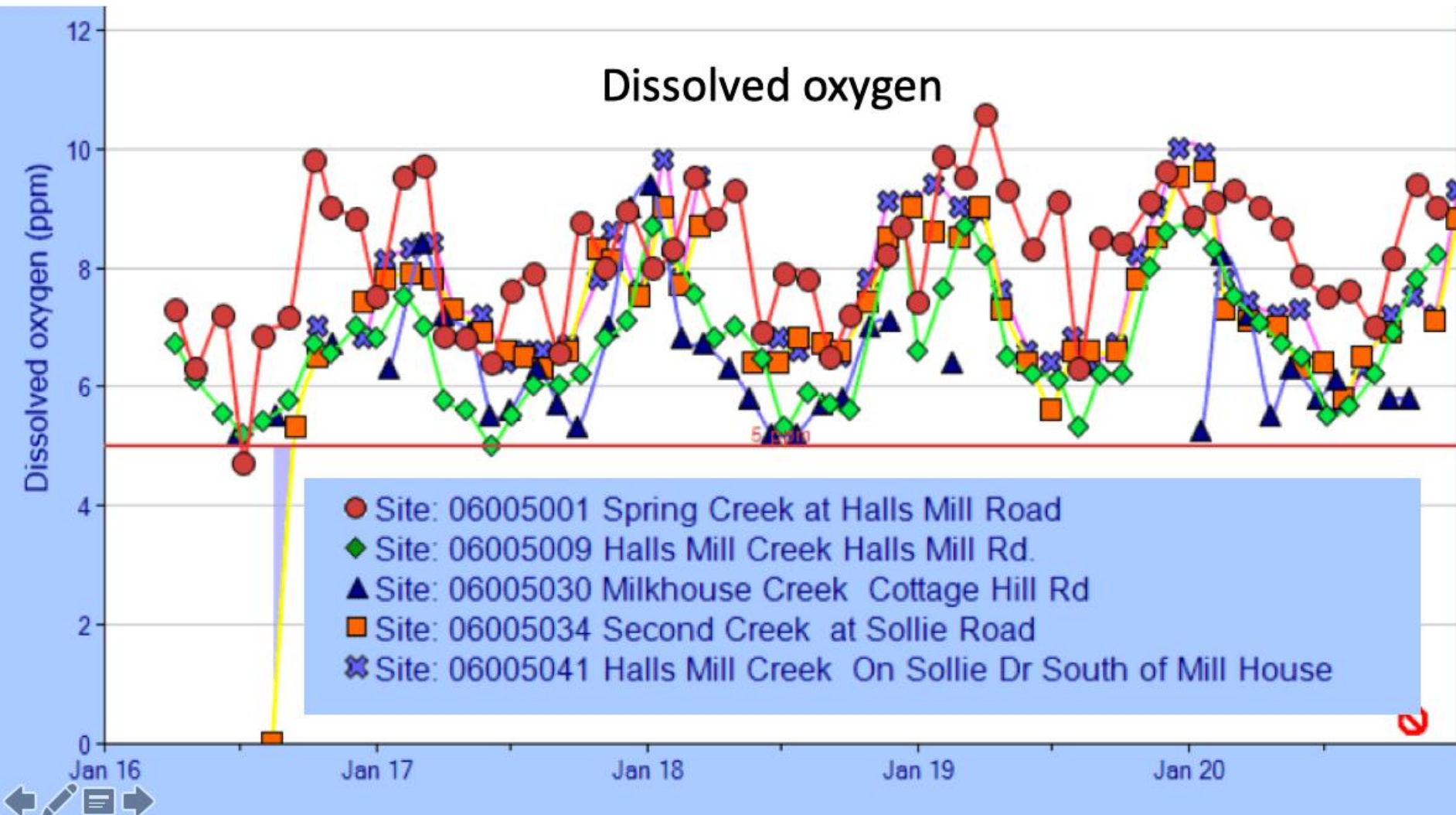
Warm temperatures cause water to hold less oxygen

Organic material that decomposes in water → low DO

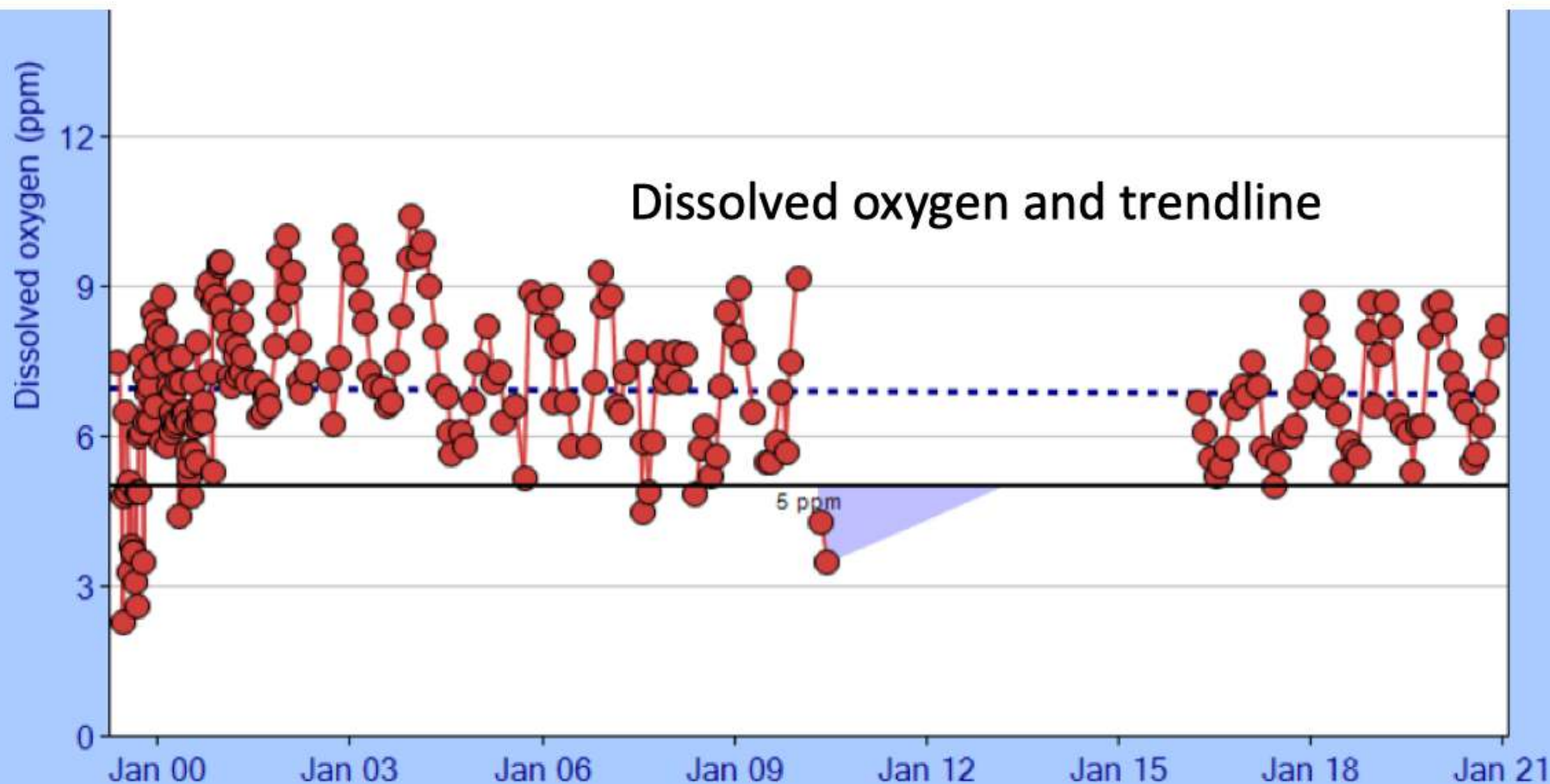
How low is too low?

ADEM regulations say 5 mg/liter = 5 ppm

Halls Mill Creek has largest watershed and is most significant contributor of fresh water to Dog River. Data from sites on Halls Mill indicate good water quality.



Data from a long running site, Halls Mill Creek at Halls Mill Road, indicates that dissolved oxygen levels have remained relatively stable over last 20 years. In contrast, all headwaters sites show downward trends.



Dissolved oxygen at Halls Mill Creek, Halls Mill Rd.
Site Code: 06005009 Latitude: 30.60705N, Longitude: -88.16025W

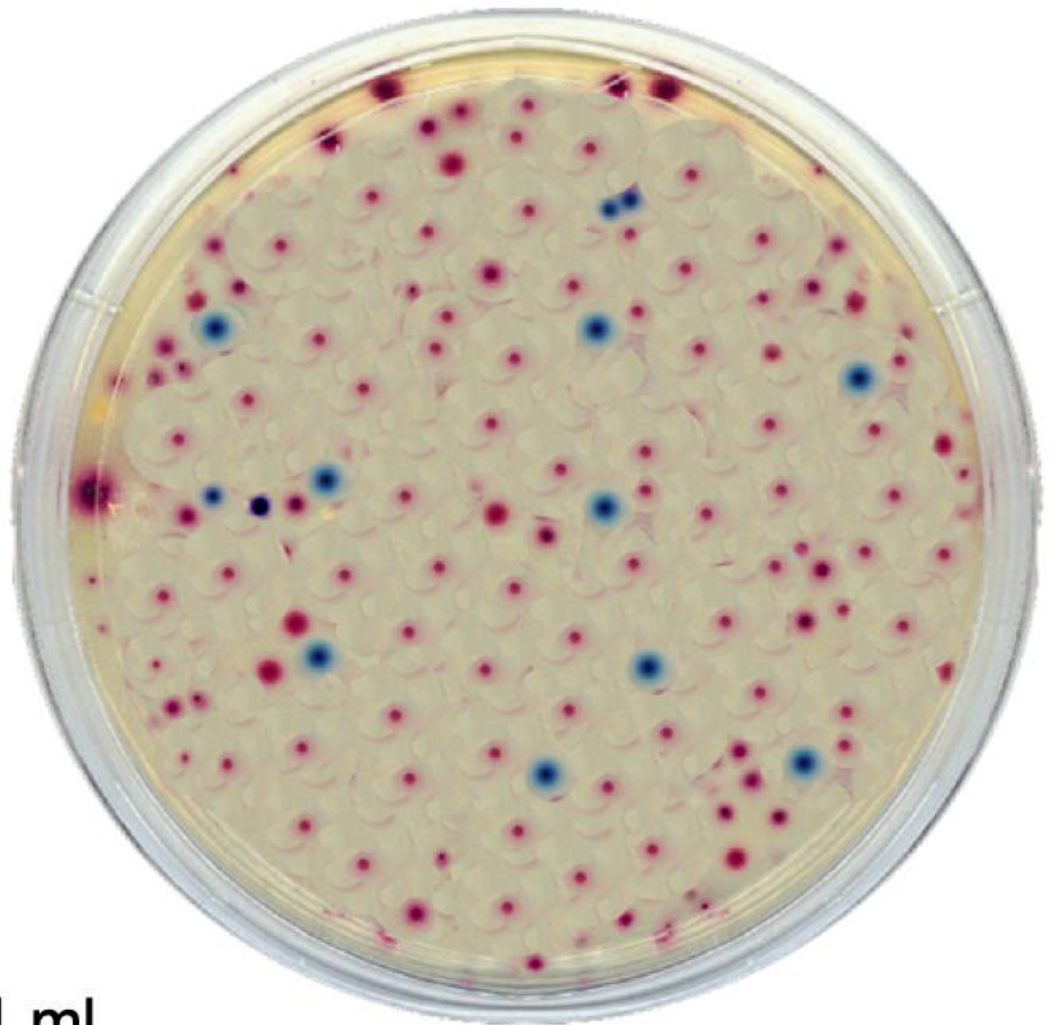
Sample plate for bacteria
1 ml sample

Each dot is cfu (colony
forming unit)

Blue tinted are
E. coli

E. Coli is
INDICATOR of
fecal contamination

This plate contains 13 in 1 ml
 $13 \times 100 = 1300 \text{ cfu/100ml}$

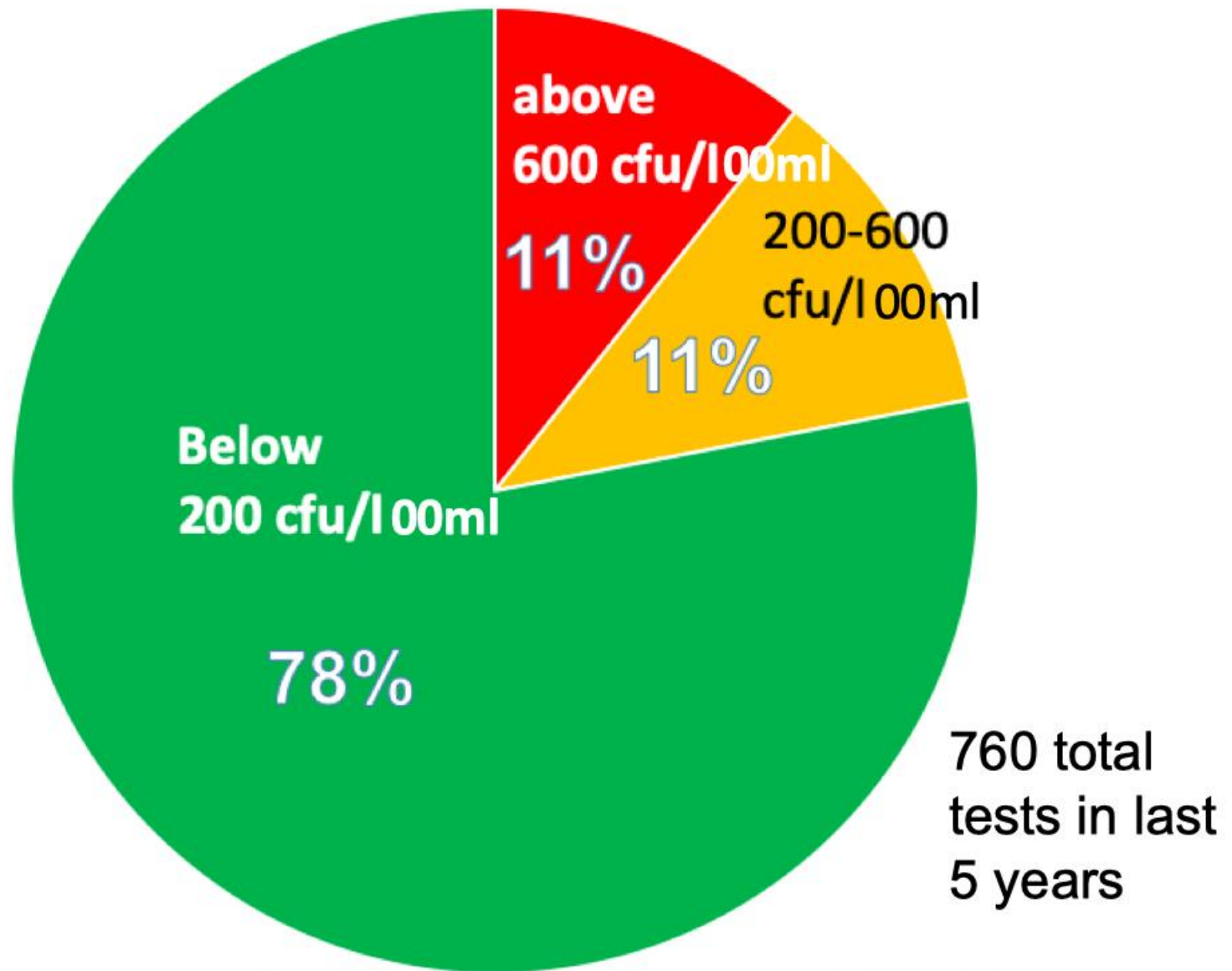


Below 200 cfu/100ml is safe

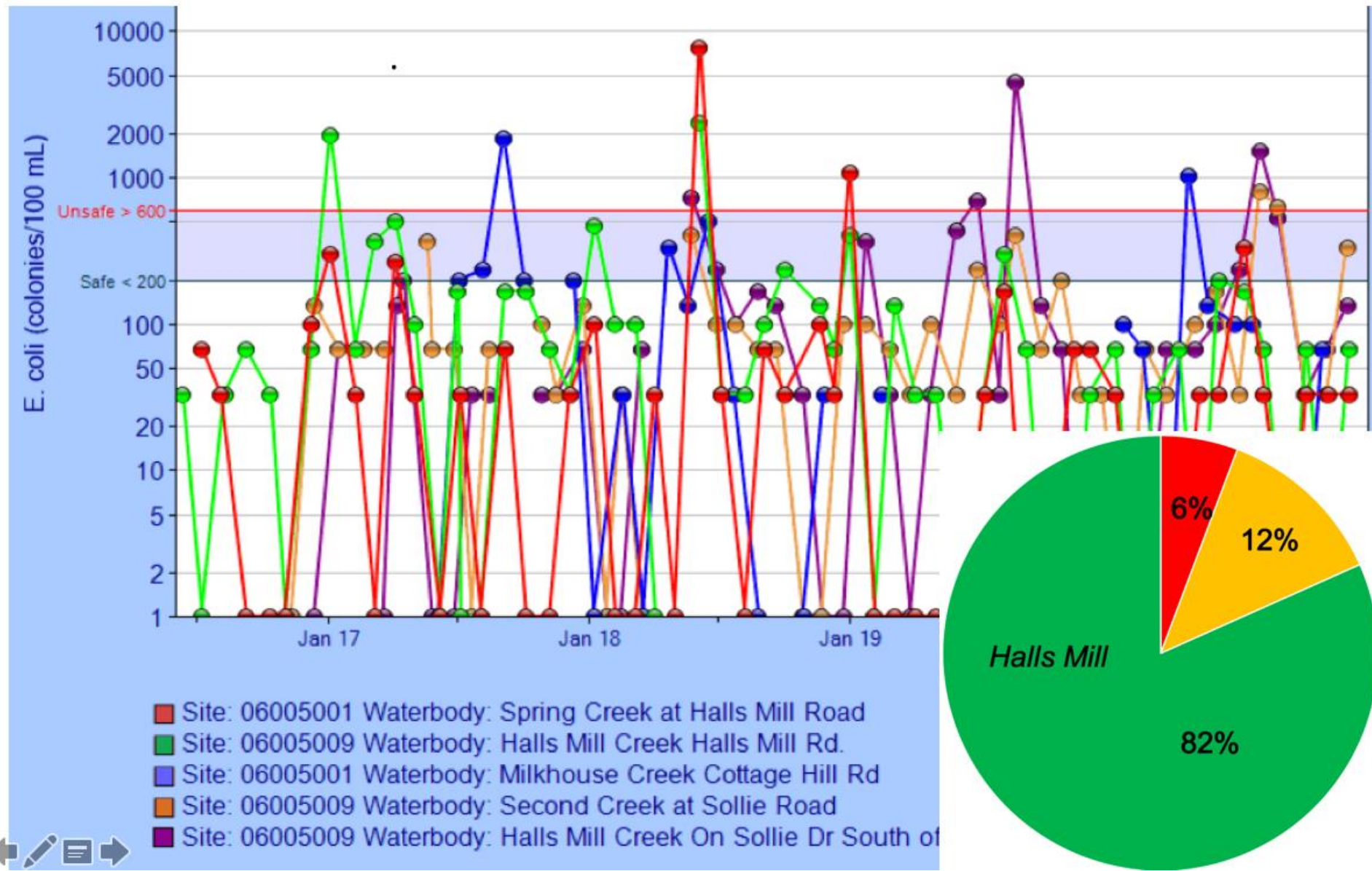
200-600 cfu/100ml is cautionary

Above 600 cfu/100ml is unsafe

Total bacteria tests for DRCCR, Jan 2016-Jan 2021

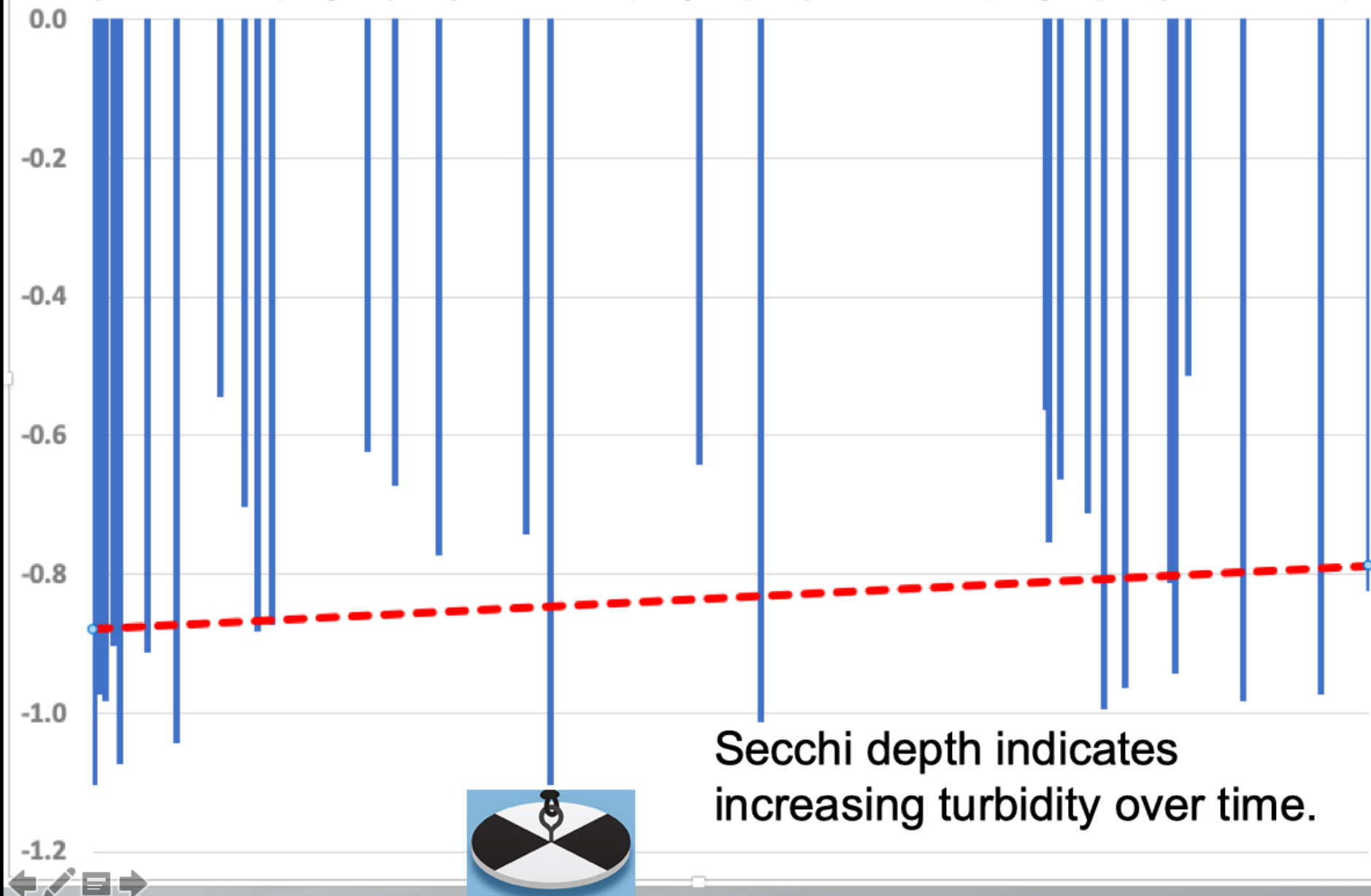


Bacteria counts for Halls Mill Creek sites are mostly in safe zone of less than 200 cfu/100ml. All unsafe levels except one follow rainfall events. 82% of total samples are below 200 cfu/100ml.

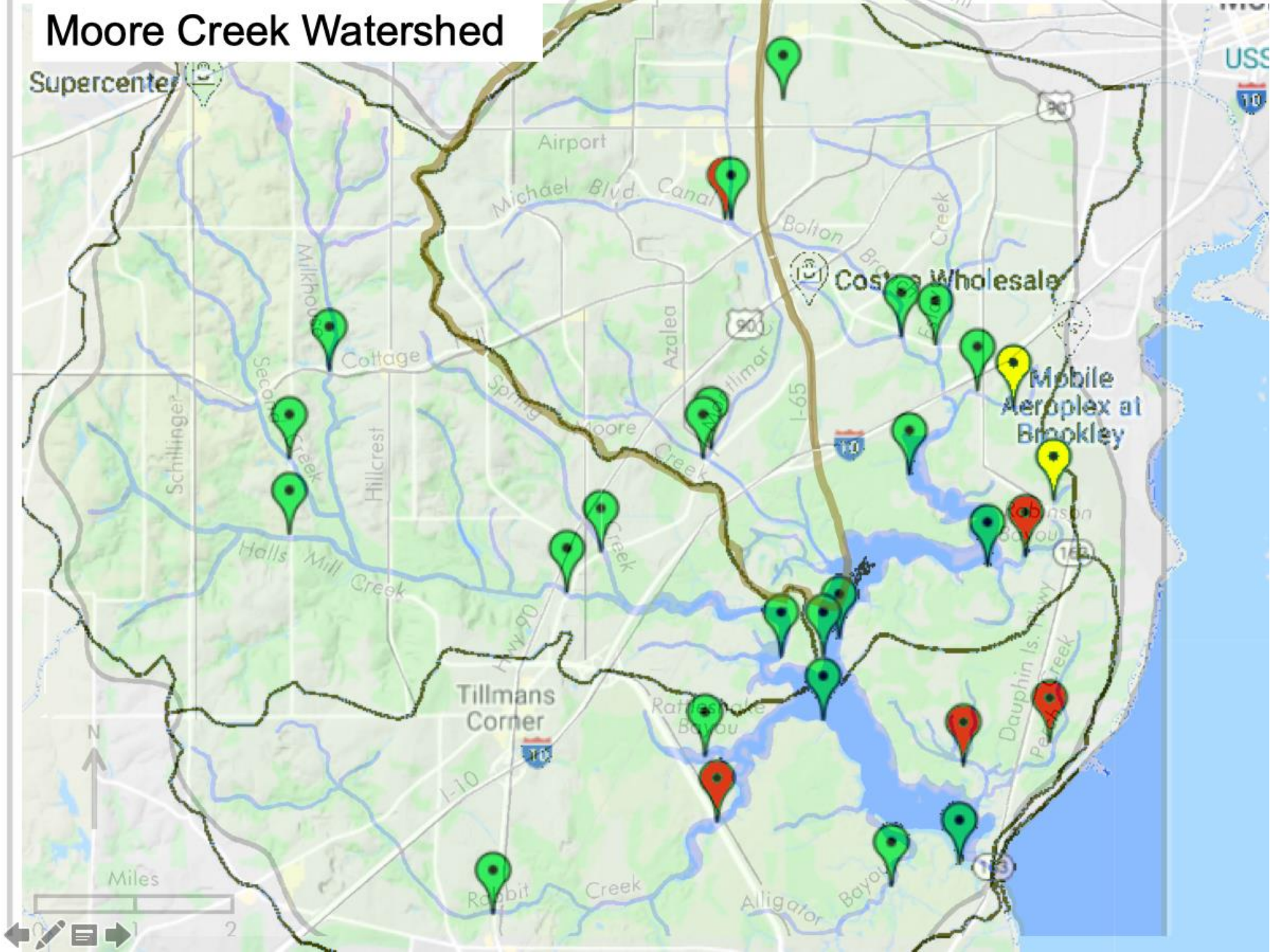


Halls Mill Creek Turbidity

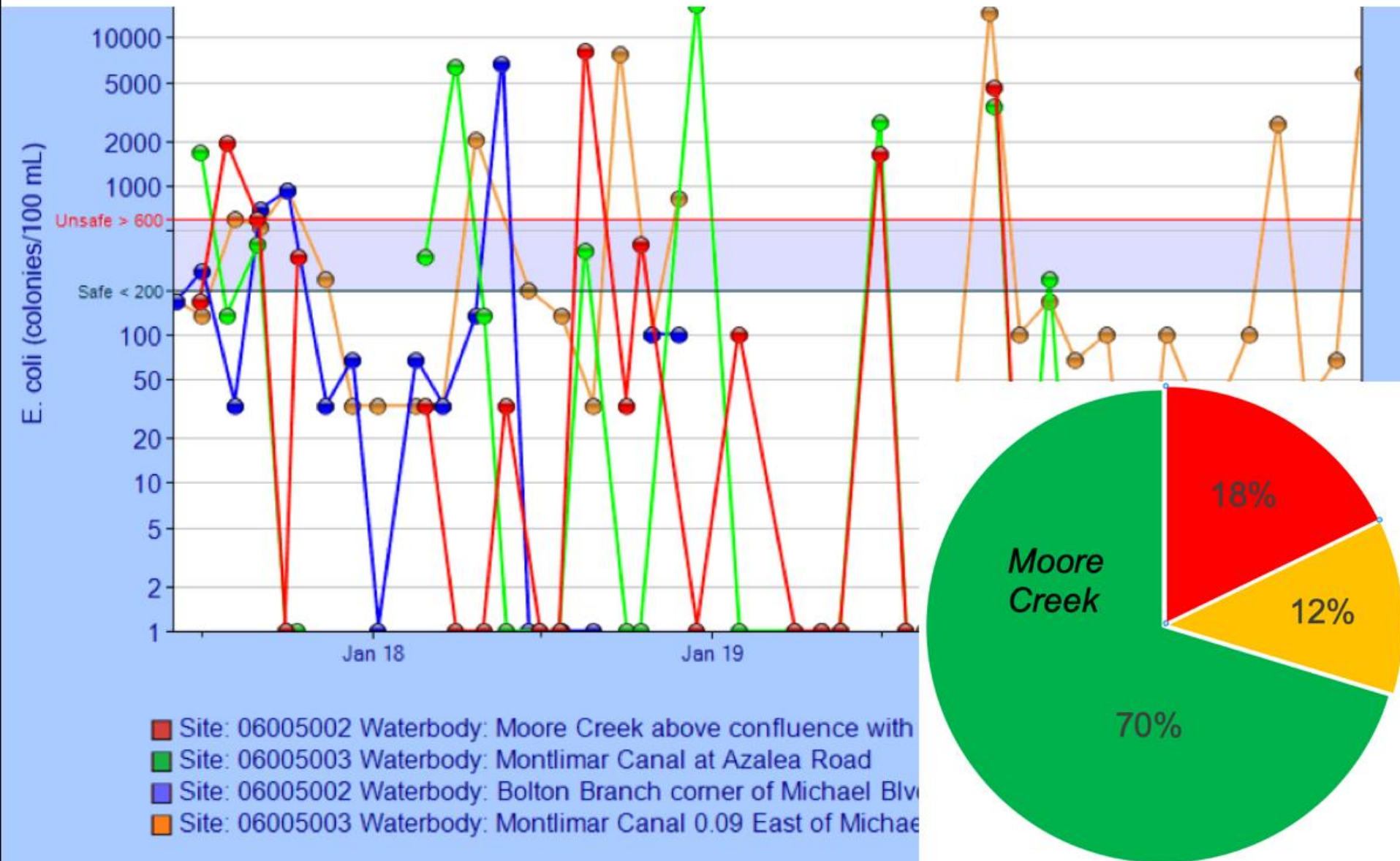
Thanks to Melanie Moore



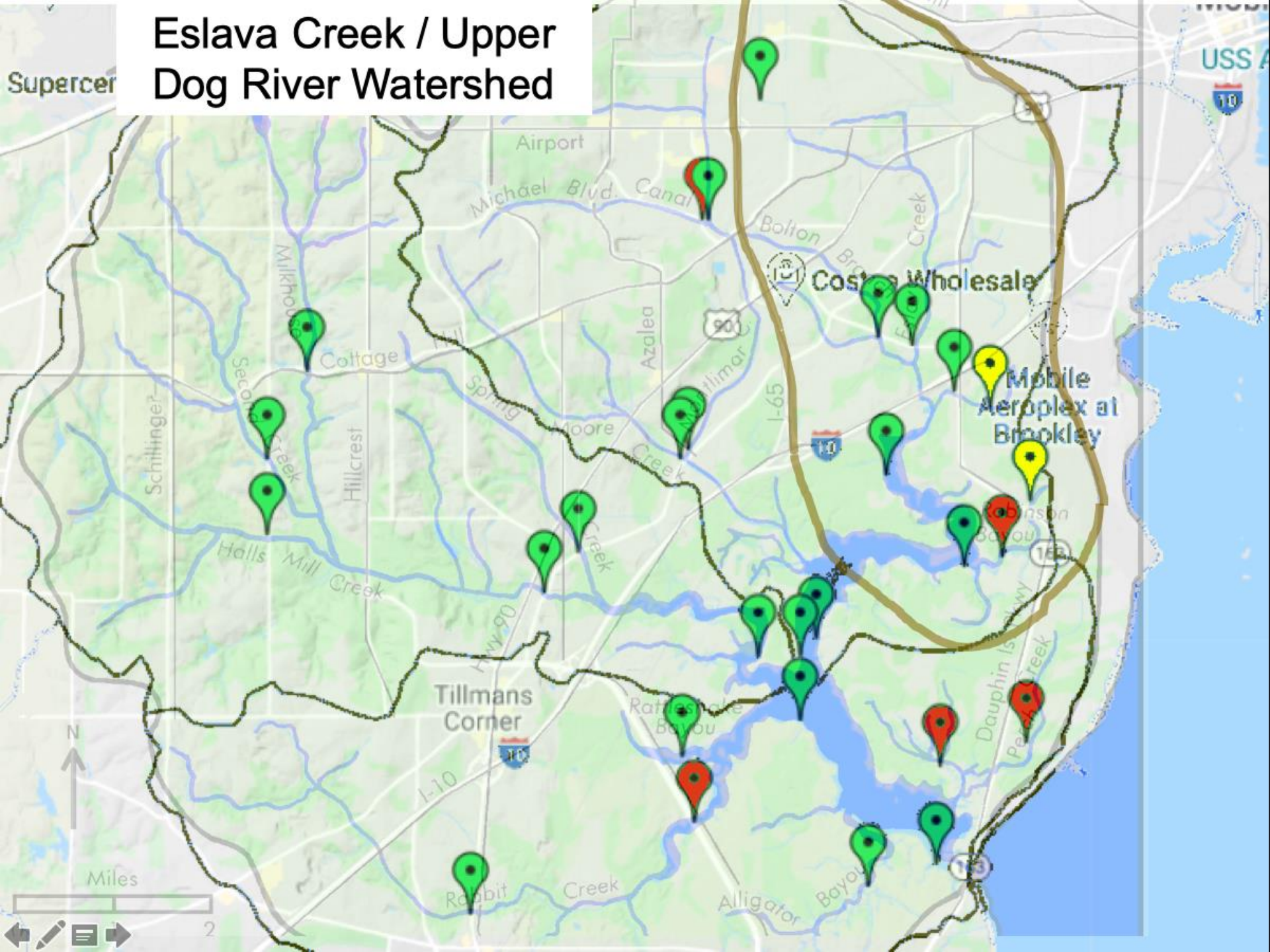
Moore Creek Watershed



Bacteria counts for Moore Creek sites are more problematic than those for Halls Mill Creek. Only 70% of total samples contain less than 200 cfu/100ml.



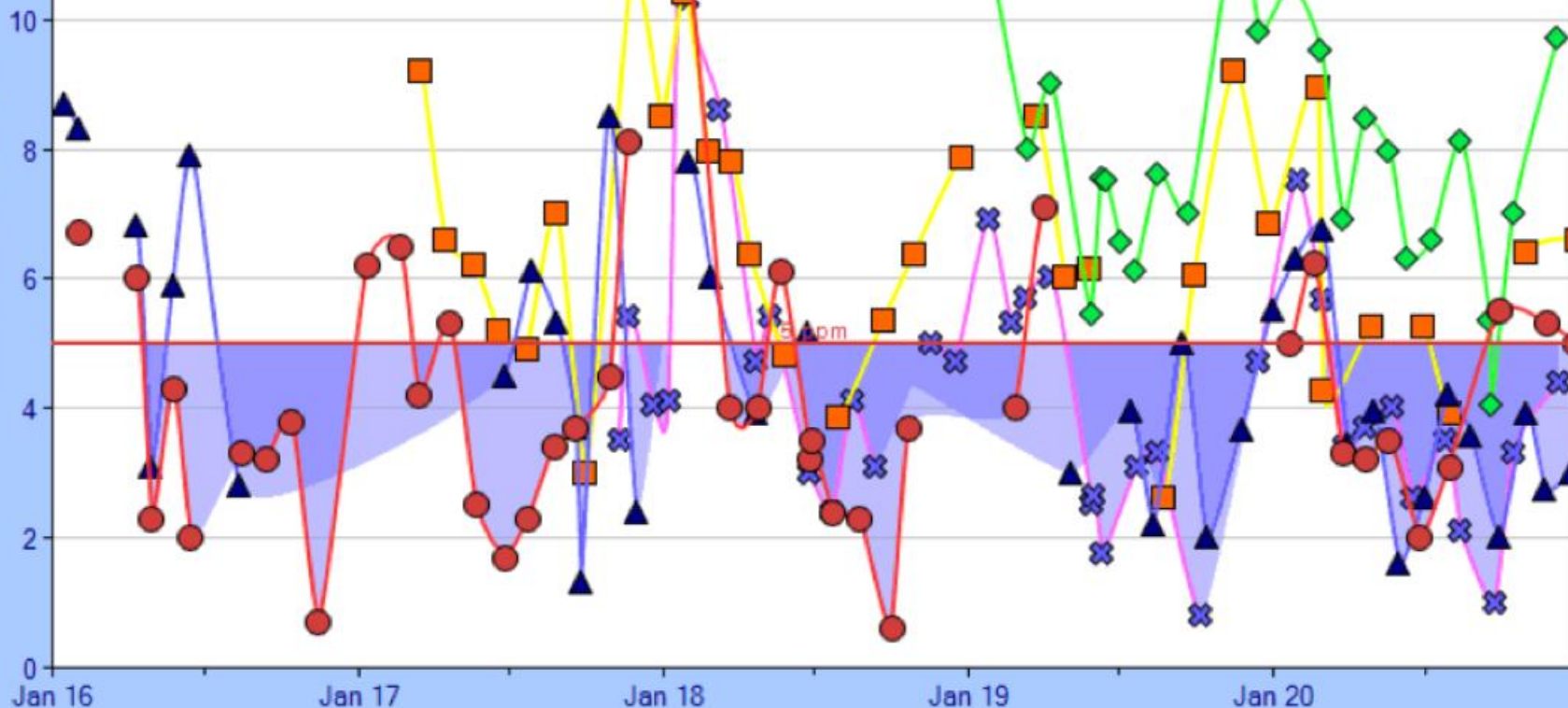
Eslava Creek / Upper Dog River Watershed



□ 5 ppm

Significantly low dissolved oxygen in Upper Dog River Watershed due to poor flow and heavy organic load, frequent SSOs. Trend is lower over time at all sites.

Dissolved oxygen (ppm)



● Site: 06005004 Eslava Creek at McVay Road

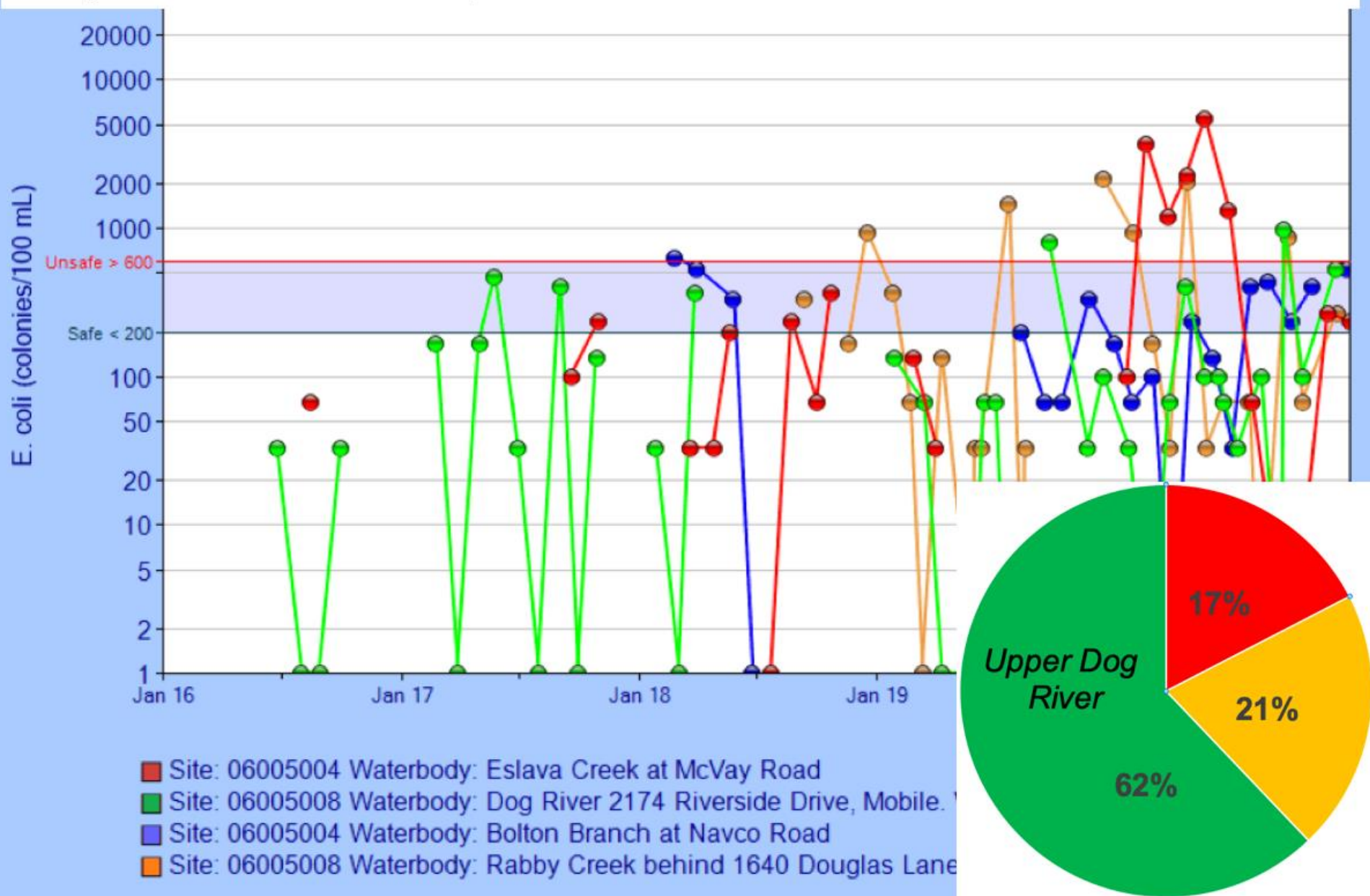
◆ Site: 06005008 Dog River 2174 Riverside Drive, Mobile. W of Robinson Bayou.

▲ Site: 06005018 Bolton Branch at Navco Road

■ Site: 06005055 Eslava Creek End of Springdale Blvd

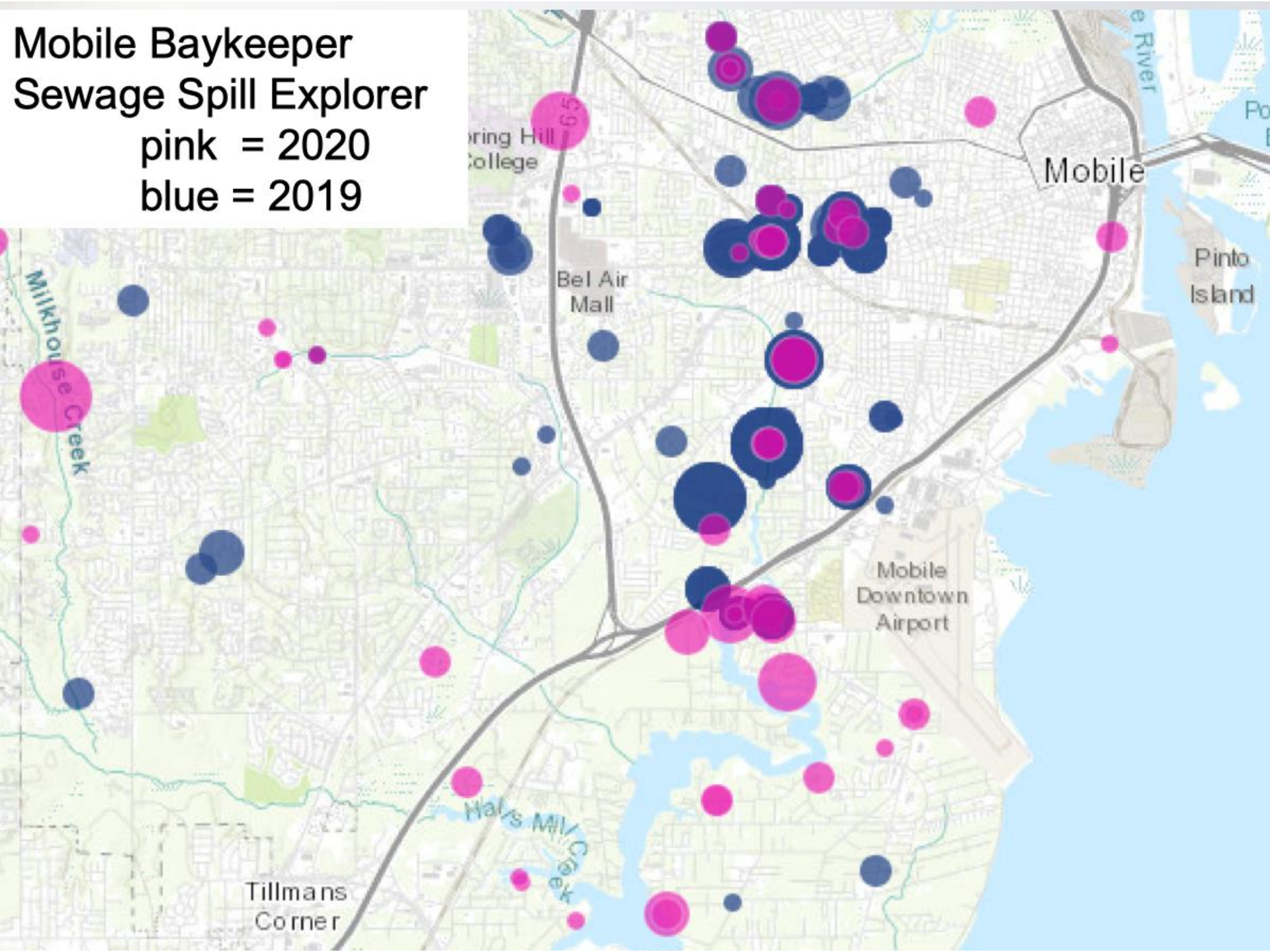
✕ Site: 06005057 Rabby Creek behind 1640 Douglas Lane

Bacteria counts for Upper Dog River sites are also problematic. Only 62% of total samples contain less than 200 cfu/100ml.

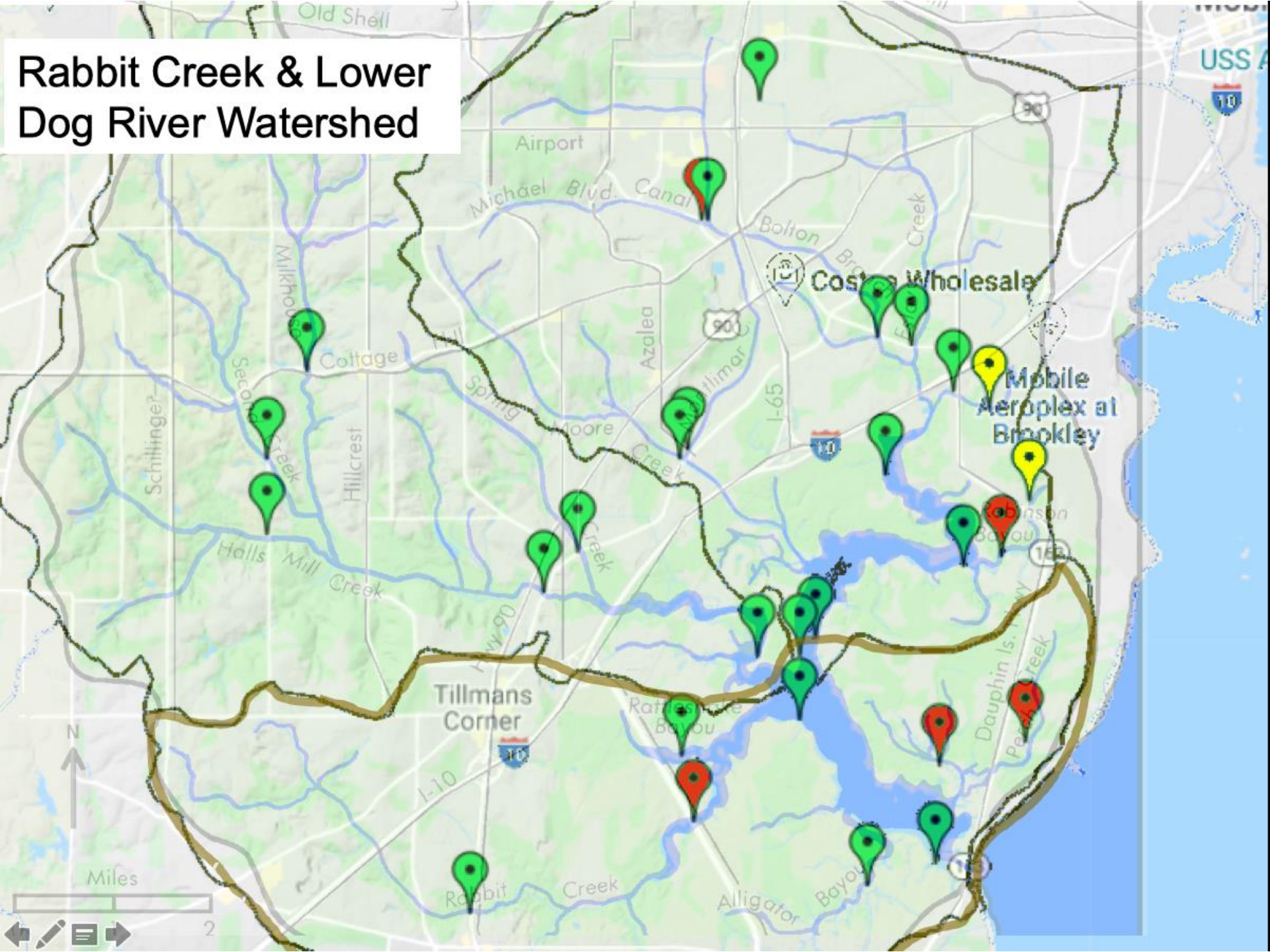


Mobile Baykeeper Sewage Spill Explorer

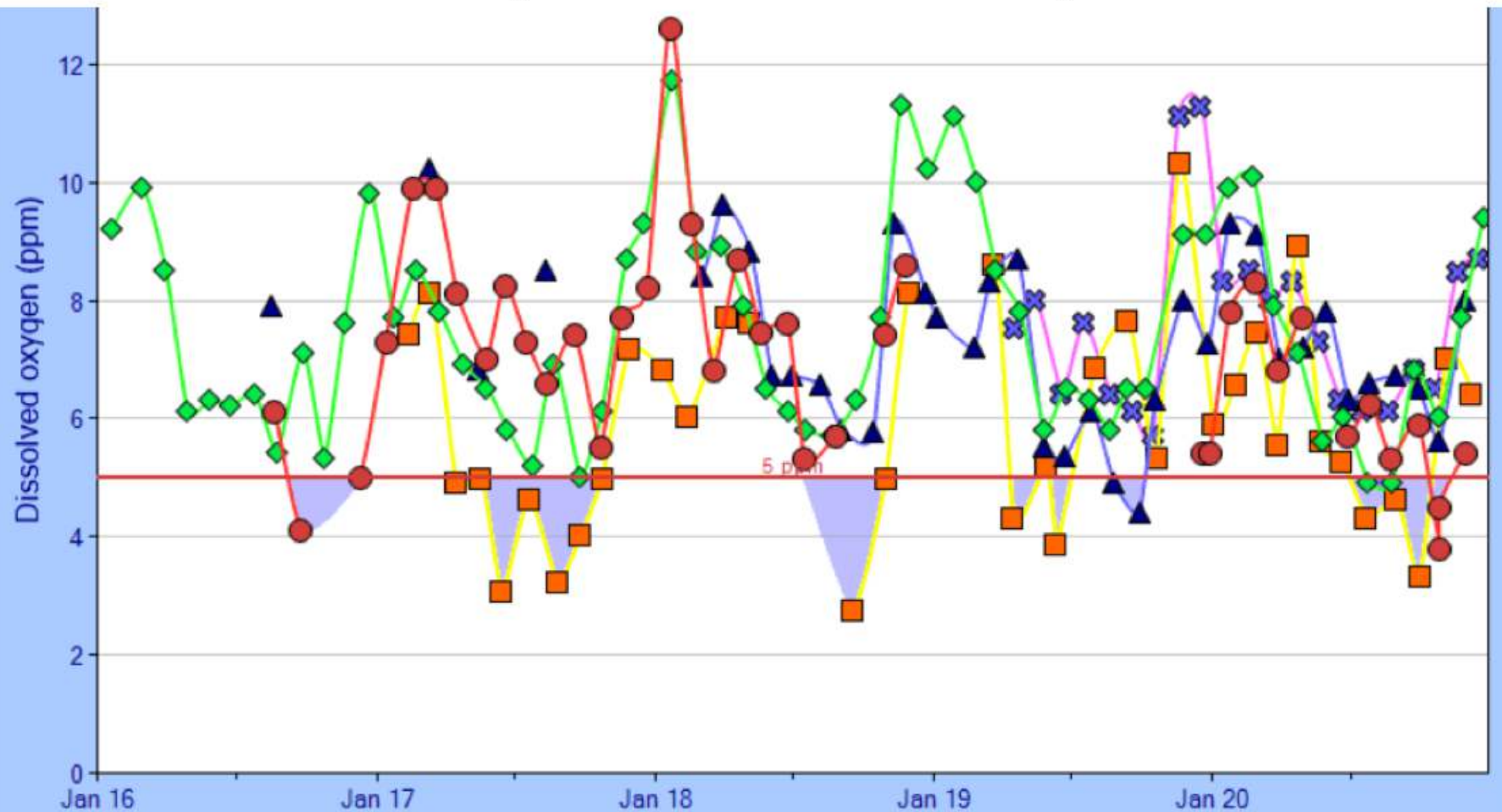
pink = 2020
blue = 2019



Rabbit Creek & Lower Dog River Watershed

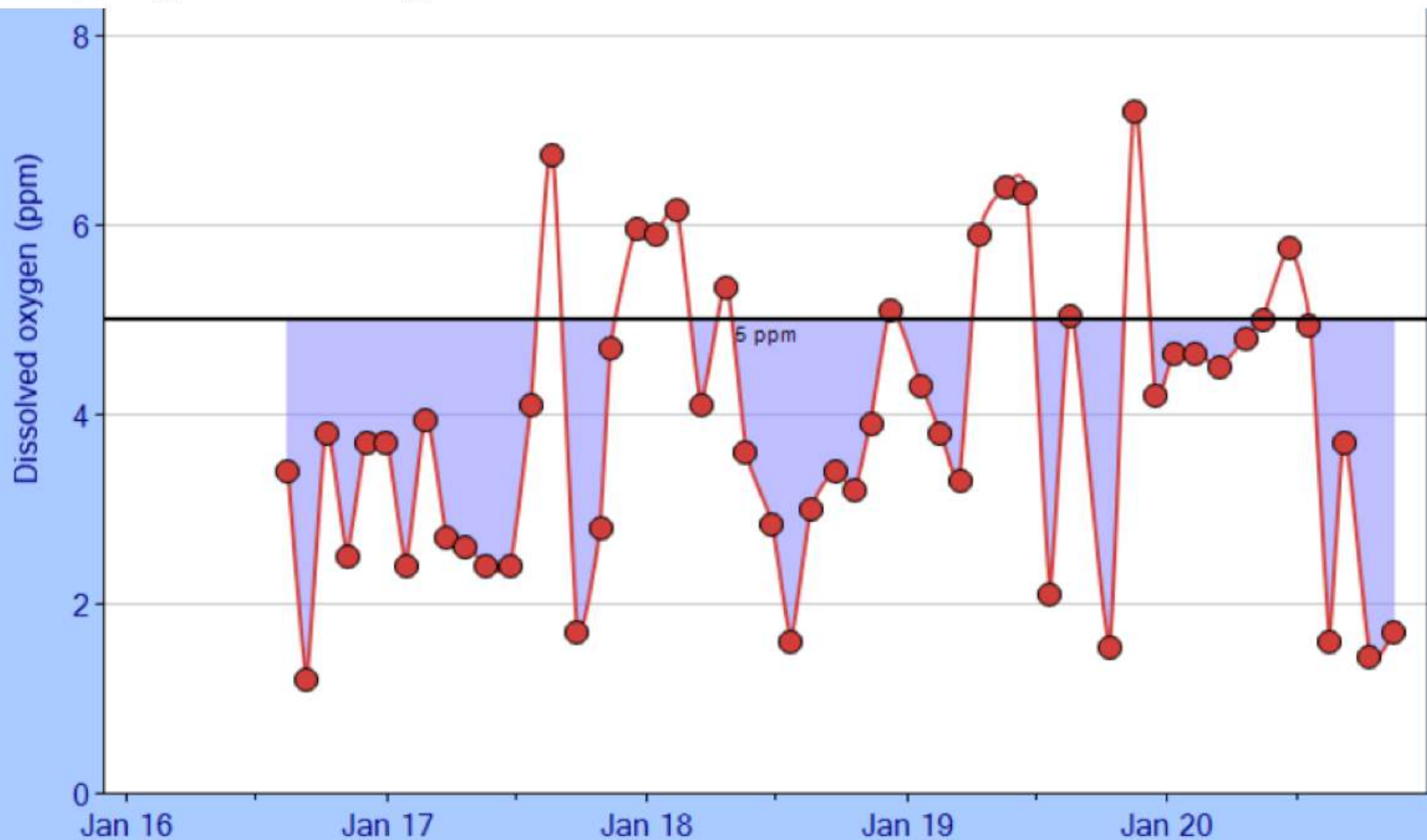


Dissolved oxygen in wide lower Dog River is mostly ok due to wind/wave action. Exceptions: Rattlesnake Bayou & Perch Creek.



- Site: 06005016 Alligator Bayou Main channel off the end of Gator Road
- ◆ Site: 06005027 Dog River Holladay Pier
- ▲ Site: 06005051 Dog River off Transient Pier of the Grand Mariner Marina
- Site: 06005052 Rattlesnake Bayou Dock at 5226 Todd Acres Dr
- ✕ Site: 06005058 Dog River end of Pier 4940 River Trace

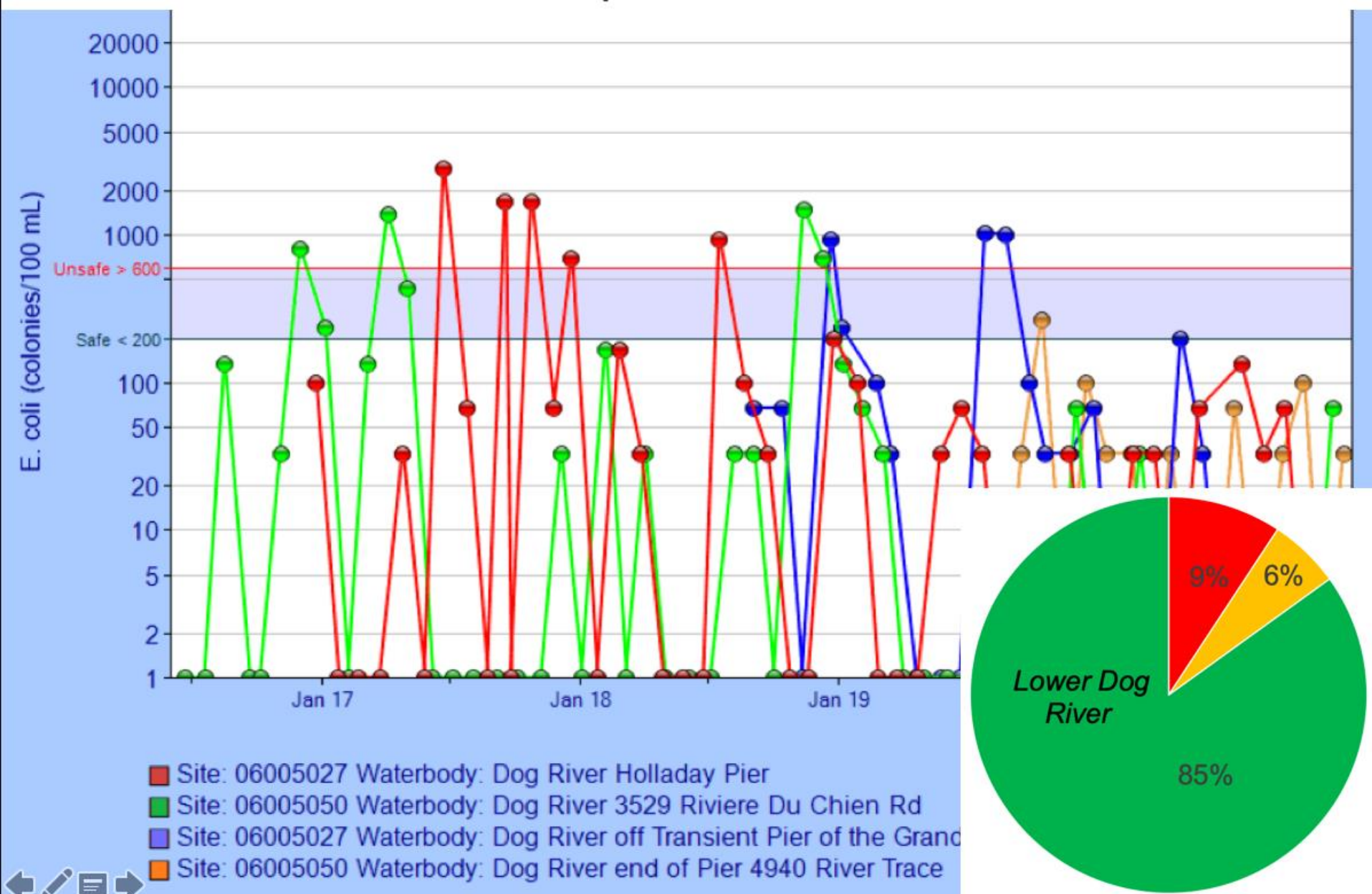
Perch Creek at Terrel Road has lowest dissolved oxygen of any sampling site in Dog River Watershed.



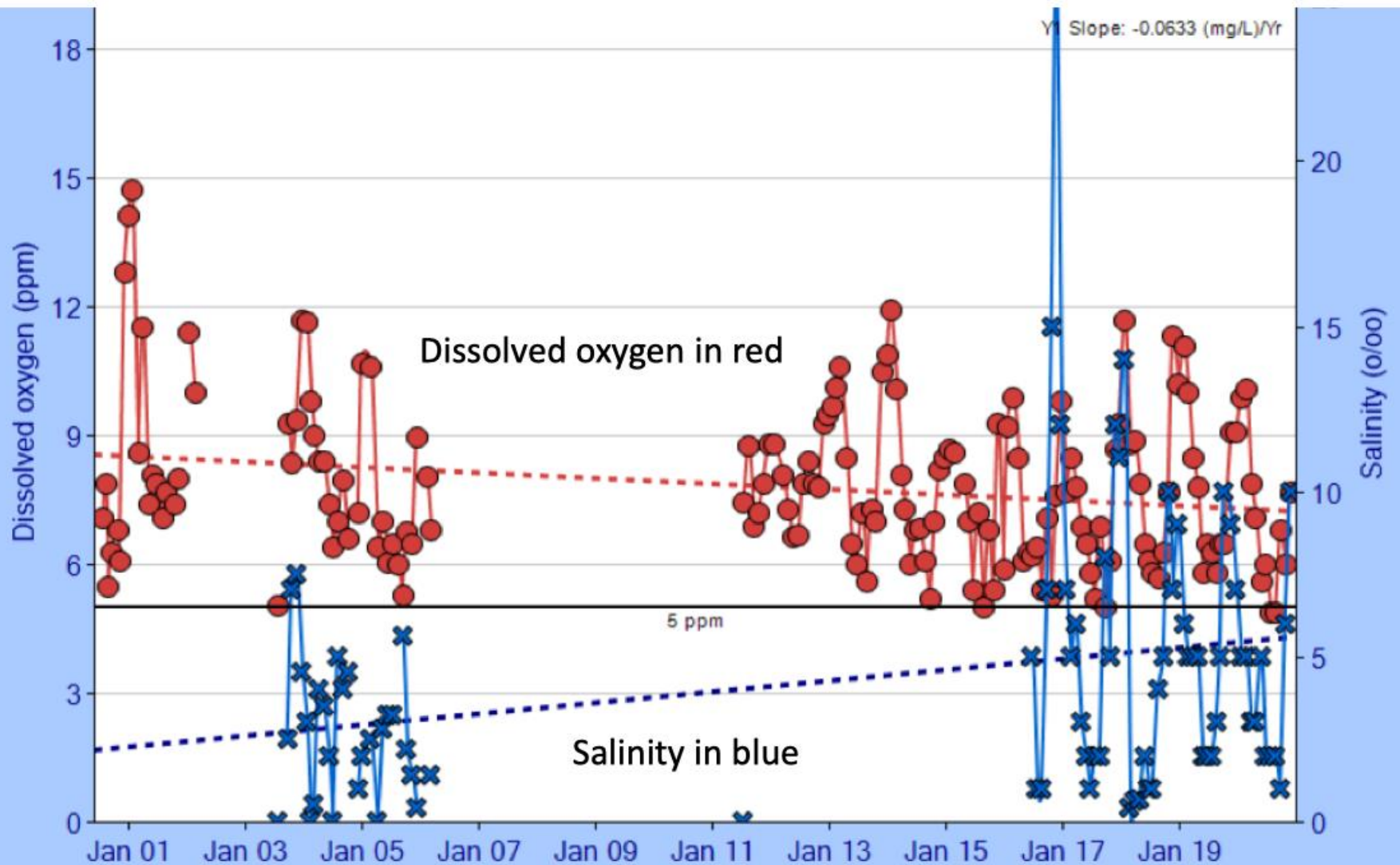
Dissolved oxygen at Perch Creek, Thomas W. Fell Bridge on Terrel Rd.

Site Code: 06005045 Latitude: 30.58492N, Longitude: -88.07732W

Bacteria counts for Lower Dog River sites are best in the Dog River Watershed. 85% of total samples contain less than 200 cfu/100ml.



Trends in dissolved oxygen and salinity at Eric Holladay's site near River Yacht Basin



Dissolved oxygen, Salinity at Dog River, Holladay Pier
Site Code: 06005027 Latitude: 30.60028 N, Longitude: -88.11349 W

Have we answered our questions?

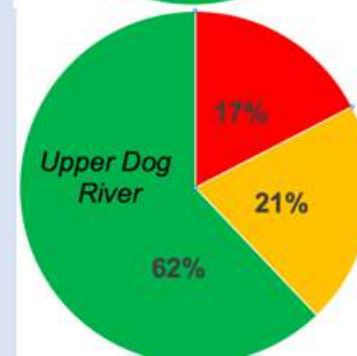
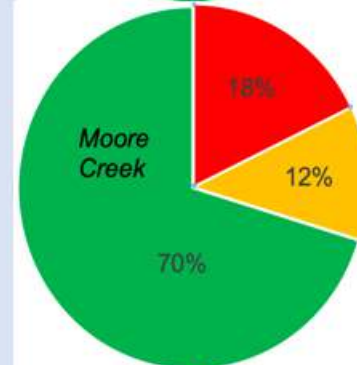
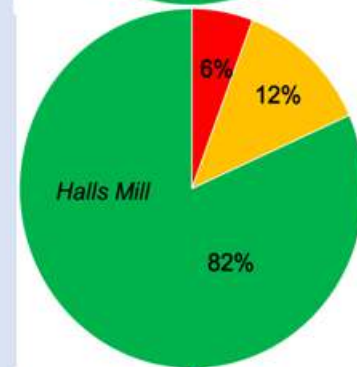
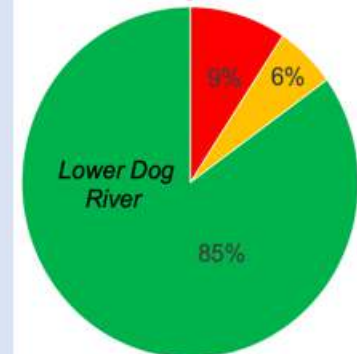
1. Is water getting better or worse over time?

Of 21 active sites with adequate data, 13 (62%) show downward trend in dissolved oxygen, 5 (24%) are stable, 3 (14%) show an upward trend.

2. Is it “safe” (less than 200 cfu/100ml) to swim?

- Lower Dog River 85%
- Halls Mill Creek 82%
- Moore Creek 70%
- Upper Dog River 62%

Also check
Baykeeper's
Swim Guide



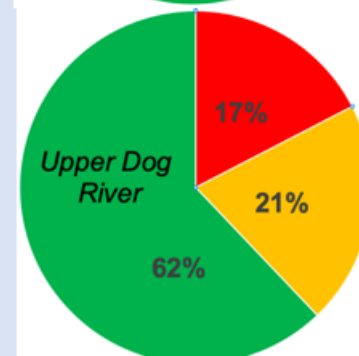
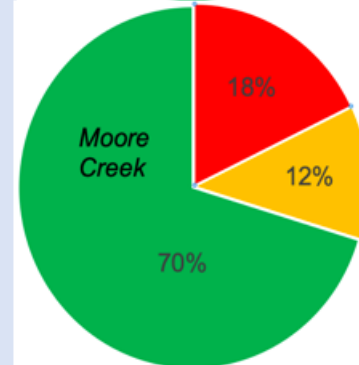
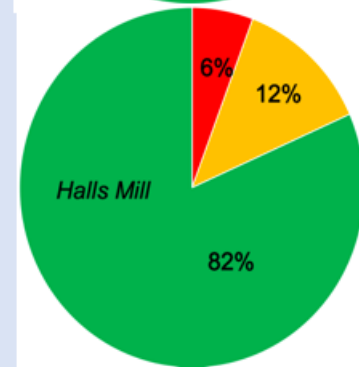
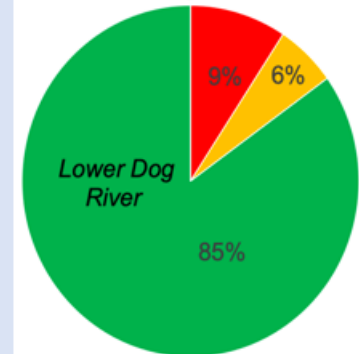
Have we answered our questions?

3. Is salt water intrusion a problem?

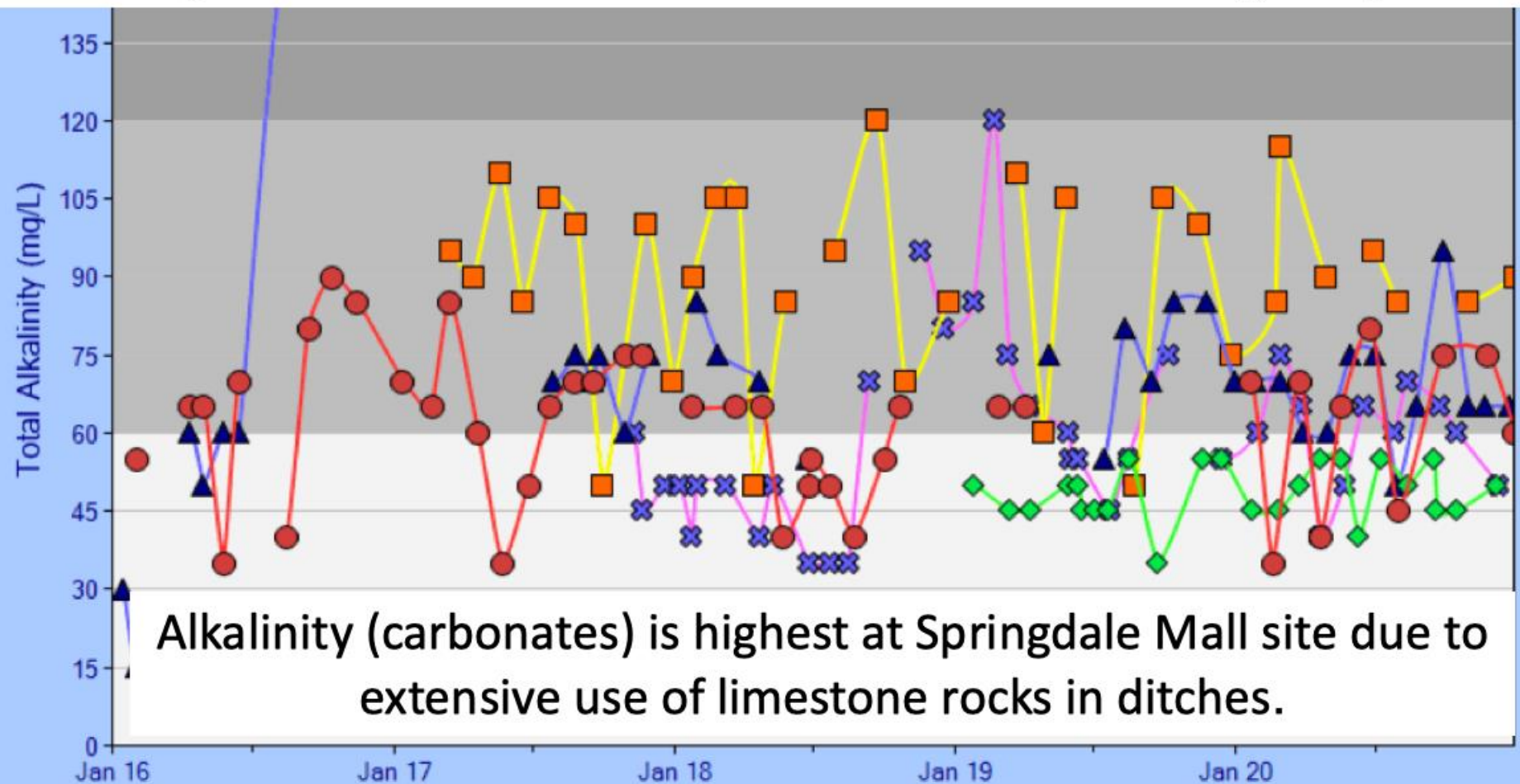
Data indicates a slow increase in salinity. As salt water moves upstream, bankside trees like cypress die to be replaced eventually with black needle rush. During this transition, erosion and turbidity are more problematic.

4. How bad is turbidity in Halls Mill Creek?

Limited data indicates increase in turbidity in Halls Mill Creek over time.



DRCR monitors do more tests than just dissolved oxygen.
Alkalinity measures how well water can resist a change in pH.



- Site: 06005004 Eslava Creek at McVay Road
- ◆ Site: 06005008 Dog River 2174 Riverside Drive, Mobile. W of Robinson Bayou.
- ▲ Site: 06005018 Bolton Branch at Navco Road
- Site: 06005055 Eslava Creek End of Springdale Blvd
- ✕ Site: 06005057 Rabby Creek behind 1640 Douglas Lane

Sites needing monitors.

West Bolton Branch at Montlimar Dr.

West Perch Creek off Riverforest Dr.

Rabbit Creek near Rangeline Road

Robinson Bayou near Blueway launch

Something near Dog River Park

Weekly secchi disk on Halls Mill Creek
(Shadowwood to RR track)

Please put your name and contact info in chat box now if you are willing and able to devote 1/2 day a month to monitoring

To peruse data for yourself on specific site near you, go to Alabama Water Watch, water data, data from map



Questions ?