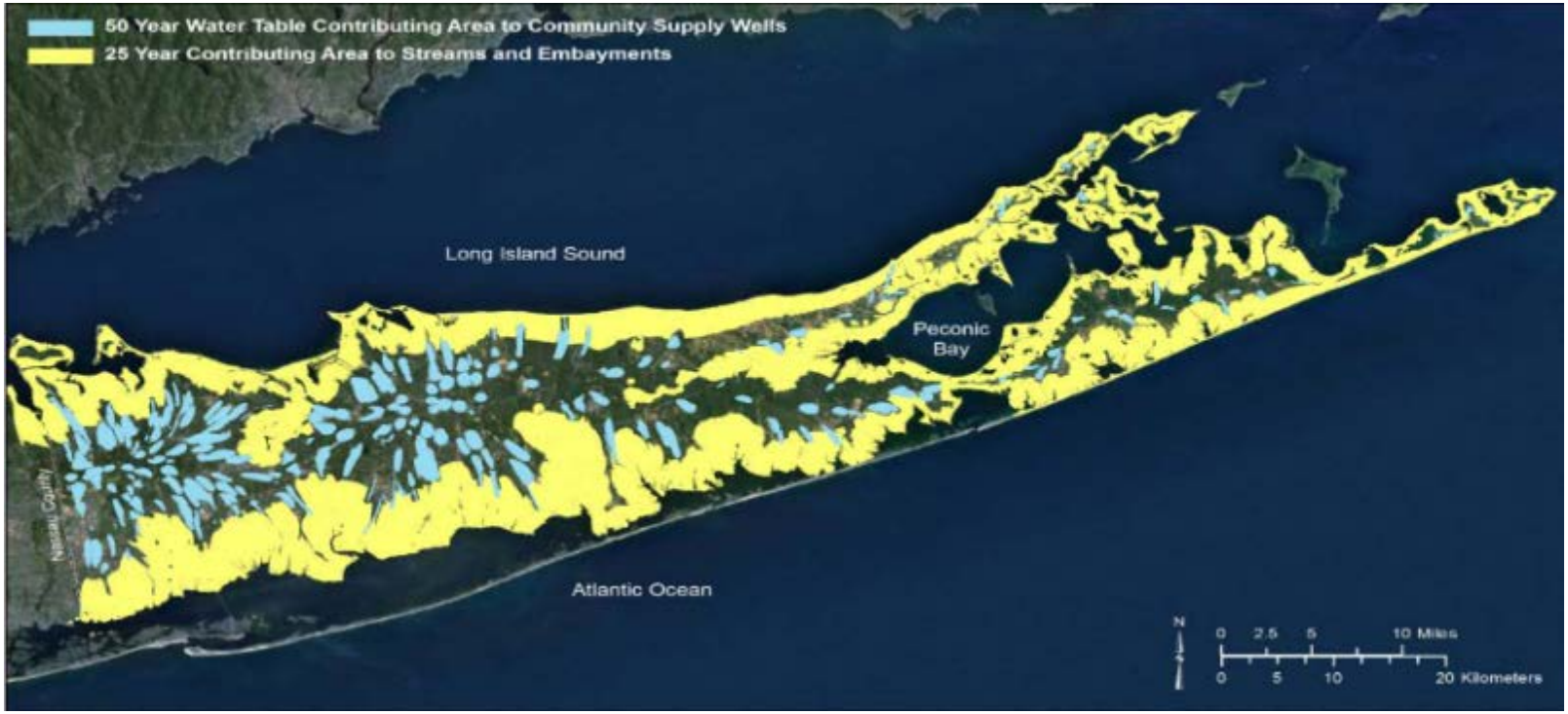
Presentation for the Shelter Island Water Advisory Committee



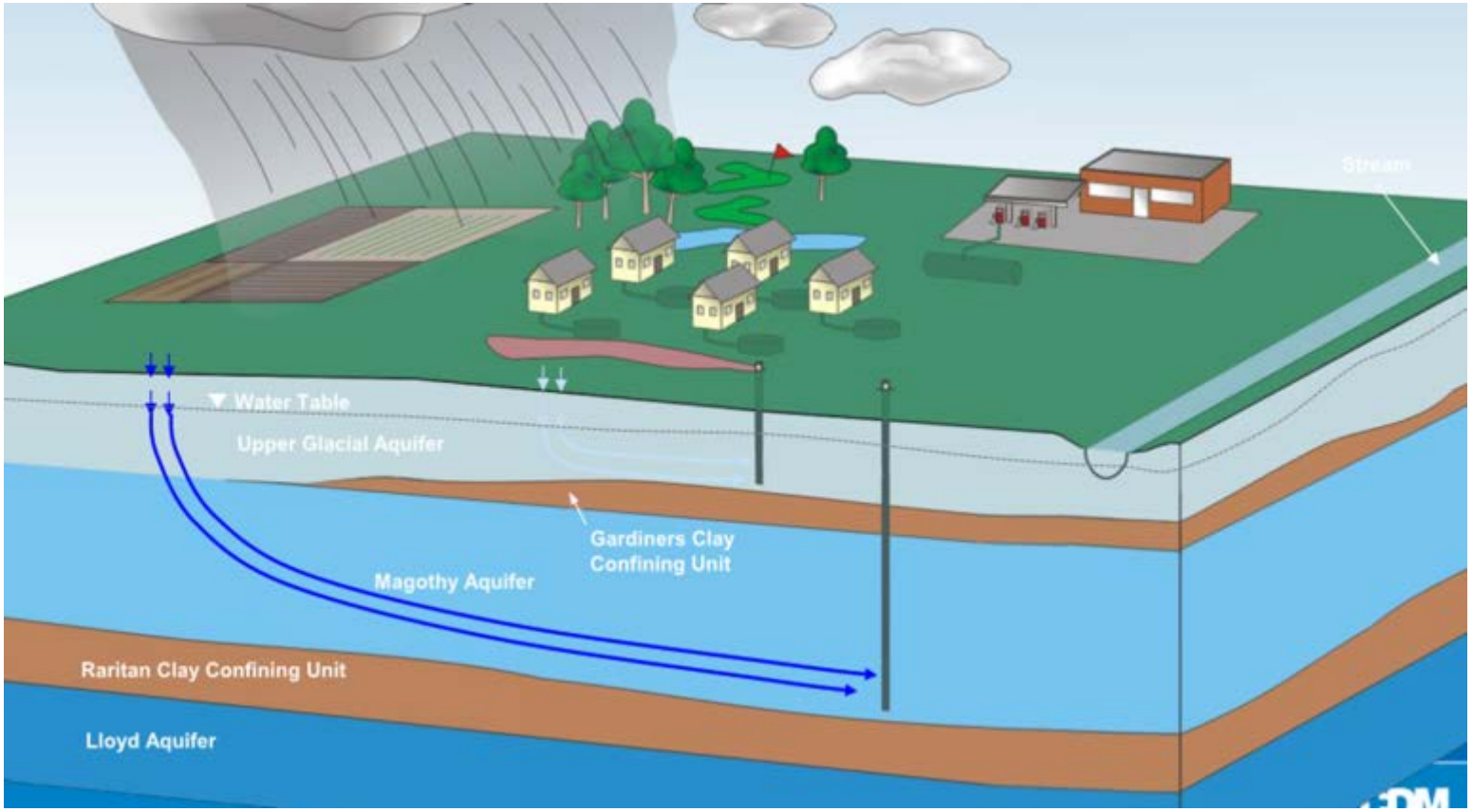
Suffolk County Department of Health Services

Division of Environmental Quality - Office of Water Resources

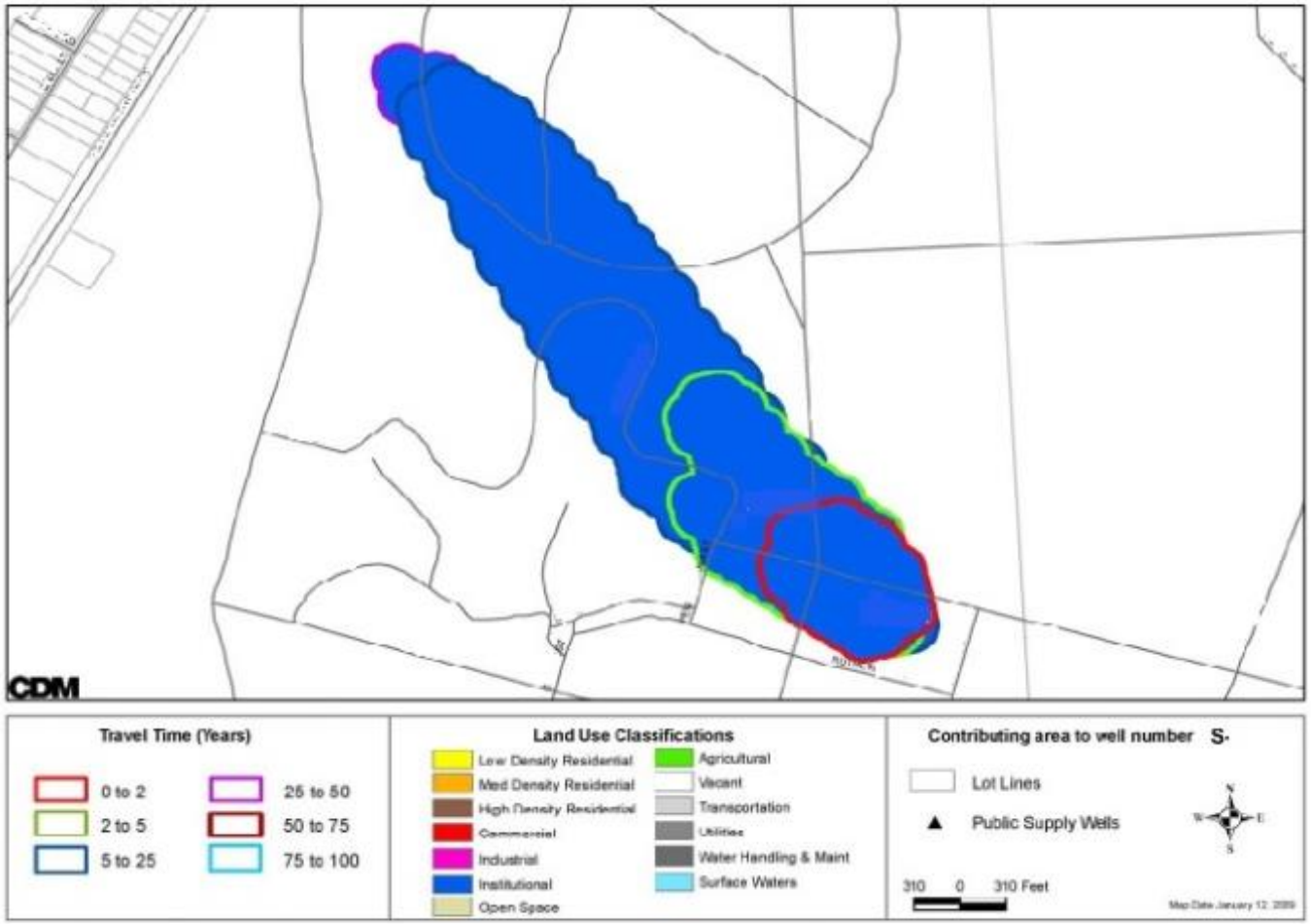
April 15, 2024

SUFFOLK COUNTY DRINKING WATER SOURCE

- Suffolk County drinking water comes from sole source aquifers
  - Upper Glacial
  - Magothy
  - Lloyd



SWAP (Source Water Assessment Program)



Groundwater contributing area for ~700 community public supply wells modelled

- Delineates the source water recharge area

Presentation Outline

- Suffolk County Drinking Water Source
- SCDHS DEQ – OWR & PEHL Overview
- 2015 Suffolk County Comp Plan WQ Trends
- PFAS Regulations
- Shelter Island Water Supply Summary
  - Community Public Water Supply
  - Non-community Public Water Supply
  - Private Wells

SCDHS DEQ
OWR & PEHL Overview

- Overview of the 5 offices in the DEQ
- Drinking water programs & oversight
- Source water investigations
- Local HD laboratory capabilities

Wastewater Management

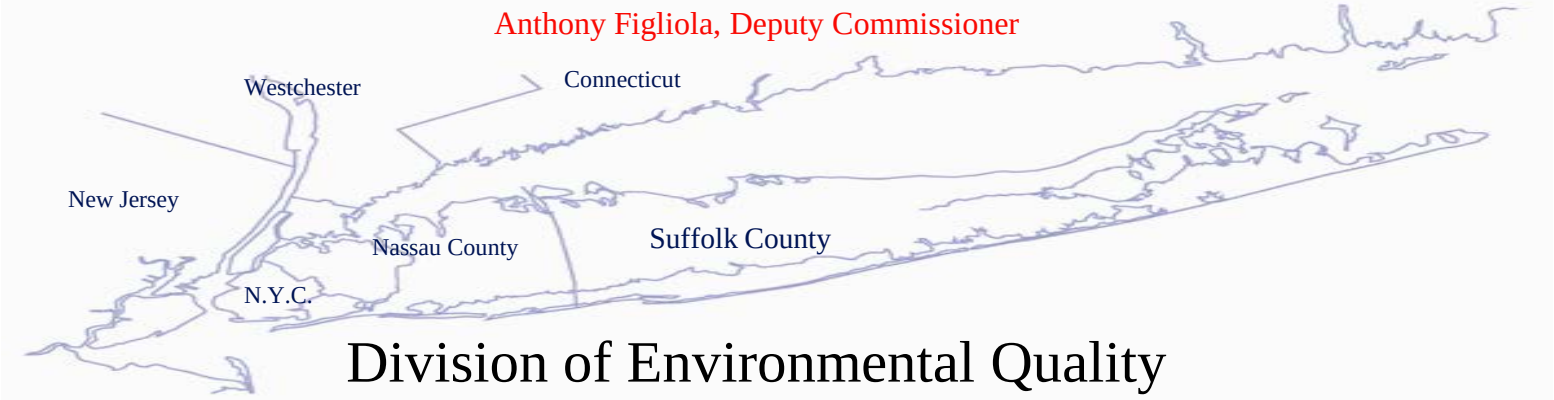
Pollution Control

Suffolk County, New York

Edward P. Romaine, Suffolk County Executive

Department of Health Services

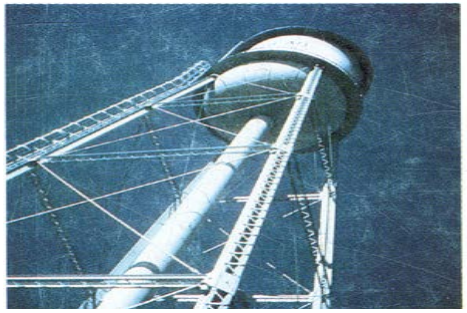
Gregson Pigott, MD, Commissioner,
Anthony Figliola, Deputy Commissioner



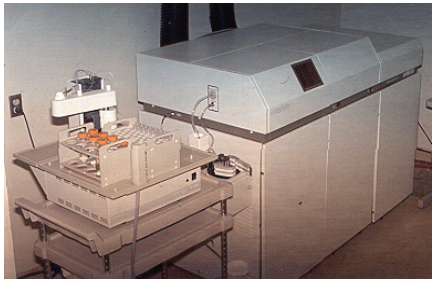
Division of Environmental Quality

Walter Dawydiak, P.E., J.D., Director

Ecology



Water Resources



Public & Environmental Health Laboratory

DEQ General Overview

Wastewater Management

Processes applications for residential, commercial, subdivision construction

Regulates >200 sewage treatment plants (STPs)

Pollution Control

-Inspects ~1,000 major EPA fuel storage facilities (e.g. gas stations)

-Involved w/ environmental site assessments & cleanups

-Regulates ~500 swimming pool facilities

Water Resources

-Regulates ~900 public supply wells

-Installs ~120 monitoring wells/year

-Collects ~800 private well & ~800 groundwater samples/year

Ecology

-Regulates ~200 bathing beaches

-Conducts marine monitoring of ~2,000 samples/year

-Septic Improvement Program (>1,000 IA systems installed with grants)

Public & Environmental Health Laboratory

-Tests ~330 analytes in over 10,000 samples/year

Who Regulates the Drinking Water in Suffolk County?

- USEPA oversees implementation of the Safe Drinking Water Act (tap water) & USFDA regulates the safety of bottled water beverages

- NYSDOH oversees implementation of the New York State Sanitary Code which addresses bottled water (Subpart 5-6), public water (Subpart 5-1) and private well construction (Appendix 5-B)

- SCDHS directly regulates public water & the construction of private wells. SCDHS also inspects a bottled water plant located in Suffolk County & collects bottled water surveillance samples at retail stores on behalf of NYSDOH

SCDHS Office of Water Resources
Public Water Supply Oversight

- Bureau of Drinking Water Testing & Inspections
  - Inspect & sample ~900 public supply well sources and treatment systems annually including SCWA & ~175 other PWSs
  - Collect ~650 distribution system surveillance samples annually from businesses, firehouses, etc. representative of what people are receiving

SUFFOLK COUNTY PRIVATE WATER SUPPLY

- ~ 30,000 private domestic wells
- Well drillers must be certified by SCDHS
- Potable wells for new construction or substantial renovation/addition must comply w/ SCDHS Private Water Systems Standards
- Quality of water is verified by SCDHS during construction & prior to issuance of final approval; afterwards the private well owner takes the responsibility for the quality of water coming from the well

<u>SCDHS Recommends Annual Sampling</u>

SCDHS – Private Well Sampling Program

- Bureau of Drinking Water collects private well samples
  - Upon request generally for a $100 fee
  - No charge as part of private well surveys in the vicinity of known or potential groundwater contamination

SCDHS – Groundwater Investigations

- Bureau of Groundwater Investigation and Management

  - Conducts hydrogeologic assessments & groundwater investigations at various hazardous waste & other sites
  - Installs & samples groundwater monitoring wells as part of investigations into:
    - Dumping sites
    - Superfund sites
    - Composting facilities
    - Potential emerging contaminant sources

SCDHS – Monitoring & Surveillance

- Bureau of Groundwater Investigation and Management

- Installs monitoring wells & conducts groundwater sampling & monitoring as part of NYSDEC pesticide monitoring program

- Collects routine surface water & stream samples related to investigative work

SCDHS Public & Environmental Health Laboratory

- PEHL capability of analyzing drinking water samples for ~330 different parameters
  - VOCs
  - SVOCs
  - Pesticides
  - 1,4-Dioxane
  - PPCPs
  - Inorganics
  - Radiologicals
  - Bacteria
  - PFAS

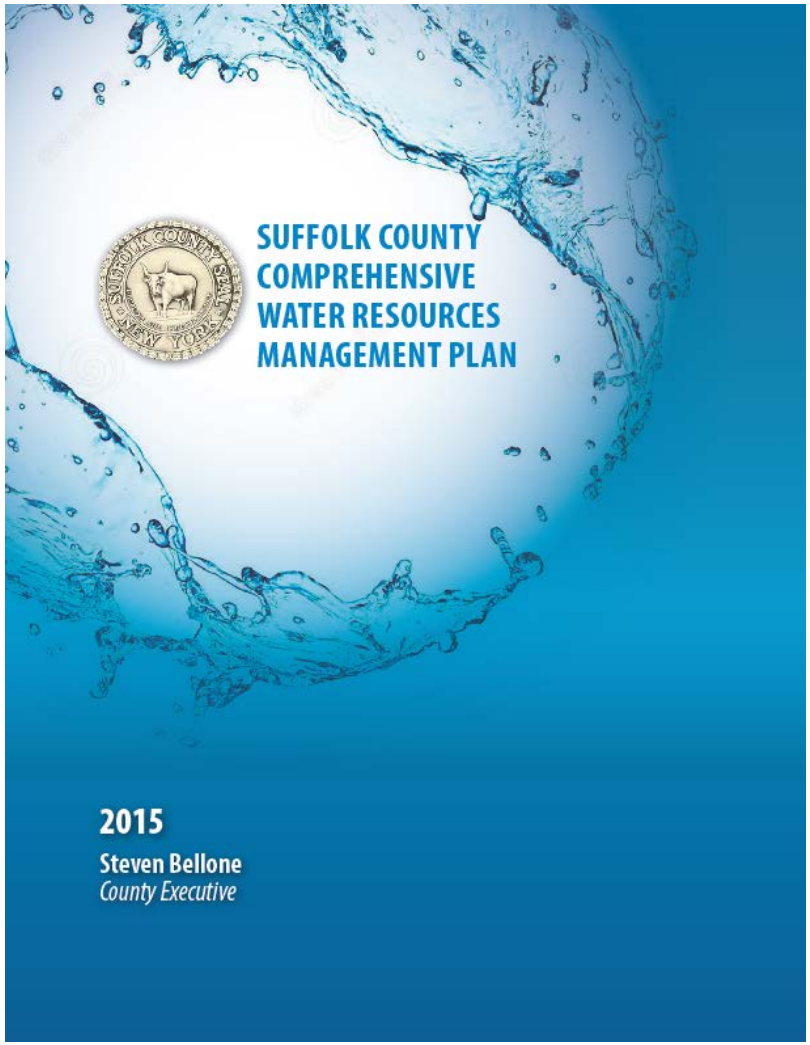


- PEHL also analyzes groundwater, fresh surface waters, marine waters, sewage, and solid and liquid hazardous wastes

2015 Suffolk County Comprehensive Water Resources Management Plan

Water quality assessment

2015 Comprehensive Water Resources Management Plan

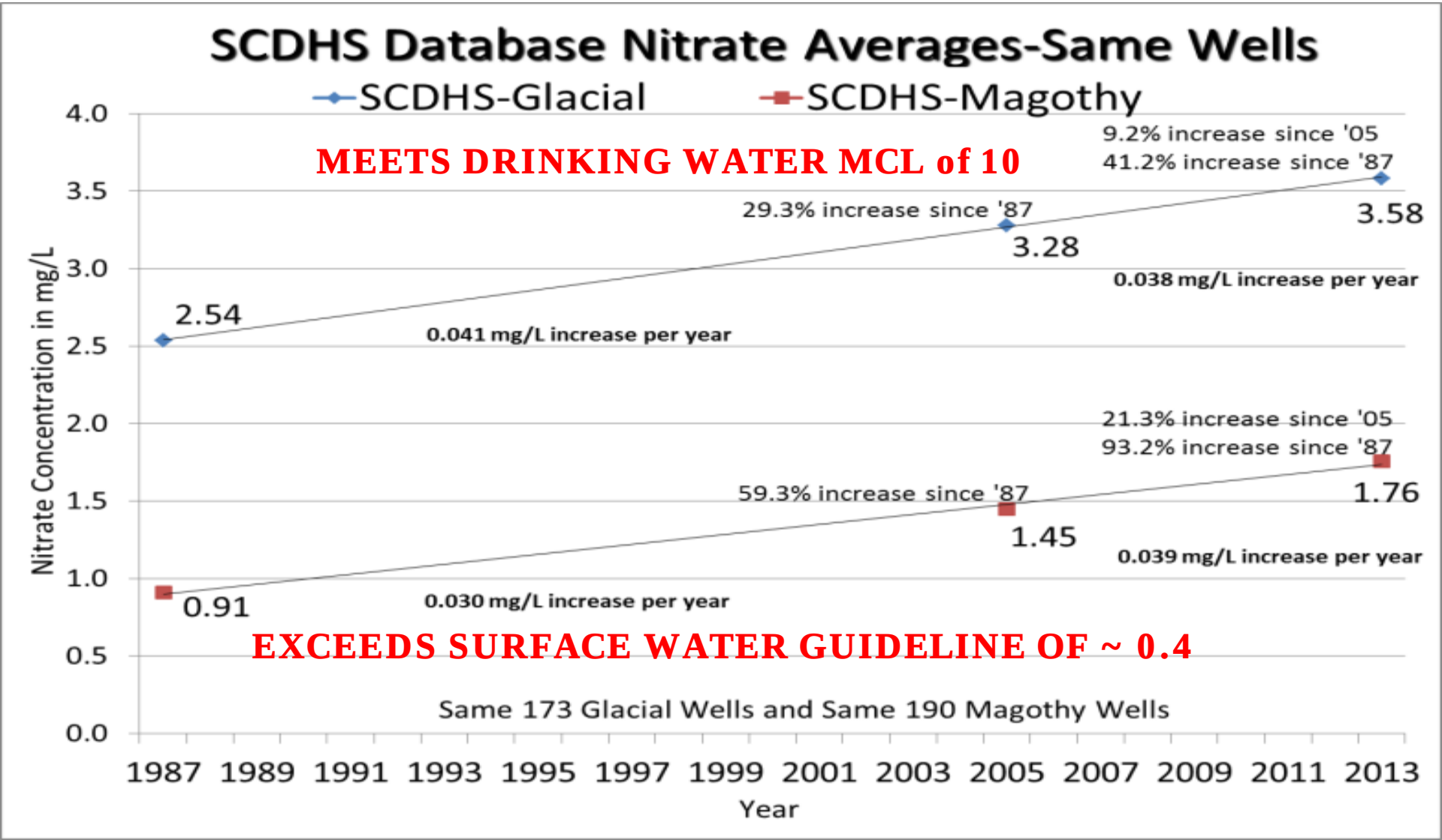


- Nitrogen
- Volatile Organic Compounds
- Pesticides
- Pharmaceuticals and Personal Care Products

****

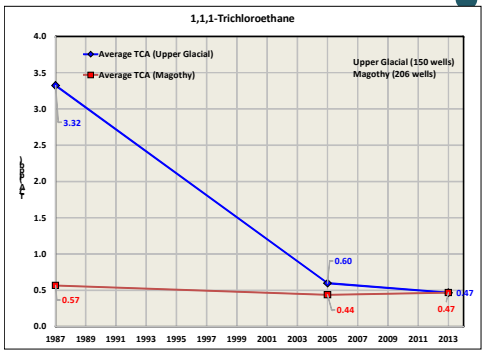
- Vulnerable sole source aquifer
  - Diffuse public water supply well network (~900 wells)
  - ~30,000 private wells
  - ~1.5 million people, >900 sq miles/600,000 acres
  - mostly unsewered (~74% of population)

SCDHS Evaluation of Nitrates in Public Water Supply Wells Report - April 2014



WATER QUALITY STATUS & TRENDS: VOLATILE ORGANIC COMPOUNDS (VOCS)

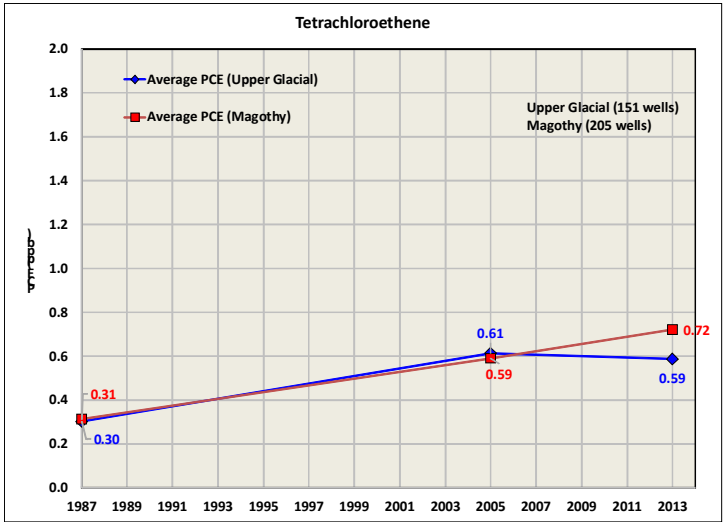
➢ Chemical bans appear to be effective…

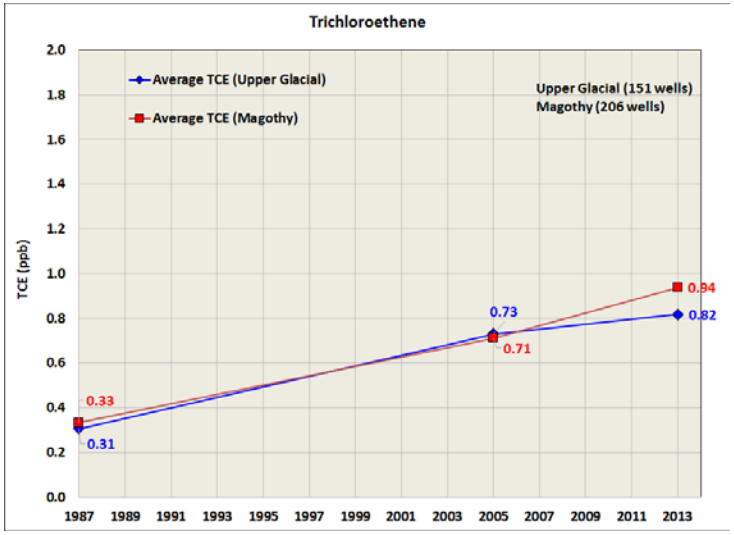


- 1,1,1-TCA (Suffolk County cesspool additive ban-1980/US production ban-1996)
  - Levels have **decreased** in Upper Glacial & Magothy aquifers
    - ➢ 3.16 mg/L (1987) to 0.47 mg/L (2013) in same Glacial PWS wells
    - ➢ 0.57 mg/L (1987) to 0.47 mg/L (2013) in same Magothy PWS wells

- MTBE (NYS gasoline additive ban-2004)
  - Detections have **decreased** in Upper Glacial & Magothy aquifers
    - ➢ Detected in 16% of PWS wells in *2005*
    - ➢ Detected in ~5% of the wells sampled in 2013

WATER QUALITY STATUS & TRENDS: VOCs





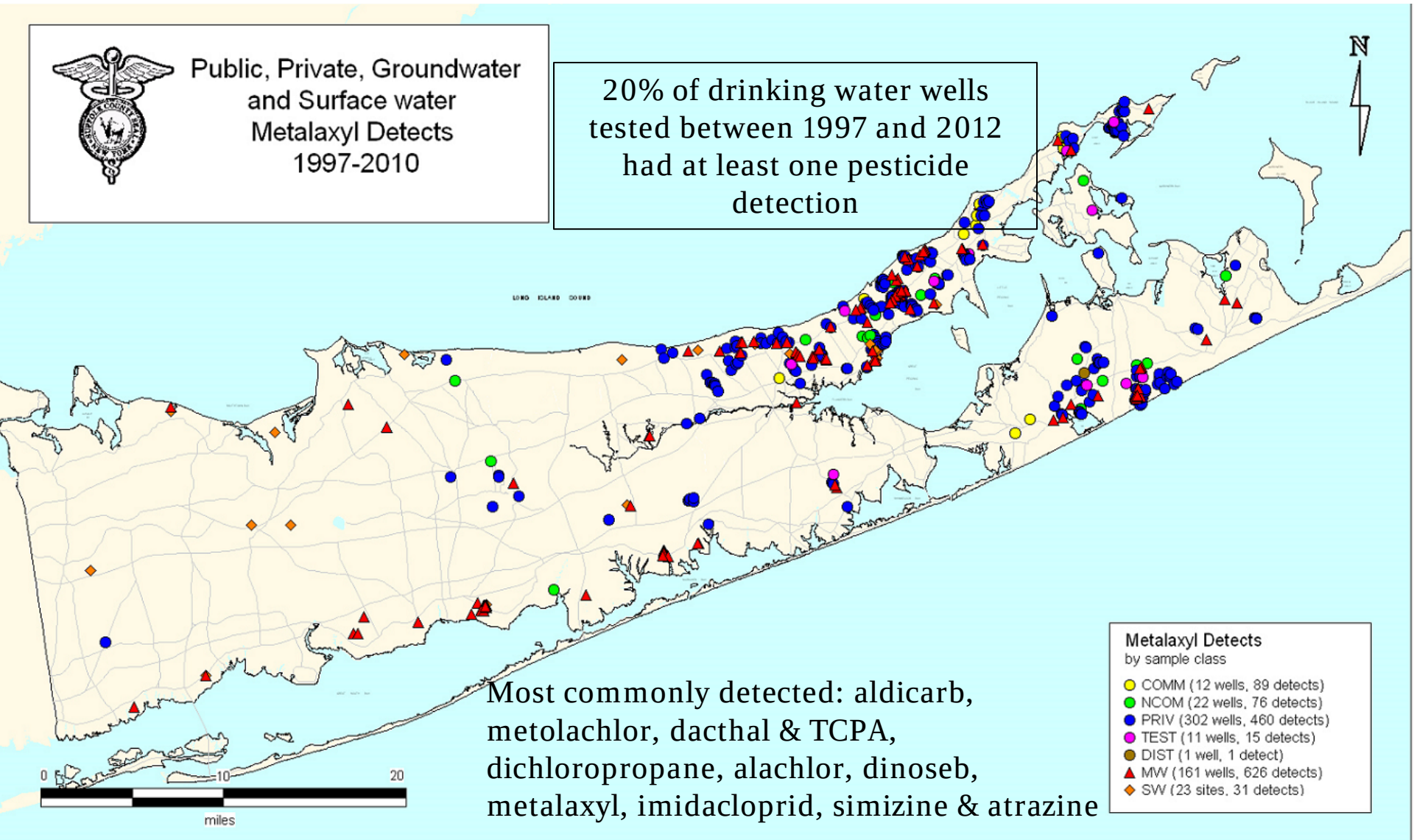
- PCE
  - The total # of impacted wells doubled since 1987 (29 to 59)
  - Average PCE concentrations in the Glacial and Magothy aquifers about doubled in a same well comparison
- TCE
  - The total # of impacted wells more than doubled since 1987 (34 to 84)
  - Average TCE concentrations in the Glacial and Magothy aquifers have nearly tripled in a same well comparison

WATER QUALITY STATUS & TRENDS: PESTICIDES

MCL Exceedances Don't Occur in Public Water Supply. However, a continuing concern...

- Levels of banned pesticides (aldicarb, dacthal, metolachlor, were most widespread and found at highest concentrations) now decreasing
- Increased frequency of detection for metalaxyl & imidicloprid
- SCDHS monitoring programs have detected **> 100** compounds, mostly at low levels
- Detections of up to 32.6 ppb of BAM, degradate of dichlorbenil
- Lack of specific drinking water MCLs for most pesticides & degradates
- Private wells especially vulnerable

WATER QUALITY STATUS & TRENDS: PESTICIDES



Most commonly detected: aldicarb, metolachlor, dacthal & TCPA, dichloropropane, alachlor, dinoseb, metalaxyl, imidacloprid, simizine & atrazine

Per- & Polyfluoroalkyl Substances (PFAS)

PFOA and PFOS Potential Sources

- PFOA
  - Mainly used in the manufacturing of fluoropolymers like PTFE (e.g. non-stick pans)
  - Also used as a component in fire fighting foams from ~1965-1975
- PFOS
  - Used in the production of fire fighting foams, hydraulic fluids and photolithography
  - Major consumer product-related uses are water repellant treatment for clothes, stain & dirt resistant for carpets, oil & grease repellant treatments for paper & packaging

NYS prohibits the sale of food packaging containing intentionally added PFAS as of 12/31/22

Sources: https://oehha.ca.gov/sites/default/files/media/downloads/crnr/pfoapfosphgdraft061021.pdf
https://www.riversideca.gov/press/understanding-pfas

PFAS Potential Health Effects

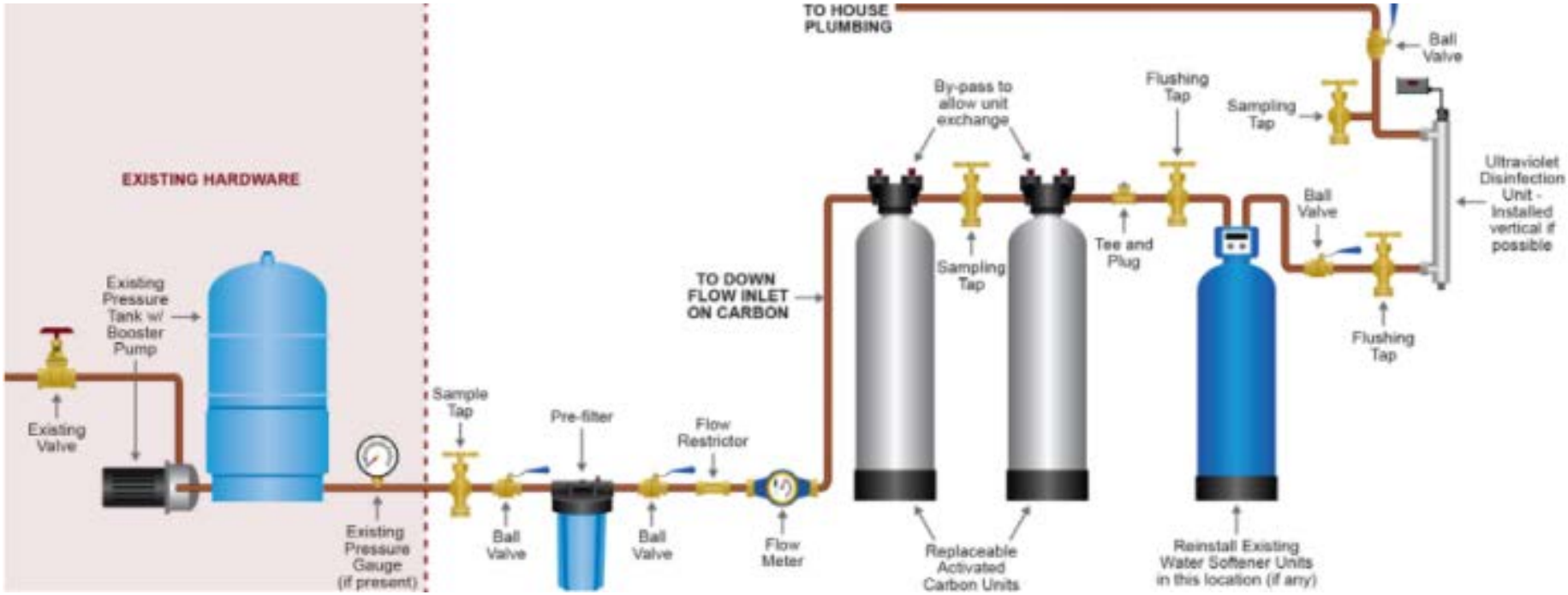
- According to ATSDR, although more research is needed, research involving humans suggests that high levels of certain PFAS **may** lead to the following:
  - Increased cholesterol levels
  - Changes in liver enzymes
  - Decreased vaccine response in children
  - Increased risk of high blood pressure or pre-eclampsia in pregnant women
  - Small decreases in infant birth weights
  - Increased risk of kidney or testicular cancer

Any increased risk of health effects depends upon the amount of exposure, how often exposure occurs, route of exposure (e.g., ingestion) and duration of exposure. It would also depend upon individual factors that might make one more susceptible.

NYSDOH PFAS MCLs

- On August 26, 2020, NYS adopted new drinking water standards for public water systems that set MCLs of 10 parts per trillion (10 ppt) each for PFOA & PFOS

NYSDEC POET Design



Suffolk County Public Water Supply Actions

- When a PWS well exceeds an MCL, initial steps taken generally include:
  - Shutting down the well
  - Restricting the use of the well to those periods necessary to meet peak demand
- Longer-term remedies may include:
  - Treatment at the well
  - Connecting to a larger public water supply (for small PWSs)
- Public notification
  - Public water suppliers are required to notify consumers of their water of any MCL exceedance and the actions being taken

USEPA PFAS MCLs

- USEPA PFAS drinking water regulation - 4/10/24
  - PFOS: 4 parts per trillion (ppt)
  - PFOA: 4 ppt
  - PFHxS: 10 ppt
  - PFNA: 10 ppt
  - HFPO-DA (Gen X): 10 ppt
  - GenX, PFBS, PFNA, and PFHxS regulated as a group using a Hazard Index system

How do I calculate the Hazard Index?

The Hazard Index is made up of a sum of fractions. Each fraction compares the level of each PFAS measured in the water to the highest level below which there is no risk of health effects. EPA is currently developing an online calculator to assist water systems in determining their Hazard Index result. The online calculator will perform the calculation explained in this fact sheet.

Step 1. Divide the measured concentration of Gen X by its health-based value of 10 ppt.

Step 2. Divide the measured concentration of PFBS by its health- based value of 2000 ppt.

Step 3. Divide the measured concentration of PFNA by its health-based value of 10 ppt.

Step 4. Divide the measured concentration of PFHxS by its health-based value of 10 ppt.

Step 5. Add the ratios from steps 1, 2, 3 and 4 together.

Equation:

$$\text{Hazard Index (1 unitless)} = \left(\frac{[\text{HFPO} - \text{DA}_{\text{ppt}}]}{[10\text{ ppt}]}\right) + \left(\frac{[\text{PFBS}_{\text{ppt}}]}{[2000\text{ ppt}]}\right) + \left(\frac{[\text{PFNA}_{\text{ppt}}]}{[10\text{ ppt}]}\right) + \left(\frac{[\text{PFHxS}_{\text{ppt}}]}{[10\text{ ppt}]}\right)$$

Step 6. Compliance with the Hazard Index MCL is determined by a running annual average. To determine the running annual average, repeat steps 1-5 for each quarterly sample collected in the past year and calculate the average of these quarterly Hazard Index results.

USEPA PWS Requirements for PFAS

- PWSs required to conduct PFAS monitoring before 2027 & provide data to the public beginning in 2027
- PWSs have until 2029 to reduce levels below the MCL
  - well replacement
  - treatment w/granular activated carbon, reverse osmosis, ion exchange
- Public notification requirement for MCL exceedances begins in 2029
- Compliance w/ MCL based upon a running annual average, not a single sample

SCDHS Actions

- Providing info & technical support to PWSs to ensure compliance
- Reviewing engineering plans & specifications new PWS infrastructure
- Developing in-house testing capability for PFAS
- Collecting PFAS samples from PWSs & private wells
- Inspecting & sampling PWSs annually
- Coordinating with NYSDOH and NYSDEC regarding PWS contamination & evaluation of potential source(s)
- Conducting private well surveys, groundwater investigations, & surface water sampling in areas of potential contamination. This work has resulted in several Superfund and potential Superfund site designations including:
  - Gabreski Airport
  - Yaphank Firematics
  - East Hampton Airport
  - Hampton Bays Fire Department
  - Orient Fire Department
  - Former BOMARC facility

SCDHS – Private Well Sampling Program

- Recent focus on emerging contaminants, including PFOS, PFOA
  - Since 2016, SCDHS initiated ~60 surveys & collected over 1,750 PFAS samples in priority areas
  - ~19% of the private wells tested exceeded the current NYS PFOS and/or PFOA MCLs
  - If contamination above standards, SCDHS advises NYSDEC/NYSDOH
  - NYSDEC may offer an alternate water supply
    - bottled water
    - treatment system
    - public water connection
  - SCDHS survey work has resulted in public water extensions and connections in Yaphank, Westhampton, Wainscott, East Quogue, Patchogue and more are expected

Residents interested in having their private well tested may contact SCDHS Office of Water Resources at (631) 852-5810

Shelter Island Water Supply Summary

- Community Public Water Supply
- Non-community Public Water Supply
- Private Wells

SHELTER ISLAND COMMUNITY WATER SUPPLY

1. King's Cottages: 1 well, ~7 people

   As of March 2024, public notification for PFOS (10.2 ppt & 10.1 ppt)
2. Happy Groundhog, LLC: 1 well, ~15 people
3. Dering Harbor Water District: 3 wells, ~72 people
4. West Neck Water District: 3 wells, ~195 people
5. Shelter Island Heights Property Owners Association: 5 wells, ~500 people

SHELTER ISLAND NON-COMMUNITY WATER SUPPLY

35 NCOM PWS systems with 43 wells:

- PFOS/PFOA exceedances in recent untreated water samples
  - Coecles Harbor Marina - posted for PFAS
  - Dering Harbor Inn - blended water did not exceed, well since removed from service
  - Gardiners Bay Country Club - PFOA treatment installed
  - Two South Ferry B&B - PFAS treatment installed
  - Eccentric Bagel - PFOS treatment installed
- Iron/Manganese exceedances in recent untreated water samples
  - Dering Harbor Inn - blended water did not exceed, well since removed from service
  - Shelter Island Senior Citizen Center - iron/manganese treatment installed
  - Shelter Island Town Hall - posted for iron
  - Shelter Island Public Library - posted for iron
  - Elli's Country Store - manganese treatment installed
- Chloride exceedance in recent untreated water samples
  - Camp Quinipet - posted for chlorides in early 2023, lifted late 2023
- Nitrate exceedance in recent untreated water samples
  - Maria's Kitchen - posted for nitrates

2013-2023
SHELTER ISLAND PRIVATE WELL SAMPLING SUMMARY

- 375 private well samples collected at 155 unique addresses
  - Reflects total # of samples pre- and post treatment, repeat sampling and homeowners requesting sampling on more than one occasion
- 15 nitrate exceedances @ 8 locations up to 13.8 ppm
  - MCL = 10 ppm
- 20 iron exceedances @ 14 locations up to 29.4 ppm
  - MCL = 0.3 ppm
- 20 manganese exceedances @ 20 locations up to 20.421 ppm
  - MCL = 0.3 ppm
- 6 chloride exceedances @ 5 locations up to 508 ppm
  - MCL = 250 ppm
- Bacteria
  - 59 positive total coliform samples at 26 locations
  - 8 positive E. coli samples at 5 locations

SHELTER ISLAND PRIVATE WELL SAMPLING SUMMARY

- In more recent private well sampling at 43 locations on SI that included PFAS:
  - No NYSDOH PFOS MCL exceedances (1 location at the MCL of 10 ppt)
  - 1 NYSDOH PFOA MCL exceedance (34 ppt, a second location at the MCL of 10 ppt)

Take Home Messages & Questions/Comments

TAKE-HOME MESSAGES

- Our Suffolk County aquifer system is extremely vulnerable, esp. in unsewered areas
  - Many COCs are soluble/mobile, persistent, and toxic
  - SCDHS conducts routine monitoring of aquifer water quality
  - Support local “STOP” programs and pharmaceutical take back programs

- Public water supply meets standards
  - Public supply regulated and tested by SCDHS
  - Wells are relatively deep, continually monitored, & treated as needed
  - PWSs often voluntarily taking action to address emerging contaminants in advance of regulations
  - MCLs are generally set conservatively low, with margin of safety

- Private wells are inherently vulnerable to contamination
  - SCDHS has private well sampling request and survey programs
    - Test your private well annually
    - Maintain any on-site filtration systems as needed
  - Connect to public water where/when possible
  - NYSDOH/NYSDEC may be able to provide assistance under certain circumstances

QUESTIONS/COMMENTS?

Suffolk County Department of Health Services
Office of Water Resources

(631) 852-5810