



California Department of Conservation

David Bunn, Director

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The Department of Conservation



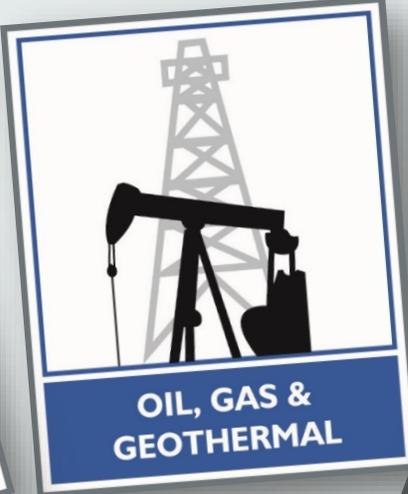
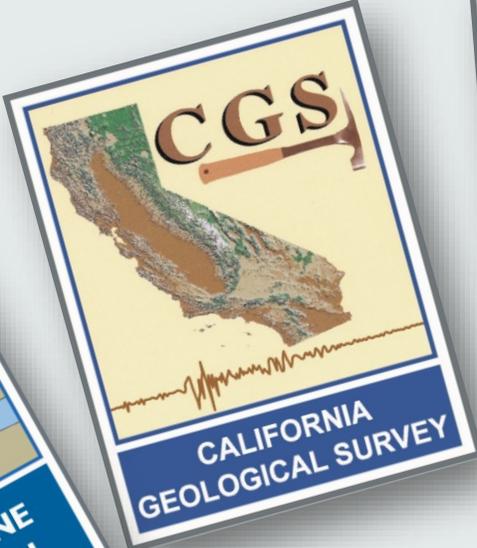
Our Mission:

The Department of Conservation balances today's needs with tomorrow's challenges and fosters intelligent, sustainable, and efficient use of California's energy, land, and mineral resources.

Our Vision:

A safe, sustainable environment for all Californians.

The Department's Divisions



DOC's Staff and GIS

- Of the ~620 positions at the Department of Conservation
 - 320+ are Science and Engineering positions
 - 20 staff dedicated to GIS
 - 120+ Engineering Geologist, Geologist, or Seismologists (Many)
 - 100+ Oil & Gas Engineers
 - 10 Environmental Scientists
 - 10 Environmental Planners
- 175 staff members with at least basic GIS skills.



DOC Creates a Lot of Spatial Data

- **How much data?** It depends on how you count...
- Low Estimate: ~50 families of data sets.
- High Estimate: well over 1,000 distinct data sets.

- 719 FMMP datasets
- 556 Alquist-Priolo Fault Zone maps
- 120 Seismic Hazard Zone maps
- 17 Mineral Land Classification datasets
- 8 Indoor Radon Potential datasets
- 2 Naturally Occurring Asbestos maps
- Hundreds of quadrangles of Landslide Inventories
- Landslide Susceptibility
- Historic Earthquakes
- Many 10s of quadrangles of Geologic Mapping @multiple scales
- Fault Maps
- Tsunami Inundation Zones
- Earthquake Hazards and Risks
- Ground Acceleration

- Oil and Gas Well locations
- Geothermal Well Locations
- Underground Injection
- Well Stimulations
- Oil & Gas Facilities
- Oil Field Boundaries
- Oil Leases
- Administrative Units
- Mine Locations
- Commodity Production
- Historic Mines
- Abandoned Mines
- Farmland Conservation Easements
- Resource Conservation Districts
- many more...



Jeffrey Onsted
Chief Science Adviser



California Department of Conservation

“Our Effort to Strengthen and Support our Mission through Science”

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Department-Wide Strategy

- New initiatives
- New hires
- Cutting-edge technology



New Initiatives

- Forging relationships with scientific institutions
- Science brown bag talks
- Encouraging staff to publish
- Extensive leadership training for all managers
- Learning about each program's needs / encouraging cross-division collaboration



Department-Wide Briefings

- Questions regarding the science
- Questions regarding the target Audience
- Question regarding policy
- Publications



New Hires in last year and half



New STEM Hires Since June 2015

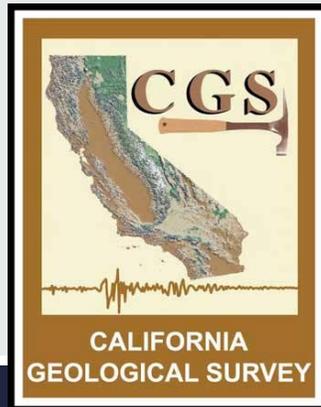
Engineering Geologist	32
Associate Oil & Gas Engineer	28
Senior Oil & Gas Engineer	12
Supervising Oil & Gas Engineer	7
Seismic Instrument Technician I	5
Environmental Scientist	3
Research Program Specialist II (GIS)	3
Research Program Specialist I (GIS)	2
Senior Environmental Scientist	1
Seismic Instrument Technician III	1
Science Advisor	1
GIS Coordinator (RM II(GIS))	1
Research Analyst I (GIS)	1
Research Analyst II (GIS)	1
Research Manager II (GIS)	1
TOTAL	99

Cutting-Edge Technology



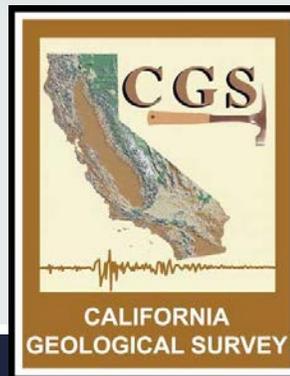
California Geological Survey - CGS

- CGS is one of oldest geological surveys in the US, (1860) and is regarded as primary source of geologic information used for decision-making by California's government agencies, businesses, and public.

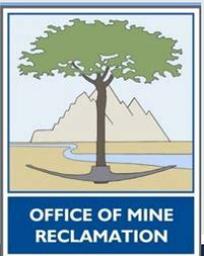
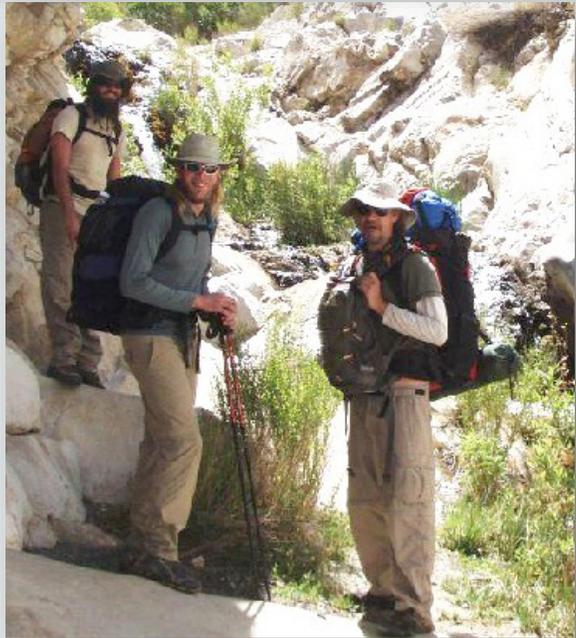


CGS - SMIP

- **Strong Motion Instrumentation Program (SMIP):** Since 1971, SMIP operates one of most extensive seismic monitoring systems in world and largest of any state
- **2006-SMIP was given international award as Best Seismic Program of 20th Century.**
- DSA relies solely on CGS to provide site reviews of consulting reports in geology, seismology, geotechnical engineering related to public school construction.
www.strongmotioncenter.org



Office of Mine Reclamation (OMR)

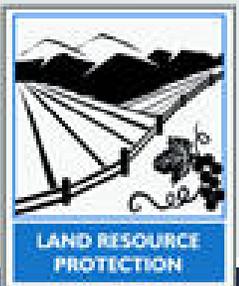


Moore's Reclaimed Mining Area



Division of Land Resource Protection (DLRP)

- Rigorous field collection
- Advanced and proactive land use analysis
 - WA flagship of farmland protection
 - FMMP is highly sought after dataset





Department of Conservation

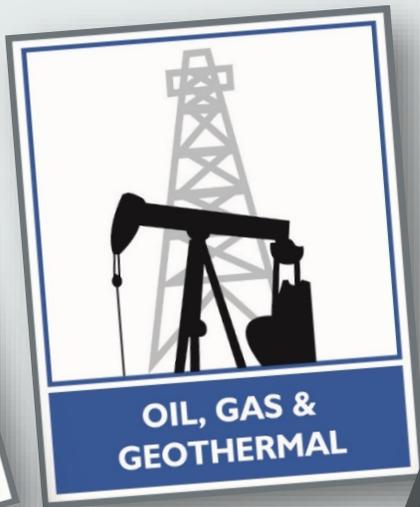
www.conservation.ca.gov

Where are we going?

- Building Connections
- Developing and Maintaining Data Quality
- Documenting Our Processes
- Improving Staff Capabilities
- IT Supporting the Mission
- Making the Data Accessible



In the Department of Conservation



Tear Down The Silos?



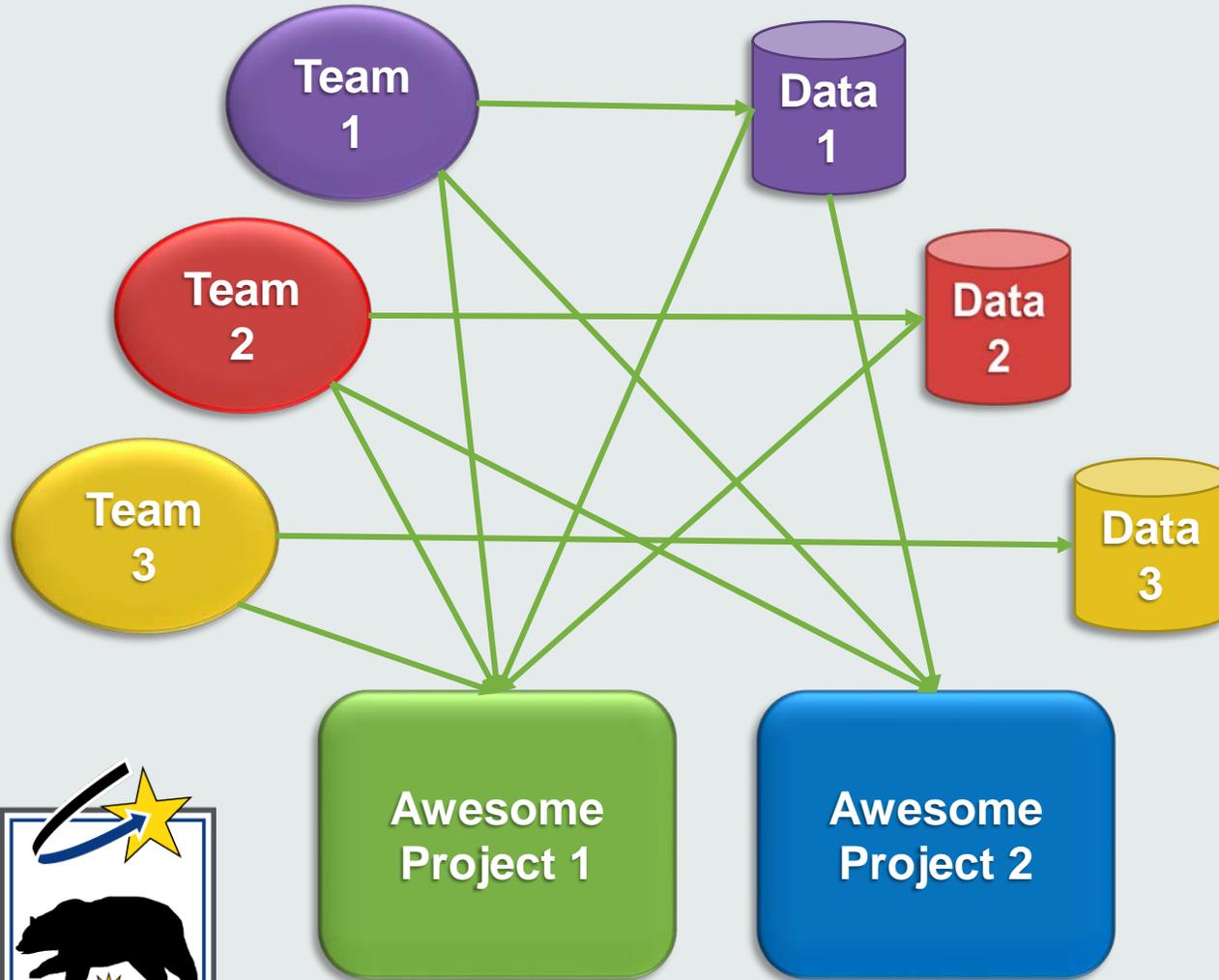
Connecting The Silos...



Building a New Structure



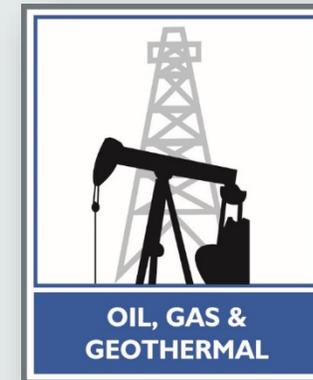
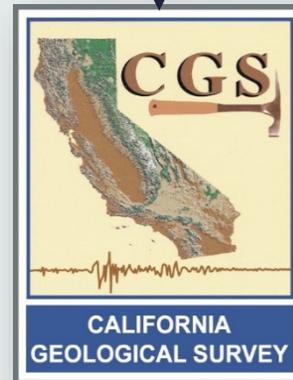
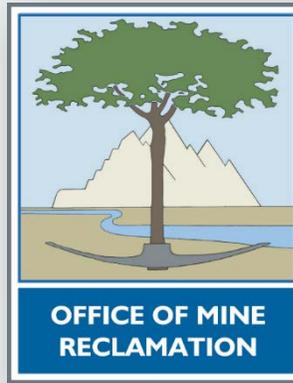
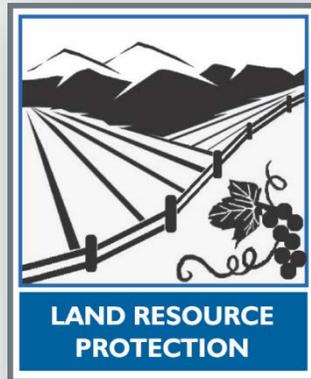
Stop Thinking About Divisions



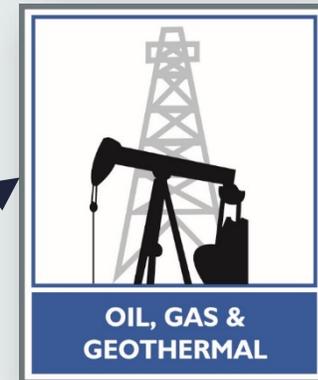
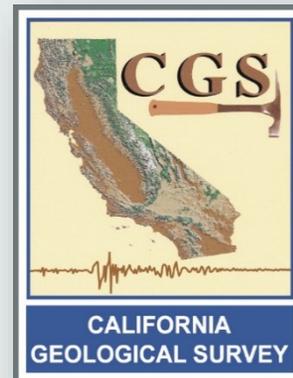
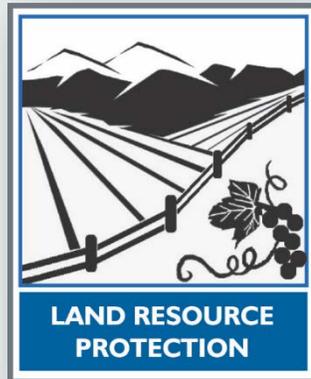
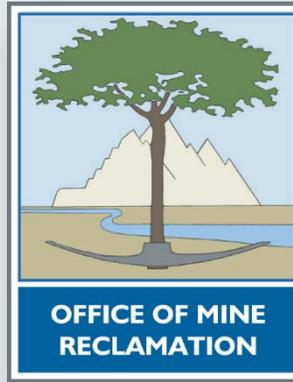
- What is the Goal?
- Discuss data and project staff in terms of how to best support good decision making, not who originates the data.
- Communicate internally and externally



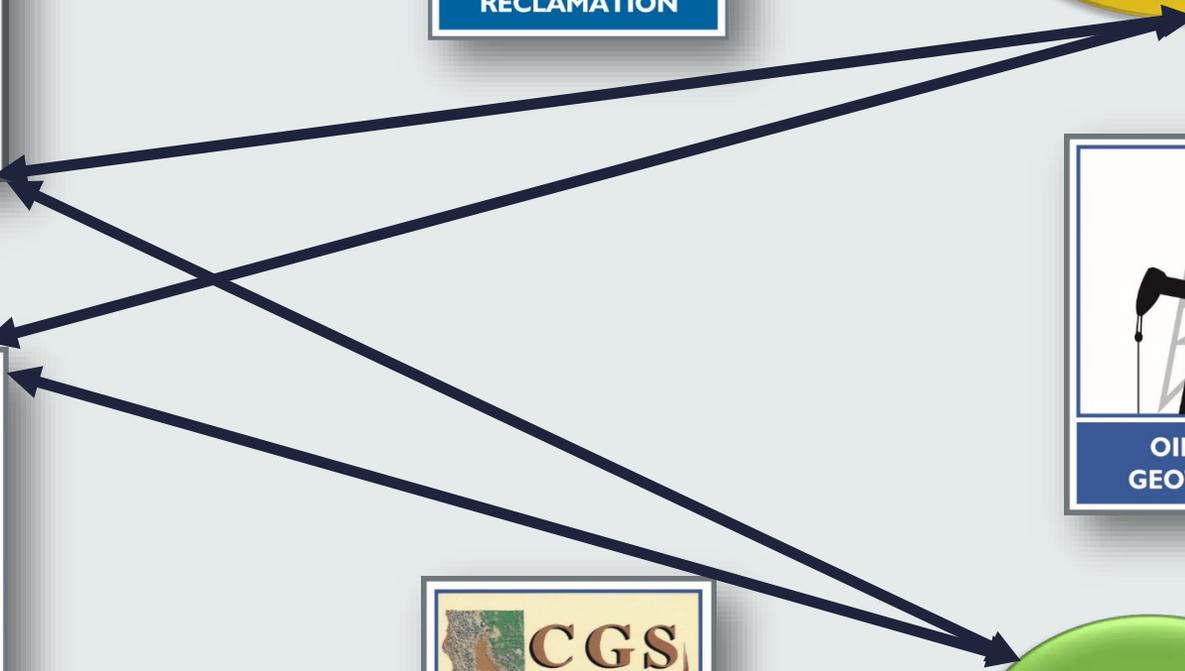
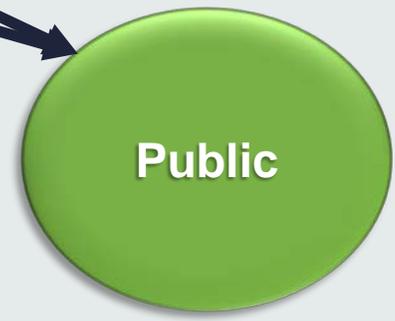
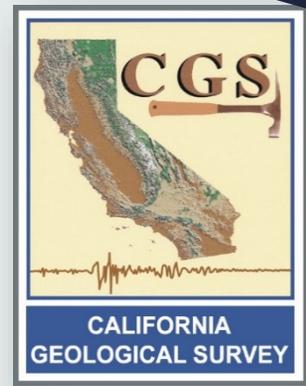
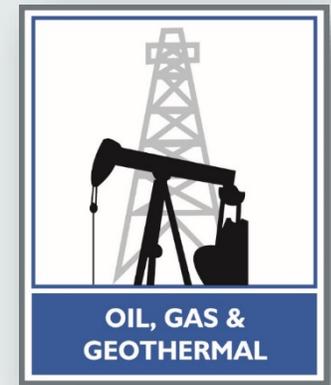
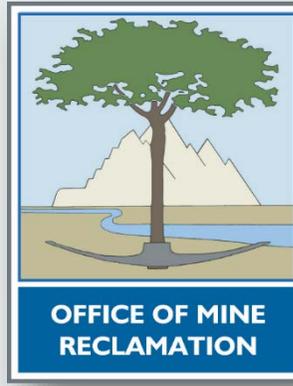
**OMR
&
CGS**



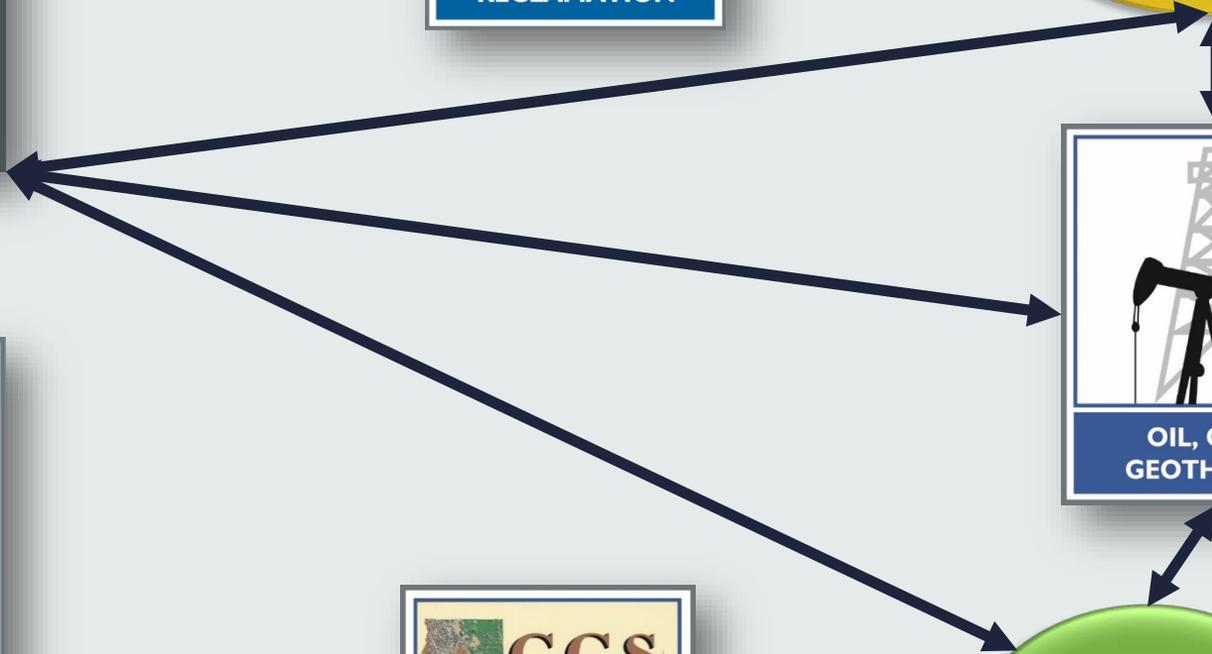
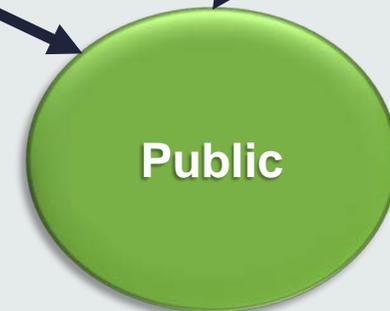
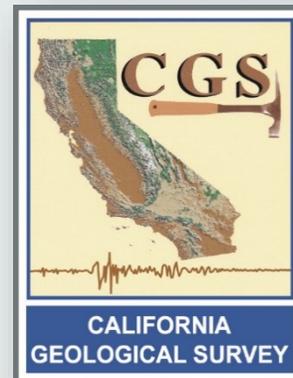
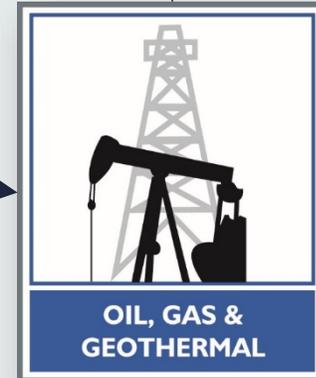
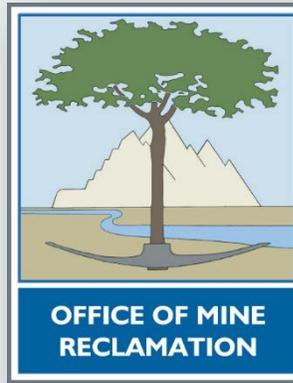
DOGGR & CGS



**DLRP,
Admin.,
HSRA,
Local Gov't.
& Public**

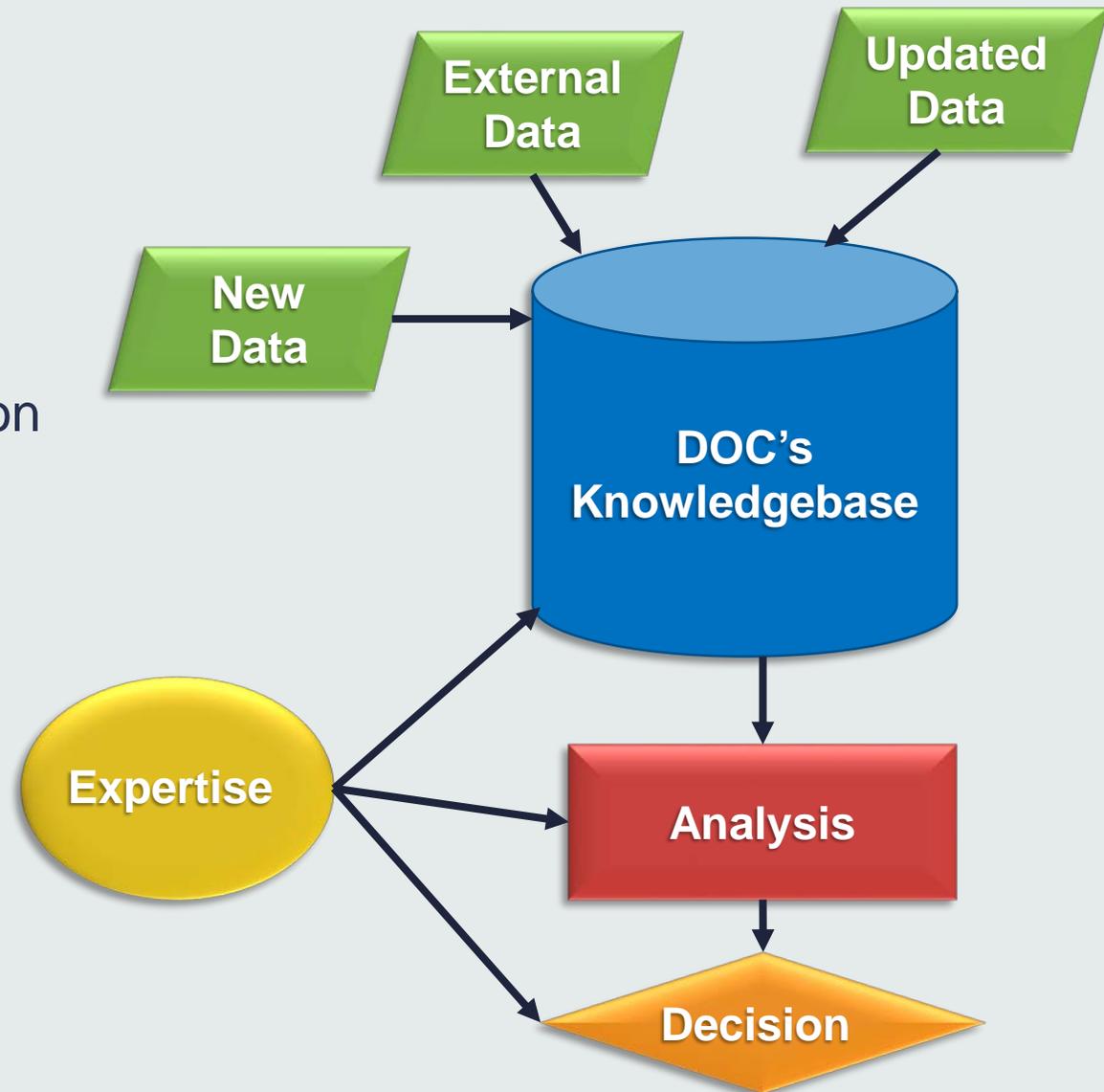


DOGGR, Admin., Other Gov't., & Public



Building the Foundation with High Quality Data & Analysis

- **DOC Created Data**
 - New Data Development
 - Older Data
 - Digitization/Cleaning/Integration
 - Field Data Collection
- **Submitted Data**
 - Reported Data
- **External Data**
 - Collaborators
 - Commercial



Oil & Gas Facilities Disaster Response

Mineral Production

Habitat Restoration

Mine Reclamation

Well Locations

Landslide Inventories

Well Types

Landslide Zones

Soils Mapping

Geologic Mapping

Abandoned Mines

Hospitals & School Review

Surface Deformation

Alquist-Priolo Zones

A-P Geotechnical Reports

Earthquake Engineering

Tsunami Inundation

Post-Fire Evaluations

Carbon Sequestration

Liquefaction Zones

Incident Response

Timber Harvest

Inspections

Mineral Hazards

Land Use Change

Risk & Loss Analysis

Well Stimulation

Shaking Hazards

Solar Facilities

Underground Injection

Oil & Gas Production

Agricultural Land Conservation Mineral Resource Classification

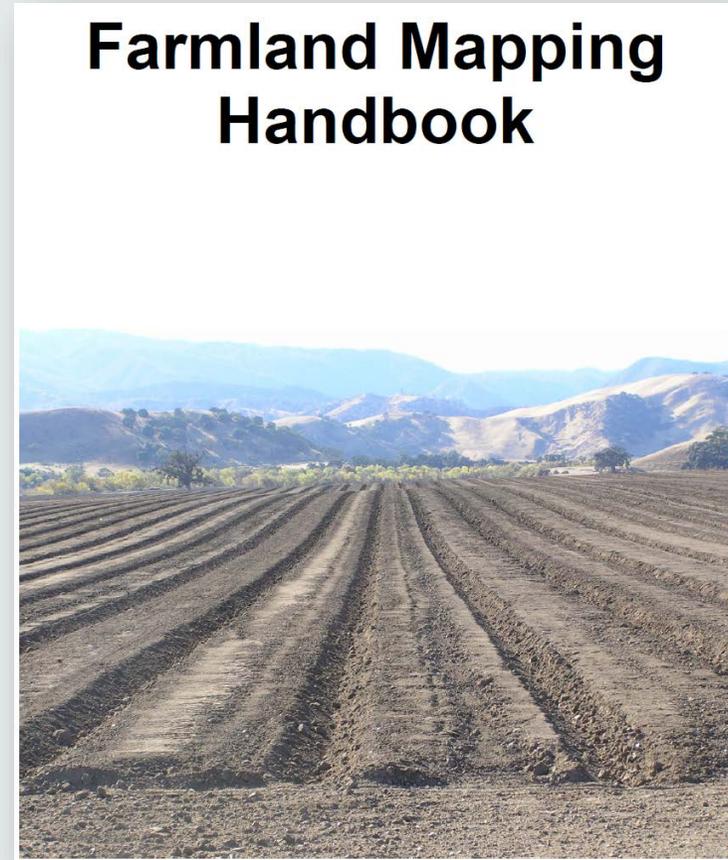
Farmland Mapping

Geospatial Data

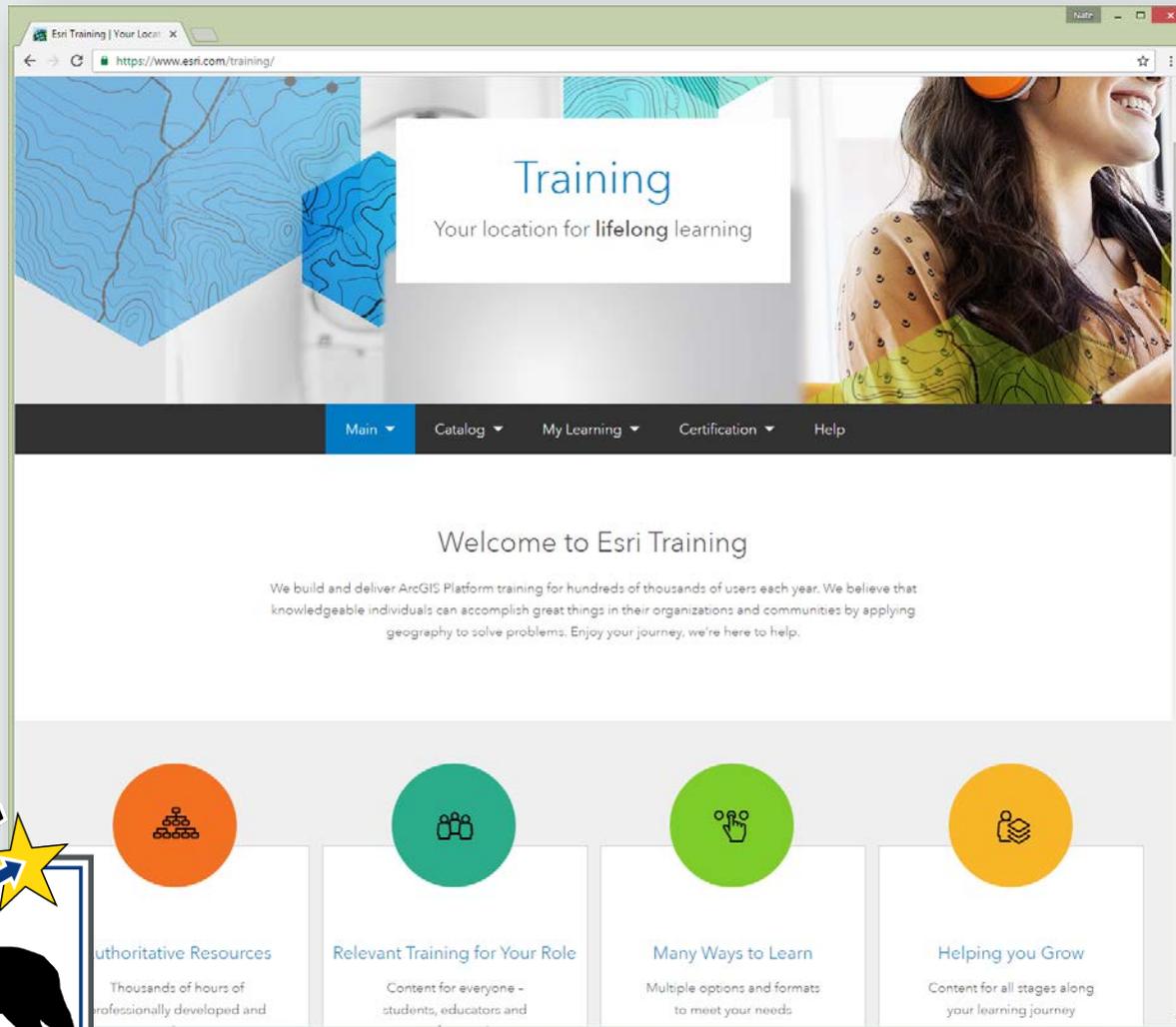


Documentation: Not Just Metadata

- Yes, Metadata is CRITICAL
- But so is a deeper understanding of the data's origins and a thoughtful discussion of its limitations, appropriate uses, and the opportunities that it may present.
- The Department is reviewing data creation methods
- Updating where appropriate
- And documenting data.



Improving Staff Capabilities

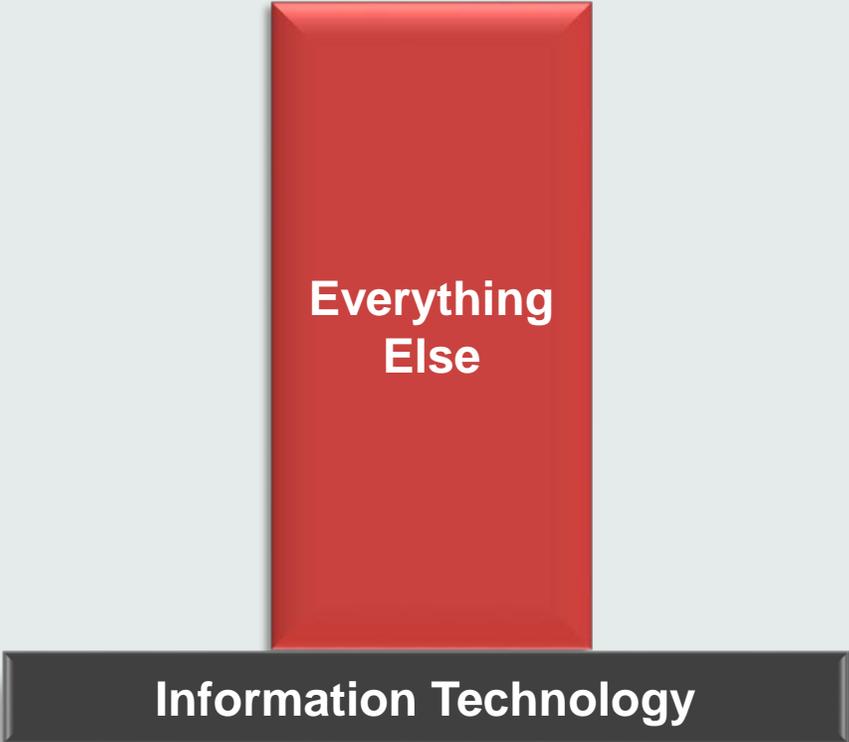


- Training
 - Internal
 - Formal Trainings
 - Mentoring
 - External
- Open the opportunity for cross-training
- Encourage open discussions (Hallway conversations)
- Enable publications and presentations



IT Supporting the Mission

- Using IT to empower subject matter experts
- Early and integrated engagement between IT and projects
- IT representatives with our programs



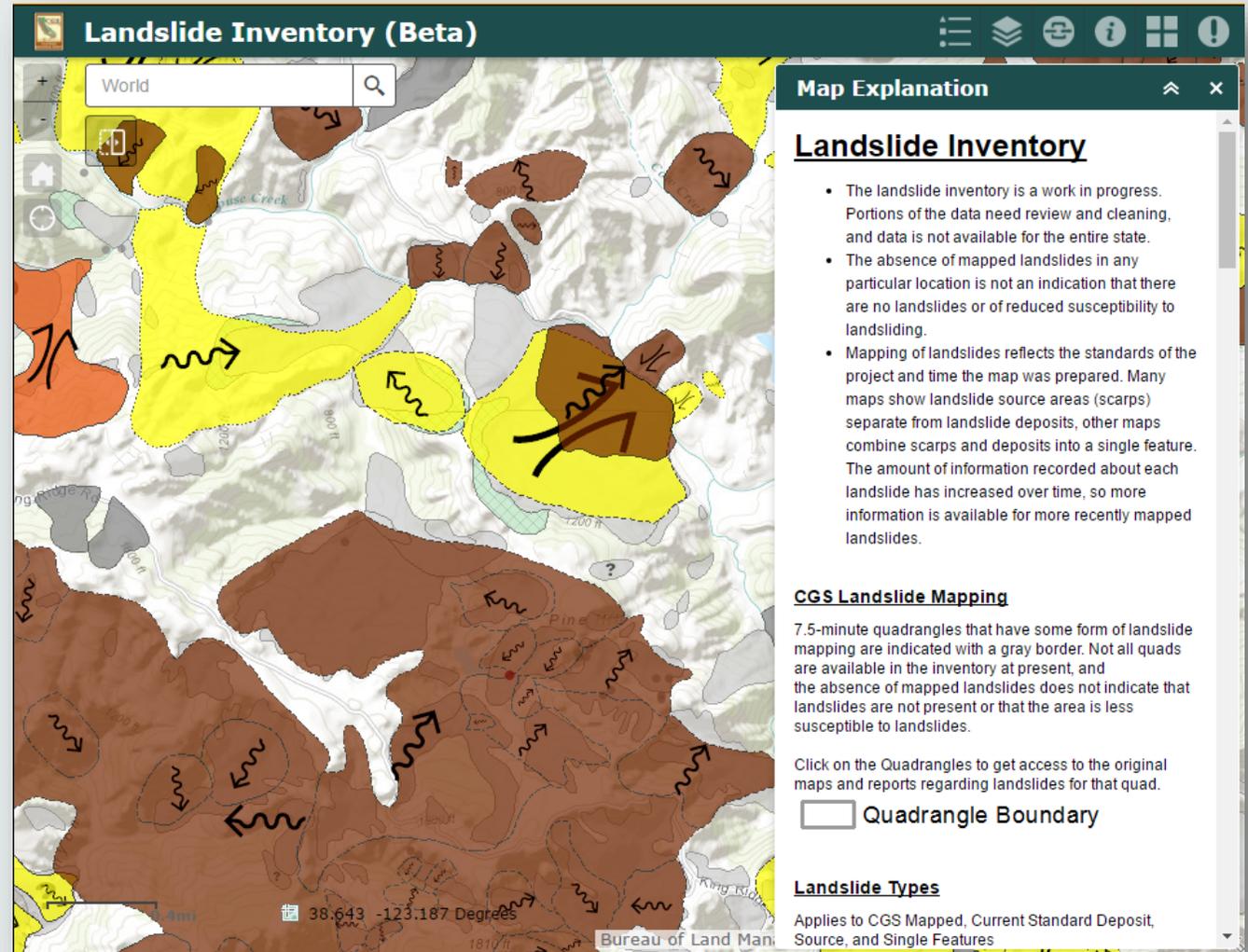
Everything
Else

Information Technology



Making the Data Accessible

- Accessibility is not just:
 - Downloadable data
 - Map services
 - Metadata
- It includes:
 - Explanatory materials
 - Context
 - Clear communication
 - Outreach



Department of Conservation

stagemaps:8080

Department of Conservation

Subject Areas Divisions Web/GIS Developers About Jobs

California Department of Conservation: Geospatial Data and Web Maps

The Department of Conservation provides services and information that promote environmental health, economic vitality, informed land-use decisions, and sound management of our state's natural resources. As home to the California Geological Survey, the Division of Oil, Gas, and Geothermal Resources, Division of Land Resource Protection, and Office of Mine Reclamation, spatial data informs virtually every aspect of the Department's activities.

The California Department of Conservation (DOC) is a prolific producer of spatial data and manages much of the data using Geographic Information Systems (GIS).

Quick Access

- **Subject Areas:** Curated data collections
- **Interactive Web Maps:** Subject specific web maps
- **Data Viewer:** Pick the data to explore
- **Divisions** in the Department of Conservation
- **Searchable Data List:** Find Data

Subject Areas

- Land Use Planning
- Agriculture
- Oil & Gas

What Should We Be Doing?

- Multiple Audiences
- Easy Navigation
- Searchable Content
- Accessible Metadata
- Data and Information Access
 - Web Applications
 - Downloadable data
 - Map Services
- Data Portals
 - Open Data

Thank You!



California Department of Conservation

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