

Draft Outline

Chloride Contamination of Potable Supply Wells in Suffolk County, NY

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Abstract

This document will provide a summary of potable supply wells operating within Suffolk County that have exhibited elevated concentrations of chlorides. These include public supply wells serving regulated community and non-community water supply systems, as well as private wells serving single family residences. A review of the Suffolk County Department of Health Services (SCDHS) database revealed that fifteen (15) samples collected from potable supply wells during 2014 exceeded the drinking water standard for chlorides (10 samples were from public supply wells, while 5 were from private wells). The SCDHS historical water quality results will also be used assess historical trends in chloride concentrations and to help identify potential source(s) of chloride contamination. In addition, information such as groundwater monitoring well elevations, source water assessment plan (SWAP) maps and land use maps will be utilized as part of this effort.

Introduction

Chloride contamination of our aquifers is an ongoing concern, as our groundwaters have been designated by the USEPA as a sole source of supply. Impacts from chlorides from lateral intrusion and upconing is particularly relevant with respect to areas on the north and south forks of Suffolk County, Shelter Island, and various coastal regions along the south shore of Long Island. Chlorides can impact Long Island's groundwaters primarily through: saltwater intrusion via lateral intrusion or through upconing, and by road salting. Other potential sources of chloride contamination may include effluent from sewage disposal systems, leachate from municipal landfills, or infiltration from salt storage facilities and recharge basins. Removal or treatment of excessive chloride contamination from drinking water supplies is typically not an option because of the expense involved with such water treatment systems.

Methods

A query of the SCDHS database was performed to compile analytical results for chloride concentrations from samples collected from potable supply wells during 2014. These samples were collected as part of the SCDHS public water supply surveillance monitoring program and as part of the department's private well sampling program. All samples were analyzed by the SCDHS Public and Environmental Health Laboratory (PEHL) in accordance with USEPA's Method 300. Historical ambient water quality results that reflect typical background concentrations for chlorides will also be performed and used as a baseline for comparison purposes. Screening values for chlorides were compiled for ranges up to 50 parts per million (ppm); between 50 and 100 ppm; from 100 to 250 ppm. This information together with the SCDHS historical analytical results will be used to help identify trends in chloride concentrations and at select drinking water wells. In addition to reviewing historical water quality data, the following additional information will be utilized as part of this project:

- Available Source Water Assessment Plan (SWAP) maps and land use maps will be used to help with identifying possible source(s) of chloride contamination within the groundwater contributing area of affected wells that have exhibited increasing trends in chloride concentrations.
- Historical groundwater monitoring well information, if available, in the vicinity of the affected wells, as well as any other pertinent available information.
- Approximate location of affected supply well and proximate distances from the shoreline or surface water sources.

Discussion

This section will include a list of the affected public supply wells along with the estimated number of private drinking water wells impacted by chlorides. A map graphically showing the general location of the affected wells can also be provided. A discussion of the water quality results obtained from both public and private supply wells will also be provided. During 2014, the SCDHS collected a total of 1458 samples for chloride analyses from public and private drinking water supply wells (this include 1099 samples from public wells and 359 samples from private wells). The results include the following: Fifteen (15) samples exceeded the drinking water standard of 250 ppm; Fifty (50) samples exhibited concentrations between 100 and 250 ppm; 146 samples had chloride concentrations between 50 and 100 ppm, and nearly 1247 samples showed chloride concentrations below 50 ppm.

Summary

A summary of the analytical results along with an interpretation of the data compiled from the SCDHS database will be provided as part of this section.

References

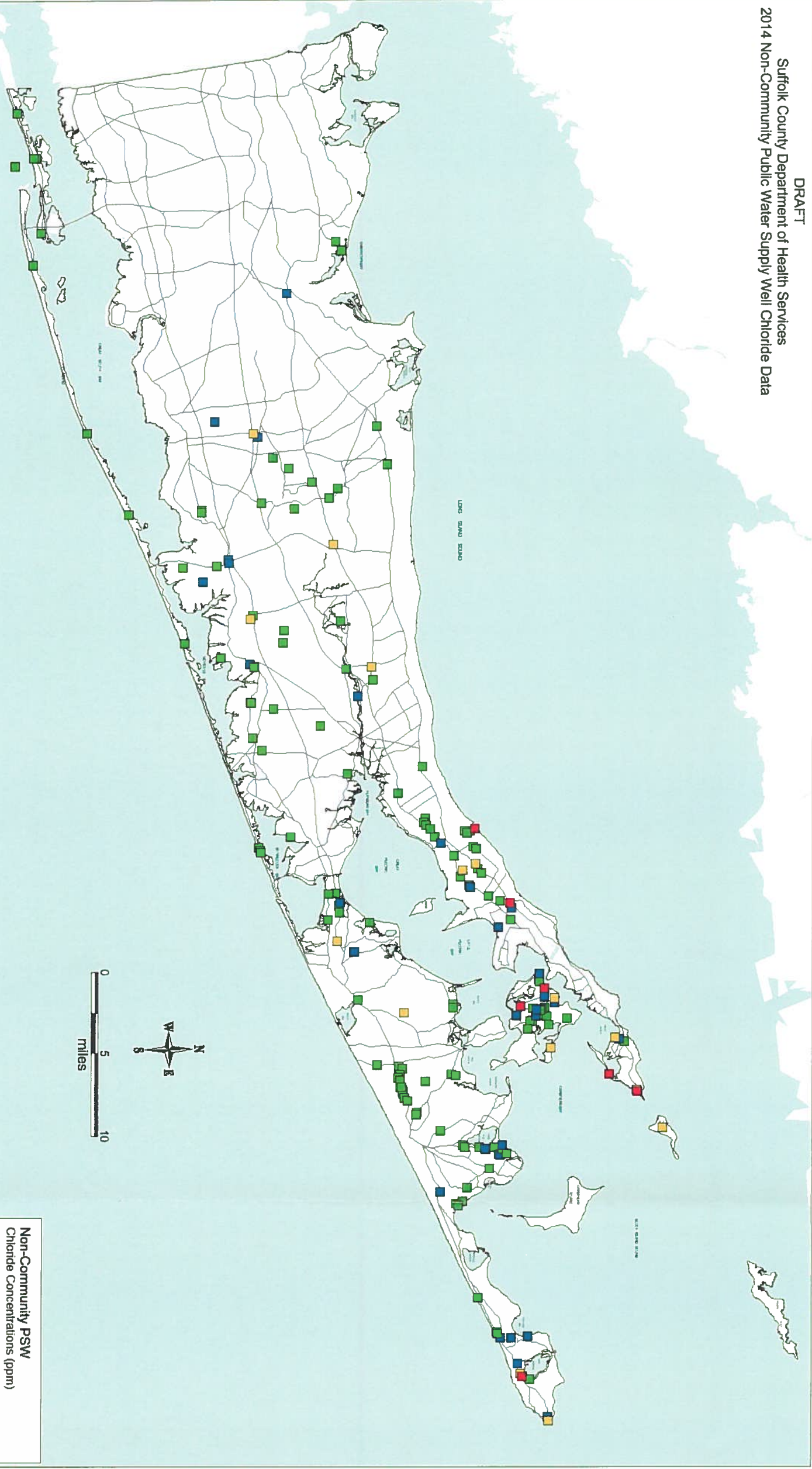
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Non-Community PSW
 Chloride Concentrations (ppm)

250 to 1,710	(9)
100 to 250	(25)
50 to 100	(43)
0 to 50	(201)

