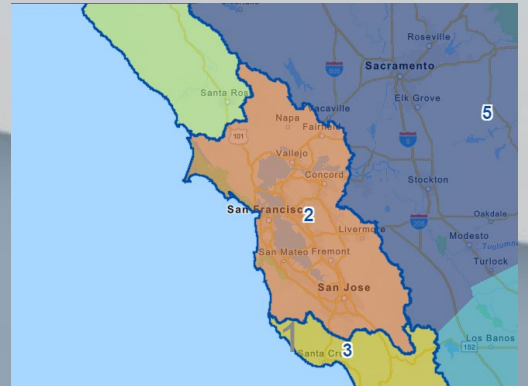
Regulatory Strategies:
Climate Change Impacts
on
Contaminated Sites and Cleanup

Lisa Horowitz McCann

Assistant Executive Officer

SF Bay Regional Water Quality Control Board



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Failed Protective Structures

Mussel Rock Landfill, Pacifica, July 2016

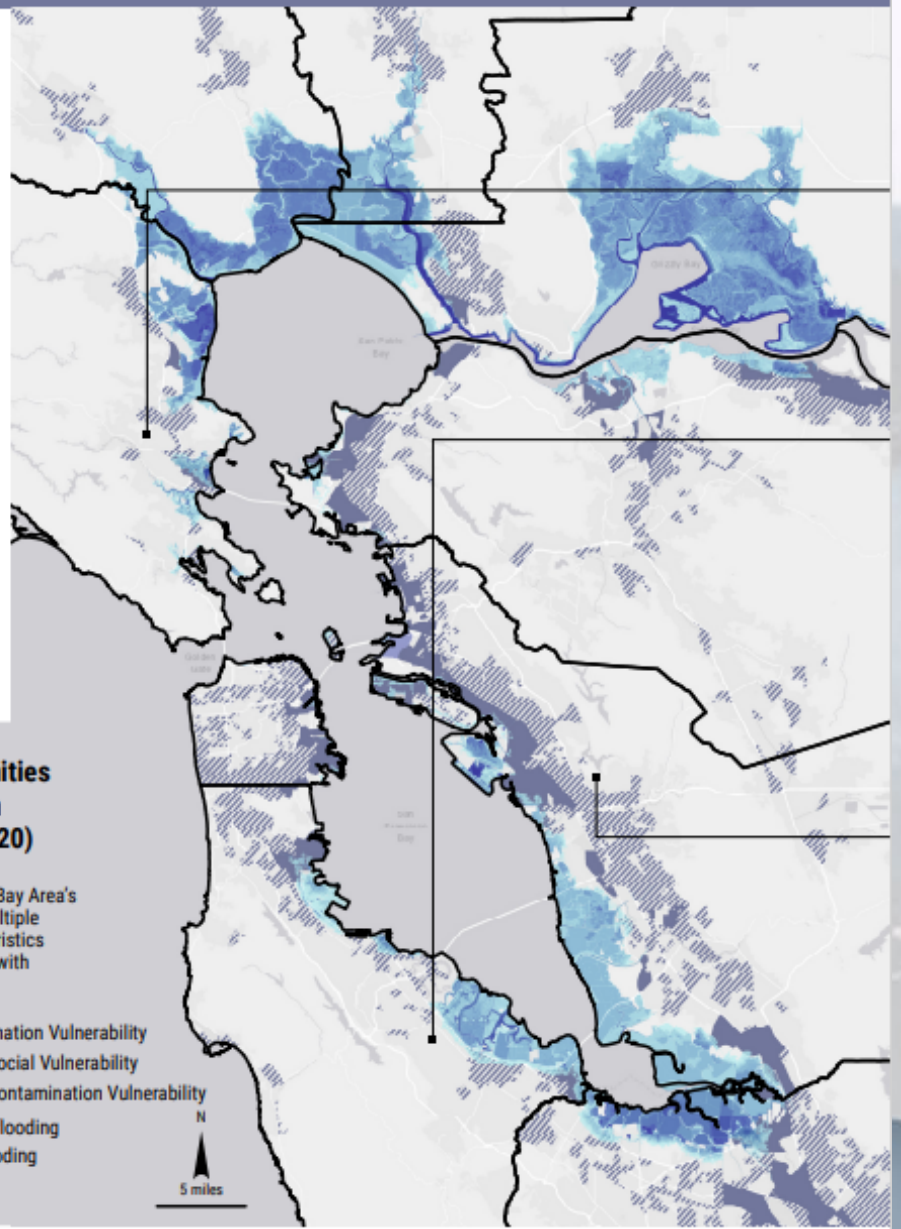
Vulnerable Communities

Snapshot of Highest Consequences

48" TWL

Some **Bay Area communities** experience social and economic conditions that make it more difficult to prepare for, respond to, and recover from flooding.

Residents in these communities face stressors such as housing displacement pressures or job instability that make them more vulnerable to the instabilities further introduced by rising sea level. (Figure 7).



Vulnerable Communities in the Bay Area With Flooding (2060 - 2120)

Figure 7. Distribution of the Bay Area's block groups that exhibit multiple social vulnerability characteristics and contamination burdens with flooding at 48" TWL.

SHORT REPORT

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2019

2020

2022

pen Access Article

Rapid Assessment Method to Identify Potential Groundwater Flooding lotspots as Sea Levels Rise in Coastal Cities

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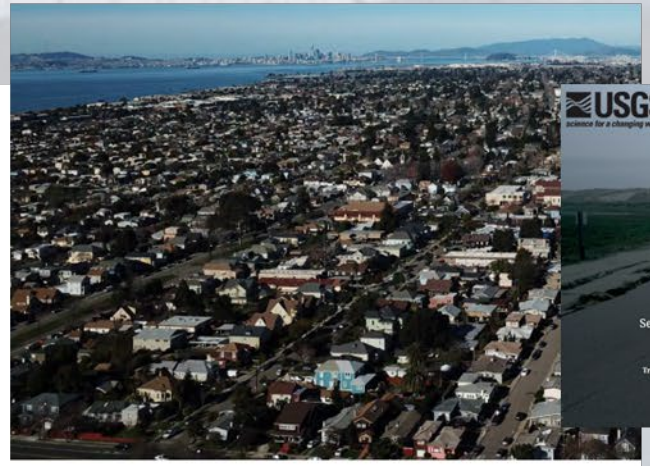
bstract

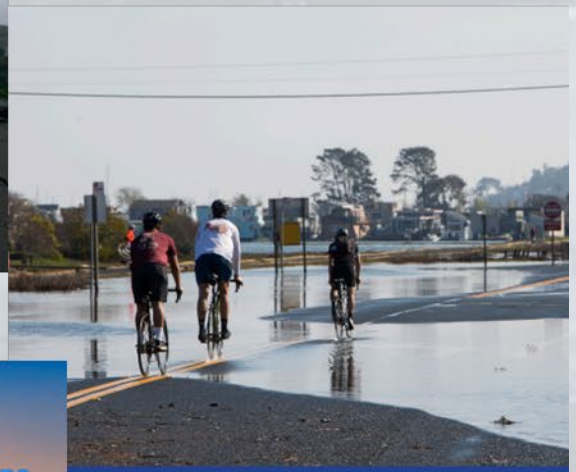
ea level rise (SLR) will cause shallow unconfined coastal aquifers to rise. Rising groundwater can emerge as rface flooding and impact buried infrastructure, soil behavior, human health, and nearshore ecosystems. Higher oundwater can also reduce infiltration rates for stormwater, adding to surface flooding problems. Levees and awalls may not prevent these impacts. Pumping may accelerate land subsidence rates, thereby exacerbating oding problems associated with SLR. Public agencies at all jurisdiction levels will need information regarding here groundwater impacts are likely to occur for development and infrastructure planning, as extreme precipitation ents combine with SLR to drive more frequent flooding. We used empirical depth-to-water data and a digital evation model of the San Francisco Bay Area to construct an interpolated surface of estimated minimum depth-to-ater for 489 square kilometers along the San Francisco Bay shoreline. This rapid assessment approach identified y locations where more rigorous data collection and dynamic modeling is needed to identify risks and prevent pacts to health, buildings, and infrastructure, and develop adaptation strategies for SLR.

eywords: sea level rise; inundation; groundwater; coastal aquifer; flooding; urban planning; climate; frastructure; California; San Francisco Bay; adaptation



CITY OF ALAMEDA
THE RESPONSE OF THE SHALLOW GROUNDWATER LAYER AND CONTAMINANTS TO SEA LEVEL RISE
SEPTEMBER 2020

silvestrum CLIMATE ASSOCIATES



LLOW GROUNDWATER RESPONSE TO SEA-LEVEL RISE
lameda, Marin, San Francisco, and San Mateo Counties

pathways CLIMATE INSTITUTE

SFEI AQUATIC SCIENCE CENTER

Re-Prioritizing Cases and Neighborhoods

- Community Conversations and Engagement
  - Bay Adapt
  - Green Action Workshops
  - Individual Meetings with Community Leaders
- Formerly Red-lined communities
- High CalEnviroscreen Scores
- Community Profiles per SFEP

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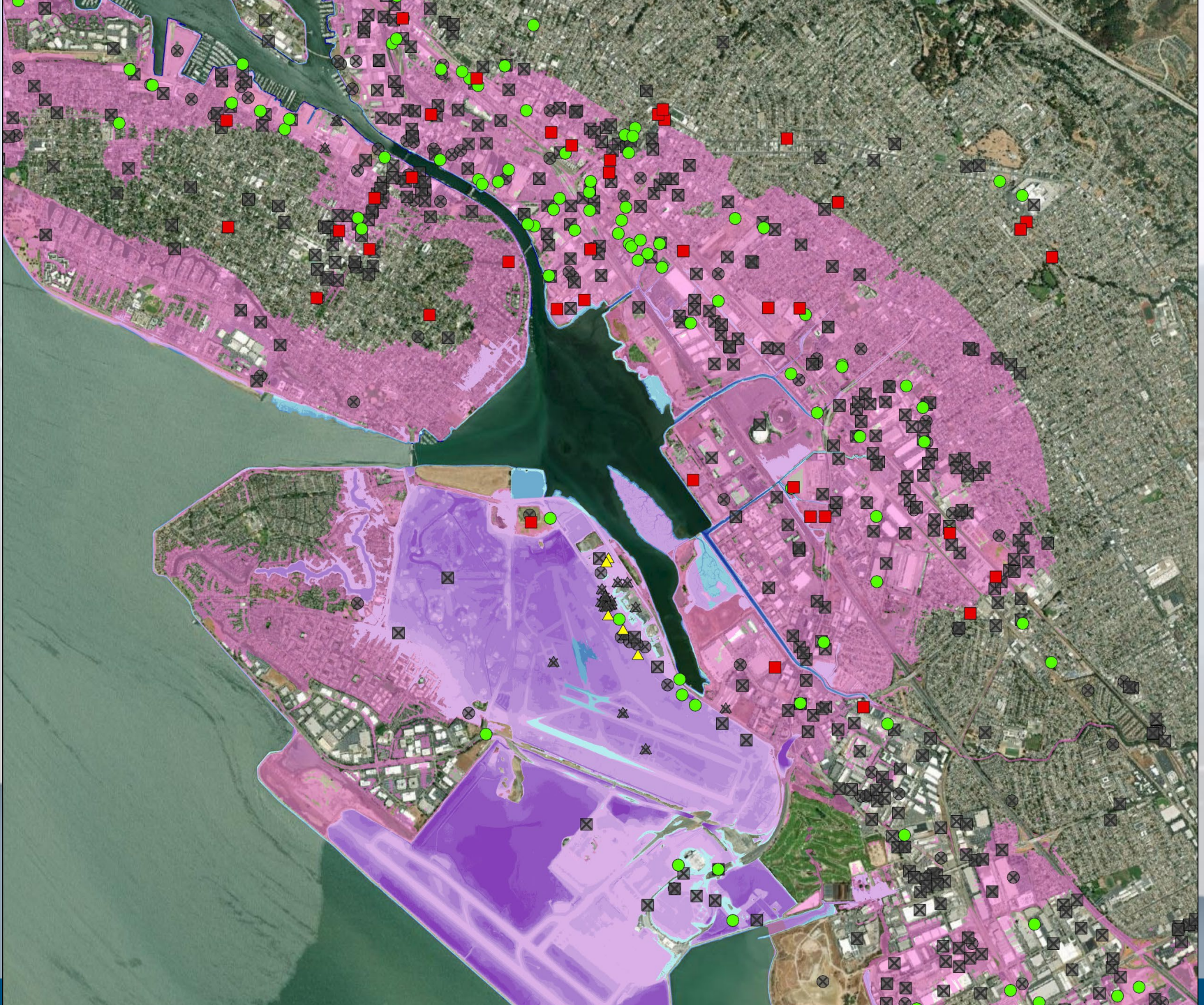

East Oakland

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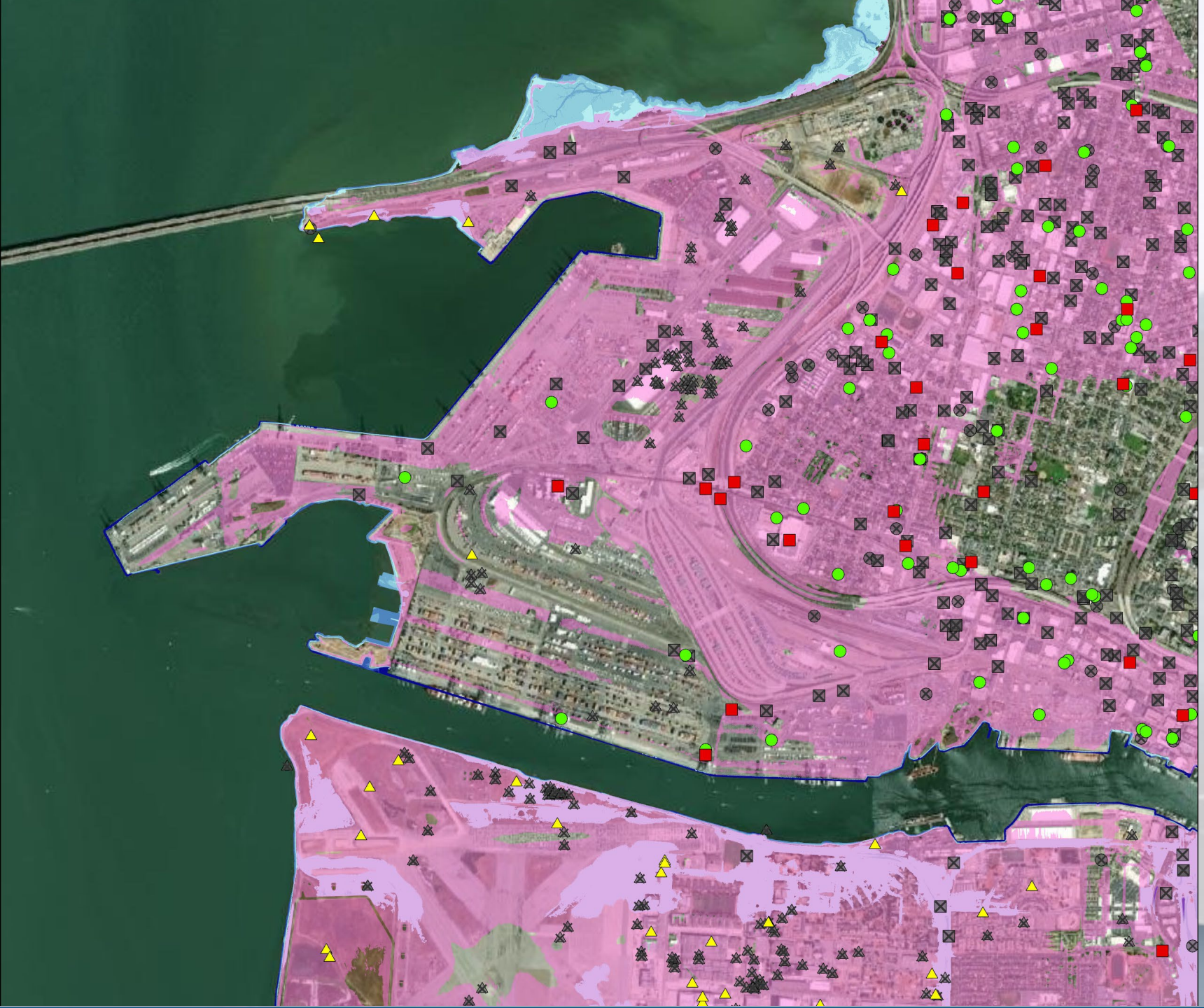

West Oakland

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Goals

- Identify sites based on:
  - Risk of exposure now (e.g., vapor intrusion)
  - Risk predicted in the future (e.g., GW and SL rise vulnerability)
- Control human health exposures quickly
- Cleanup and close sites faster
- Track and report progress

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Opportunities and Regulatory Actions- General

- Higher priority for most vulnerable sites
- Faster cleanup
- Enforcement
- Vulnerability Assessments
- Adaptation Plans

Opportunities and Regulatory Actions- Specific

- Orders for investigation and cleanup
  - Vulnerability Assessments and Adaptation Plans
  - CA Water Code
  - CA Health and Safety Code
- Five-Year Reviews
  - Military facilities
  - Federal Superfund
- Orders to control stormwater and protect wetlands
  - CA Water Code
  - Federal Clean Water Act

Where we are today:

Identifying and implementing new regulatory requirements, vulnerability assessments and plans

Where we have been:

- Engaged with researchers, planners and EJ advocates
- Considered preliminary information- cleanup sites + SLR/GWR + EJ
- Collaborated on and funded additional studies
- Reprioritized cleanup sites

Where to next?

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