Seawater Intrustion

March 16, 2023

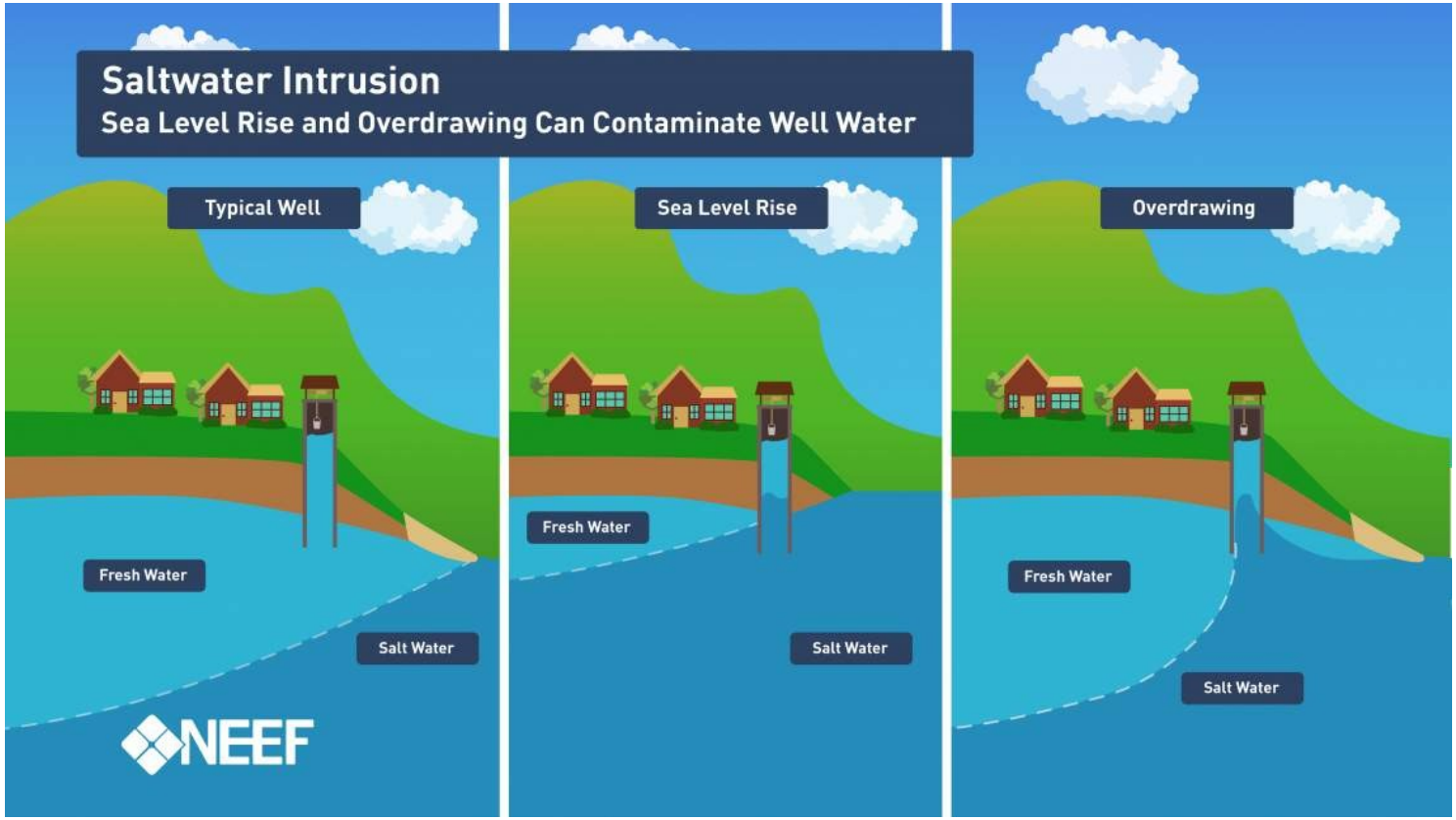
Presentor: Chris Kelley, PhD, LG

Agenda

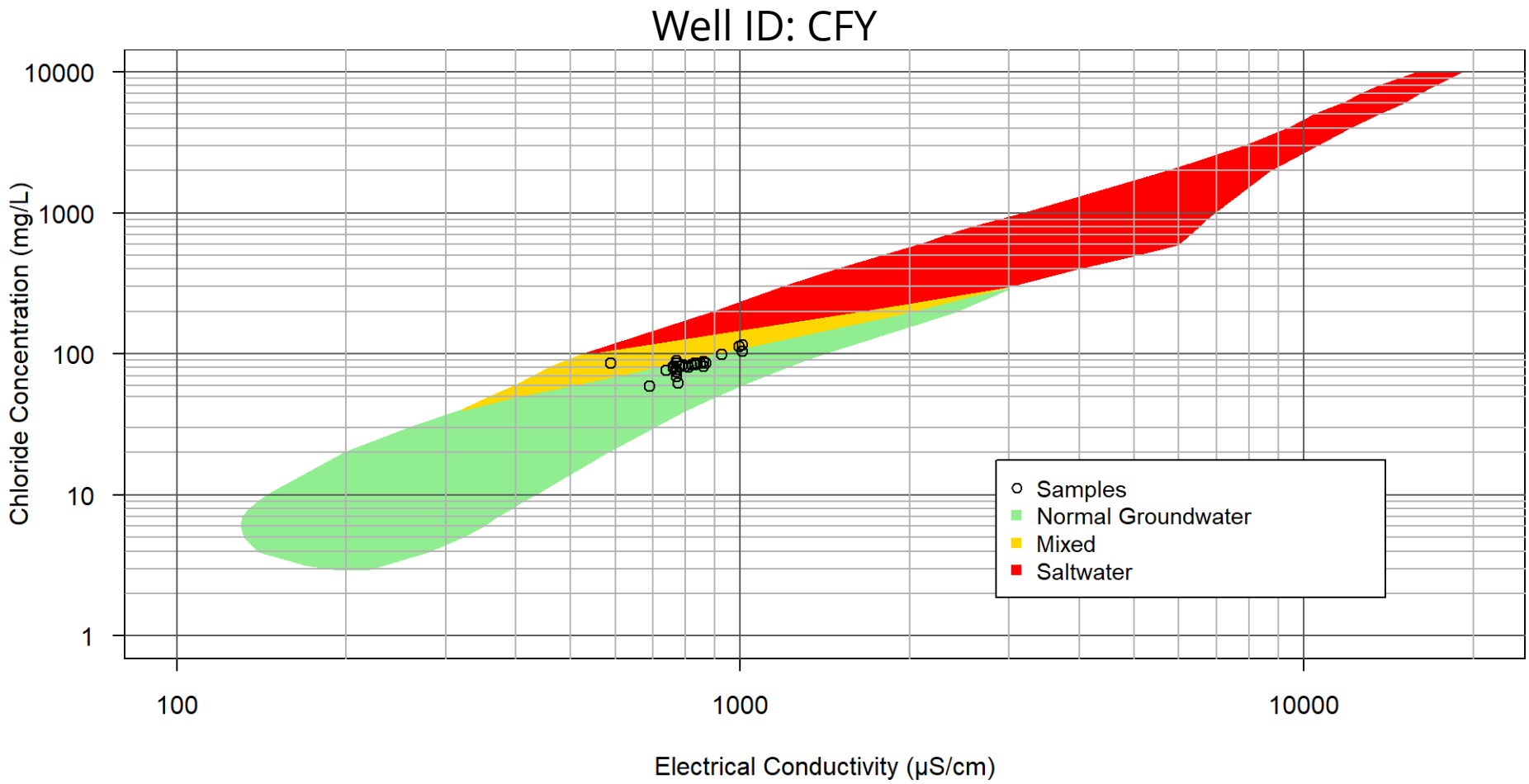
- What is seawater intrusion?
  - How does this chloride/conductivity thing work?
- What wells are ar risk for seawater intrusion?
  - What are the Island County Seawater Intrusion Risk Categories?
  - How can I look that up what areas are at risk?
  - Which projects are subject to a Seawater Intrusion Risk Analysis?
- What to do if your well is at risk?
  - Do I need a new well? Help well recover? Treatment?
- When will the well data on ICGeoMap be updated?

What is Saltwater Intrusion?

Seawater Intrusion Topic Paper (Appendix F Island County Water Resource Management Plan: Adopted June 20, 2005)

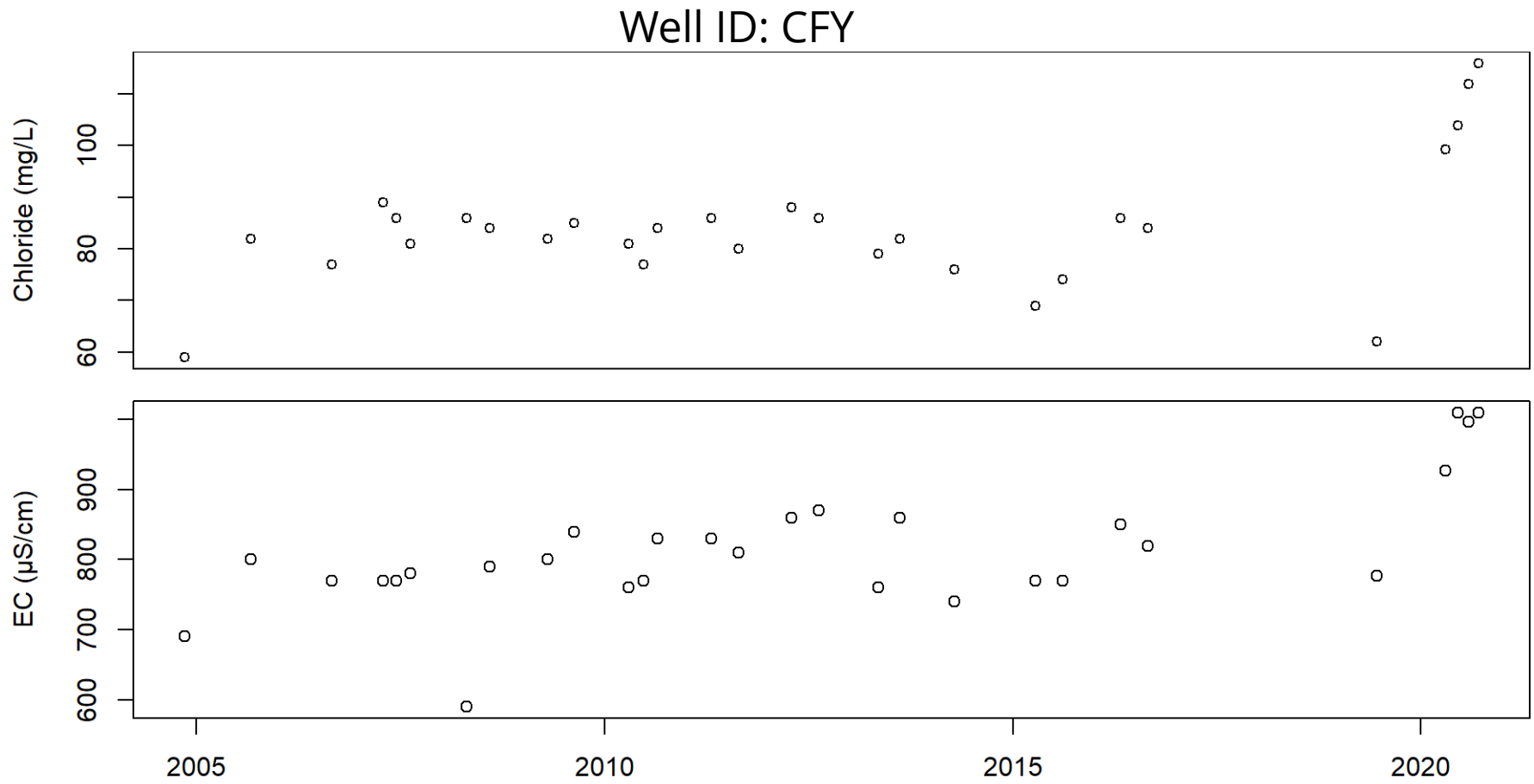


Chloride and Conductivity



Island County Well Viewer Application

Chloride and Conductivity Time Series



Island County Well Viewer Application

Seawater Intrusion Risk Categories

Table 1: Seawater Intrusion Risk Categories

Risk Category	Water Level Elevation	Chloride Concentration
Low	Greater than 8.4	Any
Medium	Less than or equal to 8.4	Less than 100
High	Less than or equal to 8.4	Between 100 and 250
Very High	Less than or equal to 8.4	Greater than 250

Notes:
Water level elevation in feet above NAVD 88. For tidally influenced wells, water level elevation will be determined by specific methods as identified by the health officer.

Chloride concentration in milligrams per liter (mg/L) or parts per million (ppm).

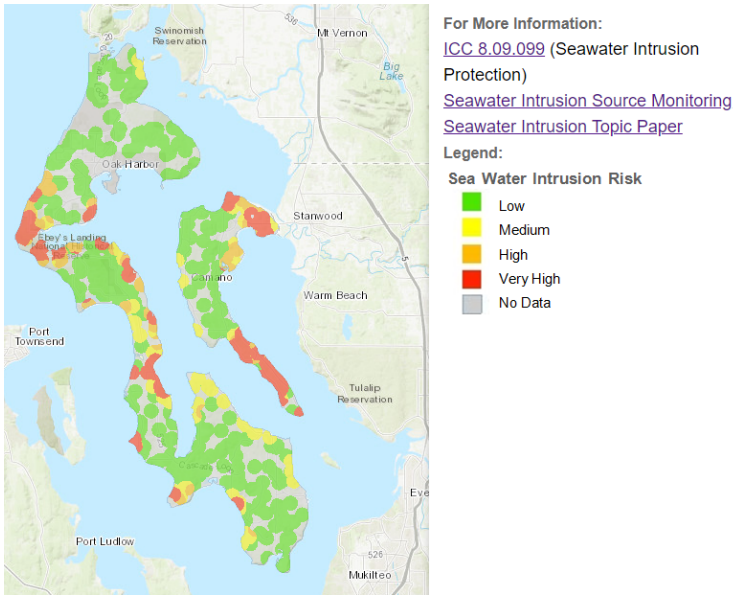
Where water level elevations are greater than 8.4 feet, chloride concentrations are irrelevant.

Island County Code 8.09.099

What areas are at risk?

Interactive Island County Seawater Intrusion Risk Map

- Risk ratings for a given area **CAN CHANGE** as new data is collected to evaluate changing environmental conditions and aquifer use patterns.
- You should **NOT** use the Island County Seawater Intrusion Risk Map to make any decisions regarding seawater intrusion risk.



Seawater Intrusion Risk Categories

Table 2: Projects Subject to Seawater Intrusion Risk Analysis

Risk Category	Land Subdivision	New or Expanding PWS	Individual Water System
Low	N/A	N/A	N/A
Medium	> 6 lots	> 6 connections/ year	N/A
High	All	> 1 connection/year (<=1.5 acre lot size)	<1.5 acre lot size
Very High	All	All	<5 acre lot size

Notes:
PWS - Public Water System.

N/A - Project actions not subject to seawater intrusion risk analysis

*Island County Public Health can issue you a Certificate of Risk Rating that is good for a period of one year, vesting your project at the risk rating at the time that the certificate was issued.

Island County Code 8.09.099

What if your well is at risk?

- Existing Wells:
  - Reduce water use, especially during the dry season.
  - Install meters to help identify and prevent leaks.
  - Low-volume high-frequency pumping to minimize drawdown.
  - For multi-well systems programs wells to pump at different times.
- New Wells:
  - Avoid drilling in high and very-high risk areas.
  - Avoid drilling excessively deep.
  - Monitor electrical conductivity (or salinity) during drilling.

Updates to ICGeoMap?

- Bi-annual (April and August) monitoring will be restarting this year.
- Currently working with IT to to update the Hydrogeology portions of ICGeoMap.
- Exploring options for providing interactive graphics and dashboards to improve user function.
- Are there changes or updates to the ICGeoMap that would be beneficial to the public?