

# CEDEN WEB SERVICES DEMONSTRATION

CEDEN User Group Meeting – October 19, 2017

# WEB SERVICES OVERVIEW

- Allows users to query a database and programmatically access data in real time by sending requests via a URL (essentially an API, or Application Programming Interface)
- Facilitates development of custom tools and applications
- Contractor (Windsor) built web services for CEDEN, including 15 'Query Tool Services' – 1 for each combination of:
  - 5 monitoring data categories (Benthic, Habitat, Tissue, Toxicity, WaterQuality)
  - 3 data types (MonitoringStationsList, ParameterCountsList, ResultsList)
- Need an account (user name and password) to access CEDEN web services (contact Jarma)
- Multiple ways to access web services (programming languages, API clients, etc.), must be able to:
  - Authenticate (send a POST request)
  - Request data (send a GET request)
  - Convert the data returned by the request into a user-friendly format

# TOOLS FOR CONNECTING TO CEDEN WEB SERVICES

- R package
  - R is a programming language for data analysis and visualization (available at: [cran.r-project.org](https://cran.r-project.org))
  - Package contains a function (`ceden_query`) that helps interface with CEDEN web services:
    - Handles user authentication: `userName` and `password`
    - Retrieves data specified by query parameters (see the CEDEN web services documentation): `filter` (including: `Max`, `Min`, `Not`, `IsNull`, `IsNotNull`), `orderBy`, `Top`, `Skip`, `Distinct`
    - Returns data formatted in an R data frame (can be analyzed in R or exported to `.csv` file)
  - Instructions and examples at: [github.com/daltare/cedenTools](https://github.com/daltare/cedenTools)
  - Example application built with this R package is at: [daltare.shinyapps.io/ceden\\_web\\_services\\_test/](https://daltare.shinyapps.io/ceden_web_services_test/)
- Alternative (non-programming) option
  - [Restlet](#) client for Chrome browser
    - Send authorization request
    - Format a URL to request data, and manually download retrieved data as a `.csv` file
  - Instructions available at the bottom of the [GitHub site](#)

## QUESTIONS?

- For a CEDEN web services account, contact Jarma
- For help with tools to access CEDEN web services, contact me at: [david.altare@waterboards.ca.gov](mailto:david.altare@waterboards.ca.gov)
- Instructions available at: [github.com/daltare/cedenTools](https://github.com/daltare/cedenTools)