



CEDEN

CALIFORNIA ENVIRONMENTAL DATA EXCHANGE NETWORK



California Environmental Data Exchange Network Update

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Presented to CWQMC
29 May 2013

Background

- The State Board relies on ambient water quality data to make decisions
- These data come from many sources in many forms, making them hard to access
- CEDEN was established as a means for collecting and making these data available

CEDEN's Mission

To simplify and improve access to California's water resource monitoring data by providing services that **integrate, standardize and display** data from the State's many diverse monitoring and data management efforts.



The Problem

- Numerous organizations collect environmental data
- Data can be difficult to locate and use
- These data are (typically) inconsistent
 - Databases/spreadsheets with different formats
 - Varied (or missing) Quality Assurance/Quality Control (QA/QC) protocols
 - Different field data collection procedures

Approach

- CEDEN improves data consistency and access
 - Data Templates and Documentation
 - Controlled Vocabulary / Comparable data
 - Local support via Regional Data Centers (RDC's) and Help Desk
 - Web-based access to ambient water quality data

Data types

Data Template	Notes
Chemistry	Includes results and lab batch data.
Field Collection and Results	Historic and current field and habitat data.
Taxonomic	Species results data, including benthic data (macro invertebrates, marine infauna) and algae.
Tissue	Analytes in fish, bivalve, bird, and mammal tissue (for both tissue collection and tissue results)
Toxicity	Summary, replicate and batch results.

Consistent terminology

- CEDEN uses standard names and codes
 - Analytes
 - Methods
 - QA/QC
- Makes data readily comparable/useable

Standard Names and Codes

CEDEN has developed a list of standard names and codes for describing data, called "Valid Value Lists". These lists make your data understandable to others and increase comparability among different data sources. They assist in matching your data with the valid value lists.

CEDEN Controlled Vocabulary

Choose which controlled vocabulary you want:

Do you also want to include all optional metadata values?

Choose the type of format you want:

Get Data

- Agency
- Agency
- Analyte
- BatchVerification
- CollectionDevice
- CollectionMethod
- Constituent
- DataCompliance
- DigestExtract
- Event
- Fraction
- LabSubmission
- LifeStage
- Location
- Matrix
- Media
- Method
- Organism
- ParentProject
- Program
- Project

New values are added to the lists each week as they are updated in the field. If there are additional values you would like to suggest for inclusion, please contact the CEDEN Help Desk: 831-771-4114.

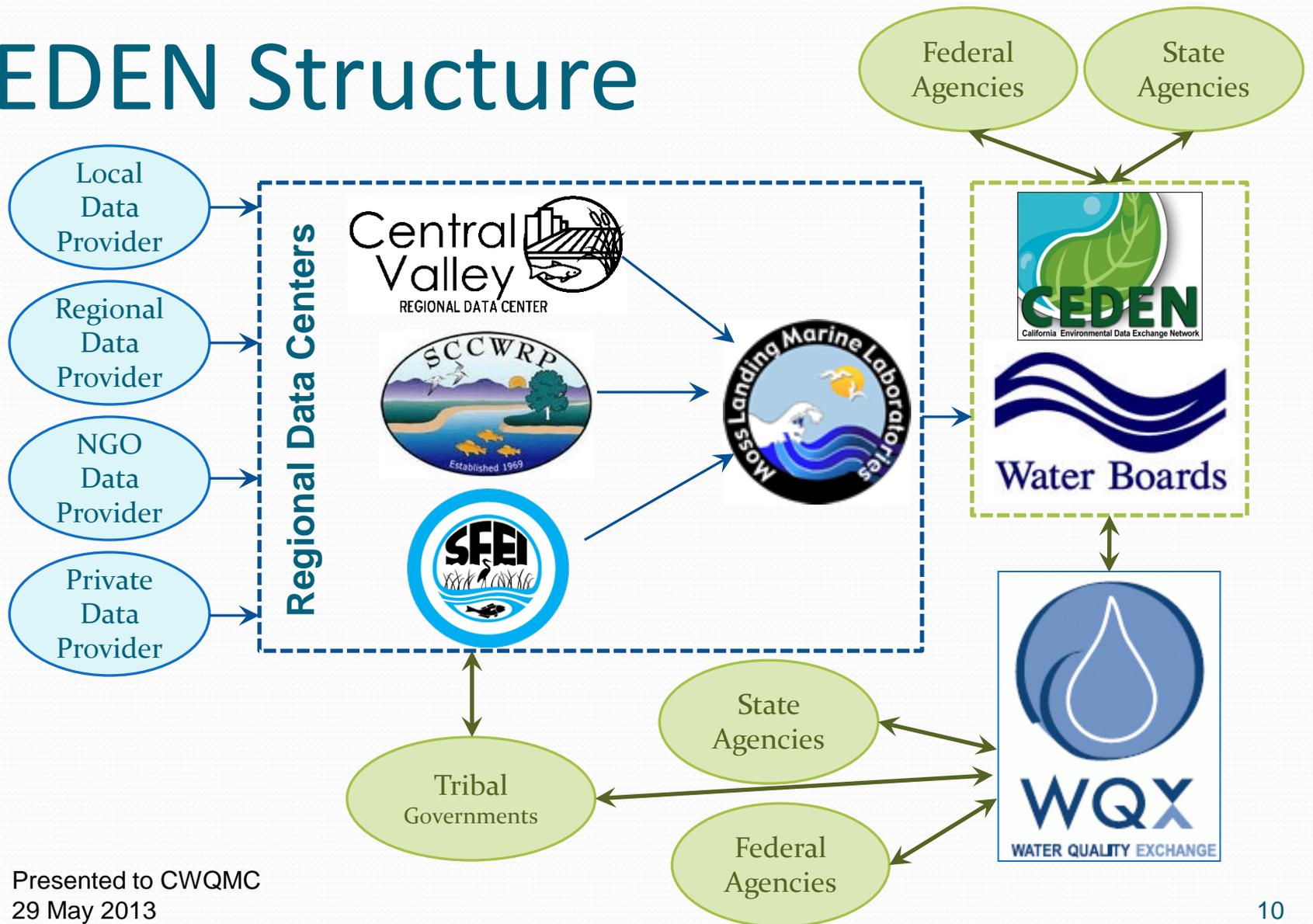
Please check the CEDEN website for more information.

User-focused support

- RDCs provide local, user-centric support
 - RDCs built upon known and trusted organizations
 - Leverage existing expertise of the data centers re: data types/methods
 - RDCs work collaboratively to integrate data
- CEDEN Help Desk



CEDEN Structure



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Data in CEDEN*

	Water Quality	Toxicity	Tissue	Benthic	Habitat
Programs	30	8	8	6	12
Projects	99	25	19	122	45
Results	3,456,554	290,349	712,819	214,294	2,456,707

Unique Programs	37
Unique Projects	234
Total Results	7,130,723

* Values current as of 5/28/2013

Data Output

- The CEDEN web site provides access to data in table format

Program	Station	Date	Parameter	Value	Unit	Method	Quality	Notes
Surface Water Ambient Monitoring Program	San Joaquin Hills	2/1/2012	Temperature	15.0	C	YSI	Good	
Surface Water Ambient Monitoring Program	San Joaquin Hills	2/1/2012	Dissolved Oxygen	8.5	%	YSI	Good	
Surface Water Ambient Monitoring Program	San Joaquin Hills	2/1/2012	pH	7.5		YSI	Good	

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Find Data | Submit Data | About CEDEN

Map | Satellite | Terrain

RESULT CATEGORY: Water Quality Toxicity Tissue Benthic Habitat

Click Map Stations at any time to show stations on the map

SELECT PROGRAMS:

SELECT PROJECTS:

SELECT PARAMETER GROUPS:

SELECT PARAMETERS:

SELECT STATIONS:

RETRIEVE DATA

Available date range: Jul-08-1996 to May-08-2012

From: To:

Records Count: 622272

Download Format:

Note: If number of records exceeds 60000, the data will be zipped and emailed to you.

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CEDEN as a Data Platform

- CEDEN provides “data-mart” services to make data accessible to external applications and websites:
 - Monitoring Council Portals
 - CEDEN data partners
- CEDEN interacts with other data systems
 - EPA – Water Quality eXchange (WQX)
 - California Integrated Water Quality System (CIWQS)



Challenges

- The landscape of data providers is diverse
 - Data providers don't (traditionally) focus on data management
 - Not everyone has a database manager – or even a database!
- Data analysis and interpretation is complex
 - Providing raw data is easy, but not useful for the majority of data users – continue finding ways to make data meaningful
- Resources are limited – need to prioritize
 - Historic data is more difficult than new data
 - There are new data types and methods to integrate

Future Vision

- Add capabilities for additional data types
 - e.g. continuous data, image data, additional geometry
- Enhance query and output tools
 - Geographic data searches (i.e. by region, watershed)
 - Develop data quality filters, compute indices and analysis tools
- Add interaction with other State water data systems and services



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Thank You Questions?

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www.ceden.org

