In November 2012, voters supported the Polk County Water and Land Legacy Bond (PCWLL) in historic fashion, passing the measure with 72% support. This large margin of victory clearly shows that there is strong support for critical water quality, wildlife, trails, and recreation projects. In part, this bond has allowed Polk County Conservation (PCC) to start a water monitoring program to help assess stream quality in Polk County, Iowa.

The Polk County Conservation Water Quality Monitoring Program (PCCWQMP) began in the spring of 2015. The goal of this program is to design and implement a series of twice a month monitoring events that will assess the water quality of streams within Polk County. Specific objectives of these events include establishing a baseline for determining stream health based on chemical, physical, habitat and biological parameters, assessing the health of the local watersheds, targeting areas in need of water quality improvement, creating partnerships in order to grow our water monitoring program and to gain a better understanding of the needs of our watershed systems within Polk County. To achieve these objectives PCCWQMP, working with IOWATER (Iowa’s statewide citizen monitoring program 1999-2016) and the Iowa Department of Natural Resources (Iowa DNR), selected sites designed to complement existing IOWATER sites. In fall 2016, PCCWQMP staff completed the first full year of assessments on 32 sites on creeks, streams and drainage ditches throughout Polk County. Since then, our program collaborated with surrounding municipalities and public volunteers to allow our program to grow to 70 sites. City partnerships include Cities of Altoona, Ankeny, Des Moines, Des Moines Parks and Recreation, Johnston and West Des Moines. Each year, new staff and volunteers enlist and are trained to assist in this endeavor.

Establishing a program to assess the health of the streams and create a better understanding of the needs of our watershed system within Polk County is not without challenges. The Iowa Nutrient Reduction Strategy (INRS) was developed with the goal of reducing nutrient loads that lead to algae growth, end up in the Mississippi River and ultimately in the Gulf of Mexico, by 45%. This nutrient load is the leading cause of hypoxia, low dissolved oxygen that cannot support aquatic life, in the Gulf of Mexico. Several challenges identified in the INRS report are consistent
Program History

with challenges the PCCWQMP faces. Such challenges include determining how much data is necessary to accurately establish a baseline for stream health and health of the watersheds, what target areas are in need of water quality improvement, how to identify the origin of nutrients, which management practices are most effective and how long before the management practices implemented have an impact on water quality.

Despite these challenges, Polk County Conservation continues to monitor streams throughout Polk County. Sites were sampled twice a month for chemical and physical data. Each sampling assessment included weather, water clarity, color, odor, water and air temperature, precipitation over last 24 hours, stream width and maximum depth, transparency, pH, nitrate, nitrite, dissolved oxygen, chloride and phosphate.

In addition to the chemical/physical assessments, habitat and biological assessments were completed in July or August for each actively monitored site. Habitat assessments document changes in the streamside landscape over time. Biological assessments involve collecting and identifying benthic macroinvertebrates, aquatic insects and other small invertebrates, which when combined with habitat and water quality data, biological data can be an essential tool in characterizing the quality of your stream.

This report summarizes five years of chemical, physical and biological data collected by PCCWQMP staff, partners and volunteers for stream sites from mid-September 2015 through mid-September 2020. This is the result of countless hours, considerable data (87,808 data points), valuable partnerships and dedicated employees and volunteers.
Data Interpretation

Due to the large amount of data collected over the past 5 years, averages for each parameter were calculated for every site using the full data set. This allowed realistic interpretation of the data and teased out areas of concern throughout the county. Overall, averages for each parameter at most of the sites fall below the threshold. Exceptions to this were chloride and phosphate, which were above the threshold for the 5 year average at some sites. The below paragraphs summarize each parameter in more detail.

NITRATE
Nitrate concentration averages fell below the threshold of 20 mg/L at all sites. As expected, higher levels of nitrate were seen in the agricultural areas and lower levels were seen in the urban areas. The highest 5 year average for nitrate was below 8 mg/L, which is also below the drinking water threshold of 10 mg/L.

NITRITE
Average nitrite values were also well below the threshold of 0.3 mg/L. This was expected, as nitrite converts quickly to nitrate when entering the water. When looking at data points directly, instead of averages, nitrite seemed to be higher at times when dissolved oxygen was low. This is likely due to the fact that nitrate needs oxygen to complete the conversion to nitrate.

PH
pH was relatively steady throughout the 5 years with averages of 7 or 8. This is above threshold of less than 6 and greater than 9.

DISSOLVED OXYGEN
Overall, dissolved oxygen averages stayed above the threshold of 5 mg/L. There were a handful of sites, though, with averages close to 6 mg/L. These sites were located near the Skunk River in eastern Polk County as well as in some of our urban areas. There can be many causes of low dissolved oxygen such as high temperatures (especially mixed with low water levels), high amounts of biomass in the streams, and excess nutrients. High temperatures and drought conditions over the past 5 years likely led to averages being low at some of these sites.
Data Interpretation

PHOSPHATE

Phosphate averages were below the threshold of 0.6 mg/L at all sites but 10. These sites had averages ranging from 0.7 mg/L to 1.9 mg/L. Like dissolved oxygen, there are many potential causes for elevated phosphates such as fertilizer run off, human/animal waste, and industrial effluents. Natural phenomenon, such as low water levels, can also cause high phosphate readings due to higher concentration of nutrients. Moving forward, sites will be monitored closely and sources of elevated phosphates will be explored.

CHLORIDE

Chloride averages above the threshold of 100 mg/L were seen on 11 of our urban sites. Looking at the data more closely at each of these sites showed that elevated chloride levels were seen throughout the year, not just in winter months when road salts are being applied. This indicates a concerning chronic issue in some of our urban streams. Similar to other nutrients, these elevated levels during the summer months could be due to low water levels and increased concentration. Even if this is the case, there is likely a source providing chloride to the system during these times. Throughout the next year, causes of elevated chlorides will be explored at these sites. Because excess salt use is likely a contributor in the winter months, the PCCWQMP will also work hand in hand with the various jurisdictions to increase awareness of this issue.
NEXT STEPS
Data collected over the past 5 years will be used in many ways as we move into the future. The major use of the data will be to target water quality improvement efforts. Utilizing the following hot spot maps, focus will be placed in the areas showing the greatest need. Efforts will be made to implement conservation measures in these areas that work to improve the water quality issue of concern. More in depth observations and sampling may be performed to determine potential sources and severity of pollutants.

Statistical analysis will be completed to determine what change in results must be seen in order to show a significant change in water quality. This will help guide decisions on what the best water quality improvement techniques lead to the greatest improvement in water quality.

Along with targeting and statistical analysis, the data collected will drive educational campaigns throughout Polk County. PCCWQMP staff will work with local jurisdictions to raise awareness of the current water quality issues we are seeing and potential solutions.

As we continue our program, future data will be compared to our 5 year results to track trends in water quality. This will show efficiency of restoration efforts on the landscape and help track impacts from urban development.

5-YEAR HOTSPOT MAPS
Hotspot maps, created using the average of the 5 year data collected for each parameter at all actively monitored sites, highlight which sites have average levels above the set threshold and help pinpoint issue areas. This allows for a more targeted approach as we move forward towards improving water quality in the county. When looking at the maps, the red dots indicates the average value for that site is above the set threshold for water quality and the green dots mean the average value is below the threshold. The larger the dot, the better or worse the value for the site.
Nitrite Hotspots

5 Year Average Data
Nitrite (mg/L)
- ≤0.05
- ≤0.10
- ≤0.15
Dissolved Oxygen Hotspots

Polk County Conservation Water Quality Monitoring Program

5 Year Average Data
Dissolved Oxygen (mg/L)
- ≤5
- ≤6
- ≤7
- ≤8
- ≤9
- ≤10
- ≤11

POLK COUNTY
WATER QUALITY MONITORING PROGRAM
Phosphate Hotspots

5 Year Average Data
Phosphate (mg/L)
- ≤0.6
- ≤1.2
- ≤1.8
- ≤2.4

Polk County Conservation Water Quality Monitoring Program

POLK COUNTY
WATER QUALITY MONITORING PROGRAM
Individual Site Data

Individual site data is organized by watershed. Navigating to an individual site can be done three ways.

1. Use the bookmarks to access the watershed or site you would like to view
2. Click on the site number on the map found on the following page
3. Simply continue to page down
Polk County Conservation Water Quality Monitoring Program

2015 - 2020 Water Quality Monitoring Sites

≡ click on site number to advance to site summary
Beaver Creek Watershed

Polk County Conservation Water Quality Monitoring Program
925036
Gravel road south of Granger, adjacent to the water treatment facility

Site Description

The monitoring site is located along agricultural and forest land. This portion of Beaver Creek has an open canopy with exposed soil and low plants and grass along the left bank. The north bank is more vegetated providing a small amount of shade.

113
Completed Site Visits
46
Abnormal Results
93%
Percent Normal Results

Five-year Average Assessment Results

- pH Results:
  - Results below 6 can be harmful

- Nitrite Results:
  - Results are typically not detectable
  - 0.02

- Nitrate Results:
  - The maximum recreation standard is 20 mg/L
  - 5

- Dissolved Oxygen Results:
  - The minimum water quality standard is 5 mg/L

- Phosphate Results:
  - Results over 0.6 mg/L are considered abnormal
  - 8

- Chloride Results:
  - Results above 100 mg/L are considered abnormal
  - 26

- Average Index of Biotic Integrity (IBI)
  - 2.37

Timeline

- Significant Flood Event:
  - June 30, 2018

- High Phosphate:
  - June, 2020

- High Nitrate:
  - November, 2015
  - June, 2016
  - June, 2017
  - June, 2019

- Low Dissolved Oxygen:
  - June & July, 2016

- High Phosphate:
  - May & July, 2016

- PCCWQMP & Site Monitoring Began:
  - July, 2015

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org
Site Description

The monitoring site is surrounded by agricultural and forested land. The left bank is lined with trees providing some shade along the monitoring site.

117 Completed Site Visits
65 Abnormal Results
91% Percent Normal Results

Site Details

Monitoring Began
July 2015

Watershed
Beaver Creek

Field Monitor
Nikki Dunbar
PCC

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


PCCWQMP & Site Monitoring Began
July, 2015

High Phosphate
August, 2016

High Phosphate
June & August, 2017

High Phosphate
February, 2017

High Phosphate
June, 2016

High Phosphate
May, 2016

High Phosphate
June, 2016

High Phosphate
October, 2015

High Phosphate
November, 2015

Low Dissolved Oxygen
June – September, 2016

Significant Flood Event
June 30, 2018

High Nitrate
May, 2018

High Nitrate
February, 2020

High Phosphate
February, 2020
Site Description

Recreational trail and commercial businesses are the predominant land use in this area. Grass and low plants along the banks leave an open canopy at this site. Because of the spacing of the old railroad Trestle to Trestle Bridge supports, this site often experienced logjams. In spring 2019, a large ice flow on Beaver Creek washed out the pilings supporting the bridge. Construction to replace the bridge will begin in 2021.

99 49 92%
Completed Abnormal Percent Normal Site Visits Results Results

Site Details
Monitoring Began
July 2015
Watershed
Beaver Creek
Field Monitor
Joe Boyles
PCC

PCCWQMP CONTACTS
PHONE
515-323-5300
COORDINATOR
Ginny Malcomson
QUALITY CONTROL
Amanda Brown
WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

**pH Results**
Results below 6 can be harmful

**Dissolved Oxygen Results**
The minimum water quality standard is 5 mg/L

**Nitrite Results**
Results are typically not detectable

**Phosphate Results**
Results over 0.6 mg/L are considered abnormal

**Nitrate Results**
The maximum recreation standard is 20 mg/L

**Chloride Results**
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

- **Low Dissolved Oxygen**
  - March, 2016
- **High Phosphate**
  - July, 2016
- **High Nitrate**
  - May & July, 2017
- **Significant Flood Event**
  - June 30, 2018
- **High Phosphate**
  - February, 2020
- **High Phosphate**
  - June, 2020

- **Low Dissolved Oxygen**
  - July, 2016
- **High Nitrate**
  - February and May, 2016
- **Low Dissolved Oxygen**
  - July, 2016
- **High Phosphate**
  - September, 2018
- **High Phosphate**
  - June & August, 2020
- **High Nitrate**
  - July, 2019
- **High Nitrate**
  - June, 2018
- **Low Dissolved Oxygen**
  - August, 2017
- **High Phosphate**
  - June, 2018
- **Low Dissolved Oxygen**
  - May, 2017
Site Description

This area is primarily a suburban residential area with agricultural land nearby. The sloping banks are covered primarily with grass and low growing plants leaving the site with an open canopy.

Site Details

Monitoring Began
June 2017

Watershed
Beaver Creek

Field Monitor
Dave Croll & Clayton Ender
City of Johnston

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Timeline


- PCCWQMP Began
  - July, 2015

- Significant Flood Event
  - June 30, 2018

- High Nitrate
  - September, 2017

- High Chloride
  - August, 2018

- High Phosphate
  - September, October, & December, 2018

- High Phosphate
  - January, 2019 – September, 2020

- High Chloride
  - February & March, 2018

- High Chloride
  - February, 2019

- High Chloride
  - August, 2019

- Site Monitoring Began
  - June, 2017

- High Chloride
  - August & September, 2017

- High Chloride
  - July – September, 2017

- Low Dissolved Oxygen
  - September, 2018

Five-year Average Assessment Results

<table>
<thead>
<tr>
<th>Results</th>
<th>Percent Normal Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>60</td>
</tr>
<tr>
<td>Nitrate</td>
<td>146</td>
</tr>
<tr>
<td>Nitrite</td>
<td>59%</td>
</tr>
</tbody>
</table>

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

- PCCWQMP Began
  - July, 2015

- Significant Flood Event
  - June 30, 2018

- High Nitrate
  - September, 2017

- High Chloride
  - August, 2018

- High Phosphate
  - September, October, & December, 2018

- High Phosphate
  - January, 2019 – September, 2020

- High Chloride
  - February & March, 2018

- High Chloride
  - February, 2019

- High Chloride
  - August, 2019

- Site Monitoring Began
  - June, 2017

- High Chloride
  - August & September, 2017

- High Chloride
  - July – September, 2017

- Low Dissolved Oxygen
  - September, 2018
Big Creek Watershed

Polk County Conservation Water Quality Monitoring Program

Map of Big Creek Watershed with monitoring locations marked.
Site Description

The creek leaves Big Creek Lake, flows through and along the Tournament Club of Iowa golf course until reaching the water monitoring site. The creek then flows along the park terminating at the Saylorville Wildlife Refuge.

Site Details

Monitoring Began
May 2017

Watershed
Big Creek

Field Monitor
Pat Spain
PCC

5-year Average Assessment Results

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</thead>
<tbody>
<tr>
<td>pH Results</td>
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<tr>
<td>Results below 6</td>
<td>8</td>
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<tr>
<td>Nitrite Results</td>
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<tr>
<td>Results are typically not detectable</td>
<td>0.1</td>
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<tr>
<td>Nitrate Results</td>
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<tr>
<td>The maximum recreation standard is 20 mg/L</td>
<td>3.8</td>
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<tr>
<td>Dissolved Oxygen Results</td>
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<tr>
<td>The minimum water quality standard is 5 mg/L</td>
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<tr>
<td>Phosphate Results</td>
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<tr>
<td>Results over 0.6 mg/L are considered abnormal</td>
<td>9</td>
<td></td>
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<tr>
<td>Chloride Results</td>
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<tr>
<td>Results above 100 mg/L are considered abnormal</td>
<td>27</td>
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<tr>
<td>Average Index of Biotic Integrity (IBI)</td>
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<td>1</td>
<td>1.89</td>
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</tbody>
</table>

Timeline

- **2015**: PCCWQMP Began
  - July, 2015
- **2016**: Site Monitoring Began
  - May, 2017
- **2017**: High Phosphate
  - June, 2017
- **2018**: Significant Flood Event
  - June 30, 2018
- **2019**: High Phosphate
  - October, 2019
  - Reddish Brown Algae
    - March, 2020
- **2020**: High Phosphate
  - July, 2019
- **2021**:

Camp, Mud and Spring Creek Watersheds

POLK COUNTY
WATER QUALITY MONITORING PROGRAM

Camp, Mud and Spring Creek Watersheds

Polk County Conservation Water Quality Monitoring Program

MMD 977303
Mud Creek

MMD 977304
Camp Creek

CCM 977152
CCM 977066

SSP 977242
Spring Creek

SSP 977108

MMD 977302

CCM 977067
Site Details

Monitoring Began
July, 2015

Watershed
Camp Creek

Field Monitor
Zach Deutmeyer
PCC

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Description

Upstream of this site is primarily agricultural land. The banks at the monitoring site are primarily covered with grass and low growing plants and has an open canopy.

Completed Site Visits
118

Abnormal Results
155

Percent Normal Results
78%

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Nitrite Results
Results are typically not detectable

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Nitrate Results
The maximum recreation standard is 20 mg/L

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

High Phosphate
January - March, 2017

PCCWQMP & Site Monitoring Began
July, 2015

High Chloride
June - September, 2020

Significant Flood Event
June 30, 2018

Low pH
December, 2019 – May, 2020

High Phosphate
October & November, 2015

Low pH
January – April, 2019

High Chloride
June & July, 2021

High Phosphate
February - April, 2019

High Chloride
August, 2018

High Phosphate
June - November, 2016

High Chloride
September, 2018

Nitrite Results

Nitrate Results

High Chloride
March, 2018

High Chloride
September, 2019

High Phosphate
February - April, 2016

High Chloride
March, 2017

High Chloride
August & December, 2017

High Phosphate
June – September, 2017

High Phosphate
June – September, 2019

High Chloride
August, 2019

High Phosphate
June – September, 2020

High Chloride
September, 2020
Bridge crossing in Thomas Mitchell Park

Site Description

The banks of this site are lined with grass, low growing plants and trees which provide a partly shaded canopy.

Site Details

Monitoring Began
July 2015

Watershed
Camp Creek

Field Monitor
Zach Deutmeyer
PCC

114 Completed Site Visits
138 Abnormal Results
80% Percent Normal Results

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- **pH Results**
  - Results below 6 can be harmful
  - 7

- **Nitrite Results**
  - Results are typically not detectable
  - 0.01

- **Nitrate Results**
  - The maximum recreation standard is 20 mg/L
  - 4.7

Dissolved Oxygen Results

The minimum water quality standard is 5 mg/L

- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
  - 9

Chloride Results

Results above 100 mg/L are considered abnormal

- **Nitrite Results**
  - Results are typically not detectable
  - 1

Average Index of Biotic Integrity (IBI)

- **July – September, 2017**
  - High Phosphate
  - March, 2018
  - High Chloride
  - March, 2018

- **January & February, 2020**
  - Low pH
  - January & February, 2020

- **December, 2017**
  - High Chloride
  - September, 2019

- **November, 2019**
  - High Phosphate
  - June – September, 2020

Timeline

- **2015**
  - PCCWQMP & Site Monitoring Began
    - July, 2015
  - High Phosphate
    - February, 2016
  - High Phosphate
    - April, 2016
  - High Phosphate
    - June – November, 2016

- **2016**
  - High Phosphate
    - October & November, 2015
  - High Phosphate
    - January – March, 2017
  - High Nitrate
    - July, 2017
  - High Chloride
    - August & December, 2017

- **2017**
  - High Phosphate
    - June – November, 2016
  - High Nitrate
    - July, 2017
  - High Chloride
    - August & December, 2017

- **2018**
  - Significant Flood Event
    - June 30, 2018
  - High Phosphate
    - July – September, 2017

- **2019**
  - Creek Dry
    - November, 2019
  - Bridge Construction
    - August, 2019
  - High Phosphate
    - November, 2019
  - High Phosphate
    - June – September, 2020
  - High Chloride
    - September, 2019

- **2020**
  - High Chloride
    - August, 2020
  - High Phosphate
    - September, 2019

- **2021**
  - High Chloride
    - January & February, 2020
  - High Phosphate
    - July – September, 2019
Southeast 6th Avenue at the Southeast Polk Learning Center

Site Description

This site, located along a steep, grassy bank with open canopy, is in the far southeast corner of the county near the Metro Waste Authority Environmental Learning Center.

114 Completed Site Visits
106 Abnormal Results
85% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI) 2

Timeline

- **2015**: PCCWQMP & Site Monitoring Began
- **2016**: High Phosphate February, 2016
- **2017**: High Phosphate June - September, 2017, High Chloride August - December, 2017
- **2018**: Significant Flood Event June 30, 2018, High Phosphate July, 2019, Low pH September, 2018
- **2019**: Low pH January & March, 2020, Low pH November & December, 2018, Low pH February & March, 2019
- **2020**: Manure Odor August, 2019, Low pH September, 2020
- **2021**: Low pH September, 2020, High Phosphate September, 2020

PCCWQMP CONTACTS

**PHONE**
515-323-5300

**COORDINATOR**
Ginny Malcomson

**QUALITY CONTROL**
Amanda Brown

**WEBSITE**
www.LeadingYouOutdoors.org
Site Description

This site is partly shaded and located near agricultural land.

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful. 
  - 8

- **Nitrite Results**: Results are typically not detectable. 
  - 0

- **Nitrate Results**: The maximum recreation standard is 20 mg/L. 
  - 11.4

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L. 
  - 9

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal. 
  - 0.2

- **Chloride Results**: Results above 100 mg/L are considered abnormal. 
  - 301

- **Average Index of Biotic Integrity (IBI)**: 
  - 2.11

Timeline

- **PCCWQMP & Site Monitoring Began**: July, 2015
- **High Nitrate**: May, 2015
- **High Nitrate**: October, 2015 - January, 2016
- **High Nitrate**: January, 2017
- **High Phosphate**: February, 2016
- **High Nitrate**: July, 2016
- **High Phosphate**: August, 2016
- **High Phosphate**: August - October, 2017
- **Significant Flood Event**: June 30, 2018
- **High Phosphate**: July 2018
- **High Nitrate**: May, 2018
- **High Nitrate**: May, 2018
- **High Nitrate**: July, 2018
- **High Nitrate**: August, 2018
- **High Phosphate**: July & August, 2018
- **High Phosphate**: July & August, 2018
- **High Phosphate**: August, 2018
- **High Phosphate**: August, 2018
- **High Nitrate**: May, 2019
- **High Nitrate**: May, 2019
- **Low Dissolved Oxygen**: August, 2020
North of Highway 163 on Northeast 12th Avenue, east of Southeast Polk High School

This area is primarily agricultural and forested land, however, the monitoring site has an open canopy with rip rap, grass, shrubs and low trees lining the banks.

Completed Site Visits: 118
Abnormal Results: 60
Percent Normal Results: 92%

Site Details
Monitoring Began
July 2015
Watershed
Mud Creek
Field Monitor
Al Pasker
PCC

PCCWQMP CONTACTS
PHONE
515-323-5300
COORDINATOR
Ginny Malcomson
QUALITY CONTROL
Amanda Brown
WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- **pH Results**
  - Results below 6 can be harmful
  - Five-year average: 7

- **Nitrate Results**
  - The maximum recreation standard is 20 mg/L
  - Five-year average: 3.8

- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
  - Five-year average: 0.3

- **Chloride Results**
  - Results above 100 mg/L are considered abnormal
  - Five-year average: 31

- **Average Index of Biotic Integrity (IBI)**
  - Five-year average: 2.22

Dissolved Oxygen Results
- The minimum water quality standard is 5 mg/L
- Five-year average: 10

Phosphate Results
- Results over 0.6 mg/L are considered abnormal
- Five-year average: 0.3

Chloride Results
- Results above 100 mg/L are considered abnormal
- Five-year average: 31

Nitrate Results
- The maximum recreation standard is 20 mg/L
- Five-year average: 3.8

Nitrite Results
- Results are typically not detectable
- Five-year average: 0

Nitrite Results
- Results below 6 can be harmful
- Five-year average: 7

Nitrate Results
- The maximum recreation standard is 20 mg/L
- Five-year average: 3.8

Timeline

- **PCCWQMP & Site Monitoring Began**
  - July, 2015

- **High Phosphate**
  - February, 2016
  - September, 2016
  - October - December, 2016
  - June - September, 2018
  - September, 2019

- **Significant Flood Event**
  - June 30, 2018

- **High Phosphate**
  - December, 2018
  - September, 2020

- **High Chloride**
  - February, 2020

- **Low pH**
  - September, 2020
  - May, 2020
  - December, 2019 – February, 2020
  - February & March, 2019
  - February, 2016
  - December, 2018
  - November, 2018
  - July, 2020
Site Description

While banks are mostly covered by grass and low growing plants, mature trees partly shade this site.

Completed Site Visits: 111
Abnormal Results: 14
Percent Normal Results: 98%

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  - 8
- **Nitrite Results**: Results are typically not detectable
  - 0
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - 4.4
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - 9
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - 0.1
- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - 27
- **Average Index of Biotic Integrity (IBI)**
  - 2.37

Timeline

- **PCCWQMP & Site Monitoring Began**: July, 2015
- **High Nitrate**: May, 2018
- **High Phosphate**: August & September, 2016
- **High Phosphate**: June, 2018
- **Significant Flood Event**: June 30, 2018
**Site Description**

This portion of Spring Creek flows through forested land near commercial businesses but the monitoring site itself has an open canopy with grass, and low growing shrubs and plants covering the banks.

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
  - 8
- **Nitrite Results**: Results are typically not detectable
  - 0
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - 4.4
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - 9
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - 0.1
- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - 27
- **Average Index of Biotic Integrity (IBI)**
  - 2.10

**Timeline**

- **PCCWQMP & Site Monitoring Began**: July, 2015
- **High Phosphate**: January, 2017
- **Significant Flood Event**: June 30, 2018
- **Stagnant**: July, 2019
- **Dry**: September, 2020

**Contacts**

- **Phone**: 515-323-5300
- **Coordinator**: Ginny Malcomson
- **Quality Control**: Amanda Brown
- **Website**: www.LeadingYouOutdoors.org
Site Description

This site is located in a mostly rural area and has an open canopy. Both banks are covered with low growing plants and grasses. Spring Creek is shaded by trees and downstream by the Vandalia Drive Bridge.

109 Completed Site Visits
5 Abnormal Results
99% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**: 1.88

Timeline

- **2015**: PCCWQMP & Site Monitoring Began
- **2016**: High Phosphate
  - July, 2016
- **2017**: High Phosphate
  - January, 2017
- **2018**: High Phosphate
  - June, 2018
- **2019**:
- **2020**:
- **2021**: 

Significant Flood Event

- **June 30, 2018**: High Phosphate

Contact Information

- **PCCWQMP CONTACTS**
  - PHONE: 515-323-5300
  - WEBSITE: www.LeadingYouOutdoors.org

- **Field Monitor**: Charlie Finch
  - PCC

- **Site Details**
  - Monitoring Began: July 2015
  - Watershed: Spring Creek
  - Site Visits: 109
  - Abnormal Results: 5
  - Percent Normal Results: 99%

- **PCCWQMP & Site Monitoring Began**: July, 2015
NE Polk County Sites

POLK COUNTY
WATER QUALITY
MONITORING PROGRAM

- Peoria Cemetery-Indian Creek
- C04 977310
- CCR 977307
- CBL 977306
- C38 977311
- SSN 977322
- Chichaqua Wildlife Habitat-South Skunk River
- Santiago Creek-South Skunk River
- 0 2 4 6
- Miles

Polk County Conservation Water Quality Monitoring Program
Site Details

Monitoring Began
June 2017

Watershed
Indian Creek

Field Monitor
Jim Treadway
Volunteer

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Description

The banks along this rural monitoring site are eroded and primarily treed which provides a mostly shaded site.

75 Completed Site Visits
74 Abnormal Results
84% Percent Normal Results

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


- PCCWQMP Began: July, 2015
- Significant Flood Event: June 30, 2018
- High Phosphate: July - December, 2017
- Low Dissolved Oxygen: June, 2018
- High Phosphate: June & July, 2019
- Low Dissolved Oxygen: November & December, 2018
- Low Dissolved Oxygen: January, March – August, 2020
- High Phosphate: February & March, 2020
- High Phosphate: June & July, 2019
- High Phosphate: May, June, August, & September, 2019
- Low Dissolved Oxygen: October & November, 2019
- Low Dissolved Oxygen: January, March – August, 2020
- Low Dissolved Oxygen: February & March, 2020
- High Phosphate: July & September, 2020
- Low Dissolved Oxygen: October & November, 2019
**Site Description**

This is a heavily vegetated site that flows through well-managed pastureland before entering Chichaqua Bottoms Greenbelt.

---

**Site Details**

- **Monitoring Began**: July 2015
- **Watershed**: Carney Creek
- **Field Monitor**: Dan Hrubes
  - **PCC**

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**PCCWQMP CONTACTS**

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org

---

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
  - Average: 8
- **Nitrite Results**: Results are typically not detectable
  - Average: 0.07
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - Average: 2.7
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - Average: 8
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - Average: 0.2
- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - Average: 25
- **Average Index of Biotic Integrity (IBI)**
  - Average: 1.54

---

**Timeline**

- **PCCWQMP & Site Monitoring Began**: July, 2015
- **High Phosphate**: June – September, 2016
- **Low Dissolved Oxygen**: July & September, 2016
- **Significant Flood Event**: June 30, 2018
- **Stagnant**: July, 2020
- **Low pH**: January & April, 2020
- **Low pH**: November, 2019
- **Tree Fell & Opened Canopy**: August, 2019
Drainage Ditch 4 at Chichaqua Bottoms Greenbelt

**Site Description**
This is a highly vegetated area located in an original Skunk River oxbow. The water originates in Drainage Ditch 4 then flows through the old oxbow to Drainage Ditch 52.

**Completed Site Visits** 116
**Abnormal Results** 93
**Percent Normal Results** 87%

**Five-year Average Assessment Results**
- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal

**Average Index of Biotic Integrity (IBI)**

**Timeline**
- **PCCWQMP & Site Monitoring Began**: July, 2015
- **Low Dissolved Oxygen**: May – October, 2016
- **Significant Flood Event**: June 30, 2018
- **Low Dissolved Oxygen**: January & March, 2017
- **Low Dissolved Oxygen**: May – December, 2018
- **March & May – August, 2019**: Low Dissolved Oxygen
- **August, 2019**: Stagnant
- **September, 2019**: Dry
- **May – July, 2020**: Low Dissolved Oxygen
- **August & September, 2020**: Stagnant
- **November, 2019 – March, 2020**: Low pH
- **August, 2019**: High Phosphate
- **February & May – August, 2020**: Stagnant

**Site Details**
- **Monitoring Began**: July 2015
- **Watershed**: NE Polk County
- **Field Monitor**: Lael Neal
- **PCCWQMP CONTACTS**
  - **PHONE**: 515-323-5300
  - **COORDINATOR**: Ginny Malcomson
  - **QUALITY CONTROL**: Amanda Brown
  - **WEBSITE**: www.LeadingYouOutdoors.org

**Five-year Average Assessment Results**
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**
Site Description

This is a largely shaded, shallow, sandy-bottomed stream near agricultural land. This site is heavily vegetated which decreases the sediment load in runoff from adjacent agricultural land.

Completed Site Visits: 117
Abnormal Results: 69
Percent Normal Results: 90%

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful.
  - Average: 7.1
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L.
  - Average: 5.8 mg/L
- **Nitrate Results**: The maximum recreation standard is 20 mg/L.
  - Average: 1.3 mg/L
- **Nitrite Results**: Results are typically not detectable.
  - Average: 0.2 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
  - Average: 0.6 mg/L
- **Chloride Results**: Results above 100 mg/L are considered abnormal.
  - Average: 102 mg/L
- **Average Index of Biotic Integrity (IBI)**
  - Average: 1.76

Timeline

- **Low Dissolved Oxygen**
  - May – November, 2016
  - August, 2017
  - February & April – June, 2017
  - November, 2018 – January, 2019
  - May – September, 2019
  - January, 2019

- **Low Dissolved Oxygen**: February – April, 2020

- **Low pH**: February, 2020

- **High Phosphate**: August, 2019

- **Significant Flood Event**: June 30, 2018

Contact Information

- **Site Details**
  - Monitoring Began: July 2015
  - Watershed: Bluff Creek
  - Field Monitor: Lael Neal
  - PCC

- **PCC WQMP Contacts**
  - Phone: 515-323-5300
  - Coordinator: Ginny Malcomson
  - Quality Control: Amanda Brown
  - Website: www.LeadingYouOutdoors.org

- **Timeline**

- **PCC WQMP & Site Monitoring Began**: July, 2015
- **Low Dissolved Oxygen**: February – April, 2020
Site Description

This site is downstream from Chichaqua Bottoms Greenbelt, surrounded by open field, shrubs and low trees in a primarily agricultural portion of the county.

Five-year Average Assessment Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Normal Results</th>
<th>Abnormal Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td></td>
<td>Below 6 can be harmful</td>
</tr>
<tr>
<td>Nitrite</td>
<td></td>
<td>Results are typically not detectable</td>
</tr>
<tr>
<td>Nitrate</td>
<td></td>
<td>The maximum recreation standard is 20 mg/L</td>
</tr>
<tr>
<td>Chloride</td>
<td></td>
<td>Results above 100 mg/L are considered abnormal</td>
</tr>
<tr>
<td>Phosphate</td>
<td></td>
<td>Results over 0.6 mg/L are considered abnormal</td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td></td>
<td>The minimum water quality standard is 5 mg/L</td>
</tr>
</tbody>
</table>

Average Index of Biotic Integrity (IBI)

- 25
- 1.90

Timeline

- **2015**
  - June, 2015: PCCWQMP & Site Monitoring Began
  - November, 2015: Low Dissolved Oxygen
- **2016**
  - March & April, 2016: Low Dissolved Oxygen
  - High Phosphate
- **2017**
  - April, May & July, 2016: Low Dissolved Oxygen
  - High Phosphate
- **2018**
  - June 30, 2018: Significant Flood Event
- **2019**
  - October, 2019: Low Dissolved Oxygen
  - Low pH
  - February & July, 2019: Stagnant
- **2020**
  - February - July, 2020: Low Dissolved Oxygen
  - October, 2020: Low Dissolved Oxygen
  - November & December, 2020: Organic Oily Sheen
  - August & September, 2020: Dry
- **2021**
  - May - December, 2021: Low Dissolved Oxygen

Site Details

- **Monitoring Began**
  - July 2015
- **Watershed**
  - NE Polk County
- **Field Monitor**
  - Dan Hrubes
  - PCC

PCCWQMP CONTACTS

- **PHONE**
  - 515-323-5300
- **COORDINATOR**
  - Ginny Malcomson
- **QUALITY CONTROL**
  - Amanda Brown
- **WEBSITE**
  - www.LeadingYouOutdoors.org
Site Description

This monitoring site is located on a shaded portion of the creek. The vegetation along the banks consists of trees, shrubs, and low growing plants and grasses.

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

**Timeline**

- **PCCWQMP Began**: July, 2015
- **High Nitrate**: June, 2007
- **High Phosphate**: June - August, 2018
- **Significant Flood Event**: June 30, 2018
- **Stagnant**: June - September, 2019
- **High Phosphate**: June, July, & September, 2019
- **Stagnant**: July & August, 2020
- **Dry**: August, 2020
- **High Phosphate**: March, April, & June, 2020
- **Low Dissolved Oxygen**: March – August, 2020
- **Low Dissolved Oxygen**: June - July, 2019
Des Moines Area Sites

Polk County Conservation Water Quality Monitoring Program

POLK COUNTY
WATER QUALITY MONITORING PROGRAM

- Saylor Creek - Des Moines River
  - DSM 977328
- Jordan Creek - Raccoon River
  - GLU 977012
- FFR 977082
- ELO 977275
- ELM 977323
- CCW 977325
- CLI 977326
On Hartford Avenue, north of East Park Street

Site Description

The monitoring site is located in an area with little tree cover and steeply sloped, grassy banks.

Completed Site Visits: 56
Abnormal Results: 66
Percent Normal Results: 80%

Site Details
Monitoring Began:
July 2017

Watershed:
Case Lake

Field Monitor:
Justin D’Souza
City of Des Moines

PCCWQMP CONTACTS
PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Nitrite Results
Results are typically not detectable

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Nitrate Results
The maximum recreation standard is 20 mg/L

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


PCCWQMP Began
July, 2015

Low Dissolved Oxygen
July, 2017

Phosphate Results
May, July, August, 2019

Significant Flood Event
June, 2018

High Chloride
April, 2018

Stagnant
May, July, August, 2019

Low Dissolved Oxygen
June, July, 2018

High Phosphate
May, June, August, 2019

Low Dissolved Oxygen
September – November, 2017

Low Dissolved Oxygen
May – October, 2019

Low Dissolved Oxygen
September & November, 2018

Stagnant
August, 2020

Low Dissolved Oxygen
May – October, 2019

Low Dissolved Oxygen
May – October, 2019

Stagnant
August, 2020
Site Description

This creek flows northeast into the flood control structure prior to going into the Des Moines River.

57
Completed Site Visits

50
Abnormal Results

85%
Percent Normal Results

Five-year Average Assessment Results

**pH Results**
Results below 6 can be harmful

**Nitrite Results**
Results are typically not detectable

**Nitrate Results**
The maximum recreation standard is 20 mg/L

**Dissolved Oxygen Results**
The minimum water quality standard is 5 mg/L

**Phosphate Results**
Results over 0.6 mg/L are considered abnormal

**Chloride Results**
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

- **2015**: PCCWQMP Began
- **2016**: Site Monitoring Began
- **2017**: Low Dissolved Oxygen
  - June – September, 2017
  - July & August, 2019
- **2018**: Low Dissolved Oxygen
  - June – November, 2017
  - January – March, 2018
  - July & August, 2018
- **2019**: High Chloride
  - March, 2019
  - June, 2019
- **2020**: Low Dissolved Oxygen
  - March, 2020
  - March & November, 2020
  - June, 2020
- **2021**: Significant Flood Event
  - June 30, 2018
  - August, 2020
  - Stagnant
  - March & August, 2020
  - April, 2020
  - March, 2021

Contacts

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org
Site Description

The monitoring site is located in a residential area with no trees, bordered by rip rap, grass, and low growing plants.

Site Details

Monitoring Began: July 2017
Watershed: Easter Lake
Field Monitor: Justin D’Souza, City of Des Moines

PCCWQMP CONTACTS

PHONE: 515-323-5300
COORDINATOR: Ginny Malcomson
QUALITY CONTROL: Amanda Brown
WEBSITE: www.LeadingYouOutdoors.org

Five-year Average Assessment Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH Results</td>
<td>-8</td>
</tr>
<tr>
<td>Nitrite Results</td>
<td>0.1</td>
</tr>
<tr>
<td>Nitrate Results</td>
<td>0.4</td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td>8</td>
</tr>
<tr>
<td>Phosphate Results</td>
<td>0.1</td>
</tr>
<tr>
<td>Chloride Results</td>
<td>341</td>
</tr>
<tr>
<td>Average IBI</td>
<td>1.53</td>
</tr>
</tbody>
</table>

Timeline

- **PCCWQMP Began**: July 2015
- **Site Monitoring Began**: July 2017
- **PCCWQMP Began**: May, 2019
- **Low Dissolved Oxygen**: August & September, 2018
- **Low pH**: February – March, 2020
- **Construction**: February – July, 2020
- **Significant Flood Event**: June 30, 2018
- **Low pH**: October, 2019
- **Low Dissolved Oxygen**: July & August, 2020
- **Low Dissolved Oxygen**: October & November, 2019
- **Low Dissolved Oxygen**: May, 2021
- **Stagnant**: August, 2019
Site Description

The location of this monitoring site is in a portion of the Easter Lake outlet with an open canopy and banks covered primarily by grass and low growing plants.

Site Details

Monitoring Began
August 2017

Watershed
Easter Lake

Field Monitor
Justin D’Souza
City of Des Moines

PCCWQMP CONTACS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- **pH Results**
  - Results below 6 can be harmful
  - 7

- **Nitrite Results**
  - Results are typically not detectable
  - 0

- **Nitrate Results**
  - The maximum recreation standard is 20 mg/L
  - 0

- **Dissolved Oxygen Results**
  - The minimum water quality standard is 5 mg/L
  - 7

- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
  - 0.2

- **Chloride Results**
  - Results above 100 mg/L are considered abnormal
  - 56

Average Index of Biotic Integrity (IBI)

Timeline

- **PCCWQMP Began**
  - July, 2015

- **Site Monitoring Began**
  - August, 2017

- **High Chloride**
  - March & April, 2018

- **Low Dissolved Oxygen**
  - June, 2019

- **High Chloride**
  - May, 2019

- **High Chloride**
  - September, 2018

- **Low Dissolved Oxygen**
  - October & November, 2019

- **Sewage Smell**
  - August, 2019

- **Significant Flood Event**
  - June 30, 2018

- **Low Dissolved Oxygen**
  - July, 2019

- **High Phosphate**
  - March, 2020
977082

Park Avenue near the Great Western Trail

Site Description

This monitoring site is in a forested area with shrubs and trees lining the bank providing a partly shaded canopy.

59
Completed Site Visits

7
Abnormal Results

98%
Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  - 8

- **Nitrite Results**: Results are typically not detectable
  - 0

- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - 0.2

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - 8

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - 0.1

- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - 38

- **Average Index of Biotic Integrity (IBI)**
  - 2.01

Timeline

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2017
- **Low Dissolved Oxygen**: May, 2018
- **Significant Flood Event**: June 30, 2018
- **High Chloride**: March, 2020

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Details

Monitoring Began
July 2017

Watershed
Frink Creek

Field Monitor
Justin D’Souza
City of Des Moines


Site Description

This site flows from a residential neighborhood into Gray’s Lake. It is primarily shaded by trees. Banks are lined with mature trees and low growing plants.

Site Details

- Monitoring Began: July 2017
- Watershed: Gray’s Lake
- Field Monitor: Rich and Jody Anderson Volunteers

PCCWQMP CONTACTS

- PHONE: 515-323-5300
- COODINATOR: Ginny Malcomson
- QUALITY CONTROL: Amanda Brown
- WEBSITE: www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- pH Results: Results below 6 can be harmful
- Nitrite Results: Results are typically not detectable
- Nitrate Results: The maximum recreation standard is 20 mg/L
- Dissolved Oxygen Results: The minimum water quality standard is 5 mg/L
- Phosphate Results: Results over 0.6 mg/L are considered abnormal
- Chloride Results: Results above 100 mg/L are considered abnormal
- Average Index of Biotic Integrity (IBI)

Timeline

- June 30, 2018: Significant Flood Event
- PCCWQMP Began: July, 2015
- Site Monitoring Began: July, 2017
- 2015 - 2021
- High Phosphate: July, 2017
- High Phosphate: September & October, 2017
- High Phosphate: June - September, 2019
- High Chloride: December, 2019
- Low pH: October – December, 2019
- Rust Color & Stagnant Water: June, 2020
- High Chloride: February, 2020

Completed Site Visits: 132
Abnormal Results: 34
Percent Normal Results: 74%

Results over 0.6 mg/L are considered abnormal
Results above 100 mg/L are considered abnormal
Drainage creek going into the northeast side of Greenwood Pond near the Art Center

Site Description

This site flows into Greenwood Pond from the residential neighborhood northeast of the pond.

Completed Site Visits 46  Abnormal Results 115  Percent Normal Results 58%

Site Details

Monitoring Began  July 2018

Watershed  Raccoon River

Field Monitor  Abby Chugath Volunteer

PCCWQMP CONTACTS

PHONE  515-323-5300

COORDINATOR  Ginny Malcomson

QUALITY CONTROL  Amanda Brown

WEBSITE  www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Nitrite Results
Results are typically not detectable

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Nitrate Results
The maximum recreation standard is 20 mg/L

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


- PCCWQMP Began  July, 2015

- Significant Flood Event  June 30, 2018

- High Phosphate & Low Dissolved Oxygen  June – December, 2019

- Sewage Smell  November, 2018 & March, May – June 2019

- Foam, Scum, Oily, Reddish  December, 2018

- High Chloride  January, 2019 – August, 2020

- Low Dissolved Oxygen  August - November, 2018

- Stagnant  October, 2019, January & August, 2020

- High Phosphate  November, 2018

- Low pH  December, 2018

- High Chloride  August, October - December, 2018

- Low Dissolved Oxygen  August - November, 2018

- Low pH  November, 2019 & February, 2020

- Site Monitoring Began  July, 2018
977335

Unnamed creek south of Greenwood Pond

Site Description

This site is an outlet of Greenwood Pond that flows toward the Raccoon River along the Bill Riley Recreation Trail.

46
Completed Site Visits
32
Abnormal Results
88%
Percent Normal Results

Site Details

Monitoring Began
July 2018

Watershed
Raccoon River

Field Monitor
Abby Chugath Volunteer

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

2015
PCCWQMP Began
July, 2015

2016

2017

2018

2019

2020

2021

Significant Flood Event
June 30, 2018

Low Dissolved Oxygen
June – September, & November, 2019

Low pH
November & December, 2019

Stagnant
November, 2019

High Chloride
March & April, 2019

High Chloride
November & December, 2018 & January & March, 2019

Low Dissolved Oxygen
July, October & November, 2018

High Chloride
January – May, 2020

Low pH
November & December, 2019

Low Dissolved Oxygen
September, 2019

Site Monitoring Began
July, 2018

5

7

1

7

0.4

68

2
**Site Description**

This site is found on the west side of Greenwood Park, south of the Art Center. The creek flows into Greenwood Pond from the residential neighborhood northwest of the pond. This site has grassy banks and is partially shaded by the nearby mature trees of the park.

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
  - 2015: 6.5
  - 2016: 6.2
  - 2017: 6.1
  - 2018: 6.0
  - 2019: 6.0
  - 2020: 6.0
  - **Average**: 6.0

- **Nitrite Results**: Results are typically not detectable
  - 2015: 0.00
  - 2016: 0.00
  - 2017: 0.00
  - 2018: 0.00
  - 2019: 0.00
  - 2020: 0.00
  - **Average**: 0.00

- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - 2015: 5.0
  - 2016: 3.0
  - 2017: 2.0
  - 2018: 1.0
  - 2019: 0.5
  - 2020: 0.5
  - **Average**: 1.0

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - 2015: 7.0
  - 2016: 7.0
  - 2017: 7.0
  - 2018: 7.0
  - 2019: 7.0
  - 2020: 7.0
  - **Average**: 7.0

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - 2015: 0.0
  - 2016: 0.1
  - 2017: 0.2
  - 2018: 0.3
  - 2019: 0.4
  - 2020: 0.5
  - **Average**: 0.3

- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - 2015: 0.0
  - 2016: 0.0
  - 2017: 0.0
  - 2018: 0.0
  - 2019: 0.0
  - 2020: 0.0
  - **Average**: 0.0

- **Average Index of Biotic Integrity (IBI)**
  - 2015: 7
  - 2016: 6
  - 2017: 5
  - 2018: 4
  - 2019: 3
  - 2020: 2
  - **Average**: 4

**Timeline**

- **PCCWQMP Begun**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **High Chloride**: August, 2018
- **Stagnant**: October & November, 2018
- **High Phosphate**: May – November, 2019
- **High Chloride**: June – August, 2020
- **Low pH**: November, 2018 – January, 2019
- **High Phosphate**: October, 2018
- **Low Dissolved Oxygen July – October, 2018
- **Site Monitoring Began**: July, 2018

**PCCWQMP Contacts**

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org
**Site Description**

This site is in a predominately forested residential area, providing a shaded canopy.

- **Completed Site Visits**: 7
- **Abnormal Results**: 7
- **Percent Normal Results**: 83%

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**: 8.25

**Timeline**

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2019
- **Significant Flood Event**: June 30, 2018
- **Low Dissolved Oxygen**: July & August, 2020
- **Stagnant**: July, 2020
- **High Chloride**: March, June, & August, 2020

**Site Details**

- **Monitoring Began**: July, 2019
- **Watershed**: Des Moines River
- **Field Monitor**: Jordan Hildreth
- **DMPR PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org
Unnamed creek at Hartford Avenue and the Des Moines River Trail

Site Description

This site at the Des Moines River Trail is in a residential area. Both streambanks consist mainly of trees and shrubs shading the waterway.

Completed Site Visits: 50
Abnormal Results: 25
Percent Normal Results: 92%

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

Timeline

- **PCCWQMP Began**, July, 2015
- **Site Monitoring Began**, July, 2018
- **Significant Flood Event**, June 30, 2018
- **Stagnant**, October, 2019
- **High Phosphate**, March, April, & June, 2019
- **Sewage Smell**, December, 2018
- **High Chloride**, January & February, 2019
- **Low pH**, December, 2019 & January, 2020
- **High Phosphate**, September, 2020
- **High Chloride**, September, 2020
- **Low pH**, November, 2019 – February, 2020
Site Description

No assessments have been completed. This site is available for adoption.

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Details

Monitoring Began
July 2018

Watershed
Fourmile Creek

Field Monitor
Available

Five-year Average Assessment Results

ph Results
Results below 6 can be harmful

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Nitrite Results
Results are typically not detectable

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

PCCWQMP Began
July, 2015

June 30, 2018

Significant Flood Event

Site Description

This site is located in an open field, in rural, northern Polk county and near the residential area of Alleman Country Estates.

33 Completed Site Visits
16 Abnormal Results
92% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

Timeline

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2018
- **High Phosphate**: September, 2019
- **High Phosphate**: April, June – August, 2020
- **Significant Flood Event**: June 30, 2018
- **High Chloride**: January, 2020
- **Low Dissolved Oxygen**: September, 2019
- **High Phosphate**: May & July, 2019

Contacts

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org
Deer Creek tributary at Northeast Frisk Drive in Ankeny

Site Description
Upstream from the site are housing developments and agricultural land. This site has a partly open canopy and is lined with trees, shrubs, and grass.

Completed Site Visits: 117
Abnormal Results: 29
Percent Normal Results: 96%

Site Details
Monitoring Began: July 2015
Watershed: Fourmile Creek
Field Monitor: Lew Major
PCC

PC CWQMP CONTACTS
PHONE: 515-323-5300
COORDINATOR: Ginny Malcomson
QUALITY CONTROL: Amanda Brown
WEBSITE: www.LeadingYouOutdoors.org

Five-year Average Assessment Results
- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

Timeline
- **High Nitrate**: October - December, 2015
- **High Nitrate**: March, 2016
- **High Nitrate**: July, 2016
- **High Nitrate**: May, 2017
- **High Nitrate**: April - June, 2018
- **High Nitrate**: July, 2019
- **PCCWQMP & Site Monitoring Began**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **High Phosphate**: August & September, 2019
- **Stagnant**: September, 2019
- **Stagnant**: August, 2020
Northwest 158th Street and Fourmile Creek, North of Alleman

Site Description

This site is the most rural sampling site in the Fourmile Creek watershed, located in an open area surrounded by agricultural land.

Completed Site Visits: 114  Abnormal Results: 110  Percent Normal Results: 84%

Site Details

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  - **Average Index of Biotic Integrity (IBI)**: 5.4%

- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - **Average Index of Biotic Integrity (IBI)**: 7

- **Nitrite Results**: Results are typically not detectable
  - **Average Index of Biotic Integrity (IBI)**: 0.8

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - **Average Index of Biotic Integrity (IBI)**: 1.5

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - **Average Index of Biotic Integrity (IBI)**: 9

- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - **Average Index of Biotic Integrity (IBI)**: 0.5

Timeline

- **High Phosphate April - September, 2016**
- **High Phosphate February, 2018**
- **High Phosphate September - November, 2019**
- **High Phosphate June - August, 2020**
- **High Phosphate July - September, 2019**
- **Algae Mats Present August, 2019**
- **Stagnant August & September, 2019**
- **Stagnant May, 2019**
- **Stagnant March, 2019**
- **Stagnant July & August, 2020**
- **Stagnant July, 2020**
- **Stagnant May, 2019**
- **High Chloride June, 2016**
- **High Chloride August & November, 2017**
- **High Chloride May, 2017**
- **High Chloride July, 2016**
- **High Chloride July, 2020**
- **High Chloride June, 2015**
- **High Chloride July, 2017**
Site Details

Monitoring Began
July 2017

Watershed
Fourmile Creek

Field Monitor
Carla Moore
City of Ankeny

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Description

This site is located in northern Ankeny along the edge of a residential area. Upstream from the site is agricultural land.

Six-year Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

Timeline

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2017
- **July, 2017**: Site Monitoring Began
- **July & August, 2017**: Low pH
- **July & August, 2017**: Significant Flood Event
- **August, 2017**: Streambank Stabilization
- **June 30, 2018**: Significant Flood Event
- **August & September, 2019**: High Phosphate
- **August & September, 2020**: High Phosphate
- **August, 2020**: Stagnant
- **August & September, 2021**: Stagnant

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org
Site Description

This site is located north of Briarwood Golf Course in northern Ankeny. Grass dominates the stream banks providing an open canopy along this stretch of Fourmile Creek.

Five-year Average Assessment Results

- **pH Results**
  - Results below 6 can be harmful
  - Five-year average: 4.9

- **Nitrite Results**
  - Results are typically not detectable
  - Five-year average: 0.3

- **Nitrate Results**
  - The maximum recreation standard is 20 mg/L
  - Five-year average: 1.97

- **Dissolved Oxygen Results**
  - The minimum water quality standard is 5 mg/L
  - Five-year average: 9

- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
  - Five-year average: 0

- **Chloride Results**
  - Results above 100 mg/L are considered abnormal
  - Five-year average: 30

- **Average Index of Biotic Integrity (IBI)**
  - Five-year average: 1.97

Timeline

- **2015**
  - PCCWQMP & Site Monitoring Began: July, 2015

- **2016**
  - High Phosphate: February, 2016

- **2017**
  - High Phosphate: February, 2018

- **2018**
  - Significance Flood Event: June 30, 2018
  - High Phosphate: August, 2018
  - High Chloride: September, 2018
  - High Phosphate: June - September, 2018

- **2019**
  - High Phosphate: August, 2019
  - High Nitrate: June, 2020
  - Stagnant: August & September, 2019

- **2020**
  - High Phosphate: July – September, 2020
  - Stagnant: August, 2020

- **2021**
Site Details

Monitoring Began
July 2017

Watershed
Fourmile Creek

Field Monitor
Carla Moore
City of Ankeny

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Description

This site has an open canopy with vegetated banks surrounded by a forest and residential area.

67 Completed Site Visits
29 Abnormal Results
93% Percent Normal Results

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


- PCCWQMP Began
  - July, 2015
- Site Monitoring Began
  - July, 2017
- Low Dissolved Oxygen
  - July, 2017
- High Phosphate
  - May, July & August, 2018
- Significant Flood Event
  - June 30, 2018
- Stagnant
  - August & September, 2019
At the Mally’s Park boat launch located on the north end of the park.

**Site Description**

This site is mostly shaded as Fourmile Creek flows through a wooded area on the west and the park on the east. The left bank is heavily treed and with mostly grass and low plants and a sandbar on the right.

- **89** Completed Site Visits
- **34** Abnormal Results
- **94%** Percent Normal Results

**Five-year Average Assessment Results**

- **pH Results**
  - Results below 6 can be harmful
  - 8

- **Nitrate Results**
  - Results are typically not detectable
  - 0.4

- **Nitrite Results**
  - Results are typically not detectable
  - 0.02

- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
  - 10.4

- **Chloride Results**
  - Results above 100 mg/L are considered abnormal
  - 29

- **Dissolved Oxygen Results**
  - The minimum water quality standard is 5 mg/L
  - 8

- **Average Index of Biotic Integrity (IBI)**
  - 2.06

**Timeline**

- **PCCWQMP & Site Monitoring Began**
  - July, 2015

- **Significant Flood Event**
  - June 30, 2018

- **High Phosphate**
  - August, 2017

- **High Phosphate**
  - August, 2018

- **High Phosphate**
  - October, 2017

- **High Nitrate**
  - May, 2018
Site Description

The streambanks were recently regraded and replanted and are now covered with grass, low vegetation and rip rap leaving a partly open canopy along this area of Fourmile Creek.

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  
- **Nitrite Results**: Results are typically not detectable
  
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  
- **Chloride Results**: Results above 100 mg/L are considered abnormal
  
- **Average Index of Biotic Integrity (IBI)**
  
Timeline

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: June, 2018
- **High Nitrate**: June, 2018
- **High Phosphate**: September, 2018
- **Significant Flood Event**: June 30, 2018
977081
🌐 Easton Ave., west of the community center

Site Description

This site is located in an undeveloped area with shrubs and grasses surrounding the banks, providing an open canopy.

40 Completed Site Visits
12 Abnormal Results
95% Percent Normal Results

Site Details

Monitoring Began
June, 2018

Watershed
Fourmile Creek

Field Monitor
Con Robinson
DMPR

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

2015
2016
2017
2018
2019
2020
2021

PCCWQMP Began
July, 2015

High Phosphate
September, 2018

High Phosphate
September, 2019

High Phosphate
July & August, 2018

Site Monitoring Began
June, 2018

Significant Flood Event
June 30, 2018

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful.
- **Nitrite Results**: Results are typically not detectable.
- **Nitrate Results**: The maximum recreation standard is 20 mg/L.
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L.
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.

Average Index of Biotic Integrity (IBI)

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L.
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.
- **Average Index of Biotic Integrity (IBI)**: 8

Related Dates:

- **PCCWQMP Began**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **Site Monitoring Began**: June, 2018
- **High Phosphate**:
  - September, 2018
  - July & August, 2018
  - September, 2019

Additional Information:

- **Site Details**:
  - Monitoring Began: June, 2018
  - Watershed: Fourmile Creek
  - Field Monitor: Con Robinson

**Contact Information**:

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org
Site Details
Monitoring Began
July 2015

Watershed
Fourmile Creek

Field Monitor
Penny and John Thomsen Volunteers

PCCWQMP CONTACTS
PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Description
Streambanks along this section of Fourmile Creek are primarily lined with tree and shrubs.

111 37 94%
Completed Site Visits Abnormal Results Percent Normal Results

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrate Results
The maximum recreation standard is 20 mg/L

Nitrite Results
Results are typically not detectable

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


High Chloride
February, 2016

High Chloride
September, 2016

Significant Flood Event
June 30, 2018

PCCWQMP & Site Monitoring Began
July, 2015
977308

Vandalia Avenue, west of Highway 5 near the mouth of the river

Site Description

Streambanks along this section of Fourmile Creek are primarily lined with trees and shrubs.

Site Details

Monitoring Began
June 2015

Watershed
Fourmile Creek

Field Monitor
Brad Janssen
PCC

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


PCCWQMP & Site Monitoring Began
July, 2015

High Phosphate
January, 2017

High Phosphate
September & October, 2017

High Phosphate
June, 2018

High Phosphate
December, 2019 & January, 2020

Low Dissolved Oxygen
March, 2018

Low Dissolved Oxygen
November & December, 2017

Low Dissolved Oxygen
December, 2018

Low pH
February, 2020

High Chloride
February, 2020
Site Details

Monitoring Began
June 2018

Watershed
Fourmille Creek

Field Monitor
Shane Laycock
DMPR

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Site Description

This site is located in an undeveloped area with shrubs and grasses surrounding the banks, providing a partially open canopy.

Site Details

- Monitoring Began: June 2018
- Watershed: Fourmille Creek
- Field Monitor: Shane Laycock

PCCWQMP CONTACTS

- PHONE: 515-323-5300
- COORDINATOR: Ginny Malcomson
- QUALITY CONTROL: Amanda Brown
- WEBSITE: www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful.
- **Nitrite Results**: Results are typically not detectable.
- **Nitrate Results**: The maximum recreation standard is 20 mg/L.
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L.
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.
- **Average Index of Biotic Integrity (IBI)**: 1.39

Timeline

- **PCCWQMP Began**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **High Chloride**: May, July, & August, 2019
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.
- **Low Dissolved Oxygen**: July, 2020
- **Stagnant**: June – August, 2020
- **Stagnant**: March, 2020

Additional Information

- **Site Description**: 977087
- **Sotheast 36th Street, west of Laurel Hill Cemetery**

Note: The image contains a site map with specific locations marked, but the description above focuses on textual content extracted from the document.
Site Description

This portion of the creek has streambanks dominated by low vegetation leaving a partly open canopy.

Completed Site Visits 104
Abnormal Results 42
Percent Normal Results 93%

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


- PCCWQMP & Site Monitoring Began: July, 2015
- High Phosphate: August & September, 2016
- Significant Flood Event: June 30, 2018
- Saturated: August, 2019
- High Phosphate: April, 2020
- PCCWQMP & Site Monitoring Began: July, 2015
- High Phosphate: January, 2017
- High Phosphate: July - September, 2017
- High Phosphate: September, 2019
- High Phosphate: October & November, 2018
- High Phosphate: May, 2018
**Site Description**

This portion of Fourmile Creek is mostly shaded and bordered primarily with grass and low plants.

**Completed Site Visits**

- 73

**Abnormal Results**

- 38

**Percent Normal Results**

- 91%

---

**Site Details**

- Monitoring Began: July 2017
- Watershed: Little Fourmile Creek
- Field Monitor: Penny Thomsen and John Harri Volunteers

---

**PCCWQMP Contacts**

- PHONE: 515-323-5300
- COORDINATOR: Ginny Malcomson
- QUALITY CONTROL: Amanda Brown
- WEBSITE: www.LeadingYouOutdoors.org

---

**Five-year Average Assessment Results**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pH</strong></td>
<td></td>
<td>Results below 6 can be harmful</td>
</tr>
<tr>
<td><strong>Nitrite</strong></td>
<td>8</td>
<td>Results are typically not detectable</td>
</tr>
<tr>
<td><strong>Nitrate</strong></td>
<td>2.1</td>
<td>The maximum recreation standard is 20 mg/L</td>
</tr>
<tr>
<td><strong>Dissolved Oxygen</strong></td>
<td></td>
<td>The minimum water quality standard is 5 mg/L</td>
</tr>
<tr>
<td><strong>Phosphate</strong></td>
<td>10</td>
<td>Results over 0.6 mg/L are considered abnormal</td>
</tr>
<tr>
<td><strong>Chloride</strong></td>
<td>0.3</td>
<td>Results above 100 mg/L are considered abnormal</td>
</tr>
<tr>
<td><strong>Average Index of Biotic Integrity (IBI)</strong></td>
<td>69</td>
<td></td>
</tr>
</tbody>
</table>

---

**Timeline**

- **2015**: PCCWQMP Began
- **2016**: Site Monitoring Began
- **2017**: High Chloride
  - September, 2017
  - June & August, 2018
- **2018**: High Chloride
  - July & September, 2019
  - High Phosphate
  - February – April, 2018
  - June, 2019
  - February, 2018
- **2019**: High Chloride
  - July, 2019
- **2020**: Significant Flood Event
  - June 30, 2018
  - High Phosphate
  - June, 2019
- **2021**: Stagnant
  - September, 2020
Along railroad culvert at Lion’s Park in Altoona

Site Description

The creek, with vegetated banks lined largely with grass, low plants and trees is mostly shaded along the transect.

74 Completed Site Visits
26 Abnormal Results
94% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  - pH: [Graph with average pH values over the years]

- **Nitrite Results**: Results are typically not detectable
  - Nitrite: [Graph with average nitrite values over the years]

- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - Nitrate: [Graph with average nitrate values over the years]

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - Dissolved Oxygen: [Graph with average dissolved oxygen values over the years]

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - Phosphate: [Graph with average phosphate values over the years]

- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - Chloride: [Graph with average chloride values over the years]

- **Average Index of Biotic Integrity (IBI)**
  - IBI: [Graph with average IBI values over the years]

Timeline

- **2015**: PCCWQMP Began
  - July, 2015

- **2018**: Significant Flood Event
  - June 30, 2018

- **2017**: Low Dissolved Oxygen
  - August & September, 2017

- **2019**: High Chloride
  - February, 2019
  - High Chloride
  - February & March, 2020

- **2021**: Low Dissolved Oxygen
  - July & August, 2019

- **2021**: Site Monitoring Began
  - July, 2017
Polk County Conservation Water Quality Monitoring Program

Jordan Creek Watershed

JJR 977075  JJR 977059  JJR 977270  JJR 977150

Jordan Creek - Raccoon River

POLK COUNTY
WATER QUALITY
MONITORING PROGRAM

0 1 2 3 4 5 Miles
Site Details

Monitoring Began
July 2017

Watershed
Jordan Creek

Field Monitor
Missy Smith
PCC

Site Description

This portion of the creek has an open canopy with vegetated cut banks. The left bank is covered primarily with shrubs and grass while trees dominate the other.

Completed
Site Visits
54

Abnormal
Results
57

Percent Normal
Results
82%

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrates
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


PCCWQMP Began
July, 2015

Site Monitoring Began
July, 2017

Significant Flood Event
June 30, 2018

High Chloride
January – April, 2018

High Chloride
November, 2018

Low pH
January – March, 2019

High Chloride
December, 2019 – April, 2020

Low Dissolved
Oxygen
May & August, 2020

Low pH
August, 2020

High Chloride
September, 2020

Stagnant
August, 2020

Low pH
January – March, 2021

Low pH
November & December, 2019
Site Details
Monitoring Began
July 2017
Watershed
Jordan Creek
Field Monitor
Missy Smith
PCC

Site Description
Trees dominate the riparian zone along this site, shading much of the creek.

Completed Site Visits Abnormal Results Percent Normal Results
71 54 87%

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


PCCWQMP Began
July, 2015

High Chloride
June 30, 2018

High Chloride
December, 2019 – August, 2020

High Chloride
January – September, 2019

High Chloride
February – May, 2018

Low pH
October – December, 2018

Low pH
January – March, 2020

Low pH
November, 2019

Low Dissolved Oxygen
July, 2020

Significant Flood Event
June 30, 2018

High Chloride
June 30, 2018

High Chloride
December, 2019 – August, 2020

High Chloride
January – September, 2019

High Chloride
February – May, 2018

Low pH
October – December, 2018

Low pH
January – March, 2020

Low pH
November, 2019

Low Dissolved Oxygen
July, 2020
Near Mills Civic Parkway by the West Des Moines Police Department

**Site Description**

At the transect of the creek there is an open canopy bordered primarily with grass and low plants on cut, eroded banks.

**Site Details**

- **Monitoring Began**: July 2017
- **Watershed**: Jordan Creek
- **Field Monitor**: Missy Smith
- **PCC**:

**PCCWQMP CONTACTS**

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org

**Five-year Average Assessment Results**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH Results</td>
<td><img src="image" alt="pH Results" /></td>
</tr>
<tr>
<td>Nitrite Results</td>
<td><img src="image" alt="Nitrite Results" /></td>
</tr>
<tr>
<td>Nitrate Results</td>
<td><img src="image" alt="Nitrate Results" /></td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td><img src="image" alt="Dissolved Oxygen" /></td>
</tr>
<tr>
<td>Phosphate Results</td>
<td><img src="image" alt="Phosphate Results" /></td>
</tr>
<tr>
<td>Chloride Results</td>
<td><img src="image" alt="Chloride Results" /></td>
</tr>
</tbody>
</table>

- **pH Results**: Results below 6 can be harmful.
- **Nitrite Results**: Results are typically not detectable.
- **Nitrate Results**: The maximum recreation standard is 20 mg/L.
- **Dissolved Oxygen**: The minimum water quality standard is 5 mg/L.
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.

**Timeline**

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2017
- **High Chloride**: December, 2018 – August, 2020
- **Significant Flood Event**: June 30, 2018
- **Low pH**: January – March, 2019
- **Low pH**: October, 2019 – March, 2020
- **Oily Sheen**: August, 2020
- **High Chloride**: July, 2018
Polk County Conservation Water Quality Monitoring Program

Site Details

Site Description

This is an industrial and recreational park area. The monitoring site is shaded by trees and shrubs which border this section of the creek.

72
Completed Site Visits
53
Abnormal Results
88%
Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**: 1.85

Timeline

- **Significant Flood Event**: June 30, 2018
- **High Chloride**: November & December, 2018
- **High Chloride**: January, 2019
- **High Chloride**: January & March – July, 2020
- **High Chloride**: January & March – July, 2020
- **High Chloride**: November & December, 2019
- **High Chloride**: November & December, 2019
- **High Chloride**: October & November, 2019
- **Low pH**: October & November, 2019
- **Stagnant**: July & August, 2020

Contact Information

**PCCWQMP CONTACTS**

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org
Paw Creek Watershed

Polk County Conservation Water Quality Monitoring Program

[Map of Paw Creek Watershed with monitoring locations highlighted]
Site Description

The streambed of this creek is primarily silt and mud with some cobble. Banks are cut and eroded at transect and canopy is shaded by mature trees along both banks.

112
Completed Site Visits
14
Abnormal Results
98%
Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

Timeline

- **PCCWQMP & Site Monitoring Began**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **Dry**: July - September, 2020
Site Description

This site is shaded with mature trees lining both banks.

Site Details

Monitoring Began
July 2015

Watershed
Paw Creek

Field Monitor
David Weidt
PCC

106 Completed Site Visits
13 Abnormal Results
98% Percent Normal Results

Site Data

Monitoring Began
July 2015

Watershed
Paw Creek

Field Monitor
David Weidt
PCC

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrate Results
The maximum recreation standard is 20 mg/L

Nitrite Results
Results are typically not detectable

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Average Index of Biotic Integrity (IBI)

Timeline

2015
2016
2017
2018
2019
2020
2021

PCCWQMP & Site Monitoring Began
July, 2015

High Phosphate
August, 2018

Low Dissolved Oxygen
June, 2018

Significant Flood Event
June 30, 2018

Dry
July – September, 2020

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org
Rock Creek Watershed
Site Description

This site is shaded with cut, eroded banks surrounded by trees creating a shaded canopy. The creek flows through agricultural, pastureland, and along the High Trestle Trail.

52 Completed Site Visits
65 Abnormal Results
79% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

- **pH Results**: 7
- **Nitrite Results**: 7
- **Nitrate Results**: 6.5
- **Dissolved Oxygen Results**: 7
- **Phosphate Results**: 0.4
- **Chloride Results**: 23
- **Average Index of Biotic Integrity (IBI)**: 11

Timeline

- **PCCWQMP Began**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **Low Dissolved Oxygen**: August & September, 2017
- **Stagnant**: September – December, 2018
- **Low Dissolved Oxygen**: July, 2018
- **Stagnant**: September, 2019 – September, 2020
- **Dry**: August, 2020
- **High Nitrate**: August, 2020
- **Low Dissolved Oxygen**: August, 2020
- **High Phosphate**: June – September, 2018
- **High Phosphate**: June, 2019
- **Tadpole Shrimp**: June, 2019
- **High Nitrate**: June, 2019
- **High Nitrate**: January & March – August, 2019
- **Stagnant**: January, 2020
- **High Nitrate**: August, 2020
977104

Northwest 18th Street, upstream from box culvert

Site Details

Monitoring Began
July 2017

Watershed
Rock Creek

Field Monitor
Carla Moore
City of Ankeny

Site Description

This part of Rock Creek flows along an agricultural field and residential area. The canopy is open with grass and low plants along the cut banks.

Completed Site Visits 67
Abnormal Results 25
Percent Normal Results 94%

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Nitrite Results
Results are typically not detectable

Nitrate Results
The maximum recreation standard is 20 mg/L

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

PCCWQMP & Site Monitoring Began
July, 2015

High Nitrate
July, 2015

Low Dissolved Oxygen
July, 2015

High Phosphate
May, 2018

High Phosphate
July – September, 2018

Stagnant
September, 2019

Dry
August, 2020

Low Dissolved Oxygen
August, 2019

High Phosphate
August, 2019

Significant Flood Event
June 30, 2018

Site Description

This part of Rock Creek flows along fields and a residential area with a mostly open canopy with trees on one bank and grass and low plants on the other.

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  - 2015: 4
  - 2016: 3
  - 2017: 2
  - 2018: 1
  - 2019: 1
  - 2020: 2
  - 2021: 1

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - 2015: 10
  - 2016: 8
  - 2017: 6
  - 2018: 5
  - 2019: 9
  - 2020: 8
  - 2021: 7

- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - 2015: 1
  - 2016: 2
  - 2017: 7
  - 2018: 1
  - 2019: 4
  - 2020: 2
  - 2021: 3

- **Nitrite Results**: Results are typically not detectable
  - 2015: 0
  - 2016: 0
  - 2017: 0
  - 2018: 0
  - 2019: 0
  - 2020: 0
  - 2021: 0

- **Chloride Results**: Results over 100 mg/L are considered abnormal
  - 2015: 5
  - 2016: 5
  - 2017: 5
  - 2018: 0
  - 2019: 0
  - 2020: 0
  - 2021: 0

- **Average Index of Biotic Integrity (IBI)**
  - 2015: 14
  - 2016: 12
  - 2017: 10
  - 2018: 8
  - 2019: 9
  - 2020: 8
  - 2021: 7

Timeline

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2017
- **Significant Flood Event**: June 30, 2018
- **High Chloride**: February, 2018
- **High Phosphate**: August, 2019
- **High Chloride**: September, 2019
- **Low pH**: October - December, 2018
- **Low Dissolved Oxygen**: July & August, 2018
- **Low pH**: January & February, 2020
Saylor Creek Watershed
Site Description

This site is located along a field and residential area. The left bank is primarily lined with trees with the right bank covered with grass and low plants providing an open canopy.

Site Details

Monitoring Began
July 2017

Watershed
Saylor Creek

Field Monitor
Carla Moore
City of Ankeny

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
  - [7/81%]

- **Nitrite Results**: Results are typically not detectable
  - [0/85%]

- **Nitrate Results**: The maximum recreation standard is 20 mg/L
  - [0/81%]

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - [7/81%]

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - [0/85%]

- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - [1.80/73%]

- **Average Index of Biotic Integrity (IBI)**
  - [1.80/73%]

Timeline

- **PCCWQMP Began**
  - July, 2015

- **Significant Flood Event**
  - August, 2019

- **Low Dissolved Oxygen**
  - June 30, 2018

- **High Chloride**
  - October – December, 2017

- **Low pH**
  - October – December, 2019

- **Stagnant**
  - August, 2020

- **Low Dissolved Oxygen**
  - July, 2019

- **High Chloride**
  - September, November & December, 2019

- **High Chloride**
  - February & March, 2020

- **Low pH**
  - January & February, 2020
West of Southwest State Street along Northwest 72nd Place in Ankeny

Site Description

This part of Saylor Creek flows through a residential area west of Highway 415. The creek banks are covered with grass and low plants providing an open canopy.

Site Details

Monitoring Began
July 2017

Watershed
Saylor Creek

Field Monitor
Carla Moore
City of Ankeny

67 Completed Site Visits
38 Abnormal Results
91% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**: 1.81

Timeline

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: July, 2017
- **Significant Flood Event**: June 30, 2018
- **Low pH**: December, 2018
- **High Chloride**: December, 2018
- **High Phosphate**: June, 2020
- **High Phosphate**: August, 2019
- **High Chloride**: December, 2019 – May, 2020
- **High Chloride**: March – May, 2019

POLK COUNTY CONSERVATION WATER QUALITY MONITORING PROGRAM

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org
Polk County Conservation Water Quality Monitoring Program

Walnut Creek Watershed
Site Description

The site is partly shaded by trees and shrubs along the banks and is located in a residential area.

Site Details

Monitoring Began
May 2017

Watershed
Walnut Creek

Field Monitor
Kay Tweedy
Volunteer

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Nitrite Results
Results are typically not detectable

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Nitrate Results
The maximum recreation standard is 20 mg/L

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline

PCCWQMP Began
July, 2015

High Chloride
January – April, 2020

High Chloride
June & July, 2020

High Phosphate
September, 2020

Low pH
August, 2020

Low pH
February & March, 2020

Significant Flood Event
June 30, 2018

High Chloride
May, 2019

High Chloride
May, 2019

Site Monitoring Began
May, 2017

Walker Johnson Park in Urbandale, south of Douglas Avenue bridge

Site Description

A box culvert upstream and a small drainage pipe on the left bank can be found north of the site. The banks are mostly rip rap and grass covered, providing an open canopy at the site location. It then becomes treed as it flows south through the park.

Completed Site Visits: 112
Abnormal Results: 52
Percent Normal Results: 92%

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful.
  - Five-year average: 7

- **Nitrite Results**: Results are typically not detectable.
  - Five-year average: 0

- **Nitrate Results**: The maximum recreation standard is 20 mg/L.
  - Five-year average: 0.8

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L.
  - Five-year average: 9

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
  - Five-year average: 0.2

- **Chloride Results**: Results above 100 mg/L are considered abnormal.
  - Five-year average: 99

Average Index of Biotic Integrity (IBI) Average: 1.42

Timeline

- **High Nitrate**: February, 2016
- **High Nitrate**: July & September, 2016
- **High Chloride**: January – March, 2017
- **Low Dissolved Oxygen**: July, 2016
- **High Chloride**: November, 2019 – June, 2020
- **Low pH**: February & March, 2020
- **Low pH**: December, 2019

PCCWQMP & Site Monitoring Began: July, 2015

SITE DETAILS

Monitoring Began: July 2015

Watershed: Walnut Creek

Field Monitor: Lori Foresman-Kirpes

PCCWQMP CONTACTS

PHONE: 515-323-5300

COORDINATOR: Ginny Malcomson

QUALITY CONTROL: Amanda Brown

WEBSITE: www.LeadingYouOutdoors.org
Clive Greenbelt Trail near the 100th Street bridge

Site Description

This site is partly shaded by shrubs and low trees lining each sloping bank.

107 Completed Site Visits
39 Abnormal Results
94% Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

Timeline

- High Phosphate
  - February, 2016
- High Phosphate
  - July, 2016
- High Nitrate
  - June, 2017
- Significant Flood Event
  - June 30, 2018
- High Nitrate
  - June & July, 2019
- High Phosphate
  - February, 2019
- High Chloride
  - March & April, 2018
- High Phosphate
  - August, 2019
- High Nitrate
  - June, 2018
- PCCWQMP & Site Monitoring Began
  - July, 2015
- Low Dissolved Oxygen
  - July & August, 2016
Colby Park in Windsor Heights

Site Description

This site is mostly open with deeply incised banks which are covered with rip rap, grasses and low plants. Many culverts exist from neighboring business parking lots and a park. A dog park is located immediately downstream. This site also receives runoff from the Interstate 235 bridge overhead.

108 Completed Site Visits
34 Abnormal Results
95% Percent Normal Results

Five-year Average Assessment Results

- **Phosphorus Results**: The maximum recreation standard is 5 mg/L. Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.
- **Nitrate Results**: The maximum recreation standard is 20 mg/L. Results above 100 mg/L are considered abnormal.
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L. Results below 6 can be harmful.
- **pH Results**: Results below 6 can be harmful.

Timeline

- **2015**: PCCWQMP & Site Monitoring Began
- **2016**: High Phosphate
- **2017**: High Nitrate
- **2018**: Significant Flood Event
- **2019**: Low pH, Low Dissolved Oxygen
- **2020**: Road Construction, Cyanobacteria
- **2021**: High Chloride

SITE DETAILS

- Monitoring Began: July 2015
- Watershed: Walnut Creek
- Field Monitor: Ginny Malcomson
- PCC

PCCWQMP CONTACTS

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful.
- **Nitrite Results**: Results are typically not detectable.
- **Nitrate Results**: Results above 100 mg/L are considered abnormal.
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L.
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal.
- **Chloride Results**: Results above 100 mg/L are considered abnormal.
- **Average Index of Biotic Integrity (IBI)**

**Site Description**

This site is in an open residential area down a steep bank of grass, rip rap and low growing plants. Upstream is a commercial area, residential area, and public athletic field.

**Site Details**

Monitoring Began
July 2015

Watershed
Walnut Creek

Field Monitor
Ginny Malcomson
PCC

**PCCWQMP CONTACTS**

PHONE
515-323-5300

COORDINATOR
Ginny Malcomson

QUALITY CONTROL
Amanda Brown

WEBSITE
www.LeadingYouOutdoors.org

**Five-year Average Assessment Results**

- **pH Results**
  - Results below 6 can be harmful
  - [8] 8

- **Nitrate Results**
  - Results are typically not detectable
  - [0.2] 0.2

- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
  - [9] 9

- **Chloride Results**
  - Results above 100 mg/L are considered abnormal
  - [58] 58

- **Average Index of Biotic Integrity (IBI)**
  - [1.65] 1.65

**Timeline**

- **Low Dissolved Oxygen**
  - July, 2015
- **PCCWQMP & Site Monitoring Began**
  - July, 2015
- **High Nitrate**
  - October, 2015
- **High Phosphate**
  - January, 2017
  - August & September, 2016
  - March, 2017
  - March & April, 2018
- **High Chloride**
  - March & April, 2018
  - March & April, 2019
- **High Nitrate**
  - October, 2015
  - September, 2016
- **Significant Flood Event**
  - June 30, 2018
- **Blue Green Algae**
  - September, 2019
- **Japanese Hops Found & Removed**
  - Summer, 2019
- **Streambank Construction**
  - February – April, 2019
**Site Description**

This small creek in Glendale Cemetery flows through a grassy field which provides an open canopy.

- **Completed Site Visits**: 35
- **Abnormal Results**: 6
- **Percent Normal Results**: 97%

**Timeline**

- **PCCWQMP Began**: July, 2015
- **Significant Flood Event**: June 30, 2018
- **Creek Plugged & Drained**: May, 2019
- **Stagnant**: December, 2019
- **Low Dissolved Oxygen**: April, 2019
- **Low Dissolved Oxygen**: August, 2020
- **Low Dissolved Oxygen**: June & August, 2017
- **Site Monitoring Began**: June, 2018
- **PCCWQMP Began**: July, 2015
- **Stagnant**: April, May, July, & August, 2020

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
  - 2015: 6
  - 2016: 6
  - 2017: 6
  - 2018: 6
  - 2019: 6
  - 2020: 6
  - 2021: 6

- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
  - 2015: 7
  - 2016: 7
  - 2017: 7
  - 2018: 7
  - 2019: 7
  - 2020: 7
  - 2021: 7

- **Nitrate Results**: Results are typically not detectable
  - 2015: 0.2
  - 2016: 0.2
  - 2017: 0.2
  - 2018: 0.2
  - 2019: 0.2
  - 2020: 0.2
  - 2021: 0.2

- **Nitrite Results**: Results are typically not detectable
  - 2015: 0.7
  - 2016: 0.7
  - 2017: 0.7
  - 2018: 0.7
  - 2019: 0.7
  - 2020: 0.7
  - 2021: 0.7

- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
  - 2015: 0.6
  - 2016: 0.6
  - 2017: 0.6
  - 2018: 0.6
  - 2019: 0.6
  - 2020: 0.6
  - 2021: 0.6

- **Chloride Results**: Results above 100 mg/L are considered abnormal
  - 2015: 57
  - 2016: 57
  - 2017: 57
  - 2018: 57
  - 2019: 57
  - 2020: 57
  - 2021: 57

- **Average Index of Biotic Integrity (IBI)**
  - 2015: 1.32
  - 2016: 1.32
  - 2017: 1.32
  - 2018: 1.32
  - 2019: 1.32
  - 2020: 1.32
  - 2021: 1.32
Southwest of Waveland Golf Course in Des Moines

**Site Description**

This site is on a tributary of Walnut Creek in a residential neighborhood. It has an open canopy with sloping banks covered with grass and some rip rap.

- **Completed Site Visits**: 37
- **Abnormal Results**: 26
- **Percent Normal Results**: 88%

**Five-year Average Assessment Results**

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**: 1.65

**Timeline**

- **PCCWQMP Began**: July, 2015
- **Site Monitoring Began**: June, 2018
- **Significant Flood Event**: June 30, 2018
- **Low Dissolved Oxygen**: June, 2019
- **High Chloride**: August, 2020
- **High Chloride**: March – June, 2020
- **High Phosphate**: June, 2020

**Site Details**

- **Monitoring Began**: June 2018
- **Watershed**: Walnut Creek
- **Field Monitor**: Shane Laycock

**PCCWQMP CONTACTS**

- **PHONE**: 515-323-5300
- **COORDINATOR**: Ginny Malcomson
- **QUALITY CONTROL**: Amanda Brown
- **WEBSITE**: www.LeadingYouOutdoors.org
Yeader Creek Watershed

POLK COUNTY
WATER QUALITY MONITORING PROGRAM
Site Description

This site is in a residential neighborhood, is mostly shaded by high banks and mature trees on the left bank. The right bank consists of trees and shrubs. Of the four monitored Yeader Creek sites, this is the closest to the Des Moines International Airport.

Completed Site Visits: 113, Abnormal Results: 82, Percent Normal Results: 88%

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**: 1.87

Timeline

- **Low Dissolved Oxygen**: October, 2015
- **High Chloride**: November, 2019
- **High Phosphate**: June, 2019
- **Significant Flood Event**: June 30, 2018
- **High Chloride**: February - August, 2020
- **Low pH**: January & February, 2020
- **High Chloride**: January, 2019
- **High Chloride**: April - June, 2019
- **High Chloride**: September & October, 2017
- **High Chloride**: July, 2017
- **High Chloride**: January - March, 2017
- **High Chloride**: March - May & July, 2018
- **High Chloride**: September, 2018
- **High Phosphate**: May, 2018
- **High Phosphate**: September, 2018
- **Low Dissolved Oxygen**: June, 2016
- **Low Dissolved Oxygen**: October & November, 2016
- **Low Dissolved Oxygen**: June, 2016
- **Low Dissolved Oxygen**: September, 2015
- **PCCWQMP & Site Monitoring Began**: July, 2015
- **October, 2015**: Low Dissolved Oxygen
- **September, 2015**: High Phosphate
- **March – May & July, 2018**: High Chloride
- **September, 2018**: High Phosphate
- **November, 2019**: High Chloride
- **January, 2019**: High Chloride
- **April – June, 2019**: High Chloride
- **February – August, 2020**: High Chloride
- **January & February, 2020**: Low pH
South Union bridge and Yeader Creek, in Des Moines

Site Description

This site is fully shaded with tree-lined banks and rocky a bed in an urban residential neighborhood.

113
Completed Site Visits
83
Abnormal Results
88%
Percent Normal Results

Five-year Average Assessment Results

- **pH Results**: Results below 6 can be harmful
- **Nitrite Results**: Results are typically not detectable
- **Nitrate Results**: The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**: The minimum water quality standard is 5 mg/L
- **Phosphate Results**: Results over 0.6 mg/L are considered abnormal
- **Chloride Results**: Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI): 110

Timeline

- **Significant Flood Event**: June 30, 2018
- **Low Dissolved Oxygen**: November, 2019
- **Low Dissolved Oxygen**: January & February, 2020
- **High Chloride**: January, April, & May, 2019
- **High Chloride**: February – August, 2020
- **High Chloride**: November, 2019
- **High Phosphate**: November, 2019
- **High Phosphate**: January, April, & May, 2019
- **Low Dissolved Oxygen**: October, 2015
- **Low Dissolved Oxygen**: June, 2016
- **Low Dissolved Oxygen**: September - November, 2016
- **High Chloride**: March – May, 2018
- **Low Dissolved Oxygen**: January & February, 2020
- **Low Dissolved Oxygen**: November, 2019
- **High Chloride**: September, 2017
- **High Chloride**: July & August, 2018
- **High Chloride**: February – August, 2020
- **High Chloride**: November, 2019
- **High Phosphate**: November, 2019
- **High Phosphate**: January, April, & May, 2019

PCCWQMP & Site Monitoring Began: July, 2015
**Site Details**

- **Monitoring Began**
  - July 2015
- **Watershed**
  - Yeader Creek
- **Field Monitor**
  - Brad Janssen
  - PCC

**PCCWQMP CONTACTS**

- **PHONE**
  - 515-323-5300
- **COORDINATOR**
  - Ginny Malcomson
- **QUALITY CONTROL**
  - Amanda Brown
- **WEBSITE**
  - www.LeadingYouOutdoors.org

**Five-year Average Assessment Results**

- **pH Results**
  - Results below 6 can be harmful
- **Nitrite Results**
  - Results are typically not detectable
- **Nitrate Results**
  - The maximum recreation standard is 20 mg/L
- **Dissolved Oxygen Results**
  - The minimum water quality standard is 5 mg/L
- **Phosphate Results**
  - Results over 0.6 mg/L are considered abnormal
- **Chloride Results**
  - Results above 100 mg/L are considered abnormal
- **Average Index of Biotic Integrity (IBI)**

**Timeline**

- **PCCWQMP & Site Monitoring Began**
  - July, 2015
- **High Chloride**
  - October, 2015
  - June, 2016
- **Low Dissolved Oxygen**
  - October & November, 2016
  - July & August, 2018
  - July & September, 2017
  - July & September, 2016
- **High Phosphate**
  - October & November, 2016
  - March – May, July & August, 2018
  - September, 2018
  - September, 2019
  - January, April, and June, 2019
- **Low pH**
  - January & February, 2019
- **Significant Flood Event**
  - June 30, 2018
- **High Chloride**
  - September, 2019
  - November, 2019
  - January & February, 2019
- **Low Dissolved Oxygen**
  - June – December, 2019
  - January, April, and June, 2019

**Site Description**

This site is located in a commercial area. The banks along the site are vegetated with grasses and low plants which provide an open canopy. The low water level and open canopy allow water temperatures to rise rapidly in this area. The creek depth in this area averages 17 centimeters deep.
Site Details

Monitoring Began
July 2015

Watershed
Yeader Creek

Field Monitor
Tad Thomas
DMPR

Site Description

The site is located at the pedestrian bridge in Ewing Dog Park. The banks are lined with grass and low plants providing an open canopy. The creek depth, when measurable, averages 37 centimeters deep.

107
Completed Site Visits
90
Abnormal Results
86%
Percent Normal Results

Five-year Average Assessment Results

pH Results
Results below 6 can be harmful

Dissolved Oxygen Results
The minimum water quality standard is 5 mg/L

Nitrite Results
Results are typically not detectable
0

Phosphate Results
Results over 0.6 mg/L are considered abnormal

Nitrate Results
The maximum recreation standard is 20 mg/L
0.2

Chloride Results
Results above 100 mg/L are considered abnormal

Average Index of Biotic Integrity (IBI)

Timeline


Low Dissolved Oxygen
April, June, & July, 2016

Significant Flood Event
June 30, 2018

Stagnant
November & December, 2019

Low Dissolved Oxygen
October & November, 2015

PCCWQMP & Site Monitoring Began
July, 2015

High Phosphate
April, 2016

High Chloride
January – March, 2017

Stagnant
April – July, 2019

Stagnant
January & March, 2020

Low Dissolved Oxygen
September & October, 2017

High Phosphate
September & October, 2018

Stagnant
June & September, 2019

Stagnant
June – August, 2020

Low Dissolved Oxygen
May – July, 2017

High Chloride
January – March, 2017

Stagnant
April – July, 2019

Stagnant
January & March, 2020

Low Dissolved Oxygen
June – September, 2018

High Phosphate
June & September, 2019

Stagnant
November & December, 2019

Low Dissolved Oxygen
August, September & November, 2019

Stagnant
November & December, 2019

Low Dissolved Oxygen
April & June, 2019

Low Dissolved Oxygen
October & November, 2016

High Phosphate
October & November, 2015

Low Dissolved Oxygen
October & November, 2015

Low pH
March & May, 2020

Low Dissolved Oxygen
October & November, 2015

Low pH
November & December, 2019

Low Dissolved Oxygen
August, September & November, 2019

Low pH
March & May, 2020

Low Dissolved Oxygen
April & June, 2019

Low Dissolved Oxygen
October & November, 2016

Low Dissolved Oxygen
May – July, 2017

Low Dissolved Oxygen
September & October, 2017

Low Dissolved Oxygen
June – September, 2018

Low Dissolved Oxygen
April & June, 2019

Low Dissolved Oxygen
October & November, 2015

Low pH
March & May, 2020

Low Dissolved Oxygen
November & December, 2019

Low Dissolved Oxygen
August, September & November, 2019

Low pH
March & May, 2020

Low Dissolved Oxygen
April & June, 2019

Low Dissolved Oxygen
October & November, 2015

Low pH
March & May, 2020

Low Dissolved Oxygen
November & December, 2019

Low Dissolved Oxygen
August, September & November, 2019

Low pH
March & May, 2020

Low Dissolved Oxygen
April & June, 2019
Field Monitors

Aaron Heuss **
Abby Chungath ¹ **
Adam Fendrick
Alan Pasker ¹
Amanda Brown ¹
Amber Platt**
Amy Bryant
Amy Pajak **
Andre Olsen**
Andrew Phelps ¹
Brad Janssen¹
Brian Herrstrom
Brody Buskohl¹
Callie Leau Courtright
Carla Moore ¹
Charlie Finch ¹
Clayton Ender ¹
Curt Smejkal
Dan Hrubes ¹
Dave Croll ¹
David Weidt ¹
David Wilwerding
Dean Bruscher ¹
Doug Romig
Doug Sheeley
Drake Boeckholt¹ **
Erich Braun
Ginny Malcomson ¹
Heidi Anderson ¹
Isaac Svoboda¹
Jake Slings
James Dotzler ¹
Janna Coulter ¹
Jared Bright
Jeff Behan¹
Jennifer Mendenhall-Bellon**
Jim Tredway ¹**
Jody Anderson ¹**
Joe Boyles ¹
Volunteer
Volunteer
Polk County Conservation
Polk County Conservation
Polk County Conservation
Volunteer
City of Ankeny
Volunteer
Volunteer
Polk County Conservation
Polk County Conservation
Polk County Conservation
City of Johnston
Des Moines Parks and Recreation
City of Ankeny
Polk County Conservation
City of Johnston
City of Des Moines-Sewer Enterprise Div.
Polk County Conservation
City of Johnston
Polk County Conservation
City of Johnston
Polk County Conservation
City of Johnston
Polk County Conservation
City of Johnston
Polk County Conservation
Volunteer
Polk County Conservation
Polk County Conservation
City of Des Moines
City of Altoona
Polk County Conservation
Polk County Conservation
City of Ankeny
City of West Des Moines
Volunteer
Volunteer
Volunteer
Polk County Conservation
# Field Monitors

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joel Van Roekel</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>John Harr</td>
<td>Volunteer</td>
</tr>
<tr>
<td>John Mackey</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>John Roan</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Johnathan Gano</td>
<td>City of Des Moines-Public Works</td>
</tr>
<tr>
<td>Jordan Hildreth</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Jordan Wilmes</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Josh Dewes</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Justin D'Souza</td>
<td>City of Des Moines-Sewer Enterprise Div.</td>
</tr>
<tr>
<td>Kaleb Alger</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Karen Oppelt</td>
<td>City of Altoona</td>
</tr>
<tr>
<td>Karrah Rau</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Katharine Carman</td>
<td>Urbandale High School</td>
</tr>
<tr>
<td>Kay Tweedy</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Kelly Sand</td>
<td>City of West Des Moines</td>
</tr>
<tr>
<td>Ken Trytek</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Kendall Fogle</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Lael Neal</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Lewis Major</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Lori Foresman-Kirpes</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Lowell De Vries</td>
<td>City of Des Moines Public Works</td>
</tr>
<tr>
<td>Lucas Tenborg</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Lydia Roush</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Marc Pedersen</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Mariel Castillo</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Matt Brown</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Melany Shaw</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Melissa Ritter</td>
<td>SE Polk High School</td>
</tr>
<tr>
<td>Melissa Schmeling</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Michael French</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Mike Murphy</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Missy Smith</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Nikki Dunbar</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Pat Spain</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Patti Petersen-Keys</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Penny Thomsen</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Rich Anderson</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Richard Brown</td>
<td>Volunteer</td>
</tr>
<tr>
<td>Richard Leopold</td>
<td>Des Moines Parks and Recreation</td>
</tr>
<tr>
<td>Ron Dunek</td>
<td>Polk County Conservation</td>
</tr>
</tbody>
</table>

*Note: The asterisks (*) indicate the type of involvement: ¹ indicates primary role, ² indicates involvement as a volunteer, and ³ indicates another involvement role.*
# Field Monitors

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam Brown**</td>
<td>Volunteer</td>
<td></td>
</tr>
<tr>
<td>Sandy Roan**</td>
<td>Volunteer</td>
<td></td>
</tr>
<tr>
<td>Sophia Campbell</td>
<td>Polk County Conservation</td>
<td></td>
</tr>
<tr>
<td>Tad Thomas</td>
<td>Des Moines Parks and Recreation</td>
<td></td>
</tr>
<tr>
<td>Tobyn Peterson</td>
<td>City of Ankeny</td>
<td></td>
</tr>
<tr>
<td>Vance Weltha</td>
<td>City of Altoona</td>
<td></td>
</tr>
<tr>
<td>Veronica Marse</td>
<td>Polk County Conservation</td>
<td></td>
</tr>
<tr>
<td>Zach Deutmeyer</td>
<td>Polk County Conservation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>¹ 2019-20 field monitor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>**public volunteer</td>
<td></td>
</tr>
</tbody>
</table>
Additional information and summarized annual reports are found at https://www.polkcountyiowa.gov/conservation/water-quality/. All site records are available on the EPA Water Quality Exchange (WQX) website (https://www.epa.gov/waterdata/water-quality-data-wqx).

To become involved in our program, please contact Ginny Malcomson, Project Coordinator, to learn more.

Thank you,

Ginny Malcomson  
PCCWQMP Coordinator

Amanda Brown  
PCCWQMP QC Officer

Polk County Conservation  
12130 NW 128th Street  
Granger, IA 50109  
515-323-5300  
www.leadingyououtdoors.org