



CHLORIDE MONITORING DATA SUMMARY REPORT FOR THE TIME LIMITED WATER QUALITY STANDARD FOR CHLORIDE – YEAR 1, MAY 2022-APRIL 2023

July 1, 2023

Prepared by the Chicago Area Waterways Chloride Workgroup and
the Lower Des Plaines Watershed Group

Introduction

Chloride harms aquatic life and vegetation and is corrosive to infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species. It is cost prohibitive and very difficult to remove chloride through current treatment options available; whereas, proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment.

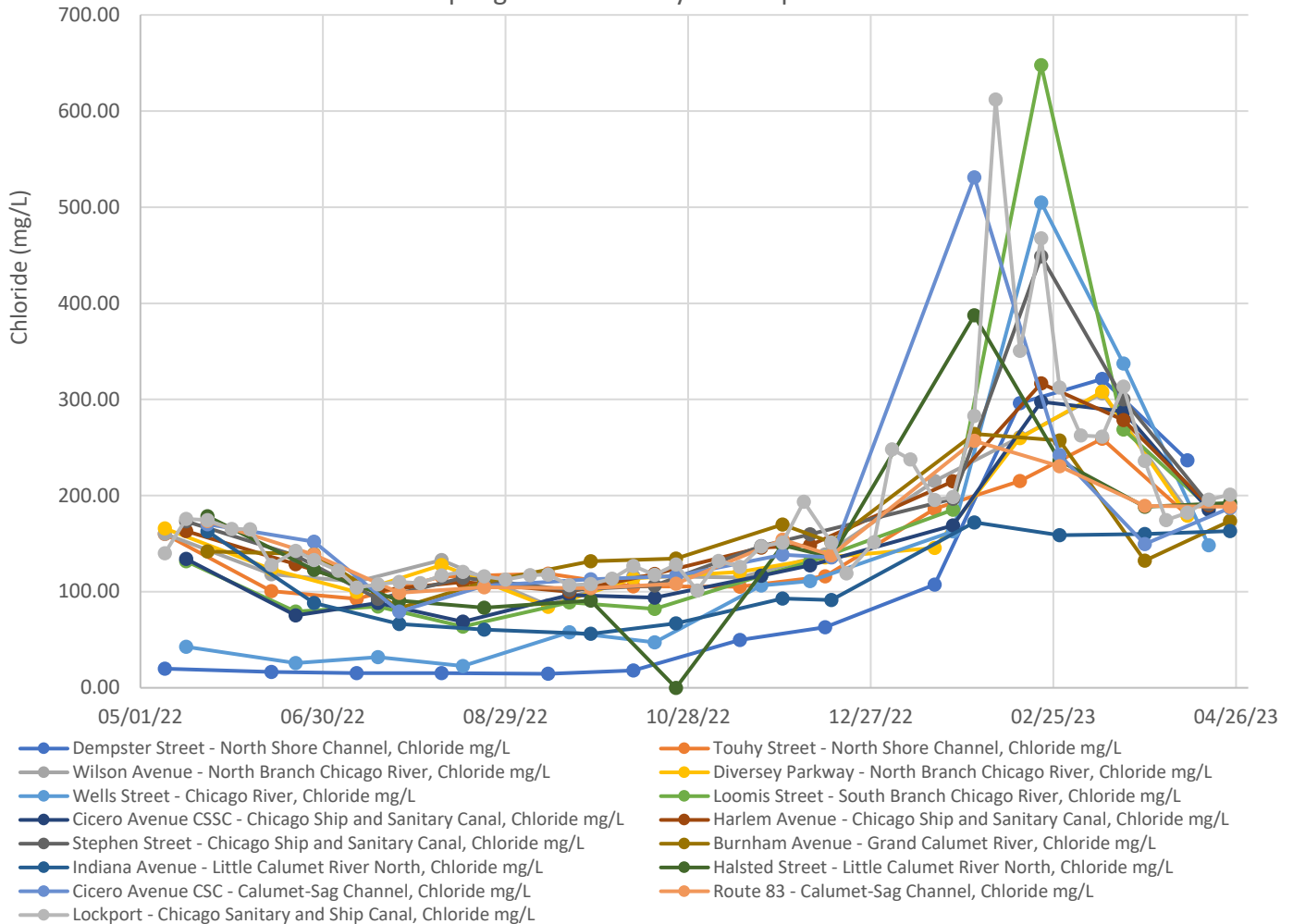
Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the watershed.

As the Time Limited Water Quality Standard for Chloride (TLWQS) permittees make changes to their operations to reduce chlorides, various other factors may influence the chloride concentrations in the Chicago Area Waterway System (CAWS) and Lower Des Plaines River (LDPR) watersheds that are outside of the TLWQS permittees' control. Chloride concentrations can vary based on how much road salt and other deicing materials are used, but weather and precipitation variability across the watershed year to year also are an important factor. During mild winters, less salt may be needed to provide safe surfaces to the traveling public leading to lower chloride concentrations. Whereas, during more severe winters, more salt may be needed for the safe surfaces leading to higher chloride concentrations. Geographic variability in weather events also is a factor and will influence chloride concentrations. The precipitation amounts or types may not be equally reflected across the entire watershed and differing amounts of road salt may be needed to provide safe surfaces. Chloride concentrations can also be influenced by the flow and in years with more precipitation and higher flow, lower concentrations of chloride may be observed versus in years with less precipitation and lower flow, higher chloride concentrations may be observed. With various factors influencing the chloride concentrations in the entire watershed, both chloride concentration data and operational information from the permittees will be needed to evaluate the success of the TLWQS.

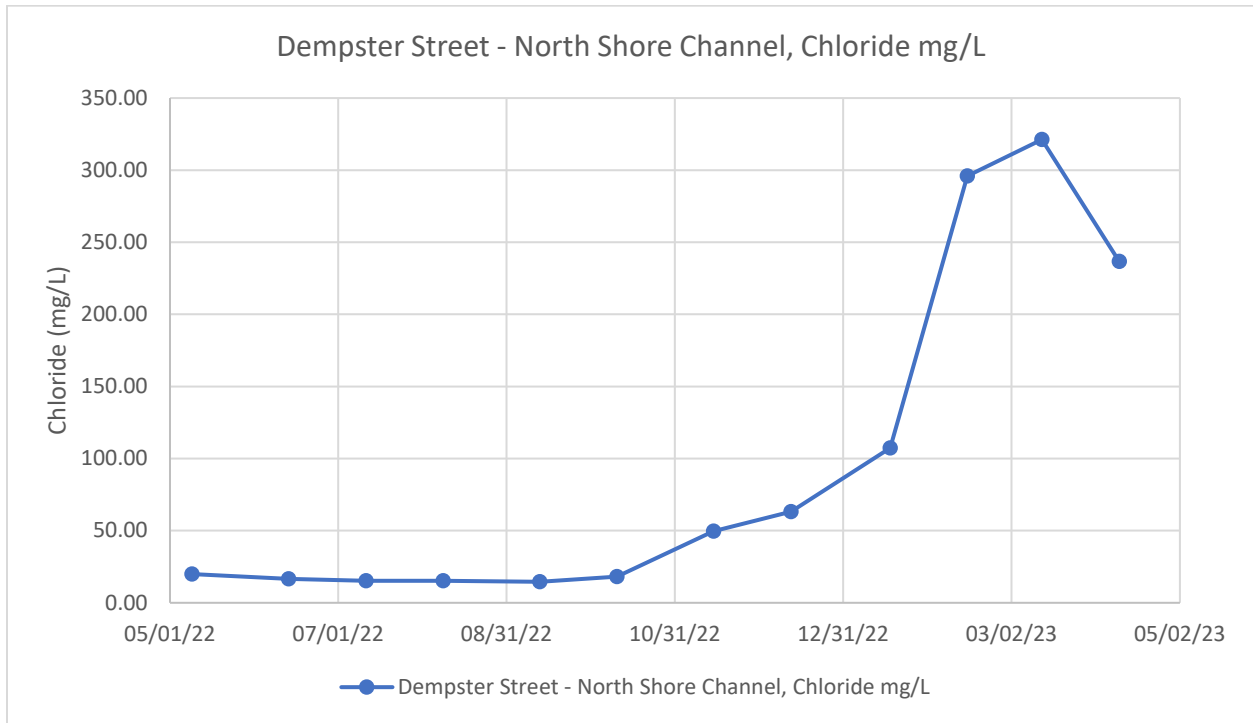
Presented below are graphs summarizing the chloride monitoring data collected by the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) and the Lower Des Plaines Watershed Group (LDWG) for May 2022 through April 2023 to meet the requirements of the TLWQS. This data covers the first year of the TLWQS. The data collected is from both water quality monitoring and continuous specific conductivity monitoring. Specific conductivity is used to calculate estimated chloride concentrations based on a linear relationship. The raw data sets are available upon request.

Graphs for MWRDGC's Monthly and Weekly Sampling Sites All Sites

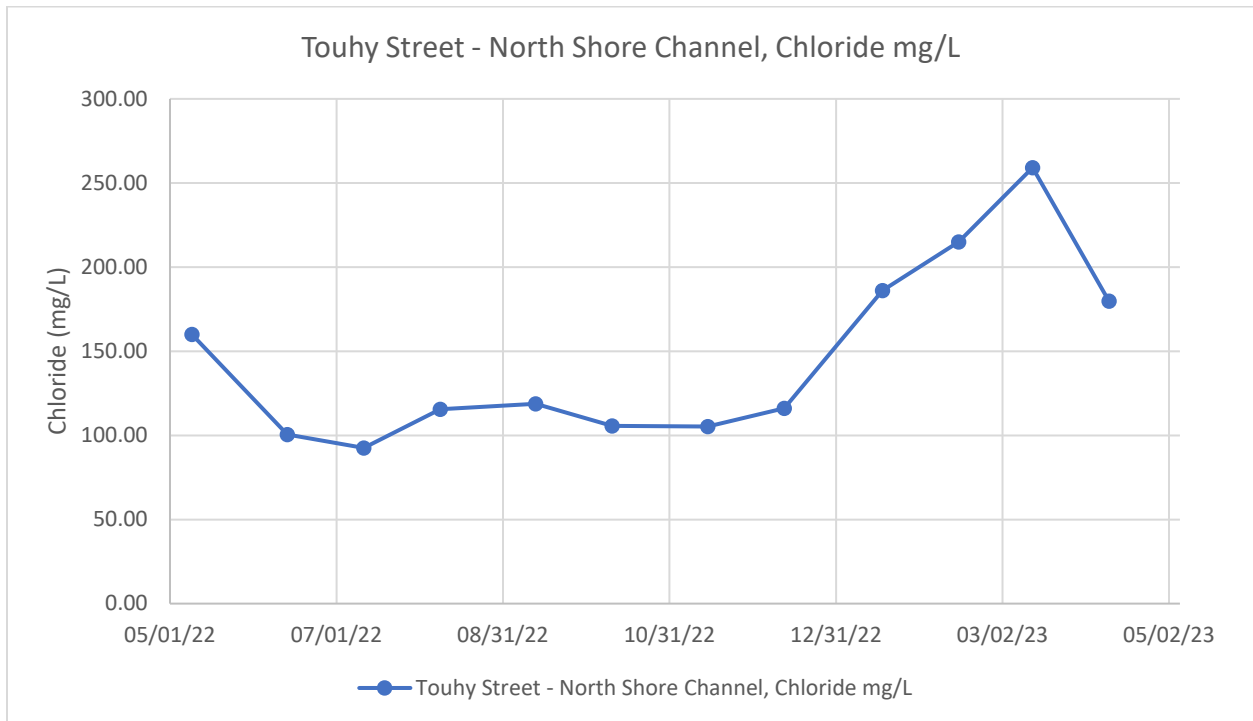
Chloride Concentrations for MWRDGC AWQM TLWQS Specific
Sampling Points for May 2022-April 2023



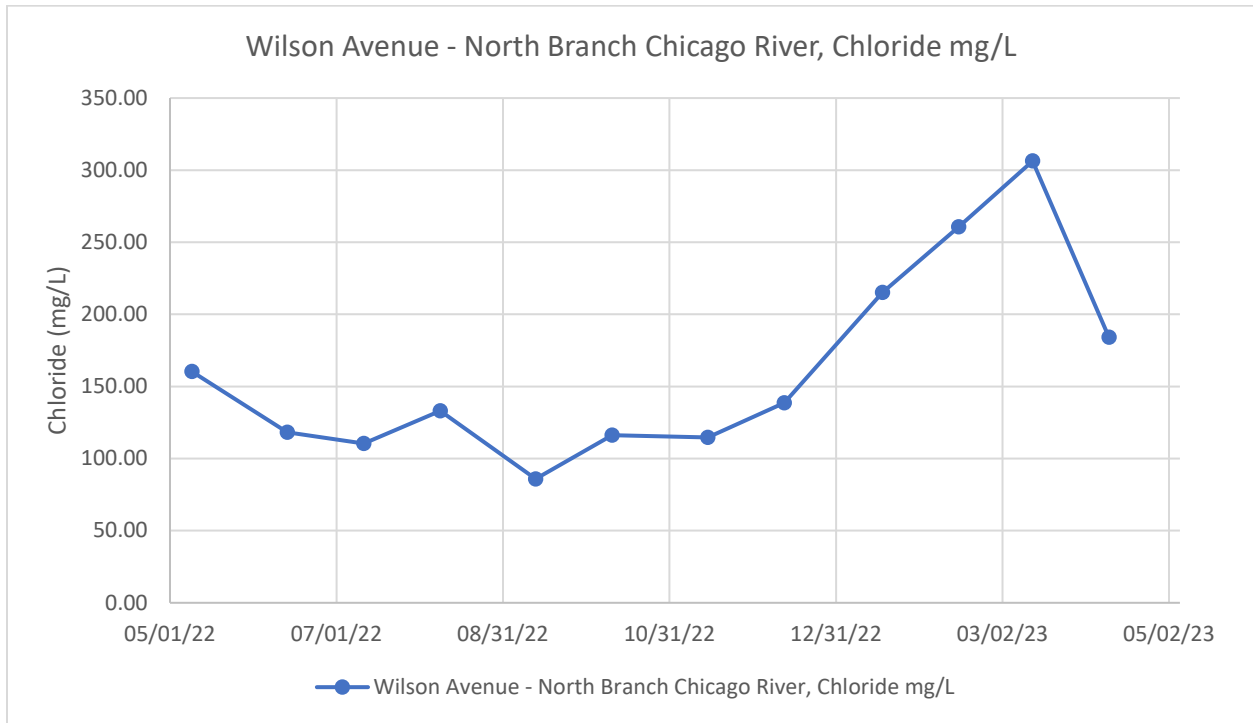
Dempster Street, North Shore Channel



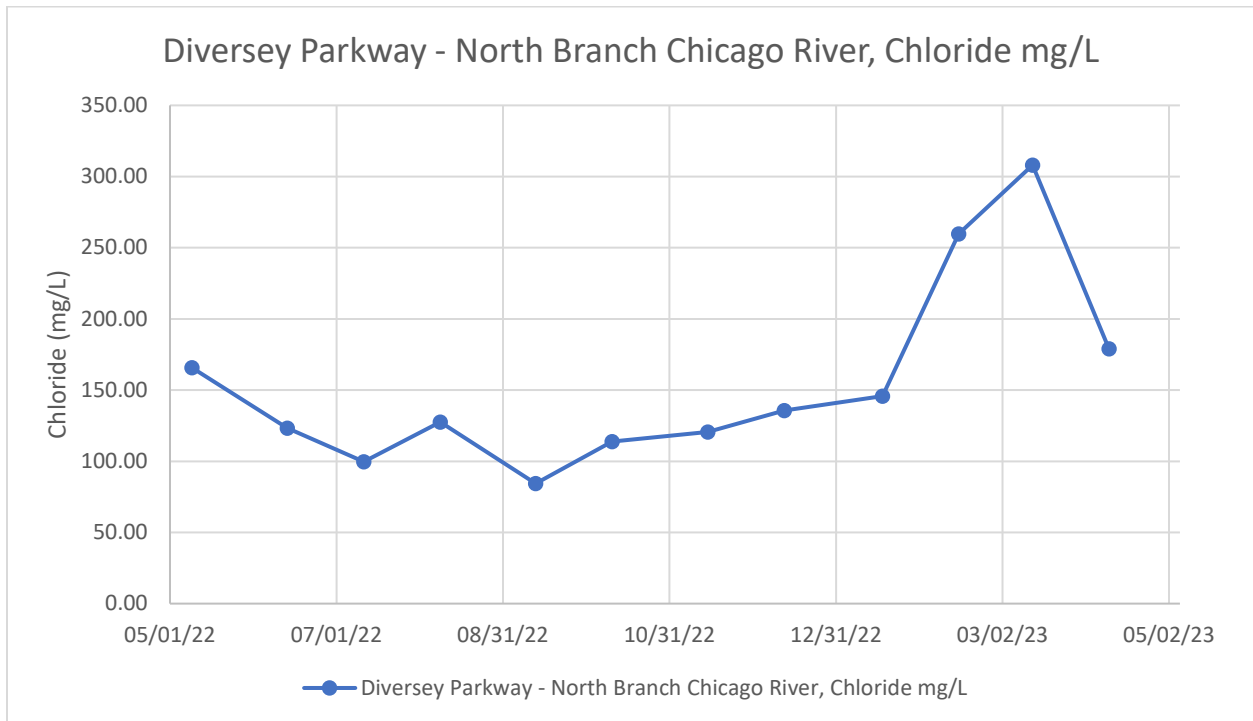
Touhy Street, North Shore Channel



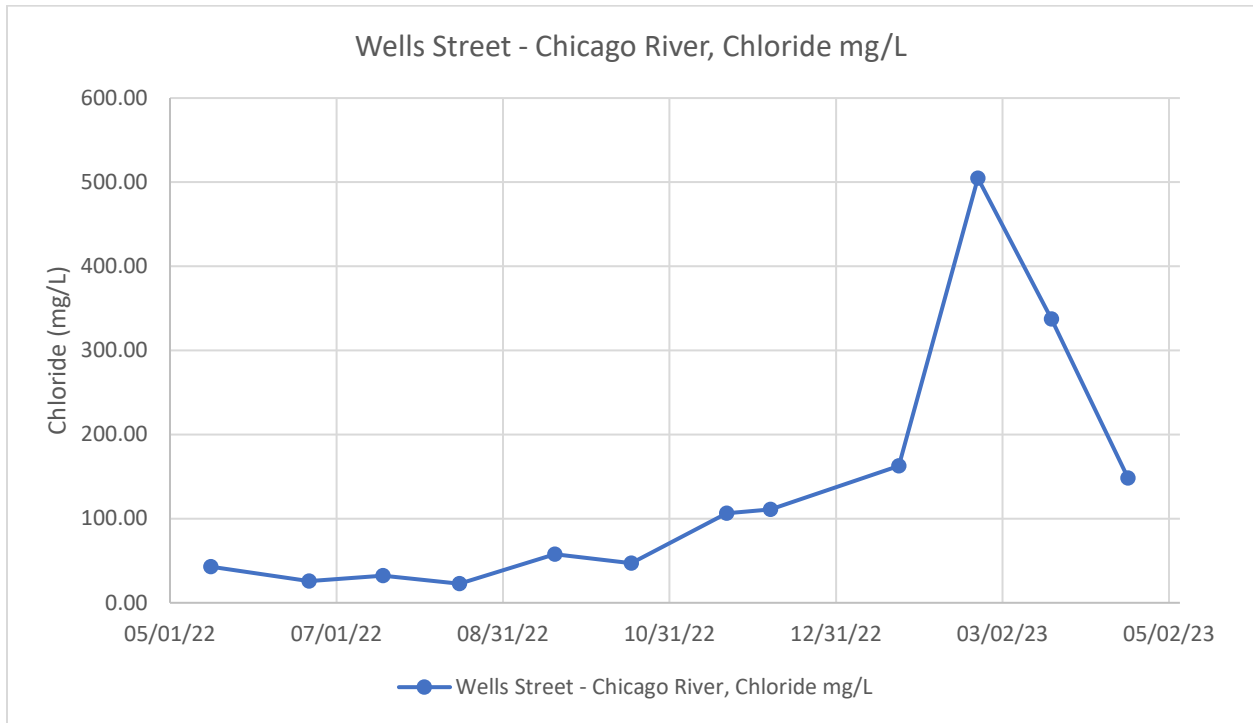
Wilson Avenue, North Branch Chicago River



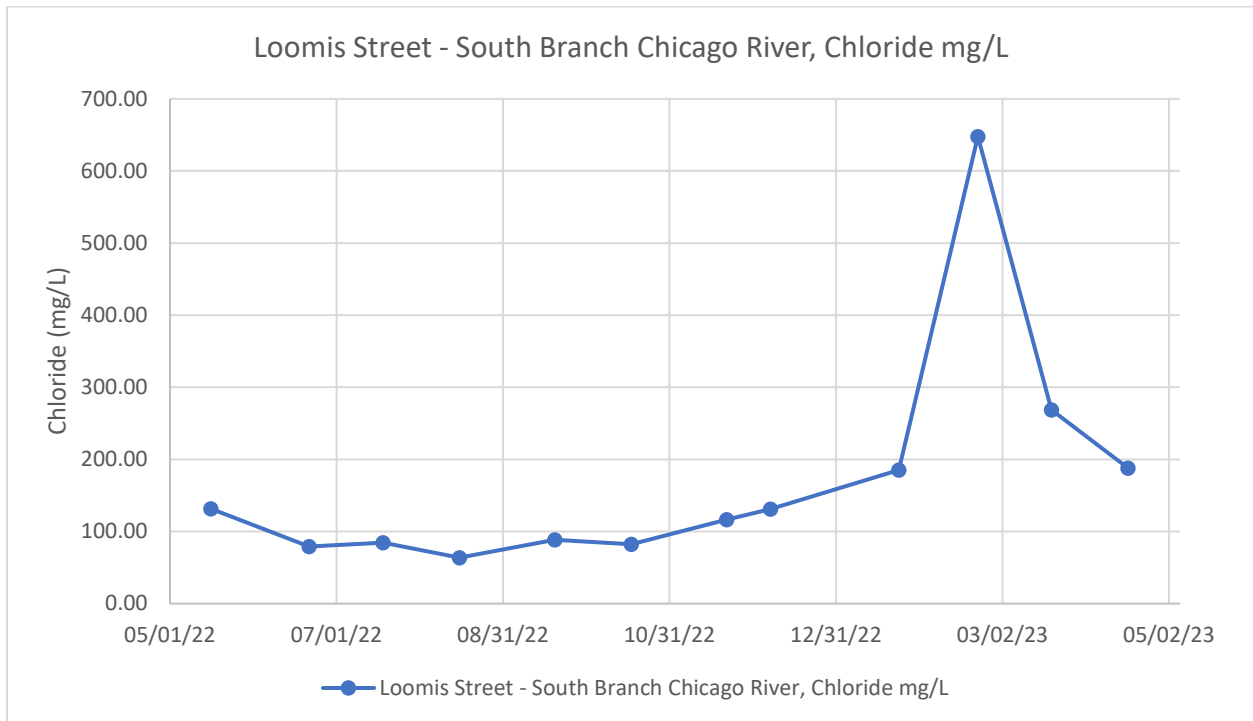
Diversey Parkway, North Branch Chicago River



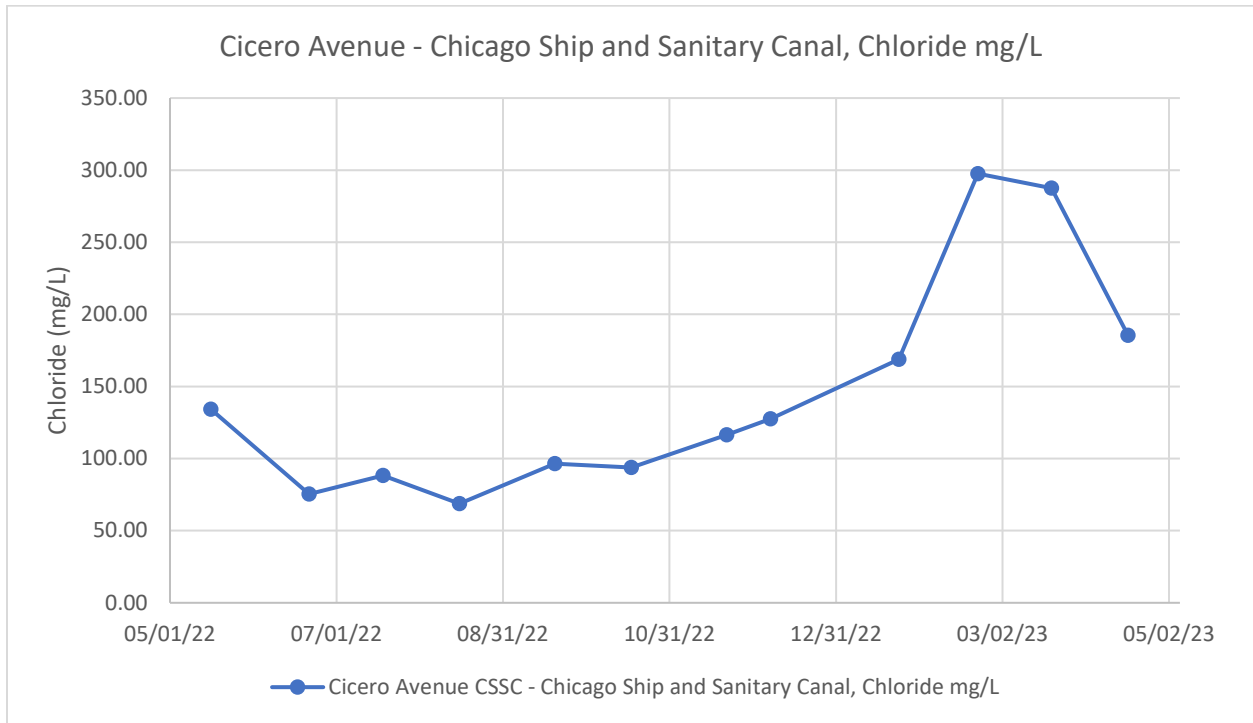
Wells Street, Chicago River



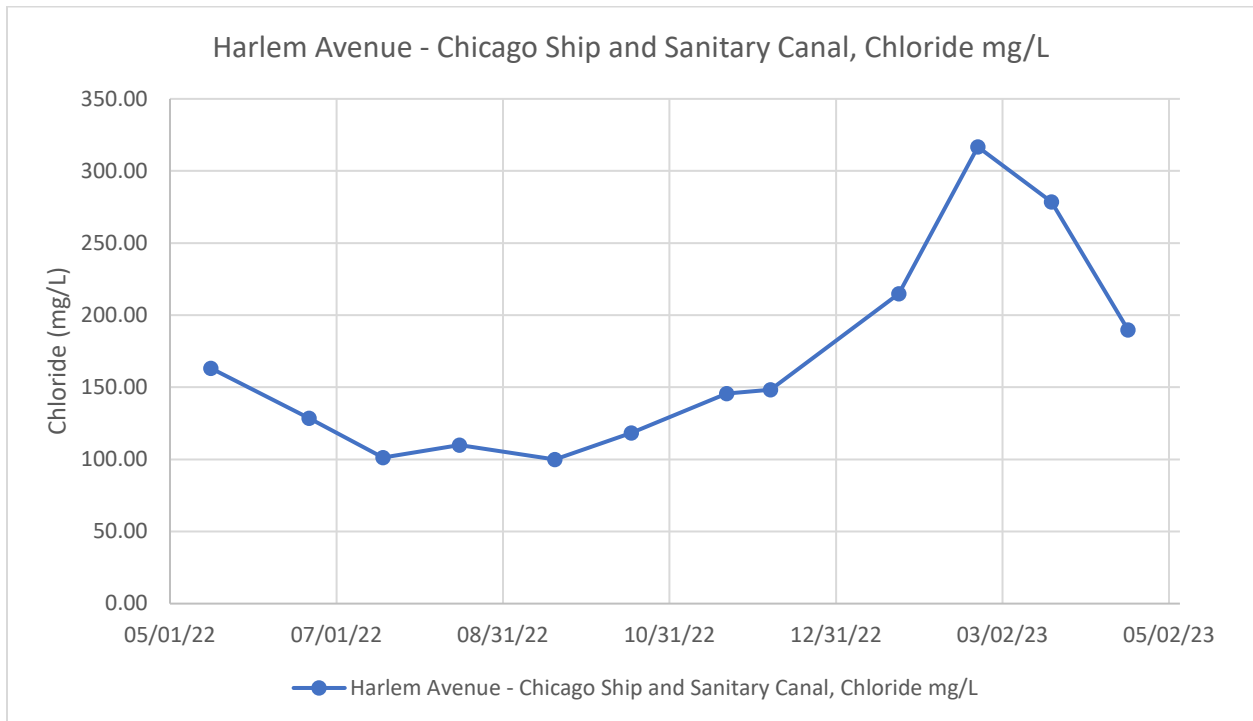
Loomis Street, South Branch Chicago River



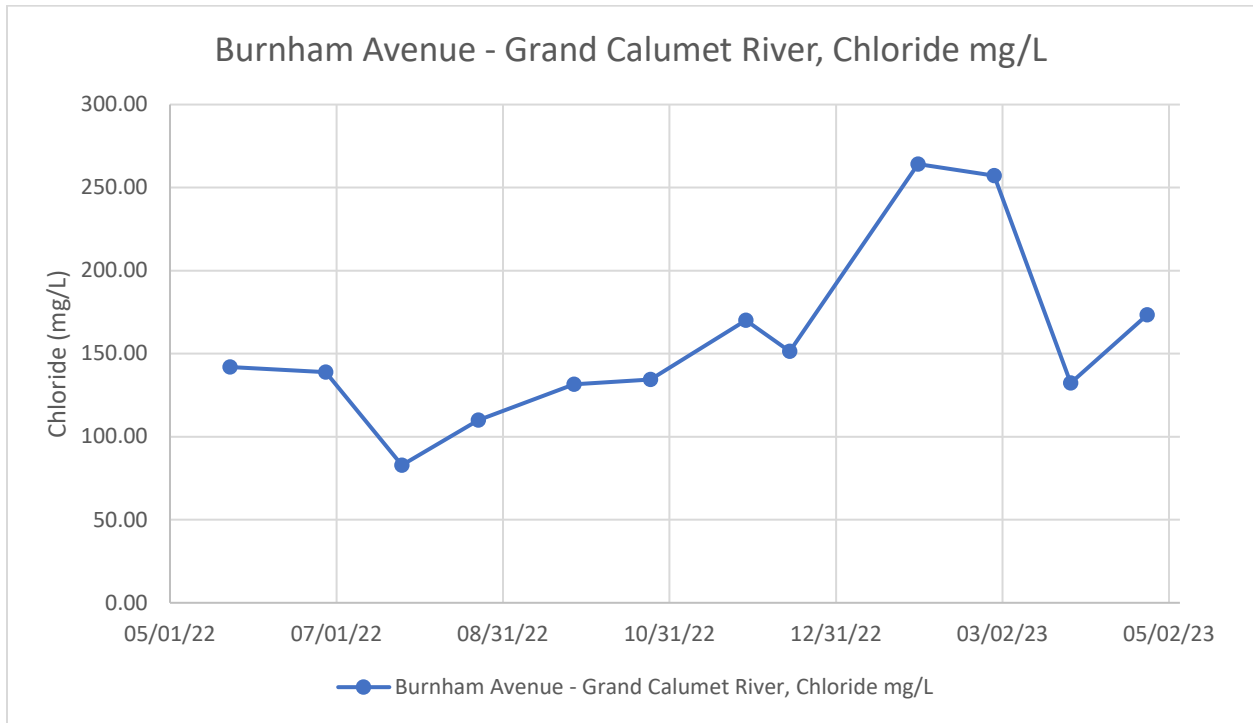
Cicero Avenue, Chicago Ship & Sanitary Canal



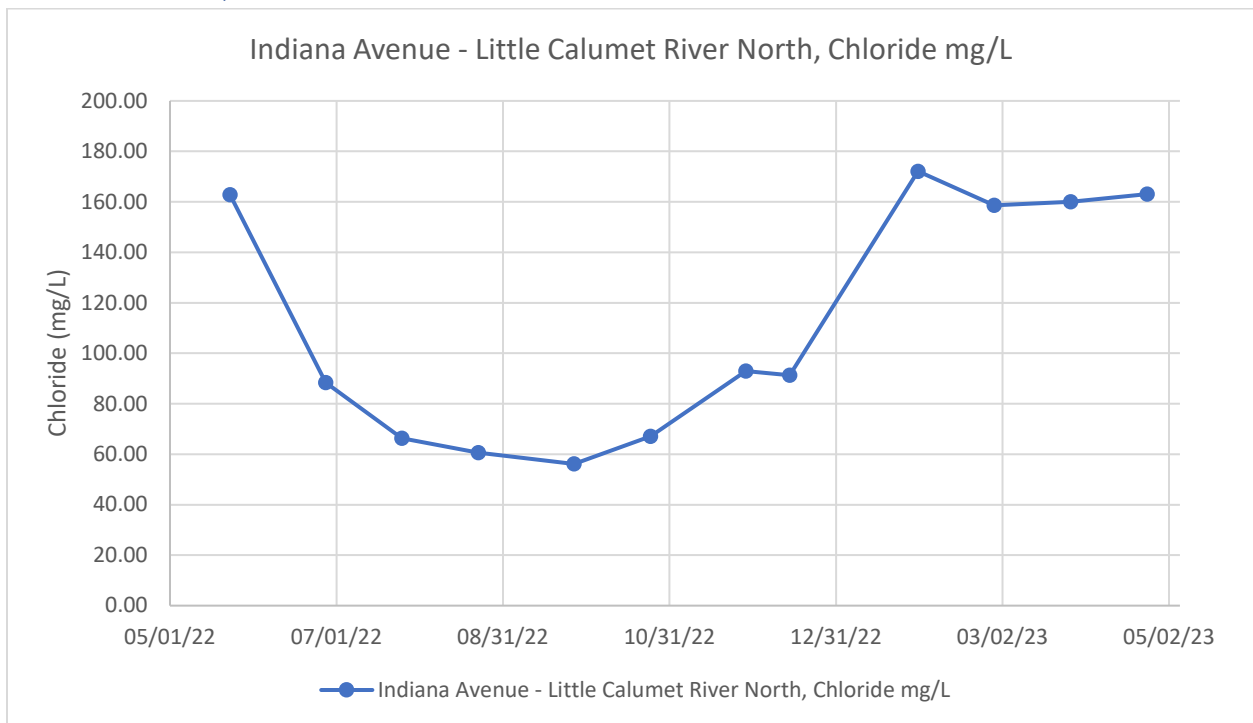
Harlem Avenue, Chicago Ship & Sanitary Canal



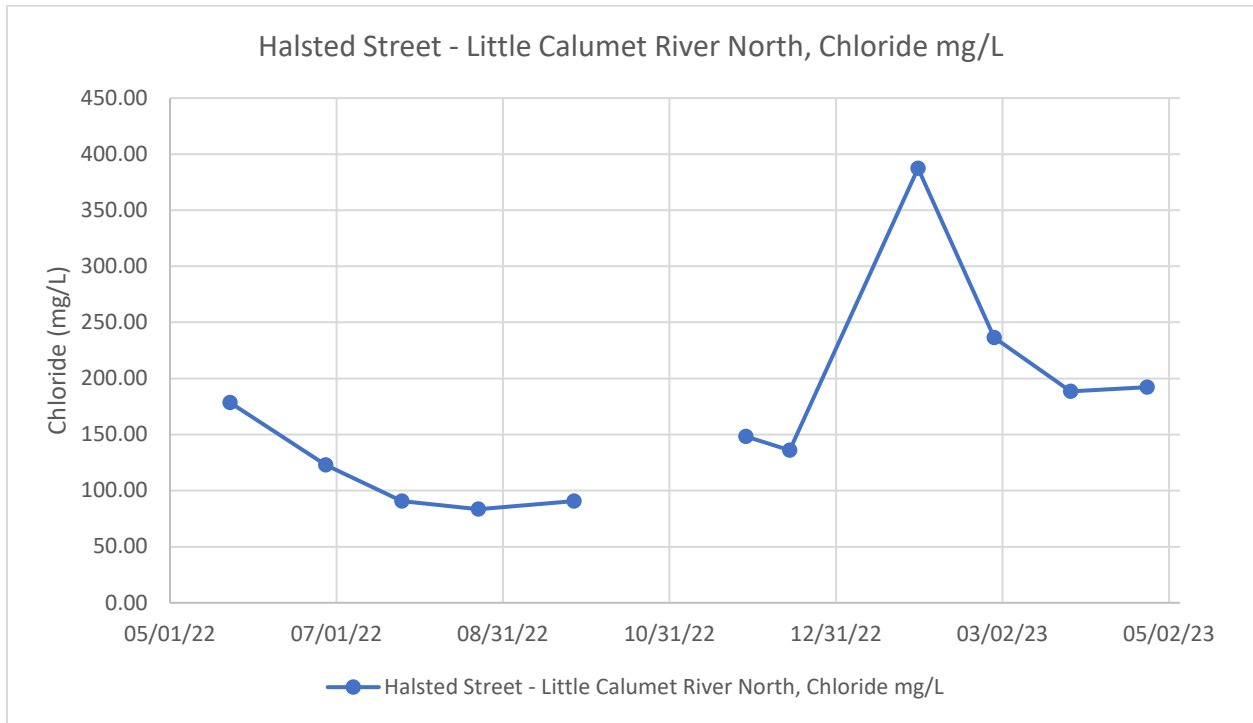
Burnham Avenue, Grand Calumet River



Indiana Avenue, Little Calumet River North

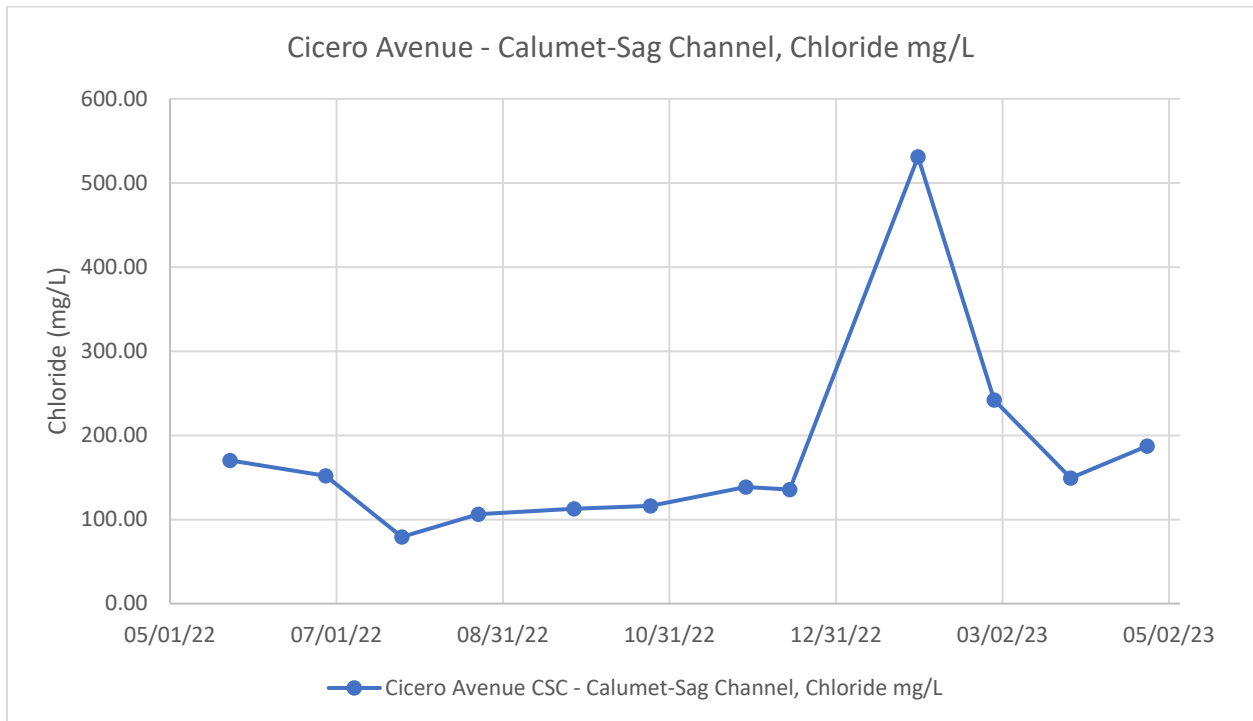


Halsted Street, Little Calumet River North*

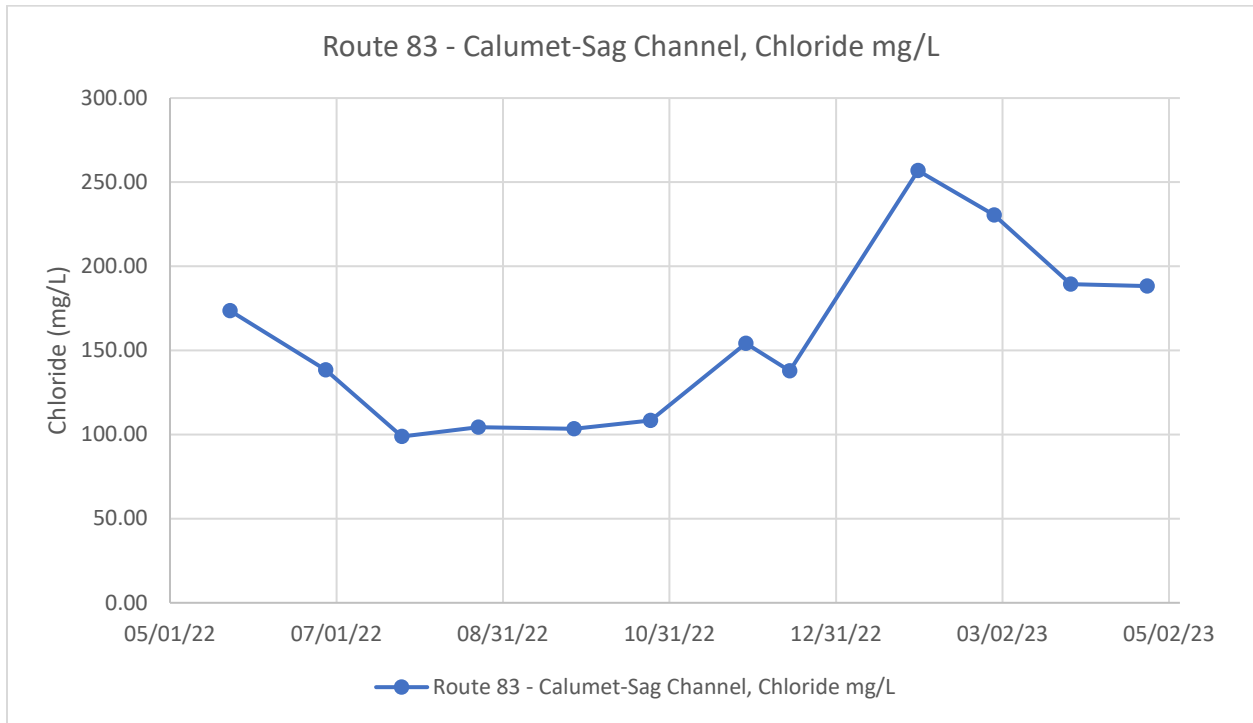


*No data for sample collected 10/24/2022 due to duplicate failure

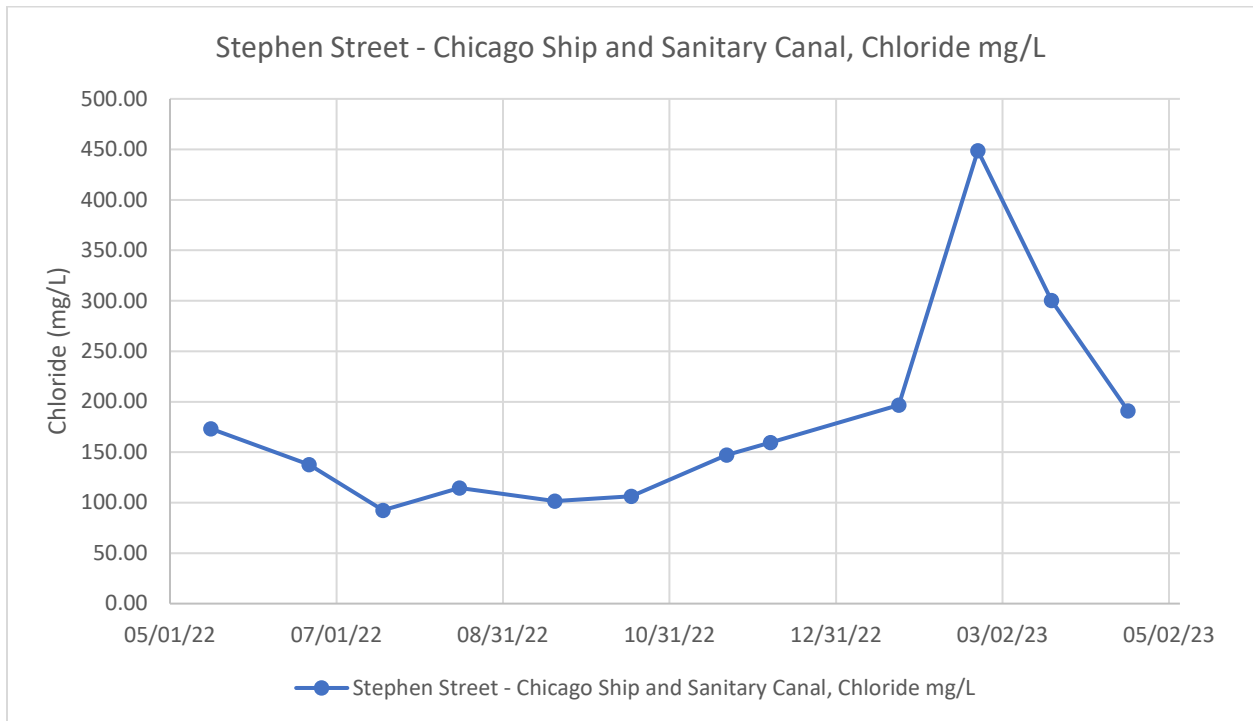
Cicero Avenue, Calumet-Sag Channel



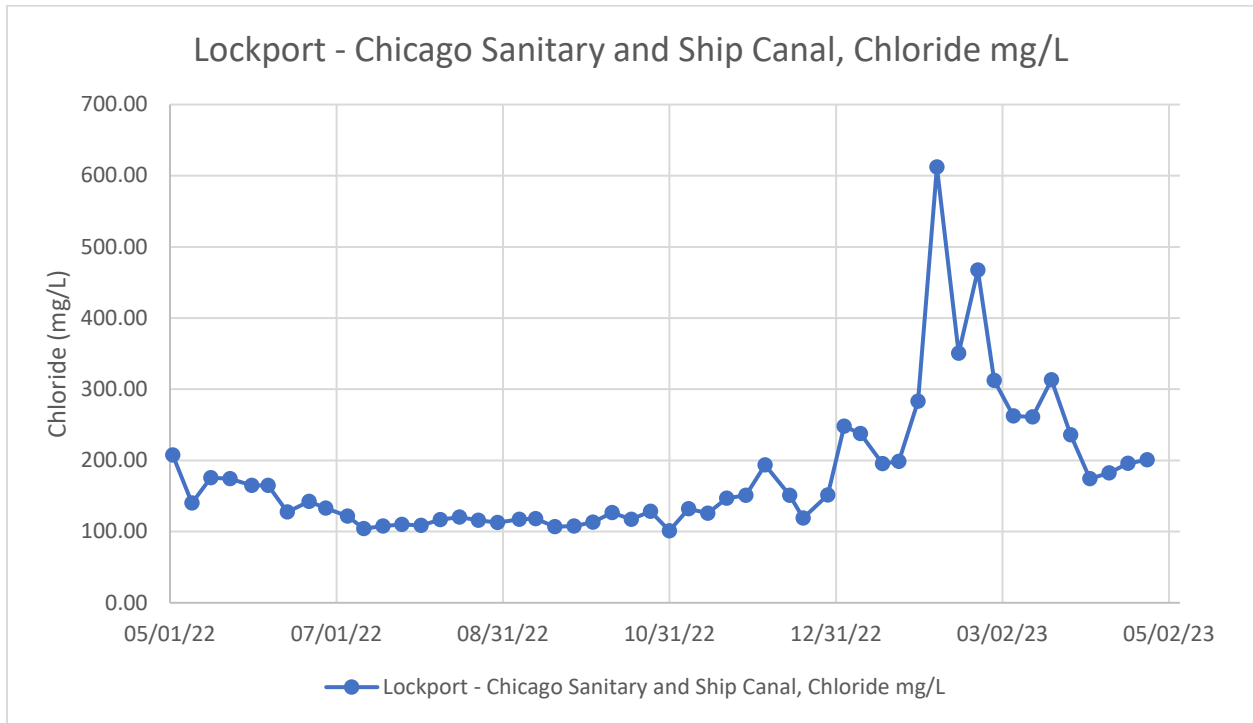
Route 83, Calumet-Sal Channel



Stephen Street, Chicago Ship & Sanitary Canal

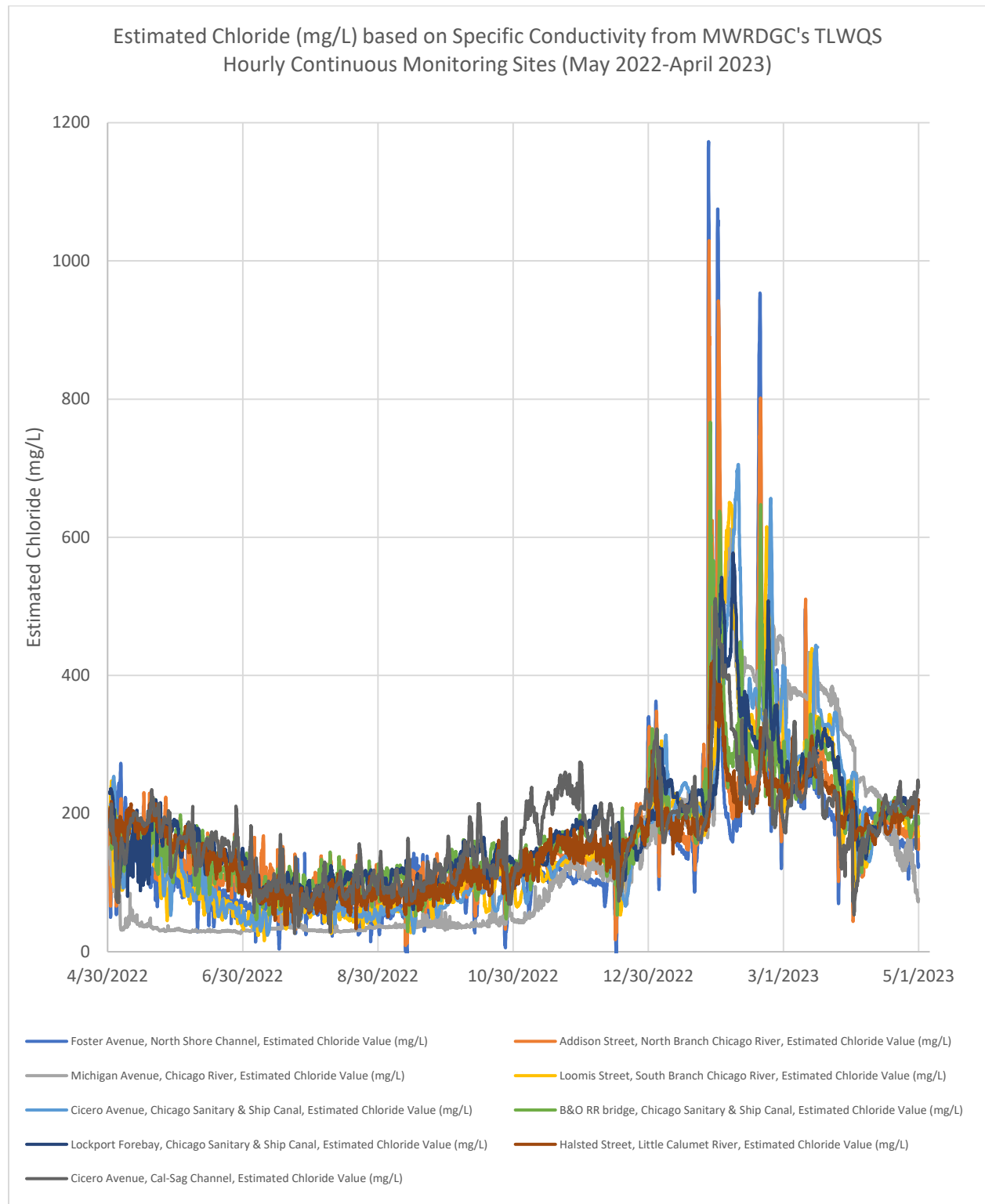


Lockport, Chicago Ship & Sanitary Canal

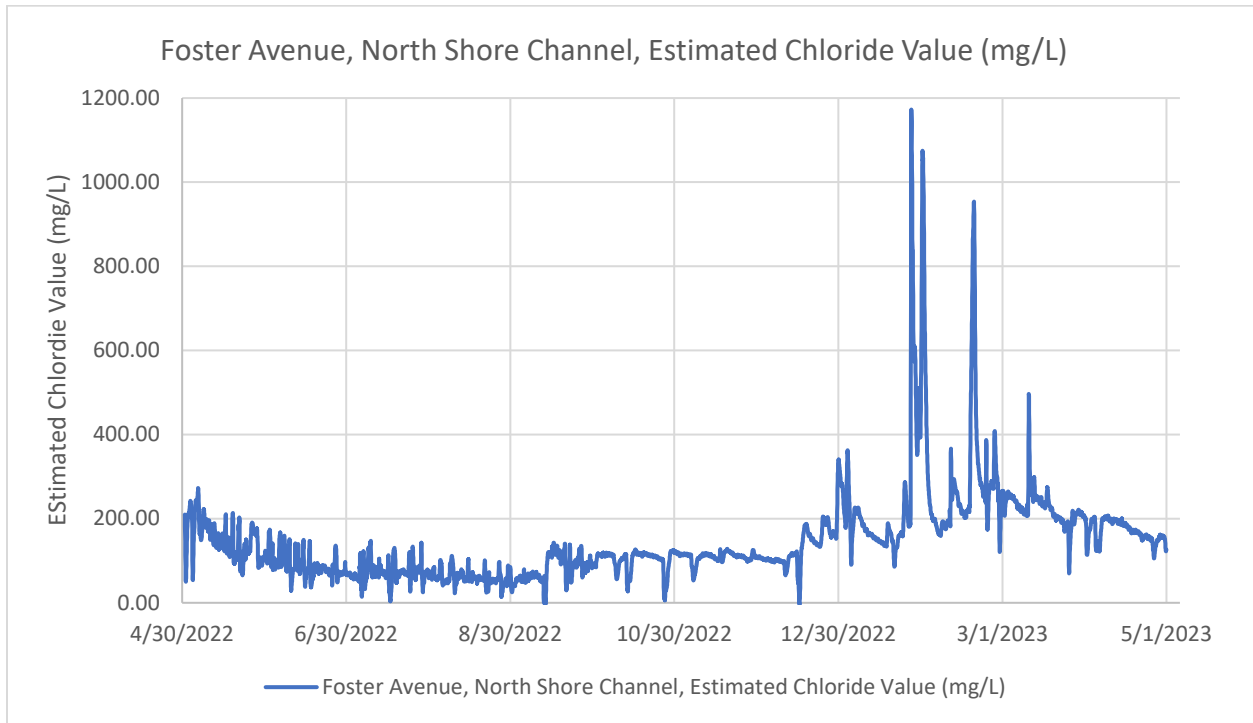


Graphs for MWRDGC's Continuous Monitoring Sites

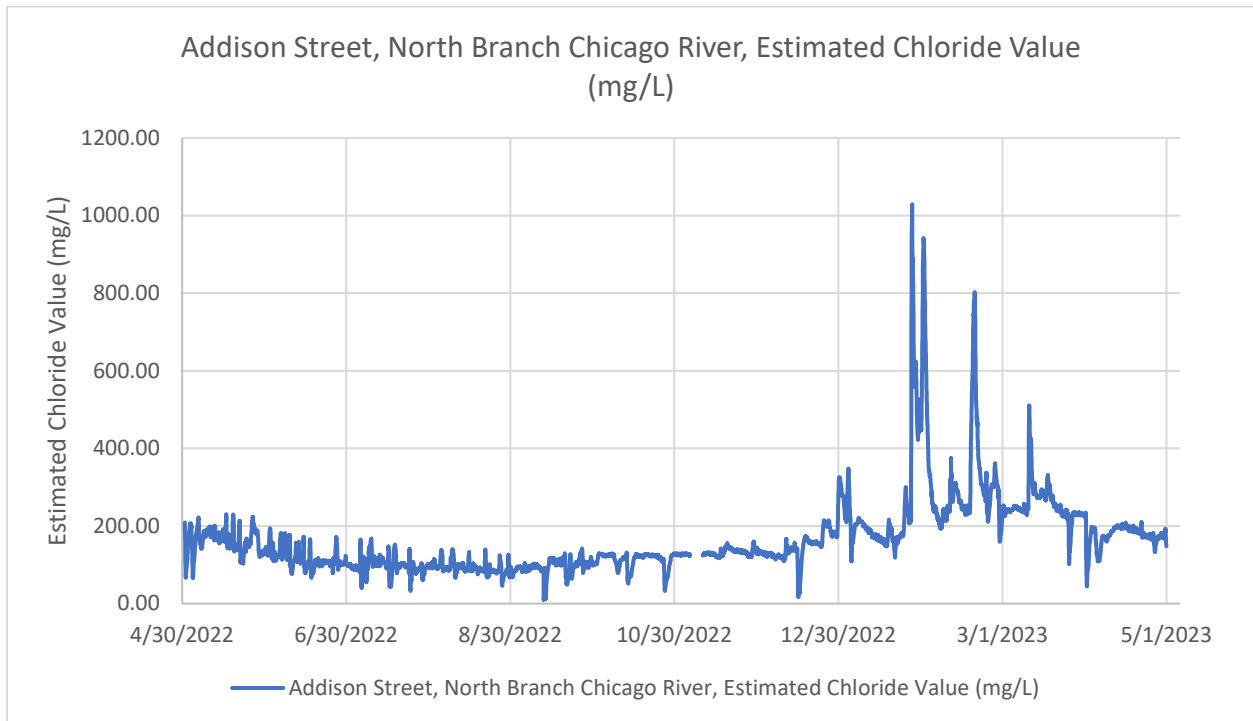
All Sites



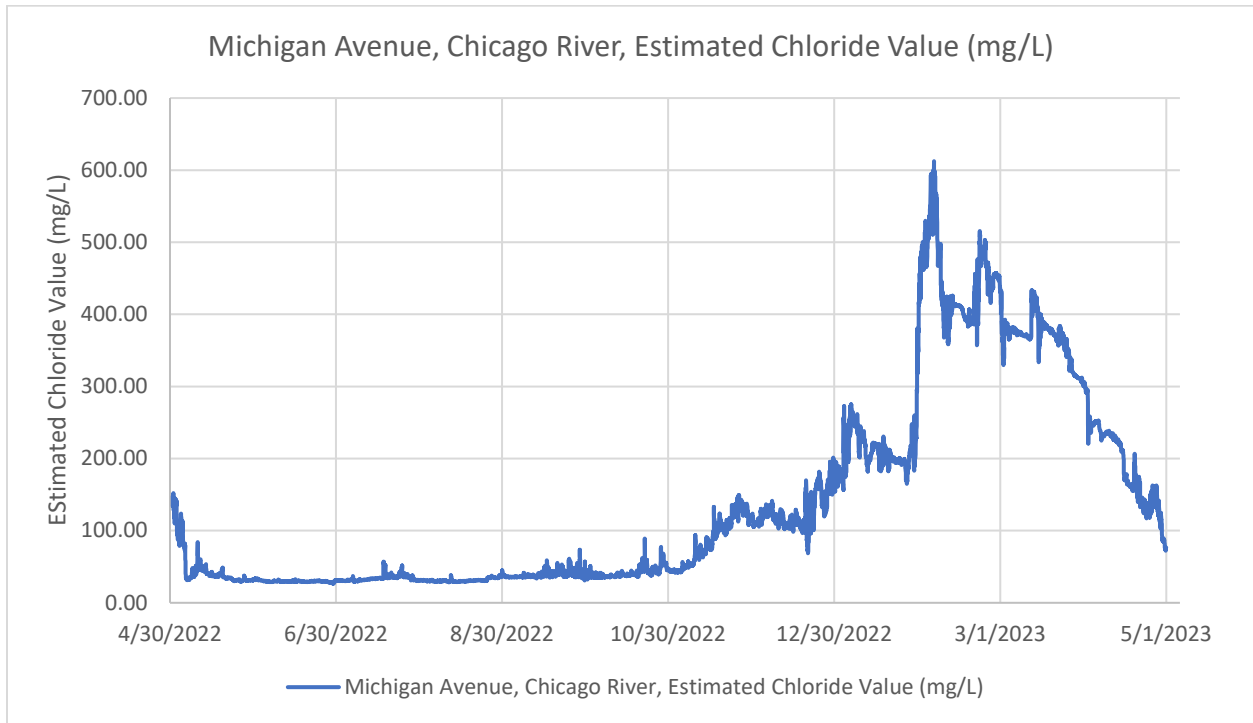
Foster Avenue, North Shore Channel



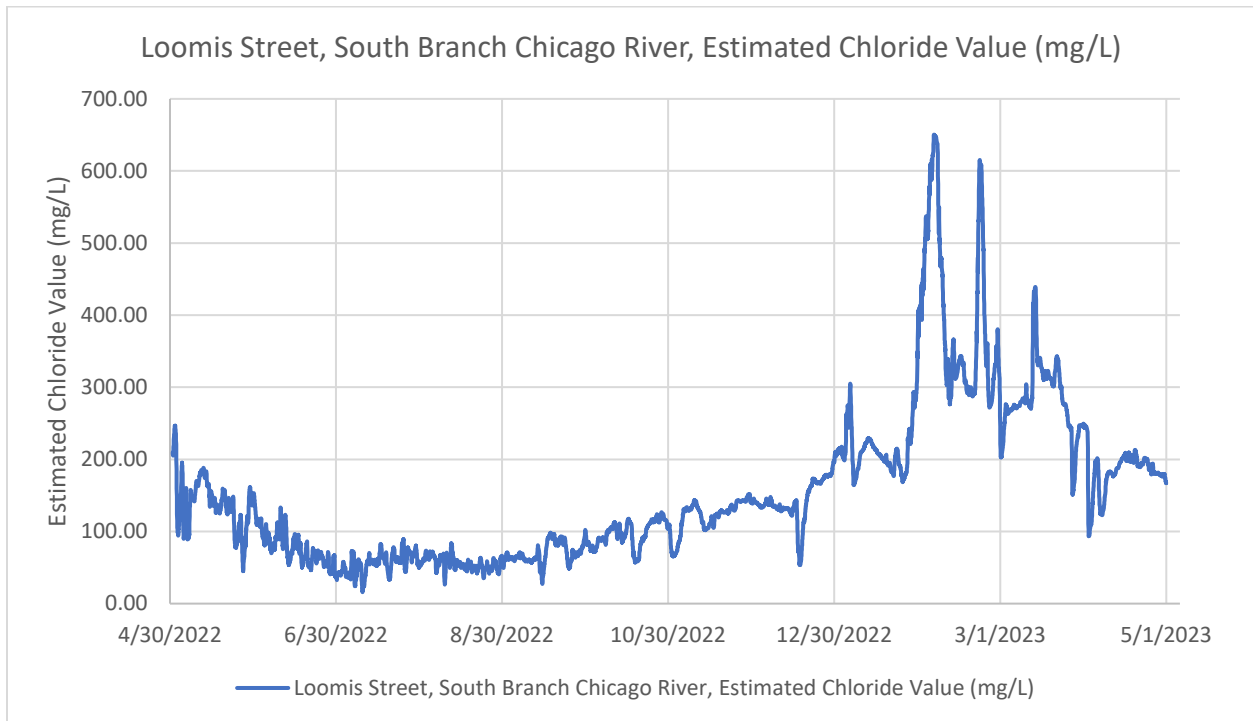
Addison Street, North Branch Chicago River



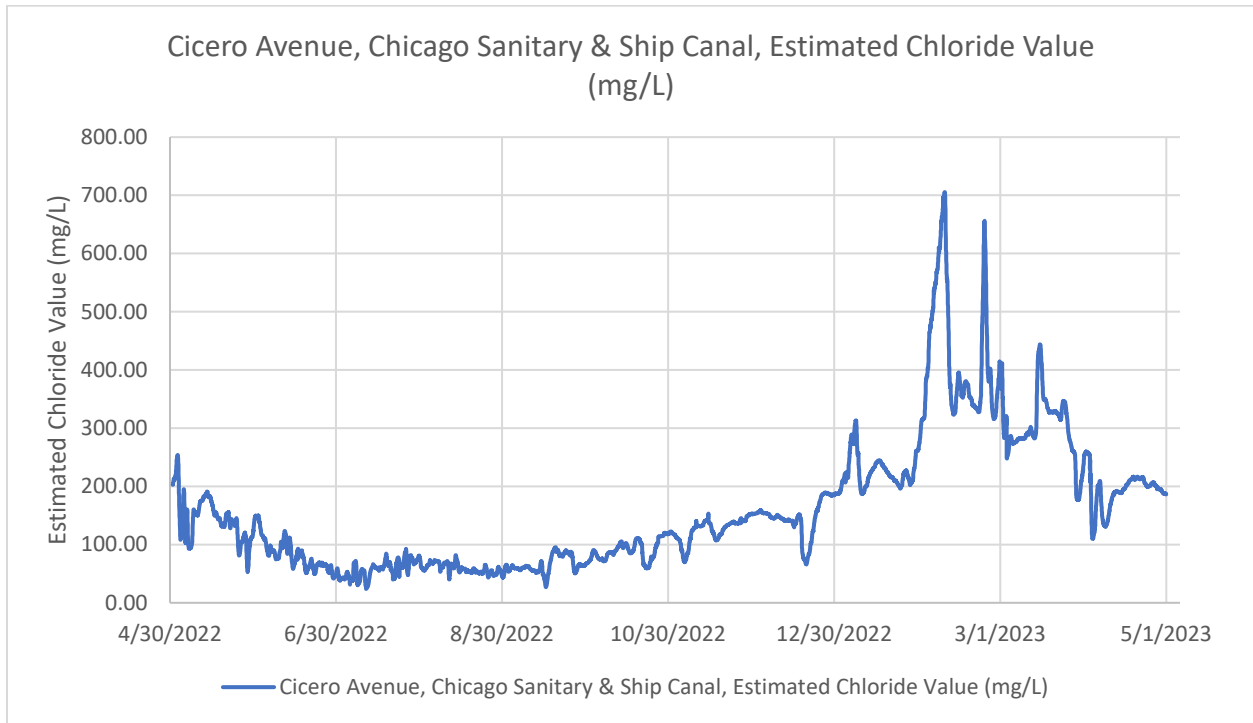
Michigan Avenue, Chicago River



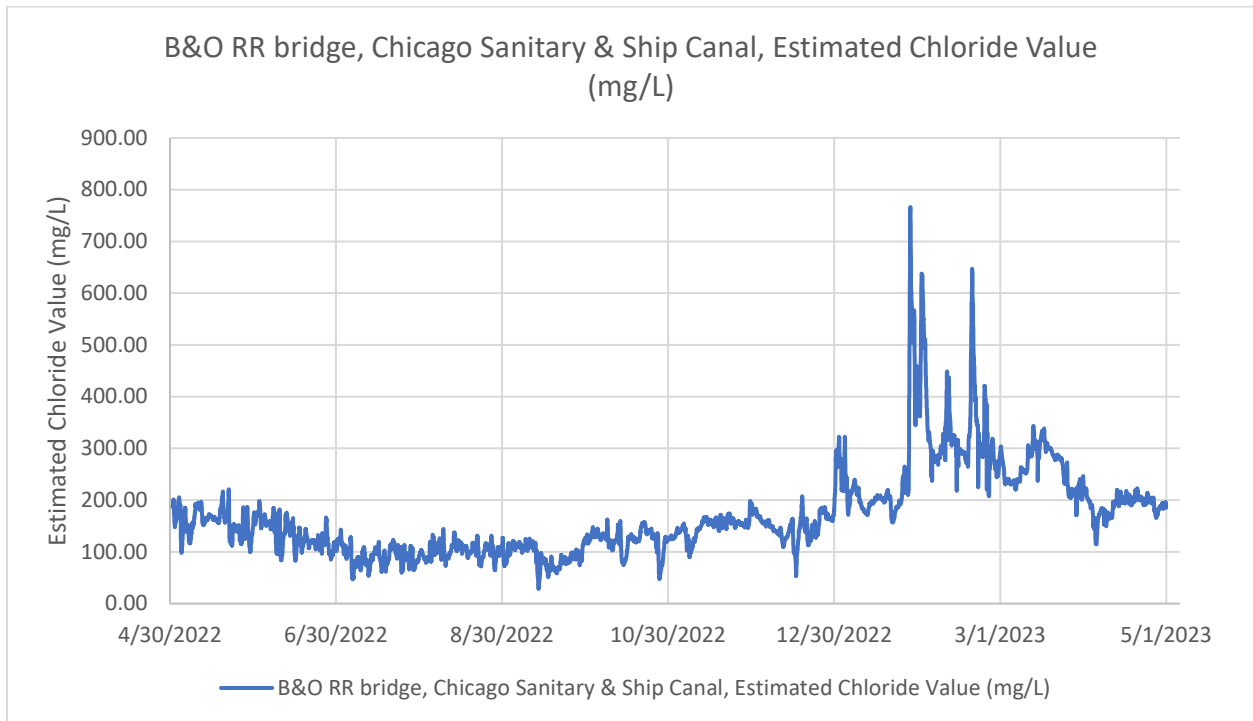
Loomis Street, South Branch Chicago River



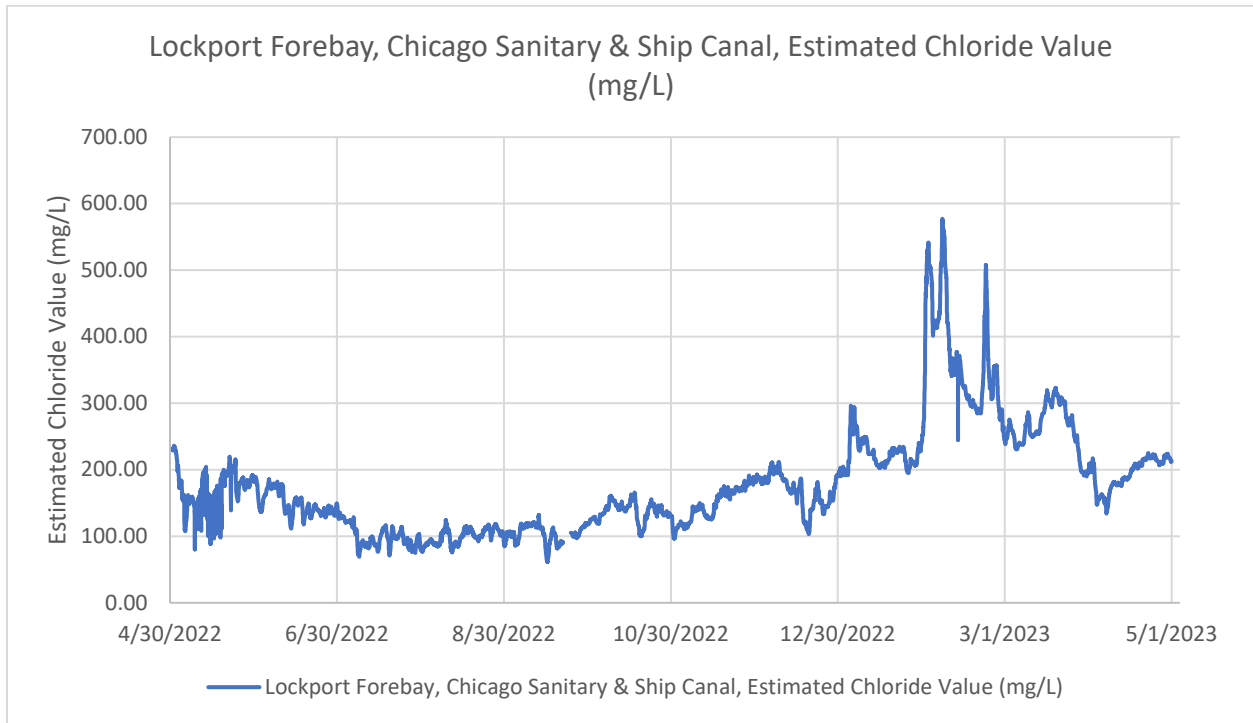
Cicero Avenue, Chicago Ship & Sanitary Canal



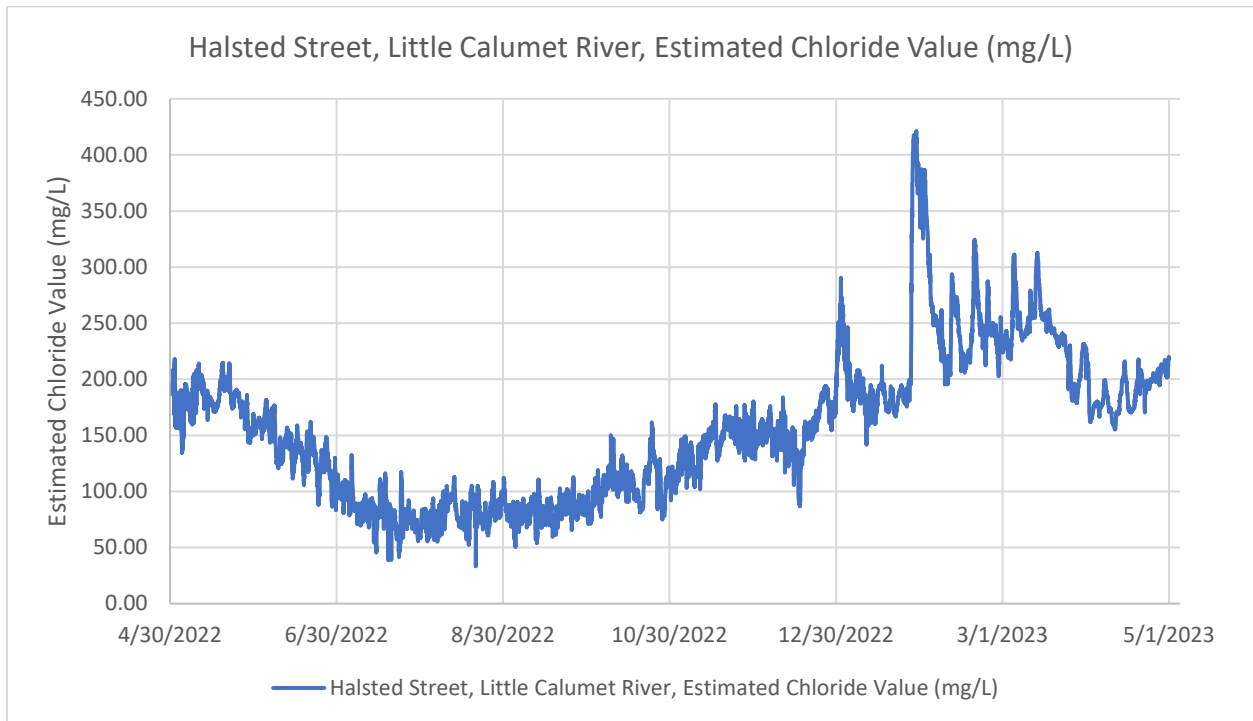
B&O RR Bridge, Chicago Ship & Sanitary Canal



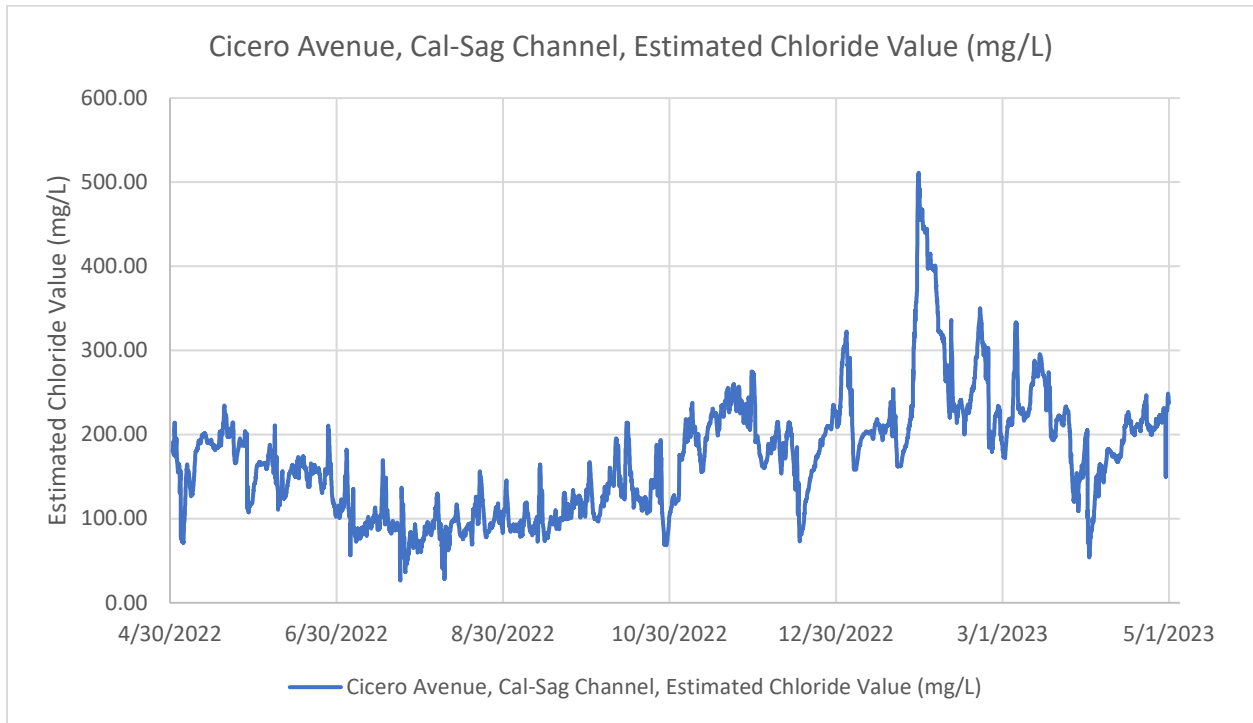
Lockport Forebay, Chicago Ship & Sanitary Canal



Halsted Street, Little Calumet River



Cicero Avenue, Cal-Sag Channel



Graph for USGS Station at the Base of TLWQS Watershed

Lower Des Plaines River at Channahon, USGS Station, Continuous Monitoring

