Darby Creek Headwaters Community Science Snapshot

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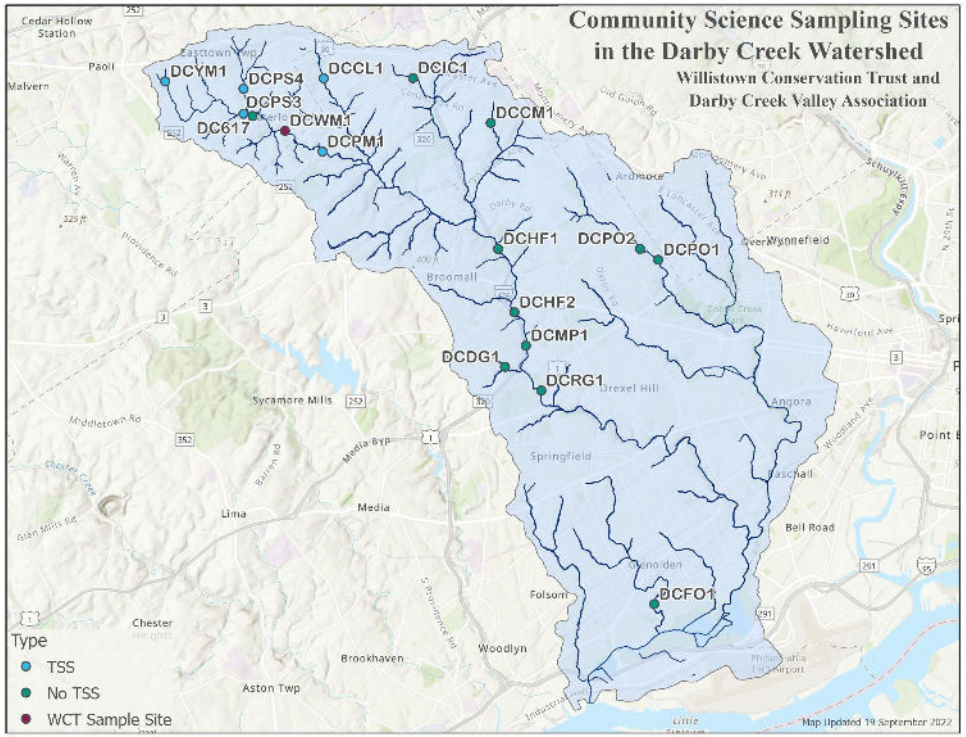
STROUD
WATER RESEARCH CENTER

Darby Creek Community Science Monitoring Program

- Established in 2021
- Volunteers throughout the watershed are trained and equipped with supplies to collect water chemistry data including:
  - Water temperature
  - pH
  - Chloride
  - Conductivity
  - Qualitative data (Stream substrate, erosion, water conditions, riparian buffer condition, precipitation)
  - Site images
  - Total suspended solids*
- Sites are monitored every four weeks over a period of four days



Darby Creek Community Science Monitoring Program

✅ Four day monitoring period provides flexibility for volunteers

❌ Four day monitoring period allows for weather events to introduce variability within the community science data set

✅ Trained team of skilled volunteers

❌ Volunteers are energy intensive to train

✅ High frequency study design captures seasonal variation across a wide geographic area

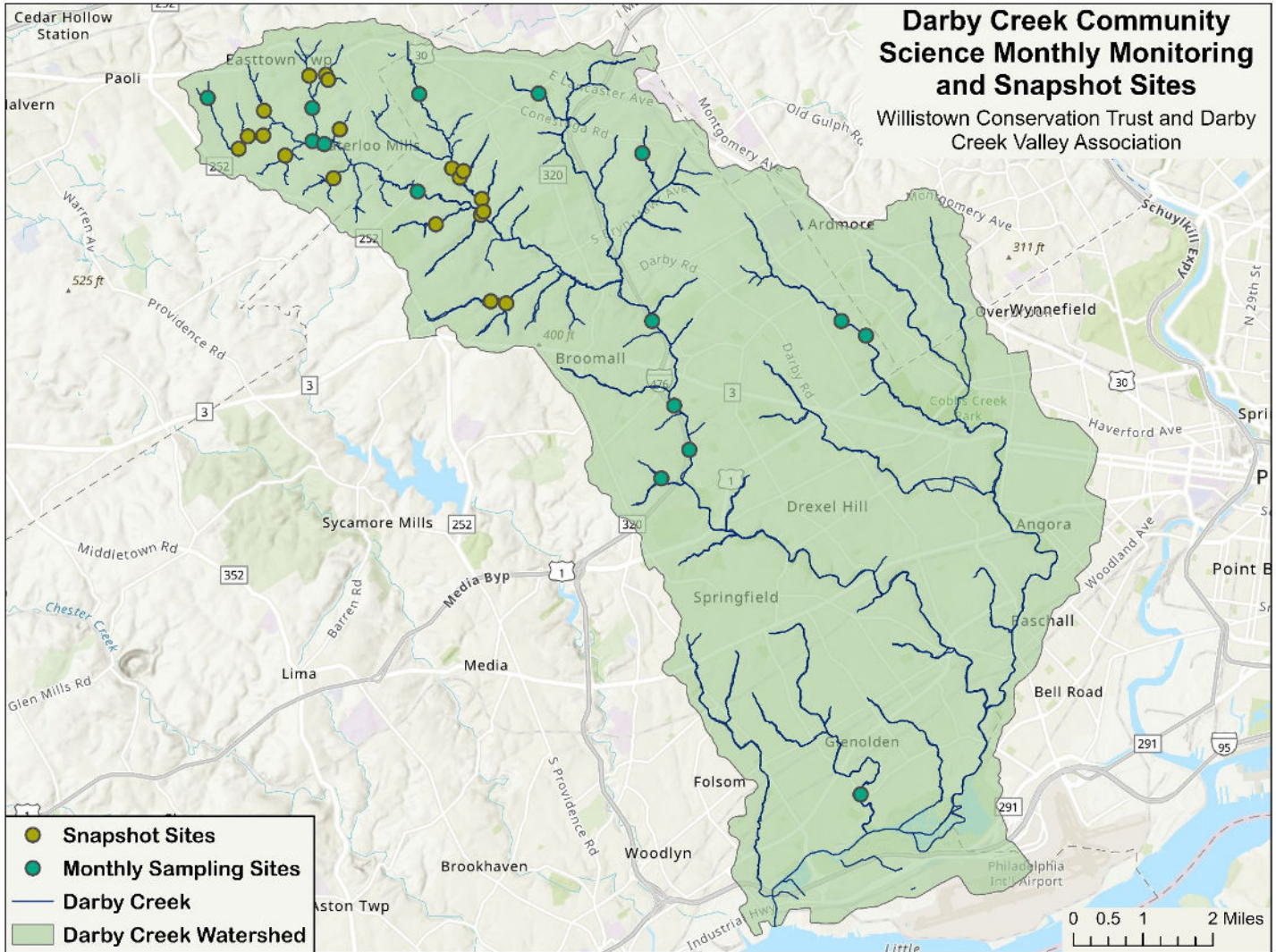
❌ Expansion of program and addition of new sites takes time and energy

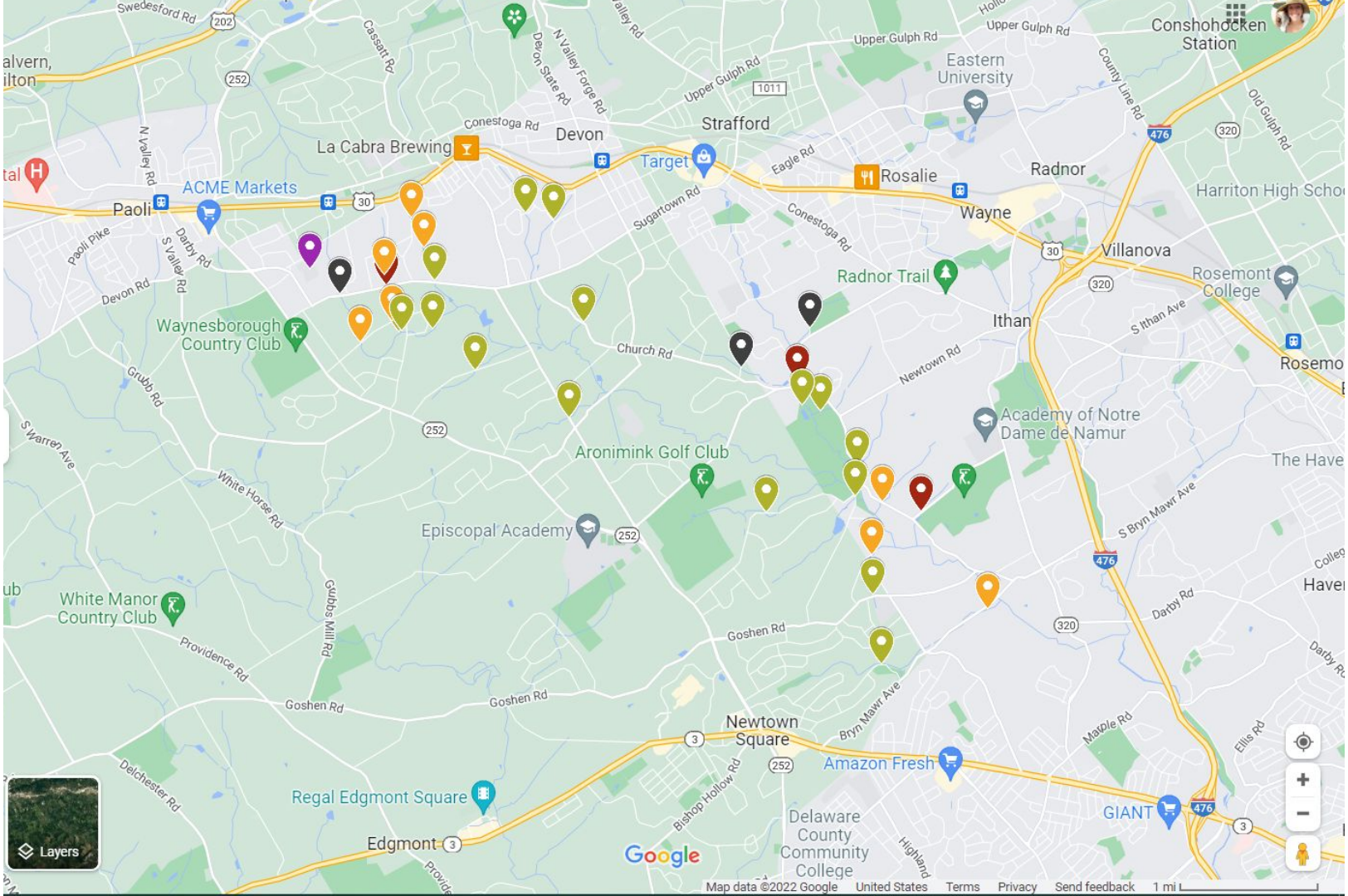
✅ **Solution:** Use the snapshot framework to create a baseline understanding of how small tributaries throughout the headwaters are influencing chloride and conductivity levels.

Sampling Sites

15 active monthly volunteer monitoring sites

19 Snapshot sites




Swedesford Rd
202
252
Cassatt Rd
Devon State Rd
N Valley Forge Rd
Valley Rd
Upper Gulph Rd
1011
Conshohocken Station
Eastern University
County Line Rd
476
320
Old Gulph Rd
Conestoga Rd
La Cabra Brewing
Devon
Strafford
Target
Eagle Rd
Rosalie
Radnor
Harriton High Schoo
N Valley Rd
ACME Markets
Paoli
30
Sugartown Rd
Wayne
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S Valley Rd
Darby Rd
Devon Rd
Villanova
Radnor Trail
Rosemont College
Ithan
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Waynesborough Country Club
Church Rd
Newtown Rd
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Grubb Rd
S Warren Ave
Academy of Notre Dame de Namur
Aronimink Golf Club
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White Horse Rd
Episcopal Academy
S Bryn Mawr Ave
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White Manor Country Club
Gubbs Mill Rd
Providence Rd
Goshen Rd
Darby Rd
Newtown Square
Bryn Mawr Ave
Maple Rd
Ellis Rd
Delchester Rd
Amazon Fresh
Regal Edgmont Square
Bishop Hollow Rd
GIANT
Edgmont
Delaware County Community College
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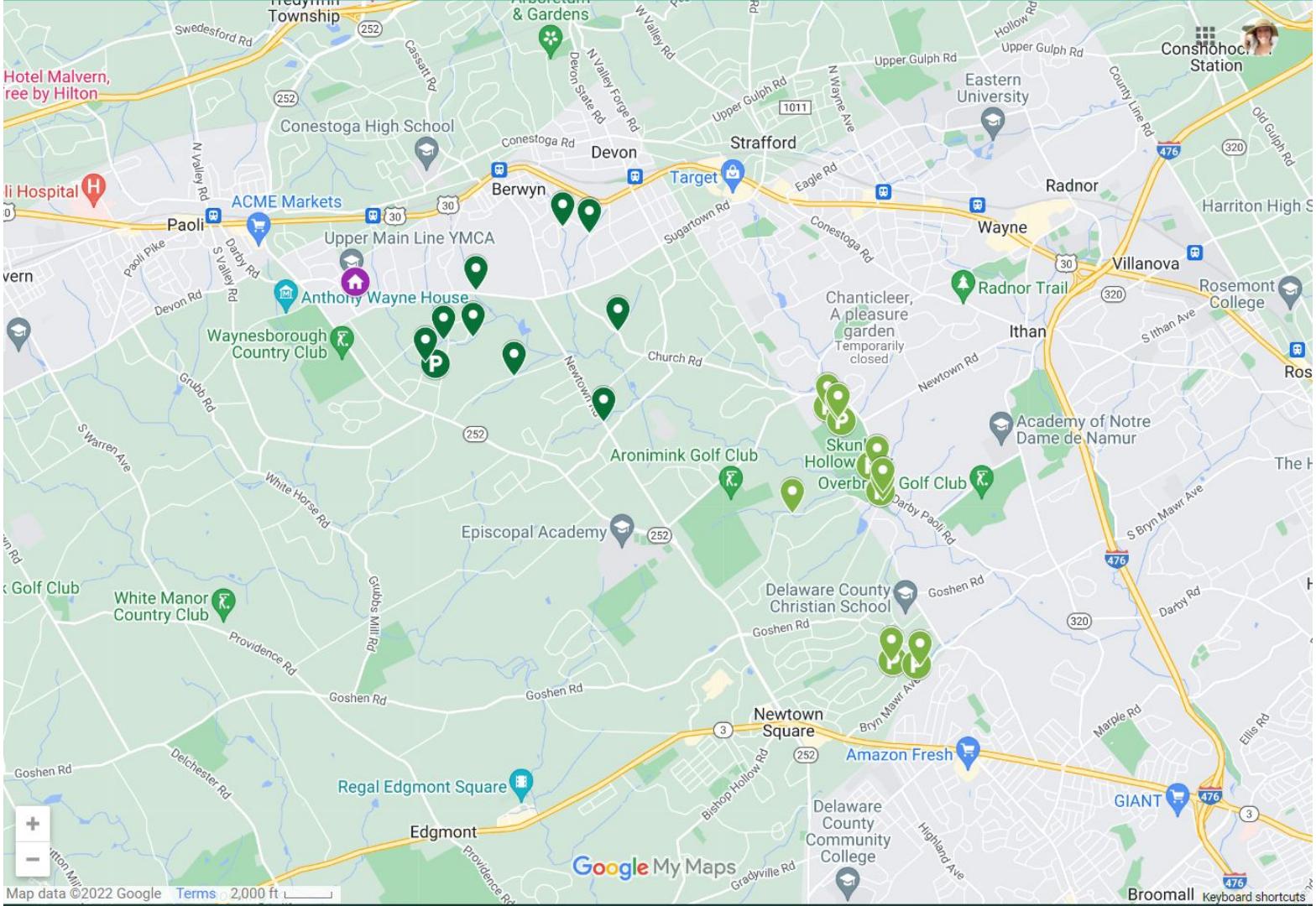
Tredyffrin Township
Swedesford Rd
252
Hotel Malvern, Tree by Hilton
Conestoga High School
Cassatt Rd
Devon State Rd
N Valley Forge Rd
W Valley Rd
& Gardens
Upper Gulph Rd
Hollow Rd
Conshohocken Station
Eastern University
County Line Rd
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Old Gulph Rd
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N Wayne Ave
Strafford
Conestoga Rd
Devon
Target
Eagle Rd
Radnor
Harriton High S
Berwyn
ACME Markets
Paoli
30
Upper Main Line YMCA
Sugartown Rd
Wayne
Villanova
Radnor Trail
Rosemont College
Paoli Pike
S Valley Rd
Darby Rd
Devon Rd
Anthony Wayne House
Chanticleer, A pleasure garden
Temporarily closed
Ithan
S Ithan Ave
Waynesborough Country Club
Church Rd
Newtown Rd
Grubb Rd
Academy of Notre Dame de Namur
S Warren Ave
Aronimink Golf Club
Skunk Hollow
Golf Club
White Horse Rd
Darby Paoli Rd
S Bryn Mawr Ave
Episcopal Academy
Golf Club
White Manor Country Club
Providence Rd
Grubbs Mill Rd
Delaware County Christian School
Goshen Rd
Bryn Mawr Ave
Marple Rd
Ellis Rd
Newtown Square
Amazon Fresh
Delchester Rd
Bishop Hollow Rd
Regal Edgmont Square
GIANT
Edgmont
Delaware County Community College
Highland Ave
Gradyville Rd
Broomall
Google My Maps
Map data ©2022 Google
Terms
2,000 ft
Keyboard shortcuts

DCNR1

name

DCNR1

description

820 Newtown Road Pump Station: Park in pump station parking area. To access stream, walk along Newtown Rd then into the woods. 2 flags at this location.

(Newtown Rd)

Photo Credit: Dale Weaver

Our Team

From left to right:

Charlie Coulter (Volunteer)

Anna Willig (WCT)

Lauren McGrath (WCT)

Michelle Lampley (UMLY)

Deirdre Gordon (Volunteer)

Lloyd Cole (Volunteer)

Dale Weaver (Volunteer)

Aurora Dizel (DCVA)


Conestoga Rd
Devon
Strafford
Target
Berwyn
Markets
Upper Main Line YMCA
Anthony Wayne House
Eagle Rd
Sugartown Rd
Conestoga Rd
Wayne
Radnor Trail
Chanticleer,
A pleasure
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Temporarily
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Providence Rd
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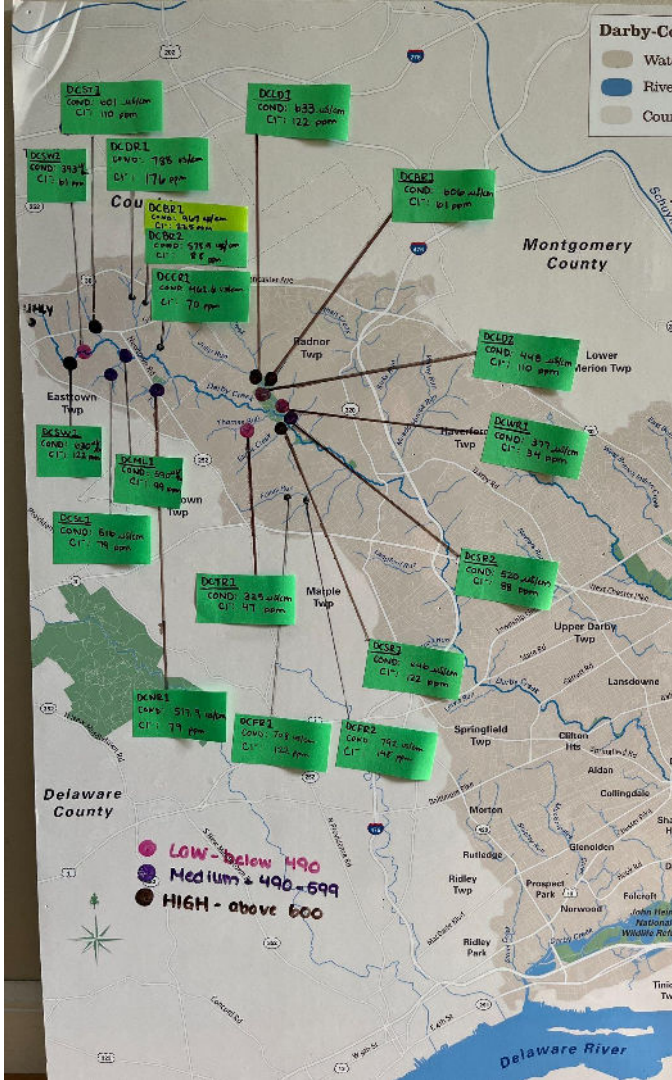
Grubbs Mill Rd
Delchester Rd
Regal Edgmont Square
Newtown
Square
Amazon Fresh
252
30
3

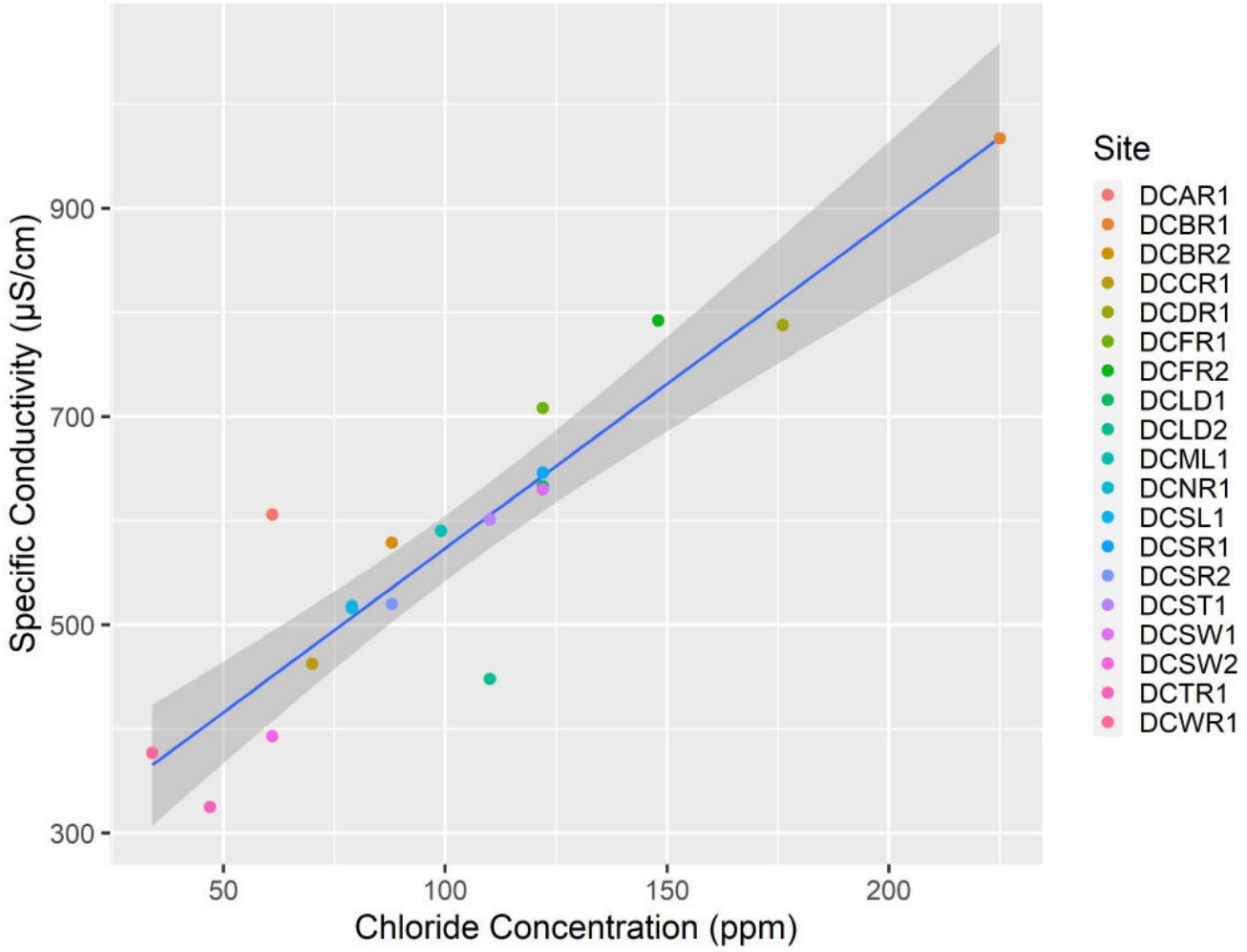
Photo Credit: Charlie Coulter

Photo Credit:Lloyd Cole


Montgomery County
Delaware County
Radnor Twp
Easttown Twp
Haverford Twp
Upper Darby Twp
Springfield Twp
Ridley Twp
Lansdowne
Aldan
Collingdale
Glenolden
Norwood
Folcroft
Delaware River
LOW - below 490
Medium 490-599
HIGH - above 600

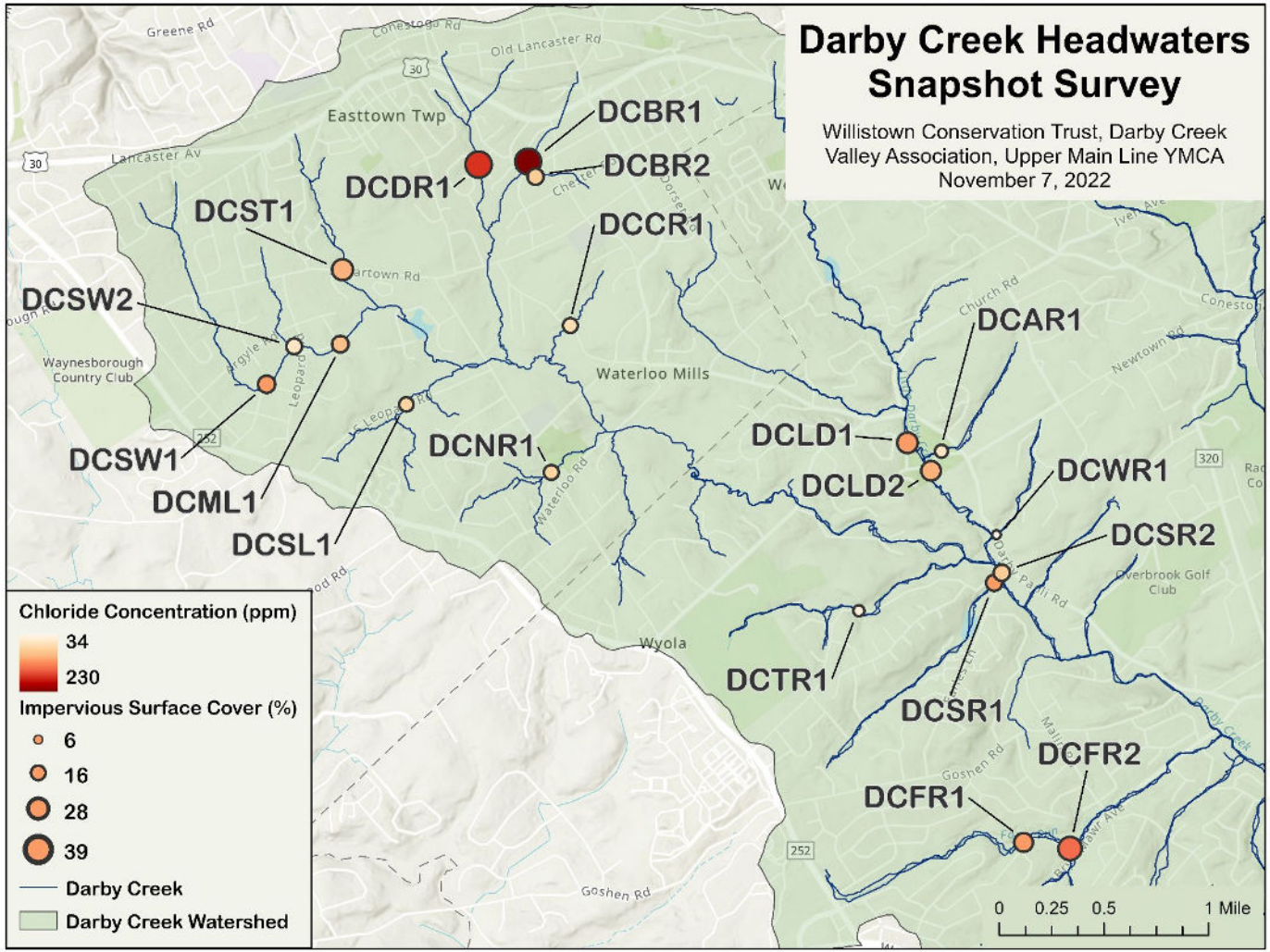
Results

- SPC ranged from 325 – 967 µS/cm
- Chloride concentration ranged from 34 – 225 ppm
- Strong relationship between SPC and chloride concentration



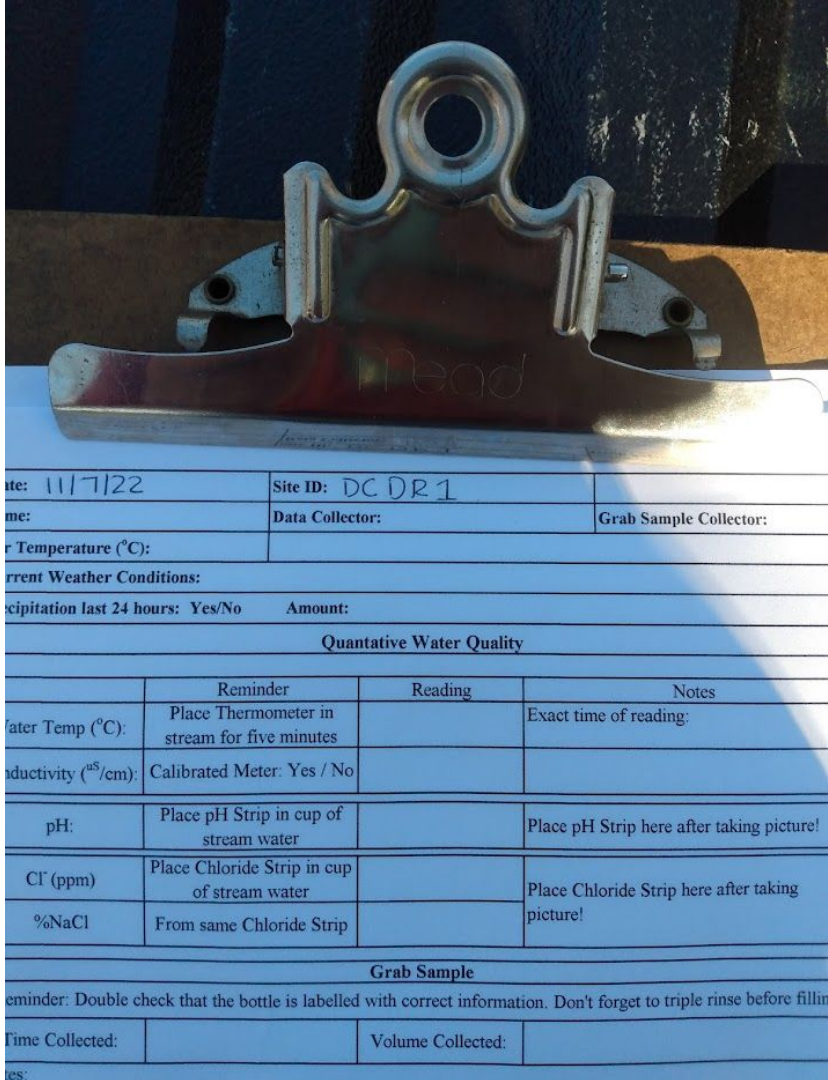
Land Use and Chlorides

- Impervious surface cover ranged from 6 - 39%
- As impervious surface cover increases, so does chloride concentration



Lessons Learned

- [x] 9-10 sites per volunteer pair was a too many sites
- [x] It took longer to select and scout sites that first anticipated - give more time to prepare
- [x] Share the site map sooner with volunteers



Lessons Learned

✅ Pair up volunteers!

✅ Flagging the sites was helpful

✅ Put the data on a map right as it becomes available

✅ Science with friends is always fun - partnering made this project a success!

Thank you!

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