CHARG

THE SAN FRANCISCO BAY REGIONAL · COASTAL HAZARDS ADAPTATION RESILIENCY GROUP

January 2016 Technical Working Group Meeting
Location: Kleinfelder offices at 1330 Broadway, Suite 1200, Oakland, CA

CHARG TECHNICAL WORKGROUP SUB-GROUP PROJECT OUTLINE

Sea Level Rise Science

- Purpose/Ambition of Project: Get San Francisco Bay shoreline jurisdictions on the same page regarding SLR projections being used in planning, characterization and approach to uncertainty, and planning processes.
- Tasks:
    1. Identify sea level rise (SLR) science and interpretations of the science that are being used today in planning for SLR around the Bay.
    2. Assess similarities and differences between SLR information being used by various jurisdictions.
    3. Evaluate and compare approaches being taken to uncertainty and risk management in planning adaptation response.
    4. Determine opportunities to create or enhance alignment among Bay Area jurisdictions
    5. Scope actions needed to achieve or enhance alignment
- Scope of Work:
    1. Create inventory of existing guidance documents/manuals/orders/regulations/etc. that are currently being used for the San Francisco Bay and Delta, California coast, and region to plan for SLR. Include information pertaining to quantitative projections, uncertainty characterization, risk management, planning approach, etc. An initial list of potential documents (and CHARG members to use as resources) includes:
        - State SLR guidance and revisions for San Francisco Bay and Delta
        - California Coastal Commission
        - San Francisco "Guidance for Incorporating SLR into Capital Planning" (Behar: SFPUC)
        - USACE Engineering Manual, Tech Letter, Engineering Regulation (Conner: UCACE)
        - President's Executive order 13690 Establishing a Federal Flood Risk Management Standard (Curtis: FEMA)
        - Adapting to Rising Tides projects (Goodfriend: BCDC)
        - Specific SLR modeling for State of California's 4th assessment for the State NRC Study (Cayan: Scripps/Bernard: USGS)
    2. Gather SLR studies and guidance from other regions to use as benchmarks, for example Miami, New York City, Southern California. (Sources: Behar: SFPUC; May: AECOM; others)
    3. Conduct outreach to all jurisdictions along SF Bay shoreline to identify status of SLR planning efforts, scientific assumptions being used, approaches to uncertainty/risk, and other important characteristics

- Develop database and narrative description of findings, featuring reports on individual efforts and intercomparison analysis

4. Using outcomes of A, B, and C above, draft action plan designed to maximally align and create collaboration among Bay Area jurisdictions in the SLR projections employed, the characterization of risk and uncertainty, and adaptation planning activities underway. This initiative should identify opportunities for and obstacles to enhancing alignment, substantive proposals as to the nature of alignment that might be achieved, and an outreach component identifying who, how, and when to reach out around the Bay to achieve alignment. This document will be the focus of CHARG deliberations regarding next steps on these questions.

Groundwater Technical Working Sub-Group

- <u>Next Steps</u>

  - Assess Interest in Continuing a Groundwater Technical Working Sub-Group
    1. Poll Technical Working Group Attendees, 28 JAN 2016
    2. Email or phone past attendees and agencies
    3. Make decision on moving forward or not based on 1. & 2.

  - Data Collection, Review, & Synthesis of Potential Groundwater Hazard Areas
    1. GW Sub-Group scopes out extent of work needed for effort
    2. Identify Lead Agency willing to spearhead and at least minimally fund logistics and effort (could be AE, intern, student, or volunteer led effort)
    3. Periodic (quarterly or bi-monthly?) review of progress by GW Sub-Group
    4. Quality Assurance and approval of draft report by GW Sub-Group
    5. Review and Distribution of final report to CHARG via the Technical Working Group

  - Identification of Potential Pilot Study Sites
    1. GW Sub-Group develops criteria for identifying potential sites from final report
    2. Draft Criteria is reviewed by Technical Working Group, and revised into final criteria

  - Selection and Modeling of Pilot Study Site
    1. GW Sub-Group ranks identified sites based on final criteria
    2. GW Sub-Group goes down the list until a Lead Agency is identified/volunteers
    3. GW Sub-Group works with Lead Agency on Modeling Scope
    4. Modeling of Pilot Study Site dependent on funding and other limitations

FALL STAKEHOLDER MEETING AGENDA

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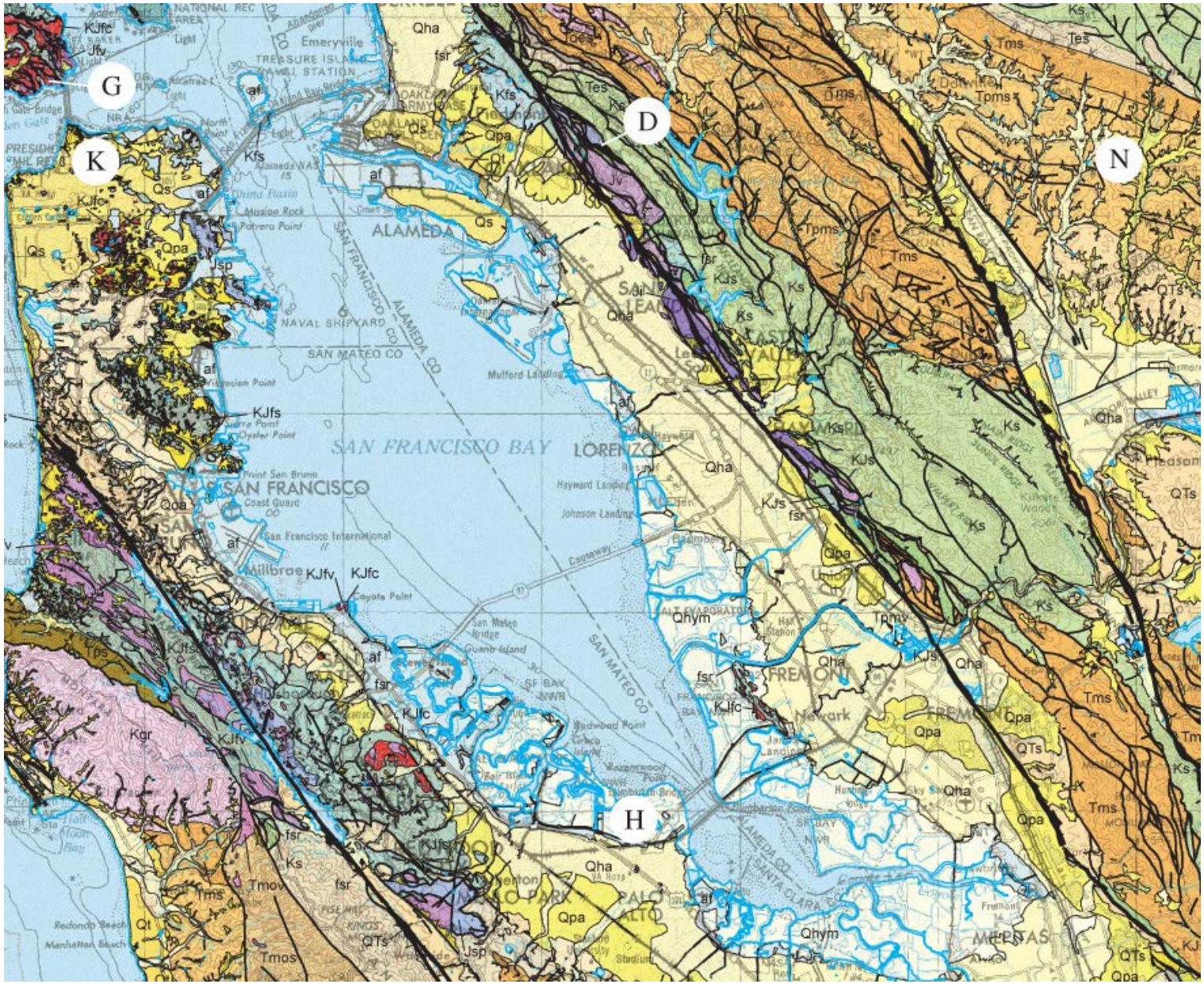
CHARG TECHNICAL WORKGROUP SUB-GROUP



Geology of the Central and South San Francisco Bay Shoreline [based on USGS (2006)]

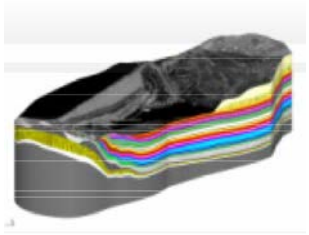
Example Groundwater Modeling System (from USACE):

Coastal and Hydraulics Laboratory

Meeting Tomorrow's Water Resources Challenges Today

US Army Engineer Research and Development Center

GMS - Groundwater Modeling System



Mosul Dam Groundwater Seepage Model

The Department of Defense Groundwater Modeling System (GMS) is the most sophisticated groundwater modeling environment available today.

The U.S. Army, in partnership with the U.S. Environmental Protection Agency, the U.S. Nuclear Regulatory Commission and academic partners, has developed the DoD Groundwater Modeling System. The GMS provides an integrated and comprehensive computational environment for simulating subsurface flow, contaminant fate/transport, and the efficacy and design of remediation systems.

GMS integrates and simplifies the process of groundwater flow and transport modeling by bringing together all of the tools needed to complete a successful study. GMS provides a comprehensive graphical environment for numerical modeling, tools for site characterization, model conceptualization, mesh and grid generation, geostatistics, and sophisticated tools for graphical visualization.

Several types of models are supported by GMS. The current version of GMS provides a complete interface for the codes ADH, FEMWATER, MODAEM, MODFLOW, MODPATH, MT3D, RT3D, SEAM 3D, SEEP2D, UTEXAS, and WASH123D. The parameter estimation code PEST and the geostatistic code T-PROGS are also supported. Additional tools and interfaces for models are being designed in an on- going development process so stay tuned for more features.