SAVE OUR STREAMS

IZAAK WALTON LEAGUE OF AMERICA

ANNUAL REPORT
2019

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Assembled by

Rebecca Shoer

WELCOME

As we stride into 2020, we certainly have a lot of growth to celebrate. In 2019, we grew in staff, adding Rebecca Shoer and Zach Moss as Save our Streams Coordinators; we grew in technology, with the launch of the new Clean Water Hub database; and our volunteer base and monitoring locations for all of our programs grew steadily as well. Our increase in capacity and enthusiasm will carry us into a new decade: the decade of clear vision and cleaner streams for communities across the United States.

This success could not have been possible without the tireless efforts of our stream monitors, the persistent voices of our advocates, and the unwavering support of our donors. Your donations of time, dollars, and talent empower us to train more monitors, create positive change in more communities, and, to put it simply, "Save Our Streams" day in and day out.

This report is just a glimpse into everything our program has achieved in 2019, all with a goal to improve water quality nationwide. Enjoy!

SAMANTHA BRIGGS

Clean Water Program Director

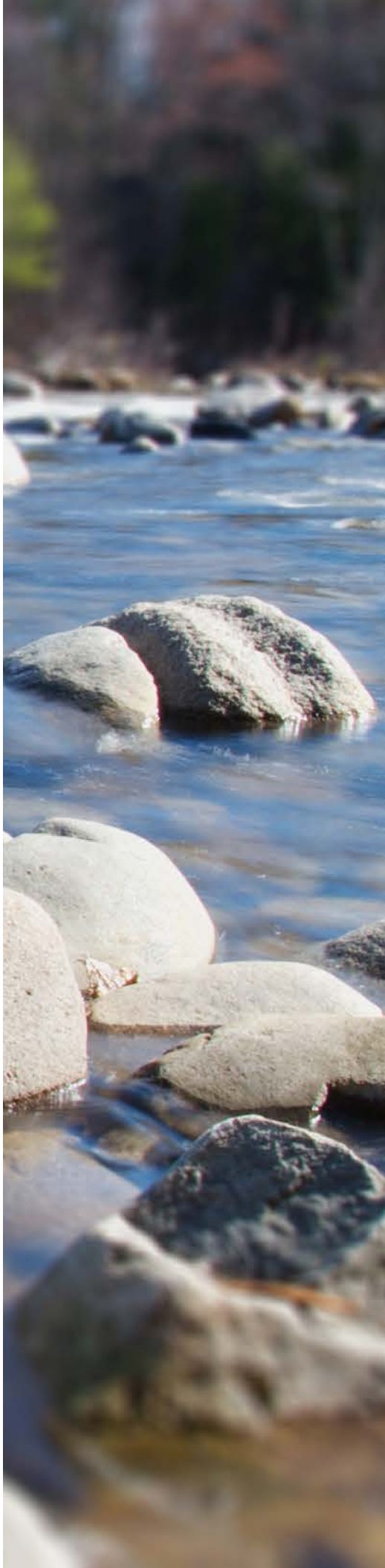
CLEAN WATER PROGRAM

Samantha Briggs, Clean Water Program Director

The Izaak Walton League, founded in 1922, has a mission to conserve, restore, and promote the sustainable use and enjoyment of our natural resources, including soil, air, woods, waters, and wildlife. The League is a member-based organization composed of 200 chapters across the United States, as well as a staffed national headquarters in Gaithersburg, Maryland.

In 2017, the membership launched the Clean Water Challenge, with a goal to monitor 100,000 stream sites by 2022. This led to an overhaul of the Clean Water Program, a reevaluation of what it means to really monitor, and newfound creativity when it came to engaging more people from more places across the country. In 2019, people across the country were able to be involved in the following programs and initiatives:

- Winter Salt Watch
- Save Our Streams Chemical and Biological Monitoring
- Virginia Save Our Streams Biological Monitoring
- Chesapeake Monitoring Cooperative Biological Monitoring
- Creek Freaks Programming (monitoring for youth)



CLEAN WATER HUB

2019 marked the launch of a new state-of-the-art database for volunteers: the **Clean Water Hub.** The Hub was constructed through a partnership with the **Water Data Collaborative**, a group of like-minded organizations working to elevate volunteer water quality data so that it is visible to the public and utilized by state and federal agencies.* The Hub was constructed to not only be the solution for data storage and visualization for Save Our Streams monitors, but also serve the needs of many other volunteer monitoring groups with different types of monitoring protocols and parameters.

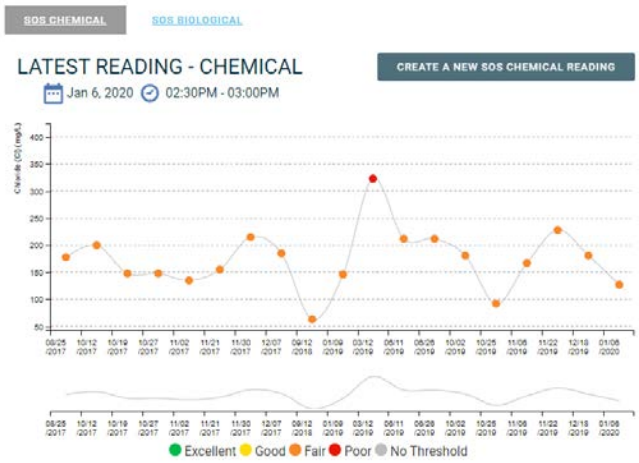
www.cleanwaterhub.org

At the end of 2019, the Clean Water Hub boasted **5 different monitoring protocols**, **4,177 monitoring sites**, **44,292 sampling events** at those monitoring sites, **43 organizations**, and **215 users** utilizing the database.

In addition, Save Our Streams data from across the country can now be uploaded by League staff from the Hub directly into the **Federal Water Quality Exchange**! This will ensure that the data is usable by state and federal agencies, giving our volunteer-collected data a much broader impact.

*The Water Data Collaborative (www.waterdatacollaborative.org), or WDC, consists of representatives from several organizations, including the Izaak Walton League, Chesapeake Conservancy, the Commons, River Network, River Watch of Colorado, Waterkeeper Alliance, CUASHI, and the Internet of Water. The WDC was funded by the Pisces Foundation for all work that took place in 2019, including Clean Water Hub development.

MAJOR HUB MILESTONES

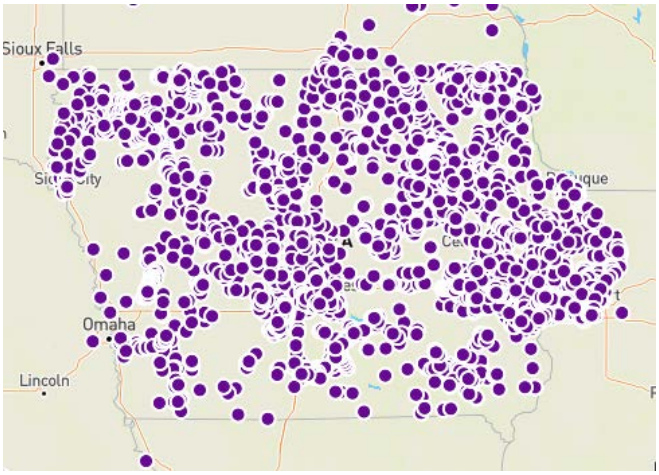


Site Visualization

The Clean Water Hub is not your standard "black box" database – in fact, it puts the power back into the hands of the volunteers, by visualizing their data on a map and with easy-to-understand charts!

Protocol Onboarding

In 2019, the League onboarded several protocols into the Hub, including the Save Our Streams Biological and Chemical monitoring forms, as well as the VA SOS/CMC Rocky and Muddy Bottom forms. With these protocols in the Hub, all SOS and CMC monitors are able to input their data into the Hub, and VA SOS monitors (who submit their data through another database) will still see their results posted in the Hub by League Staff.



IOWATER

Clean Water Program staff were also able to upload a large amount of data from the IOWATER Program, a former volunteer program run by IA DNR that had been defunded in 2016. This upload gave life to a seemingly lost dataset. Find out more about IOWATER in our Iowa report below.

SAVE OUR STREAMS

2019 was an auspicious year for Save Our Streams, as we celebrated our 50th birthday! The Save Our Streams program, started by an Izaak Walton League member in Maryland in 1969, was the first national volunteer monitoring program in the country. It is still highly regarded among scientists, agency professionals, and concerned citizens for its educational publications, training videos, and for its teacher and volunteer training workshops that have been presented nationwide.

SOS volunteers conduct biological and chemical monitoring at their adopted stream sites. Chemical tests include measuring pH, chloride, nitrate, phosphate, dissolved oxygen, and more. These results can help volunteers narrow down what pollution threats may be affecting their sites.

Biological monitors collect and identify benthic macroinvertebrates, small organisms that live on the bottom of streams. By identifying these animals, volunteers can count how many pollution sensitive or pollution tolerant kinds live in the stream and calculate a stream health score. SOS volunteers are the first line of defense for local pollution threats, and the data they collect and report is used by local, state, and federal agencies!

Since 1969 50 YEARS OF SAVE OUR STREAMS
IZAAK WALTON LEAGUE OF AMERICA

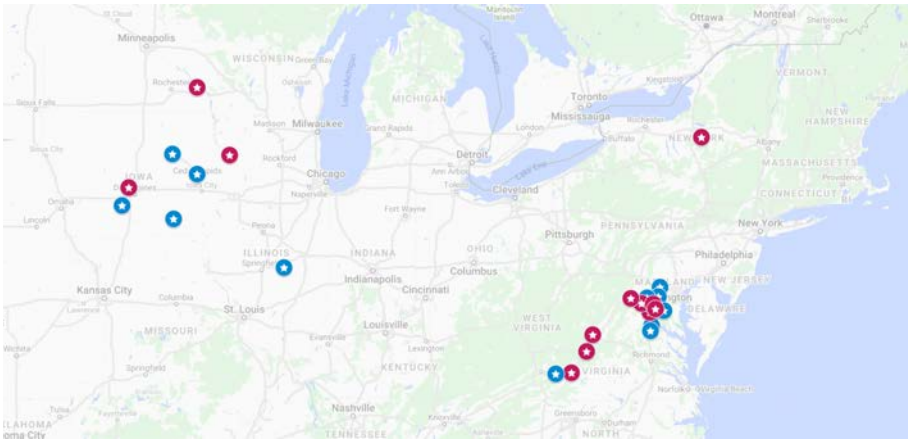
SOS BY THE NUMBERS

Save our Streams relies on a growing corps of volunteers to monitor streams across the country. In 2019, IWLA staff held **14 trainings** in the states of Iowa, Illinois, Maryland, and Virginia, training over **200 potential new monitors**. We also have over **30 volunteer trainers**, experienced monitors who can also train and certify new volunteers. These trainers trained over **100 additional monitors** in Iowa, Minnesota, New York, and Virginia.

2019 Training Sites

Volunteer Trainer

Staff



In total, over **300 Save Our Streams volunteers monitored** at over **250 sites.** Read on to find out more about our regional SOS programs in Iowa, the Chesapeake Watershed, and Virginia.

IOWA SAVE OUR STREAMS

Zach Moss, Midwest SOS Coordinator

In 2019, IWLA began concentrating effort towards growing SOS in the Midwest, with the state of Iowa being the primary focus. This effort has included several **SOS trainings**, an **Iowa Water Summit**, the hiring of a new full-time **Midwest SOS Coordinator**, the activation of two Midwest **volunteer SOS trainers**, coordination with the **Iowa DNR and IOWATER** program, and intense **outreach and networking**. This productive year has laid the groundwork for a successful year in 2020 of utilizing and expanding partnerships, reaching a broader audience, training and coordinating new volunteers, and uploading more data to the Clean Water Hub!

IWLA's National Convention was held in West Des Moines, Iowa in 2019. Throughout the convention, there were several presentations about soil health, water quality, and Save Our Streams. The day after the convention, IWLA and dedicated partners hosted the Iowa Water Summit. The Summit was a collaborative conference to bring together the key contacts and stakeholders involved with volunteer water quality monitoring around the state. **54 attendees** from state government, non-profit groups, and private interest engaged in roundtable discussions and heard from IWLA Clean Water Program Director Sam Briggs, former IOWATER program director Mary Skopec, Iowa DNR Project Director Steve Konrady, Dr. Chris Jones from the University of Iowa, and Prairie Rivers of Iowa Watershed Educator Dan Haug. This was an incredible opportunity to plan for Iowa's clean water future.

THE IOWATER LEGACY

IOWATER was a citizen-based water quality monitoring program in Iowa facilitated by the Iowa Department of Natural Resources. IOWATER began in 1998 and ran until it was defunded in 2016 due to budget cuts at the DNR. Over the lifetime of the program, IOWATER recruited and trained hundreds of volunteers who monitored thousands of sites throughout the state.

The defunding of the IOWATER program not only left all their volunteer water quality monitors without support or coordination, it also left all those years of valuable water quality data stagnant and inaccessible when the IOWATER database was removed from the web.

In 2019, IWLA was able to gain access to the historic IOWATER data and transfer it to the Clean Water Hub, making it accessible once again, available to the public, and easy to interpret and share. Additionally, IWLA was able to make email contact with previous IOWATER volunteers to notify them of the SOS program's new focus on their state and ask for their participation in the program. This effort garnered responses from about **75 IOWATER volunteers** who were interested in learning more and potentially becoming future SOS water quality monitors! We hope to continue the legacy of this excellent citizen science program, empowering Iowans to monitor and protect their waterways.

OUTREACH & PARTNERSHIPS

With SOS being a relatively new program in the state of Iowa, much of the focus in 2019 was on outreach, networking, and developing partnerships around the state. Save Our Streams Coordinator Zach Moss made contact with over **100 different groups, organizations, and agencies**, and he attended or presented at events reaching about **325 individual people** face-to-face. A monthly Iowa-specific SOS newsletter helps coordinate and inform SOS monitors and supporters based on locally-relevant issues, seasonally-appropriate monitoring reminders, and upcoming events.

Iowa, while being rich with water quality problems, has lacked a unified and shared direction for water quality monitoring around the state outside of the Iowa DNR, which operates on a continually-shrinking budget. The Save Our Streams program is a great fit to provide a coordinated direction and methodology for water quality monitoring across Iowa occurring outside of the state government. SOS will allow local water quality stakeholders in different areas of the state to use the same protocol and truly allow an "apples to apples" comparison. Partnerships with grassroots and local groups will also aid the SOS program by mobilizing volunteers to monitor in areas that have the most critical need according to their locality.

VALUED VOLUNTEERS

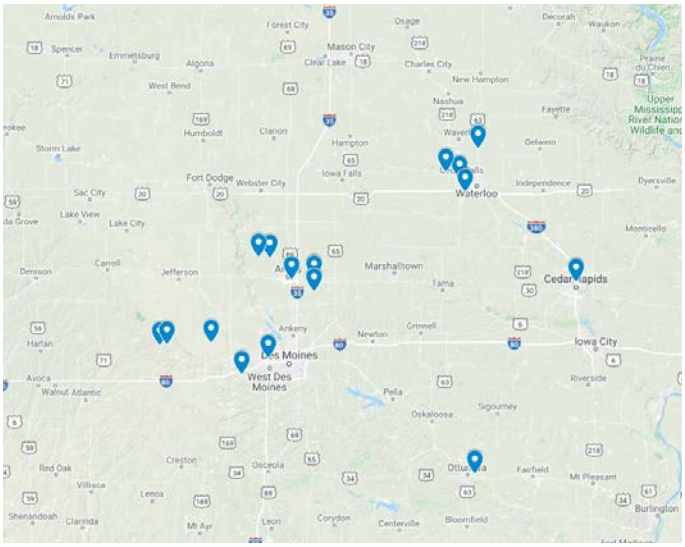
We have great success stories from volunteers in the early stages of the SOS program's rollout in Iowa. In Story County, several members of the **Squaw Creek Watershed Coalition**, in conjunction with the non-profit **Prairie Rivers of Iowa**, utilized Save Our Streams as a supplemental tool to track the health of their streams and educate the community. The **Cedar Valley Paddlers** in east-central Iowa adopted **four sites** in 2019 on tributaries of the Cedar River and performed **biological and chemical SOS monitoring**. In 2019, the **Linn County Chapter** hosted **two SOS trainings**, with a third scheduled for spring 2020. These groups are creating a local culture that cares about water quality, establishing a network of neighbors to support each other, and setting up a strong framework for the future sustainability of SOS monitoring in Iowa.

MONITORING RESULTS

In 2019, IWLA staff members, aided by SOS volunteer trainer Susan Heathcote, conducted **eight trainings** around the state of Iowa, training **68 potential volunteers** and certifying **31 new SOS monitors.** Iowans recorded chemical data on the Clean Water Hub at **16 sites** around the state, and biological data at **nine sites.**

One trend that was common across all Iowa sites on the Hub in 2019 was poor transparency. Iowa's SOS sites recorded an average clarity depth of 12.2 cm, with no site recording a value more than 27 cm. Cloudy water is attributed to suspended particles, which are caused by soil erosion within the watershed. Low transparency values can threaten aquatic life by warming water, decreasing oxygen levels, and clogging the gills of sensitive animals. Additionally, eroding soil can carry with it any chemical or pollution present on the land at the time.

2019 Iowa Sites - SOS



LOOKING AHEAD

The relatively small amount of current SOS data in Iowa makes it difficult to draw many tangible conclusions. To overcome this, we will be ramping up training efforts in 2020 to recruit and engage more citizen scientists around the state. Currently, we already have eight trainings in Iowa on the calendar for spring 2020 alone, with several more expected to be added as we continue to build and utilize partnerships.

The newly-trained SOS monitors from 2020 should greatly increase the capacity to collect more data from more stream sites and share to the Clean Water Hub. Additionally, we are certain that those who were trained in 2019 are well-equipped to monitor and gather and submit data in 2020 .

As the SOS program continues to develop in Iowa, it's critical that we coordinate with local groups to mobilize volunteers across the state. 2019 provided a strong foundation for SOS in Iowa, laying the groundwork for a productive 2020 and beyond!

SNAPSHOTS FROM THE FIELD

VIRGINIA SAVE OUR STREAMS

Rebecca Shoer, Mid-Atlantic SOS Coordinator

Virginia Save Our Streams (VA SOS) is the only state-specific Save Our Streams program in the country. VA SOS monitors use a Virginia-specific protocol developed by researchers from Virginia Tech. The data is submitted to both the Clean Water Hub and directly to the Virginia Department of Environmental Quality (VA DEQ), which uses it to track restoration projects, target areas for further monitoring, and educate the public. IWLA staff work closely with VA DEQ to keep protocols up-to-date, target new monitoring sites, and share information.

VA SOS is supported by a strong network of volunteers, coordinators, and trainers. Volunteer coordinators make sure local teams have everything they need to head out into the field. Trainers are experienced volunteers who train and certify new monitors in their region. In 2019 IWLA staff trained seven new volunteer trainers, expanding our program into new areas of the state. We now have over **30 certified trainers**, allowing us to engage even more community members across the state. Together, staff and trainers certified over **80 new VA SOS monitors** in 2019.

This year, almost **200 VA SOS volunteers** across the state monitored their local streams. Monitors used their data to track restoration efforts like those at Accotink Creek, assess stream quality near areas of concern like the Mountain Valley Pipeline, and educate local students and schools about water quality issues. Monitors also tabled at community events, gave lectures to local master naturalist chapters, hosted public monitoring days, and more.

VALUED VOLUNTEERS

A dedicated corps of volunteers have built VA SOS into the incredibly successful program it is today. In 2019, nearly **200 volunteers** spent over **1,500 hours** collecting and submitting stream health data from over **150 sites**. That's over **$38,000 of in-kind donations** from our monitors!

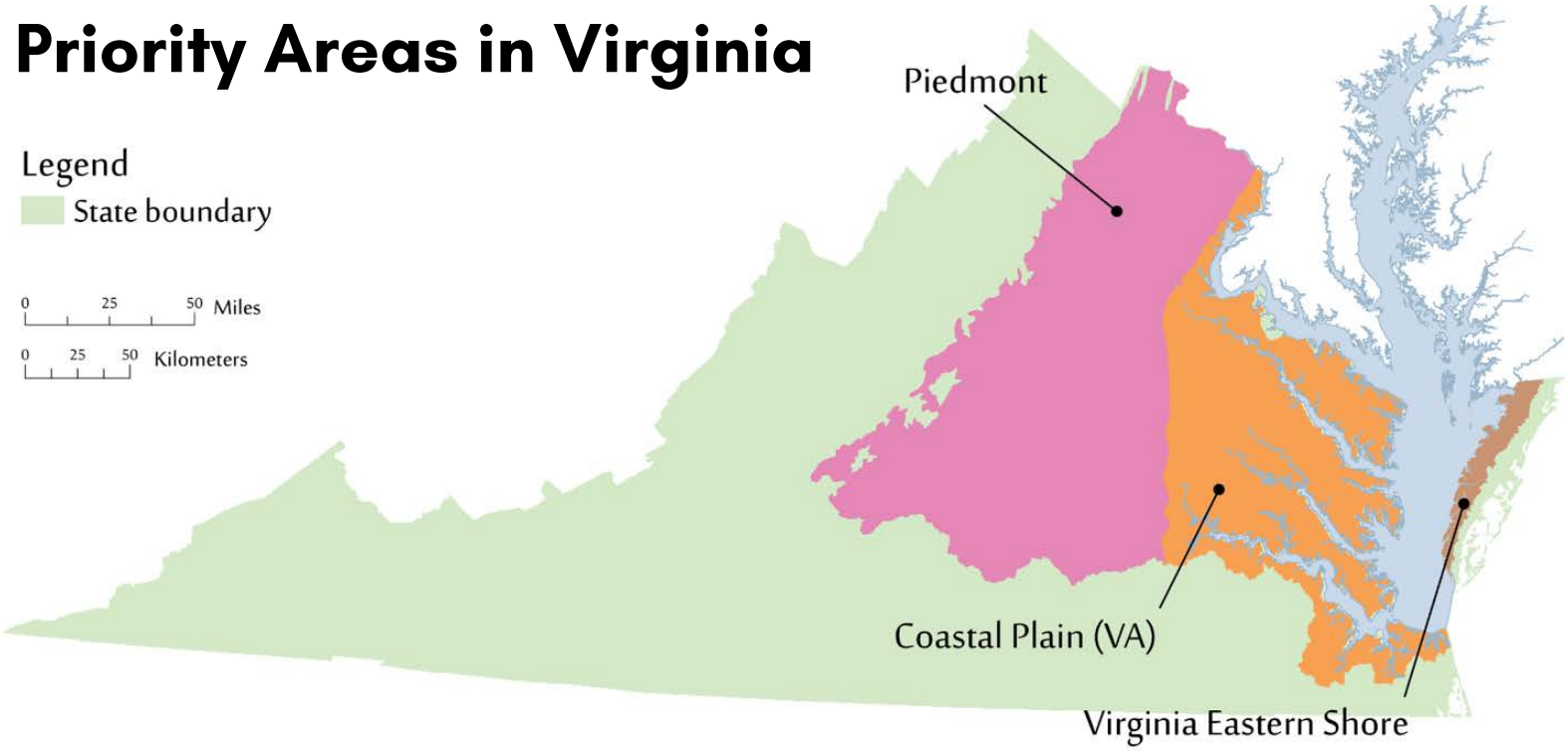
In order to better support the VA SOS program and our volunteers, the Izaak Walton League hired Rebecca Shoer as the Mid-Atlantic SOS Coordinator in May 2019. Rebecca hit the ground running, leading trainings across the state and reconnecting with volunteers. We now have a regular VA SOS newsletter, a redesigned and revamped website (www.vasos.org), updated datasheets, and new handout materials. Looking ahead, she is already coordinating training events for spring, developing new outreach materials, and analyzing data.

With Rebecca on board, staff trained **136 new potential volunteers**, including **80 high schoolers**. We provided monitors over **$6,000 to replace old gear** and buy new equipment. Staff attended and presented at the Virginia Citizens for Water Quality Monitoring Summit, the Chesapeake Watershed Forum, and other local events.

PRIORITY REGIONS

In 2017 the Chesapeake Monitoring Cooperative identified several priority regions across the watershed that have little stream quality data. For Virginia, the identified regions were the Piedmont and Coastal areas. The Piedmont, the area west of the coastal plan and east of the Blue Ridge Mountains, is also a priority region for VA SOS (VA SOS protocol does not apply to tidal streams). We targeted this area for volunteer recruitment and monitoring by certifying **two new trainers** in the Richmond/Henrico area, with plans to host training events throughout the region in 2020. Southern Virginia continues to be a challenge for volunteer recruitment and retention, especially in rural areas. With continued outreach efforts and development of more resource materials, we hope to bolster our presence in the Piedmont and southern regions of Virginia in 2020.

Priority Areas in Virginia



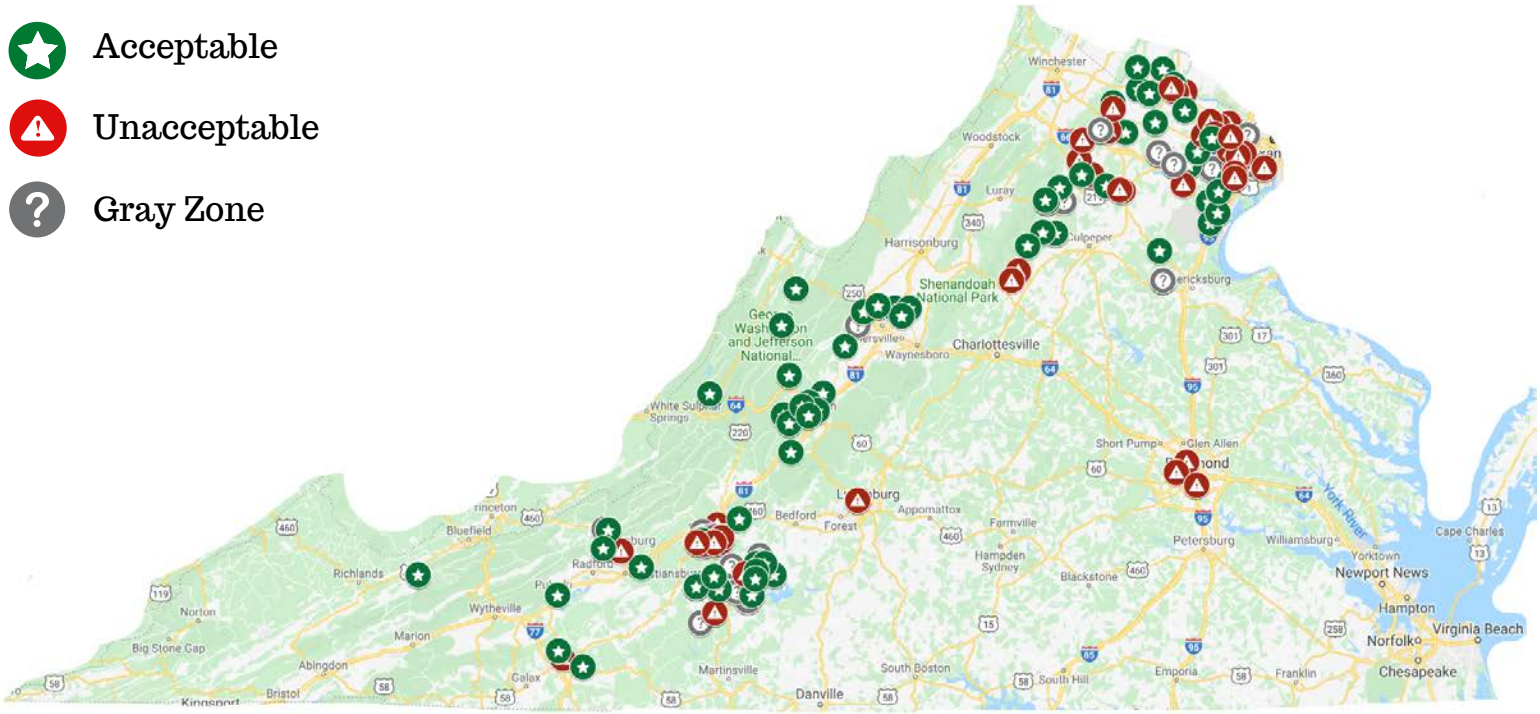
From the Chesapeake Prioritization Report

STREAM HEALTH RESULTS

What is the state of Virginia's waterways? Not surprisingly, unacceptable stream health scores were found in developed areas across the state. Northern Virginia, Richmond, and Roanoke all showed concentrations of unacceptable or gray zone scores. More rural stretches along the Blue Ridge Mountains showed a greater concentration of acceptable stream health scores. These results show a clear pattern of how development affects water quality: as urban areas continue to expand, the health of local creeks and streams deteriorates. More people means more impervious surfaces, increased runoff, and greater stress on aquatic habitats.

2019 Stream Health Scores

- Acceptable
- Unacceptable
- Gray Zone



5 YEAR COMPARISON

Has anything changed for Virginia's waters over the past five years? For the most part, we are seeing a steady spread of gray zone or unacceptable scores in Northern Virginia and Roanoke. As we collect more data at new sites, we are also getting a better idea about water quality across the state. At new sites in Richmond, for example, we can see that the water quality is currently unacceptable.

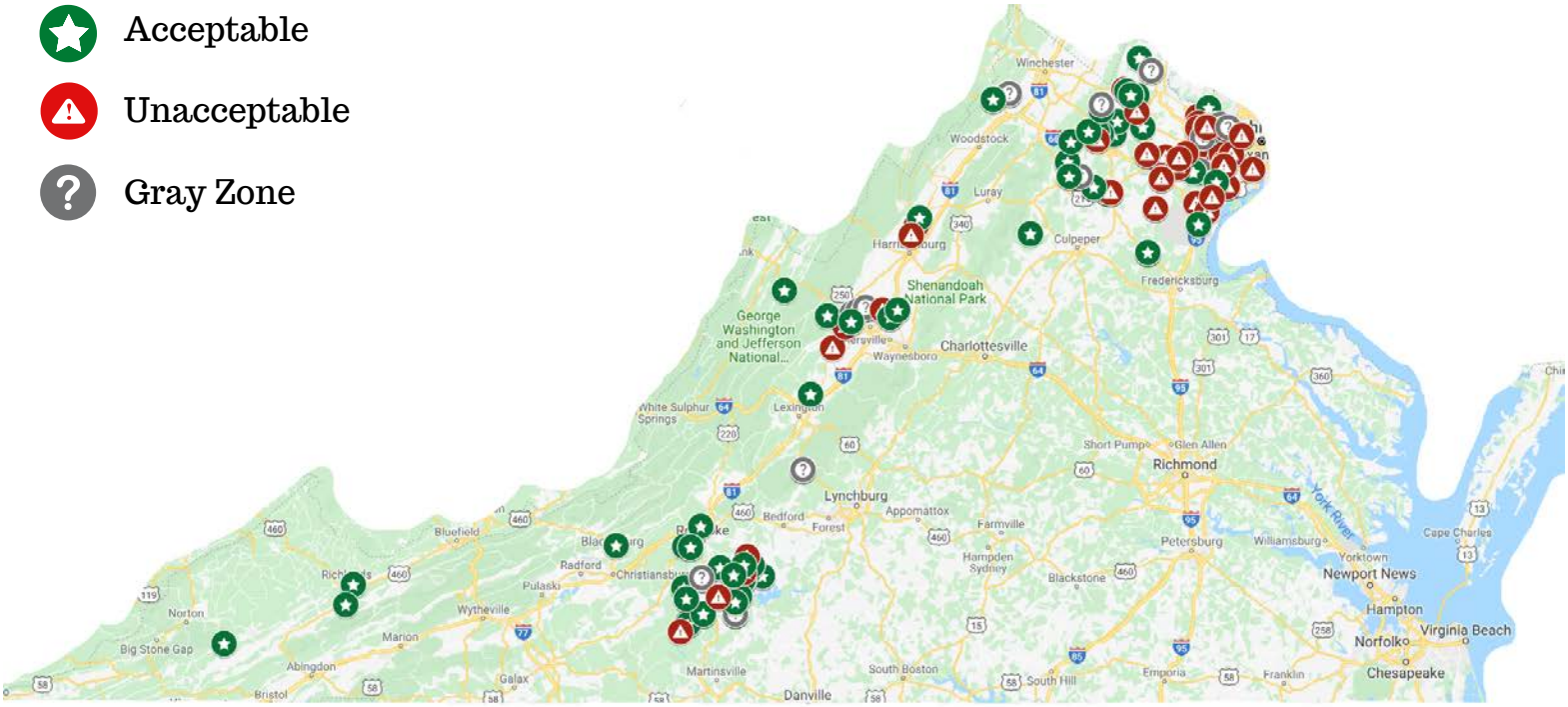
Our data shows sites around the Middle River may have improved since 2015. These findings are supported by Virginia DEQ, which recently "delisted" a significant portion of the Middle River from the Impaired Waters List. Concerted restoration efforts, community outreach, and pollution management all contributed to Middle River's rebound.

2015 Stream Health Scores

Acceptable

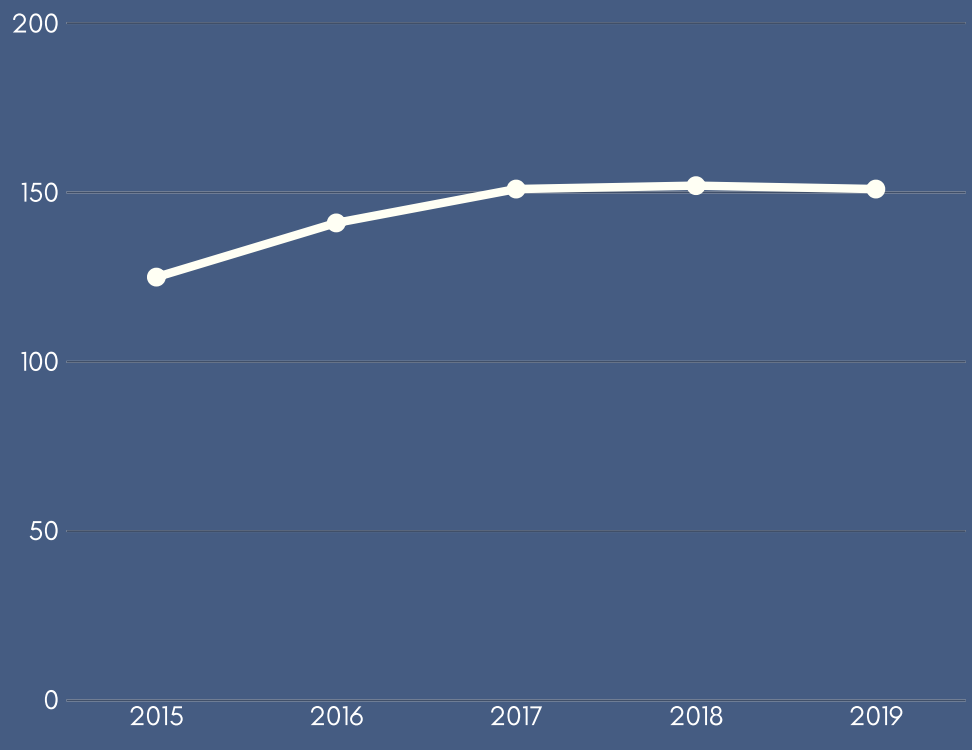
Unacceptable

Gray Zone



WHAT CAN BE DONE?

What can be done to improve water quality? VA SOS volunteers are filling a critical knowledge gap about Virginia's waterways. State and federal agencies are only able to monitor a few sites a year, while our monitors collect data twice a year at 150 sites. This data allows volunteers, local organizations, advocacy groups, and governments to make decisions about land use, conservation, and restoration priorities. These same groups can educate the public about water quality and how each of us plays a role in the health of our waterways. Before we can take action to protect and restore Virginia's streams, we need information – and our volunteers have taken up the challenge!



TOTAL SITES

The total number of sampled sites has stayed around 150 for several years. Moving forward, we hope to increase the number of sampled sites, especially in the Piedmont region.

LOOKING AHEAD

Where is VA SOS headed? Our goals moving forward are expansion and support: expanding our volunteer outreach and efforts into the Piedmont region, and supporting our volunteers with new resources. In addition to providing regular trainings across the state, VA SOS is focused on creating outreach materials that volunteers can utilize in their own communities. Local communities are key to ensuring the health of Virginia's waters. VA SOS is working to empower volunteers by providing the tools they need to collect data, engage others, and create real change.

SNAPSHOTS FROM THE FIELD

CHESAPEAKE MONITORING COOPERATIVE

The Chesapeake Monitoring Cooperative is a group of organizations in the water quality field that provide technical, programmatic, and outreach support for the integration of water quality and macroinvertebrate monitoring data into the Chesapeake Bay Program partnership. We're building a Chesapeake community where all data of known quality are used to inform watershed management decisions and restoration efforts. The Cooperative works with diverse partners to collect and share new and existing water quality data. We are supporting a comprehensive understanding of Chesapeake Bay Watershed health. Data contributions by a network of volunteer sources provide valuable information that supports shared decision-making and adaptive management.

ALLIANCE for the Chesapeake Bay

THE IZAAK WALTON LEAGUE OF AMERICA — DEFENDERS OF SOIL, AIR, WOODS, WATERS AND WILDLIFE

ALLARM — Alliance for Aquatic Resource Monitoring — est. 1986

Chesapeake Bay Program
Science. Restoration. Partnership.

University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

IWLA & THE CMC

The Chesapeake Monitoring Cooperative was formed in 2015 through a six-year cooperative agreement between EPA's Chesapeake Bay Program and the Alliance for the Chesapeake Bay, in order to allow the Bay Program to leverage volunteer and non-traditional monitoring efforts to better understand the health of the Bay watershed.

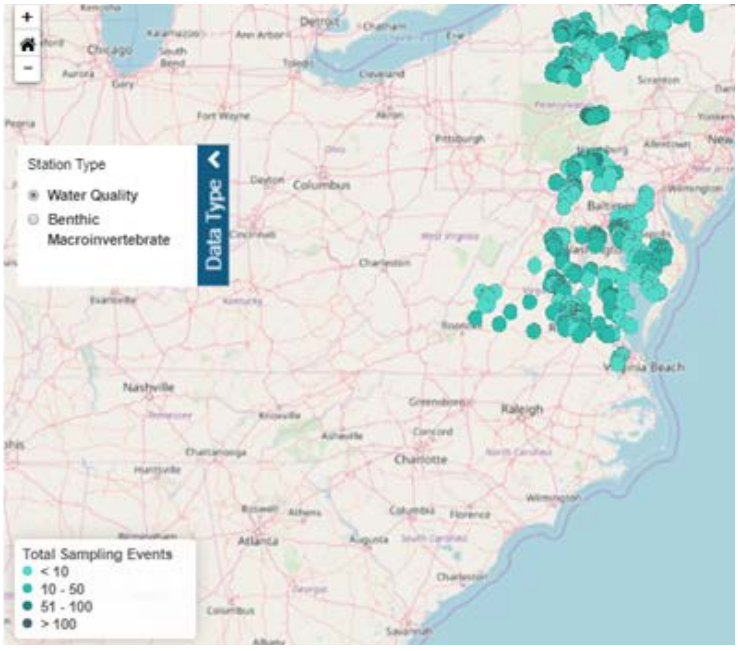
During the first two years of the project, the partner organizations came together to lay the groundwork for a watershed-wide monitoring program by creating methods manuals and quality assurance project plans, taking inventory of existing monitoring programs throughout the watershed, and developing a framework to determine how volunteer data can be used by state and federal agencies. In the past few years, we have focused on training new monitoring groups and helping existing monitoring groups get their data into the Chesapeake Data Explorer.

The League has two roles within the CMC: 1) to train volunteers in benthic macroinvertebrate monitoring in the lower Chesapeake Watershed and to manage macroinvertebrate data and 2) to support the coordination of CMC activities among the service providers and work with the Chesapeake Bay Program on using citizen science data. This year, in addition to these roles, the League represented the CMC in working with outside groups on complex data analysis of the CMC's 100,000+ point dataset.

THE DATA EXPLORER

The Chesapeake Data Explorer is a portal to all of the data collected through the Chesapeake Monitoring Cooperative. It is a place for monitoring groups to upload and manage their water quality data and see it alongside all of the other data being collected throughout the Chesapeake watershed. If you upload VA SOS or CMC data to the Clean Water Hub, it will end up here as well.

Data uploaded to the Chesapeake Data Explorer is used by the Chesapeake Bay Program, some state agencies, and the general public. Anyone, including individuals, local municipalities, or independent researchers, can download data from the Chesapeake Data Explorer.



FUTURE MONITORING

This year the League trained over **100 new volunteers** in CMC protocols. We are excited to have monitors active in Maryland this year, when so much of the CMC data has come from VA SOS in previous years. We also added over 25 years of data from the Audubon Naturalist Society to the Chesapeake Data Explorer!

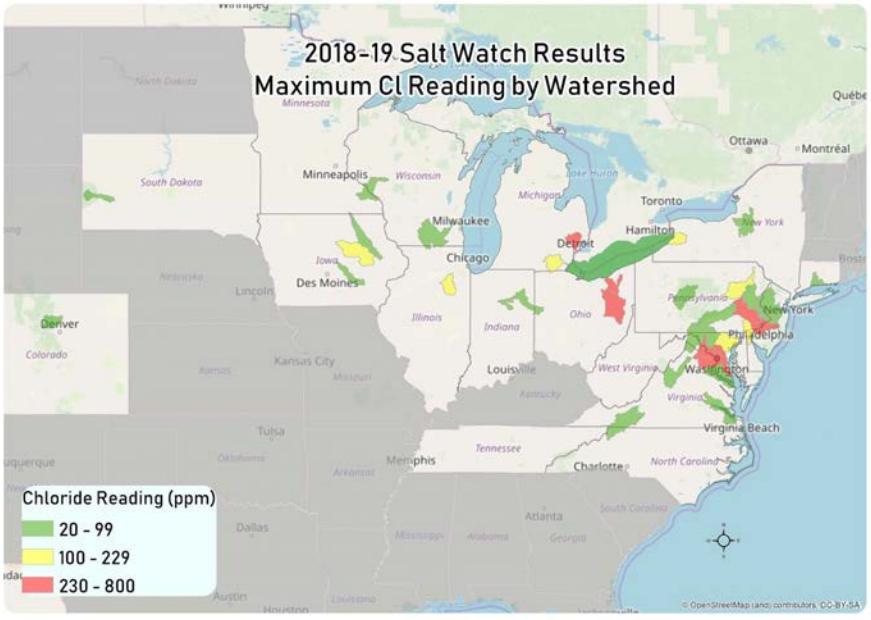
As we look forward into 2020, we will be focusing on adding groups collecting more rigorous data like the Rivanna Conservation Alliance in the Charlottesville area of Virginia, and incorporating Maryland Stream Waders data into the Chesapeake Data Explorer. We will also be training and engaging with groups in areas we don't have very much (or any) data like in the Eastern Panhandle of West Virginia and the Piedmont region of Virginia.

WINTER SALT WATCH

The Winter Salt Watch program is a crowdsourced monitoring campaign that aims to shed light on an all-too-common water quality issue: road salt. Test strips are sent to volunteers through the mail so that they can track chloride levels in streams that they care about. Now in its third winter season, the Salt Watch program has grown annually nationwide.

2018 - 2019

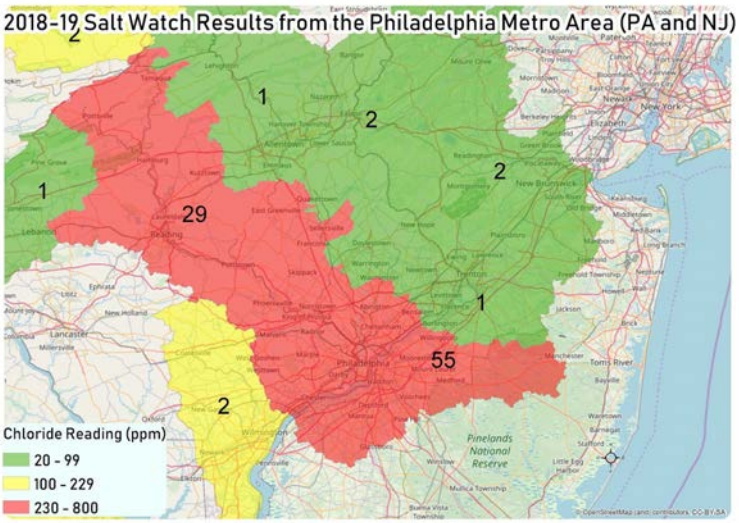
Out of the almost **500 Salt Watch kits** we sent out, volunteers shared **340 test results** with us on Water Reporter. These results included data from **39 different watersheds** in **17 states**, mostly in the mid-Atlantic and Midwest. We had particularly high participation in the Philadelphia and Washington, DC, metro areas, with over 80 reports in each area.



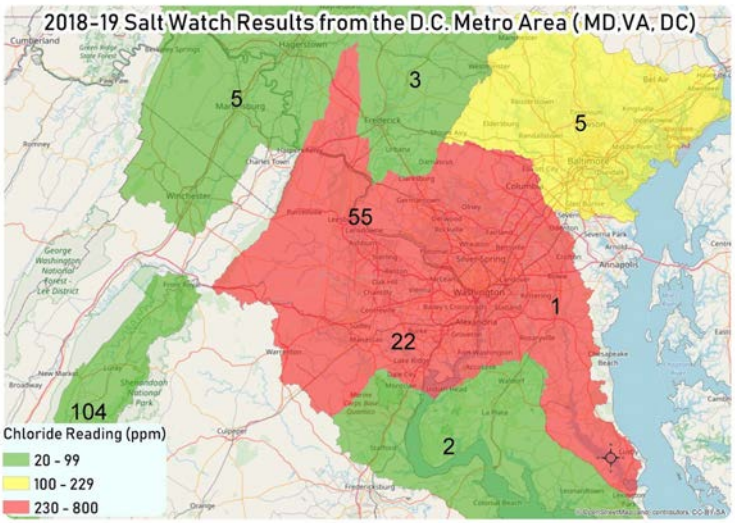
2018 - 2019 REGIONAL RESULTS

We saw participation from a coordinated effort of **10 community groups** in the Philadelphia region, some of which are part of the Delaware River Watershed Initiative. These groups recruited enough volunteers to have excellent coverage of their local watersheds. Our work with these groups was picked up in the *Philadelphia Inquirer* and other local news outlets, which helped us towards our goal of increasing awareness of road salt as an important water quality issue.

While the Salt Watch campaign did not get as much media coverage in the Capital region as it did in the Philadelphia area, volunteers were equally as enthusiastic and participatory. We saw around **80 results** from the region from local IWLA chapters, the Audubon Naturalist Society, and other groups also involved in Save Our Streams.



Number shows how many reports per watershed



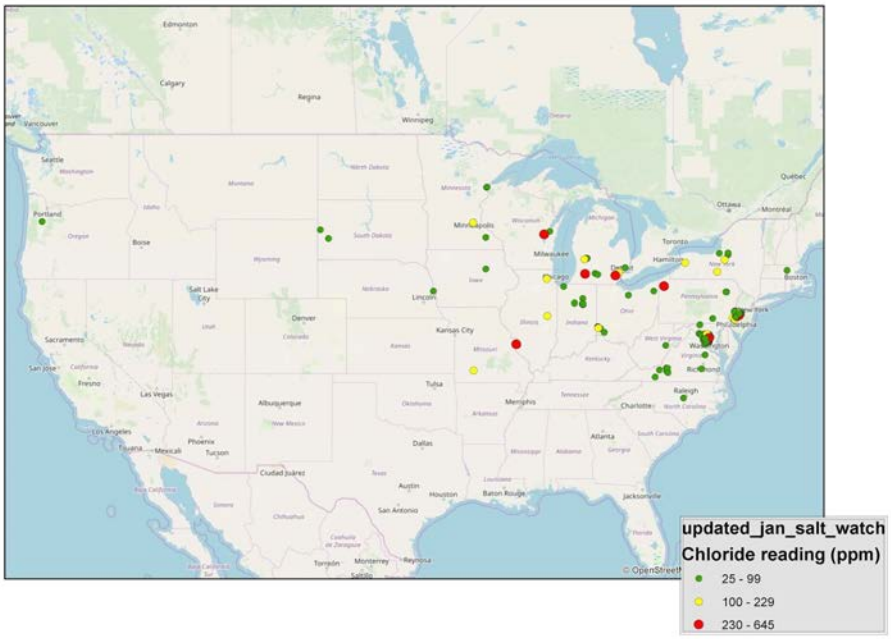
Number shows how many reports per watershed

2019 - 2020 SEASON

2019 - 2020

This winter, we have shared over **700 Salt Watch kits**. Thus far volunteers have sent back over **200 test results** with more expected to come as the season continues. These results include data from **44 different watersheds** in **20 states**, mostly in the mid-Atlantic and Midwest. We have particularly high participation in the Philadelphia and Washington, DC, metro areas, with our participation in Michigan and Minnesota expected to grow significantly in the New Year.

Winter Salt Watch results as of Jan 2020



GET INVOLVED

Want to become an advocate for local streams? There are so many ways to get involved with Save Our Streams, and anyone can volunteer! Find out how to get involved in our different programs today:

Save Our Streams: www.iwla.org/sos
Clean Water Hub: www.cleanwaterhub.org
Chesapeake Monitoring Cooperative:
www.chesapeakemonitoringcoop.org
Virginia Save Our Streams: www.vasos.org

Follow us on social media to keep up with the latest SOS news and updates, and subscribe to our Clean Water Challenge newsletters at iwla.org/cwc! Share your own success stories and lessons learned by tagging us on social media or emailing us directly. Drop us a line at sos@iwla.org.

Our work simply couldn't be done without our hundreds of dedicated volunteers. THANK YOU to all of our monitors across the country: you are the first line of defense for clean water. Now more than ever we need your data and your voice to protect our nation's waterways. Together we can educate our communities, collect critical data, and Save Our Streams!

@saveourstreams @saveourstreamsIWLA