



Working Together for Clean Water

9TH NATIONAL MONITORING CONFERENCE



April 28 – May 2, 2014



Cincinnati, Ohio



SHORT COURSE:

Implementing Web-based Digital Technologies for Volunteer Monitoring, Watershed Stewardship Organizations & Agencies

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CWQMCN Facilitator
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Course Schedule 4-30-2014



8:00 am

Introductions 15 min

8:15 – 9:30 am

Session I -E. Burres 75 min

9:31 – 10:00 am

Break 30 min

10:01 – 11:30am

Session II – E. Burres 90 min



Why Investigate New Emerging Digital Technologies and Web-Based

- Emerging technologies are making it easier for small organizations to benefit from new digital web-based offering.
- These offering can assist administration, planning, monitoring, outreach, volunteer management and fundraising.
- Many of these applications can be used for little cost.



Clean Water Team Activities Using Non-Traditional Web-tools, Tools, Outreach, Education & Instruction to Support Citizen Monitoring

Since its beginning in 1999/2000 the SWRCB's Clean Water Team has been implementing digital technologies.

- » Provide easy access to water quality monitoring resources
- » Compliment real-time citizen monitoring coordinator assistance
- » Free or low cost to implement
- » Facilitates collaboration
- » Provides for legacy
- » Effective



Topics to Be Covered

- Blogs
- Cloud-based Virtual Desktops...
- Digital Storage
- Polls
- Data Display, Sharing & Transforming Data to Information
- Data Sources
- eMail
- Event Planning
- Fund Raising
- Mapping
- Mobile Solutions
- Modified URLs
- Picture/Image Sharing
- QR Codes
- Social Media: Facebook, LinkedIn, Twitter....
- Sound Sharing and Creation
- Video Creation, Collaboration, and Presentation
- Web-Tools: EMMA, StreamStats...
- Webinars
- Websites (Desktop, Mobile)
- More.....



Desktop Internet Access

- Text Rich
- Provides a platform for many different uses
- Very visible on large monitors
- Diversity of platforms and hosting options.

The screenshot shows the website for the California Environmental Protection Agency (CalEPA) State Water Resources Control Board. The page is titled "Clean Water Team (CWT) – Citizen Monitoring" and features a "WELCOME!" message. The mission statement reads: "Our Mission ... 'To build and support the State's Watersheds' Stewardship through citizen monitoring in order to reduce and prevent water pollution.'" The page includes sections for "Citizen Monitoring", "About the Clean Water Team", "General Information on Citizen Monitoring", "Quick Links", "Highlights", and "Clean Water Team Resources". The left sidebar contains links to various resources, including "Cal/EPA", "State and Regional Water Boards' Map", "Laws/Regulations", "Plans/Policies", "Programs", "Decisions Pending and Opportunities for Public Participation", "Water Quality", "Performance Report", "Website Feedback", and "SWAMP Resources". The top navigation bar includes links to "Home", "About Us", "Public Notices", "Board Info", "Board Decisions", "Water Issues", "Publications/Forms", and "Press Room". The bottom of the page displays the URL "www.ca.gov" and the word "tion".

www.waterboards.ca.gov/water_issues/programs/swamp/cwt_volunteer.shtml

Mobile Internet Access

Websites Optimized for Mobile Devices

- Less Text
- Simple Graphics
- Simple Purpose Driven Webpages
- Application Uses



Mobile Website

VS



Standard Website

Over one-quarter of smartphone users, use their device as the **primary way they access the Internet.**

- **1.6 billion** – Number of mobile devices sold to end users in 2010, an increase of almost 32% compared to the year before.
- **982 million** – Estimated number of smartphones to be sold in 2015.
- **80%** – The share of devices accessing mobile websites that have a touchscreen

By the end of 2014 there will be more cell phones on Earth than people.

Responsive Websites



Modified URLs

ORIGINAL:

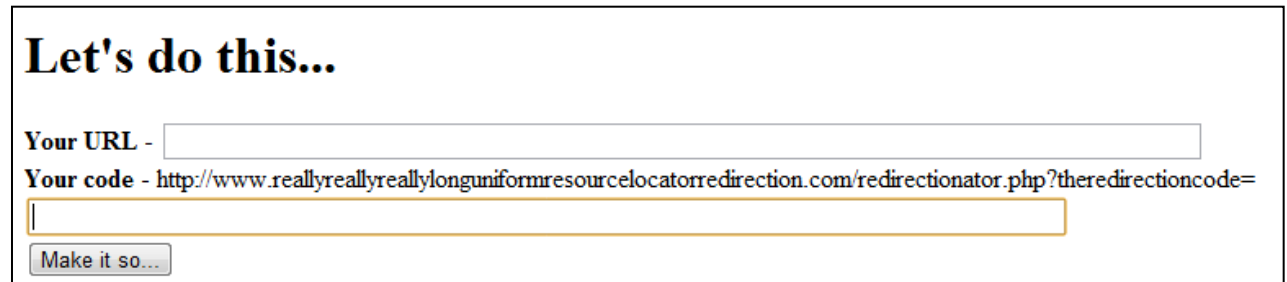
http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/cwt/guidance/112b.pdf

SHORTENED:

A screenshot of the TinyURL website interface. It has a light blue background. At the top, it says "Enter a long URL to make tiny:" in bold. Below this is a text input field and a button labeled "Make TinyURL!". Below the input field, it says "Custom alias (optional):" followed by another text input field. Below that, it says "http://tinyurl.com/" followed by the same text input field. At the bottom, it says "May contain letters, numbers, and dashes." in a smaller font.

<http://tinyurl.com/>

LENGTHENED:

A screenshot of a web form titled "Let's do this...". It has a white background. The first line says "Your URL -" followed by a long text input field. The second line says "Your code -" followed by a long text input field containing the URL "http://www.reallyreallyreallylonguniformresourcelocatorredirection.com/redirectionator.php?theredirectioncode=". Below the input fields is a button labeled "Make it so...".

www.reallyreallyreallylonguniformresourcelocatorredirection.com

Quick Response Code (QR Codes)



QR Codes are one of the most popular types of two-dimensional barcode/matrix barcode. Smart phones equipped with a scanner/reader (camera, app) find quick access to web content.

CONTENT TYPES

- Website URL
- YouTube Video
- Google Maps Location
- Twitter
- Facebook
- LinkedIn
- FourSquare
- iTunes Link
- Plain Text
- Telephone Number
- Skype Call
- SMS Message
- Email Address
- Email Message
- Contact Details (VCARD)
- Event (VCALENDAR)
- Wifi Login (Android Only)
- Paypal Buy Now Link
- And more....

Quick Response Code (QR Codes)

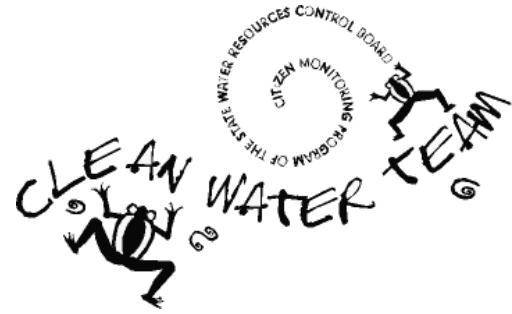
QR Codes are one of the most popular types of two-dimensional barcode/matrix barcode. Smart phones equipped with a scanner/reader (camera, app) find quick access to web content. (*Free QR Generator websites can be easily found on the internet.*)



QR Code



Color



Logo



Branded QR Code

Tip: QR codes can tolerate up to a 30% error (that's why one with an image can still function ok).

Website Analytics

Web analytics is the measurement, collection, analysis and reporting of web data for purposes of understanding and optimizing web usage.

Web analytics is not just a tool for measuring web traffic but can be used as a tool for business and market research, and to assess and improve the effectiveness of a web site.



Google Analytics generates detailed statistics about a website's traffic and traffic sources and measures conversions and sales. It can track visitors from all referrers, including search engines and social networks, direct visits and referring sites.



E-Mail

- Variety of Providers (Free and fee based)
- Address Books (User maintained)
- Listserves (Subscriber maintained)
- Services (Marketing, newsletters...)

Listserve:



Stay current on California's citizen monitoring activities

(workshops, grants, news, etc.) by subscribing to the "[Citizen Monitoring Program/Clean Water Team](#)" email list.

Personnel:

Contact the Clean Water Team by email: CWTmail@waterboards.ca.gov

Online Resources- Read/Download

1/2

GUIDANCE COMPENDIUM FOR WATERSHED MONITORING AND ASSESSMENT



CA.GOV CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

Home | About Us | Public Notices | Board Info | Board Decisions | **Water Issues** | Publications/Forms | Press Room

Programs | Available Documents | Hot Topics |

Office of Governor
Edmund G. Brown Jr.
Visit his Website

» Cal/EPA
» State and Regional Water Boards' Map
» Laws/Regulations
» Plans/Policies
» Programs
» Decisions Pending and Opportunities for Public Participation

Water Quality
Performance Report
Website Feedback

SWAMP Resources
» Home
» About

Skip to: [Content](#) | [Footer](#) | [Accessibility](#)

Search

☒ This Site ☐ California
Search best viewed using IE8

Home » Water Issues » Programs » Swamp

SWAMP – Clean Water Team Citizen Monitoring Program

GUIDANCE COMPENDIUM FOR WATERSHED MONITORING AND ASSESSMENT

Note: Monitoring Methods and Protocols described below are not endorsed specifically nor generally by the State Water Board or the SWAMP Program.

Table of Contents

Section 1.0	Introduction and Overview
Section 2.0	Field Procedures (e.g., sample collection)
Section 3.0	"Grab Samples" - Measurements Taken at One Point in a Water Body or in a Container (including Water Quality Fact Sheets)
Section 4.0	Stream Measurements (e.g., flow)
Section 5.0	Measurements Taken in a Watershed (e.g., rain)
Section 6.0	Geographic Information for Watershed Use (GIS & GPS)
Section 7.0	Programmatic Quality Assurance and Quality Control (QA, QC & QAPP)
Section 8.0	Data Quality Management (DQM)
Section 9.0	Volunteer & Staff Role-Specific DQM Materials
Appendices	Glossary and Web Links (Spanish)
Notes	About the Contents

www.waterboards.ca.gov/water_issues/programs/swamp/cwt_guidance.shtml

Section 1.0 - Introduction and Overview

1.1	Introduction	
	1.1.1	How to Use the Compendium (Information Paper about this set of 'how-to' manuals)
	1.1.2	Regulatory Framework : Water and Environmental Legislation
	1.1.2a	Introduction to the Clean Water Act
	1.1.2.a.1	Watershed Watchdog - Citizen Useage of the Clean Water Act
	1.1.2b	Introduction to the Waterboards
	1.1.2c	Primer on Stream and River Protection
	1.1.3	The Universe of Citizen Monitoring
	1.1.3.1	A Volunteer Monitoring Code of Ethics
	1.1.3.2	Introduction to the Clean Water Team and Citizen Monitoring in California
	1.1.3.3	Volunteer Monitoring National Facilitation Project [external link]
	1.1.3.4	Volunteer Monitoring Related Research [external link]
	1.1.3.5	Volunteer Monitoring in the San Francisco Bay
	1.1.3.6	Developing Relationships Between Public Agencies and Volunteer Monitors
	1.1.3.7	Monitoring Consortiums: A Cost Effective Means to Enhance Watershed Data Collection
	1.1.3.8	Broadening Participation in Biological Monitoring Projects
	1.1.3.8a	Citizen Bioassessment Monitoring- Successes & Challenges
	1.1.3.8b	Example of a Citizen Monitoring Bioassessment Program- Friends of Deer Creek
	1.1.3.8c	Vernal Pool Planning at a Local Level Using Citizen Scientists
	1.1.3.9	The Role of Citizen Based Monitoring Programs in Creating a Healthy Watershed
	1.1.3.9a	One Day Snapshot Finds Hotspots
	1.1.4	Introduction to Data Quality
	1.1.4a	Sound Science
	1.1.4.1	What are Good Data?
	1.1.4.2	The Clean Water Team (CWT) Data Quality Management System
	1.1.4.3	Basic Concepts in Data Quality
	1.1.4.4	Data Quality - Tips for getting it, keeping it
	1.1.4.5	The Mystery of Quality Assurance
	1.1.5	Watershed Characterization Strategies and Monitoring Goals
	1.1.5.5a	Watershed Characterization Strategies and Monitoring Goals
1.2	Making Citizen Monitoring Happen	
	1.2a	Beginning a Citizen Monitoring Program
	1.2b	Getting Started in Volunteer Monitoring

1.1.1 How To Use The Compendium

The purpose of this Compendium is to enhance the user's knowledge and ability to make decisions regarding measurements of water quality in various water bodies. It should be useful to field operators conducting water quality monitoring, technical advisors and trainers of citizen monitoring groups, agency staff, or any other person interested in water quality issues.

The Introduction you are reading now is part of the first section (Section 1) of the compendium, and it also includes introductory NON-GUIDANCE materials on a number of topics.

In contrast, Sections 2 through 9 consist of materials, collectively known as "protocols", organized in Folders by subject-matter or by specific water-quality parameters, and are intended to be used as "guidance and tools" in conjunction with monitoring and assessments or other watershed information gathering efforts. The guidance in Sections 2 through 9 is technical in nature, and designed to be used by citizen monitors or by others collecting watershed data. In addition, the Appendices to this Compendium provide useful information regarding funding sources for watershed-oriented activities. It must be noted that this Compendium does not include outreach and other materials regarding the administrative and organizational aspects of establishing watershed groups (for which the reader is referred to other publications), nor does it provide information relevant to advocacy and political activity.

The CWT Compendium is about collecting usable and reliable data of known quality. It takes different kinds of guidance and tools to accomplish this. In fact, the different kinds are like a ball that can be sliced in several dimensions of organization. Some folks slice it by "chemical-biological-physical" parameters while others slice it by "streams-estuaries-lakes". Because this is a compendium of methods, we have chosen to slice it by logistics, essentially starting with what you pack in your field kit and ending with how you report the quality of your data. In other words, it is sliced by what you want to do and what spatial scale it represents (Point? Line? Area?).

Each Section contains a number of Groups and each Group is made of several Folders, organized by subjects or in order of importance to Citizen Monitoring. A Folder is a package of documents providing information and guidance on a specific Parameter or subject. There may be four types of guidance document in each Folder:

Fact Sheet (FS) – these 2- to 5-page documents tell you why the parameter you are monitoring is important. They provide parameter-specific information regarding the ecological significance and the regulatory benchmarks that have been developed for that water quality parameter. Examples: how much ammonia is toxic to fish, or what are the water quality standards for dissolved oxygen. Note that FSs are not guidance documents. Each Fact Sheet has a unique identifier.

IP-3.1.1

DQM Information Paper 3.1.1 Dissolved Oxygen Measurement Principles and Methods

By Revital Katznelson, Ph.D.

1.0 About this Information Paper

(This section is essentially common to all DQM Information Papers. If you have seen it already,

please skip to Section 2 for our new "the Data Quality Management Team (CWT) where documented, scientific Specific Folders, we guidance in three types of Operation Procedure and the regulatory h SHEET. The techn method-menu. The provide step-by-step Quality Assurance/

This Information Paper provides "big picture" Trainer or a Technician to measure dissolved

Section 2 of this IP commonly used by information on the associated labor of chemical principles 4 provides practical (The Clean Water T Finally, the "Source as contact and webs

2.0 Selecting a Me

The concentration of 1 provides a "metho oxygen in water sam needs, level of oper project.

Fact Sheet 3.1.1.0

Dissolved Oxygen Fact Sheet

What is Dissolved Oxygen?

It is the amount of oxygen dissolved in water.

Why is it Important?

Most aquatic organisms

- Some species require h
- Other species do not re

If there is not enough o

- Death of adults and juve
- Reduction in growth,
- Failure of eggs/larvae to
- Change in species pres

How it is Measured?

Measuring DO

Color production: DO chemi
Winkler titration method: This
highly alkaline water.
DO Meter: electrical conducta

See IP-3.1.1(DO) in this folder

Reporting DO

Dissolved oxygen concen
(mg/l is also referred to
of fresh water, and a m
Percent saturation is rep
saturation, a value typic
what part of the holding

Folleto Informativo 3.1.1.0

Folleto Informativo Oxígeno Disuelto (OD)

¿Qué es el oxígeno disuelto?

Es la cantidad de oxígeno disuelto

¿Por qué es importan

La mayoría de los organismos a
Algunas especies requieren m
mosca de piedra.

Otras especies no requieren r
gusanos y las libélulas.

La insuficiencia de oxígeno disu

morte de adultos y jóvenes
reducción en el crecimiento
huevo y larvas malogrados
cambios que se presentan en la

¿Cómo se mide?

Medición de OD

Producción de color: kit de anál

Método de Winkler : válido par

Medidor de OD: conductividad d

Informe de OD

Concentración de OD: el oxí
como la cantidad de oxígeno
conoce también como el porce
por litro. La concentración en r
litro equivale a 1000 gramos de

SOP-3.1.1.1

Standard Operating Procedure (SOP) 3.1.1.1

By Erick Burres

DISSOLVED OXYGEN MEASURED WITH A COLORIMETRIC AMPOULE

Colorimetric ampoules are self-filling ampoules that contain pre-measured chemical reagents within a vacuum. By snapping the ampoule's tip, the sample will fill the ampoule automatically. A color forms almost instantaneously. Results can then be quantified by visual comparison or photometrically. Ampoules are available for colorimetric, photometric and titrimetric analysis for a variety of analytes.

Although the reagents are packaged within the ampoule caution is advised when performing any chemical operation. Some self-filling ampoule tests require the use of accessory reagents, which must be added directly to the sample. Disposal of all chemical materials is subject to governmental regulation. All tests will produce potentially dangerous sharp and pointed glass. These sharp objects must be handled and disposed of carefully.

The dissolved oxygen test employs the indigo carmine method. In an acidic solution, oxygen oxidizes the yellow-green colored leuco form of indigo-carmin to form a highly colored blue dye. The resulting blue color is proportional to the dissolved oxygen concentration in the sample. Test results are expressed in ppm (mg/l) dissolved oxygen.

Test Procedure (based on the Oxygen CHEMets® 1-12 ppm)

- 1) Fill the **sample cup** (provided in the kit) to the 25 ml mark with your sample.
- 2) Place the **ampoule** in the sample cup. Snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill, leaving a small bubble (air-space) to facilitate mixing.
- 3) Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each. Then wipe all liquid from the exterior of the ampoule. Wait 2 minutes for color development.
- 4) Hold the **comparator** (included with kit) in a horizontal position while standing directly beneath a bright light source (try to avoid reflective interference). Place the ampoule between the color standards moving it from left to right along the comparator until the best color match is found. If the colors do not match, a concentration estimate can be made (range).

www.waterboards.ca.gov/water_issues/programs/swamp/docs/cwt/guidance/111.pdf

Online Resources- Interactive ^{1/4}














www.dfg.ca.gov/abl/lab/california_referencecollection.asp

California Digital Reference Collection

California Digital Reference Collection Home | [Family Level](#) | [Level 1 Taxonomy](#) | [Level 2 Taxonomy](#)

Quick links (family-level):

[Ephemeroptera](#) [Odonata](#) [Plecoptera](#) [Hemiptera](#) [Megaloptera](#) [Neuroptera](#) [Trichoptera](#) [Lepidoptera](#) [Coleoptera](#) [Diptera](#) [Non-Insects](#)

Orders (Click the banner to jump to a specific order within the family-level page)	Habitus photo (Click thumbnail for larger image)	Distinguishing characteristics
Ephemeroptera		Three "tails" or cerci, with gills on abdomen (either dorsal or lateral, usually plate-like) and one tarsal claw.
Odonata		Mask-like labium; gills are internalized within the abdomen (Dragonflies) or external on the end of the abdomen (Damselflies).
Plecoptera		Two "tails" or cerci; gills (either plumose or finger-like) present on thorax, or on thorax and first few abdominal segments, two tarsal claws.
Hemiptera		"Half wings" – first set of wings half membranous and half sclerotized (looks like an "X"); piercing-sucking mouthparts
Megaloptera		Well-developed mandibles, four-segmented antennae. Head and abdomen are patterned; the head is also quadrate. Two claws on thoracic legs. Segmented lateral gills on abdomen.
Neuroptera		Long antennae, slender legs with single claws. Transparent gills on ventral side of abdominal segments. Mouthparts elongate and unsegmented.
Trichoptera		No "tails," just anal prolegs with claws; thorax partially or fully sclerotized, membranous abdomen. May have a "case" built of various materials
Lepidoptera		Head is distinct with a ring of simple eyes. Thorax and legs are segmented. Prolegs and anal prolegs present on abdominal segments.
Coleoptera		No anal prolegs but possibly claws. Bodies of larvae may be completely sclerotized; adults have a hardened first pair of wings ("elytra").
Diptera		Head may be sclerotized (and visible) or reduced. Legs are not sclerotized. Body fleshy (possibly with clawed prolegs) with various types of breathing structures on the tail end.
Non-Insects		Various characteristics, please see non-insects page.

Ephemeroptera

						
<u>Ameletidae</u>	<u>Ametropodidae</u>	<u>Baetidae</u>	<u>Baetiscidae</u>	<u>Caenidae</u>	<u>Ephemerellidae</u>	<u>Ephemeridae</u>
						
<u>Heptageniidae</u>	<u>Isonychiidae</u>	<u>Leptohyphidae</u>	<u>Leptophlebiidae</u>	<u>Oligoneuriidae</u>	<u>Polymitarcyidae</u>	<u>Siphonuridae</u>

Ephemeroptera

Ameletidae



Key Characters	Labrum with a median notch on distal margin, terminal filament subequal to cerci. Antennae usually shorter than width of head, maxillae with crown of pectinate spines. Abdominal gills with single oval lamella with a sclerotized band along lateral margin and usually with a similar band on or near mesal margin.
Tolerance	0
Distribution	CA, OR, WA, NV, AZ

 ORDER	HABITUS PHOTO	DISTINGUISHING CHARACTERISTICS
Ephemeroptera (mayflies)		Three "buds" or cerci, with gills on abdomen (either dorsal or lateral, usually plate-like and not tent-like)
Odonata (dragonflies, damselflies)		Male-like tritoma; gills are unsegmented within the abdomen (Dragonflies) or external on the end of the abdomen (Damselflies)
Plecoptera (stoneflies)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Hemiptera (true bugs)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Megalopectera (dobsonflies, fishflies)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Neuroptera (sawflies)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Trichoptera (caddisflies)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Lepidoptera (moths, butterflies)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Coleoptera (beetles)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Diptera (true flies)		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci
Non-Insects		Two "buds" on cerci; gills (either plumose or finger-like) present on thorax, as on thorax and first few abdominal segments; two tent-like cerci

Back

Forward

Plecoptera












Return to Order

Back

Forward

Perlidae







Key Characters	Paraglossae much longer than glossae; tips of paraglossae distinctly rounded. Filamentous and highly branched gills extending laterally from ventral side of thorax. Usually peristomatic.
Tolerance	1
Distribution	CA, OR, WA, NV, AZ

Return to Order

Return to Perlidae

TOUCH SCREEN NAVIGATION

Back

Forward

Perlidae







Key Characters	Paraglossae much longer than glossae; tips of paraglossae distinctly rounded. Filamentous and highly branched gills extending laterally from ventral side of thorax. Usually peristomatic.
Tolerance	1
Distribution	CA, OR, WA, NV, AZ

Return to Order

Return to Perlidae

Anatomic Detail



Emerging Technologies

Mobile Devices and Macro Lens Adapters

Taking a microscope and camera creekside has its challenges. Fortunately the abundance of smart phones and computer tablets is making this task a breeze. Many manufactures have been creating lens adapters for phone-photographers that allow citizen scientists the ability to magnify and photograph benthic macroinvertebrates on their phones and tablets.

The Clean Water Team tested some of the more popular smartphones and learned that about the best magnification to be expected is 4x. Not exactly great for looking at benthic macroinvertebrates. This is where the use of macro and microscope lens adapters for smartphones become advantageous.

There is range of diversity among the adapters in price, whether it has a LED light and how they connect to the phone. Some of the adapters require the use of a dedicated phone sleeve while others were clipped on the phone or attached with a magnet. Ideally 10x and up is the desired range of magnification, unfortunately most adapters have a minimum magnification above 100x.

The Clean Water Team tested 4 lens adapters. We looked at clearance between the lens and the subject being looked at, ease of attaching to the phone, and magnification results. The best adapters and a selection of the images they produced can be seen below. We really liked the magnetic macro lens as seen in the middle. It's easy to attach the lens and its very small so carrying it around is not an issue. The clip type of lens adapter provided good magnification. It had a few draw backs such as getting the lens lay flat against the phone and its size. The adapter seen in the bottom right had a LED which seemed very useful. Unfortunately this adapter had very little clearance so it could not be used on all of the benthic macro invertebrates used in our test.

All of lens adapters tested cost less than \$10.00 and our favorite was under \$5.00. More expensive adapters exist as do some that attach your smartphone to a microscope.

For those organizations and education programs using a non-lethal benthic macroinvertebrate sampling procedures such as the [California Streamside Biosurvey](#) these tools could assist in documenting what organisms were seen. Likewise they could assist with Quality Assurance/Quality Control. These tools also make it easy to share your images via Facebook, Twitter or Instagram.



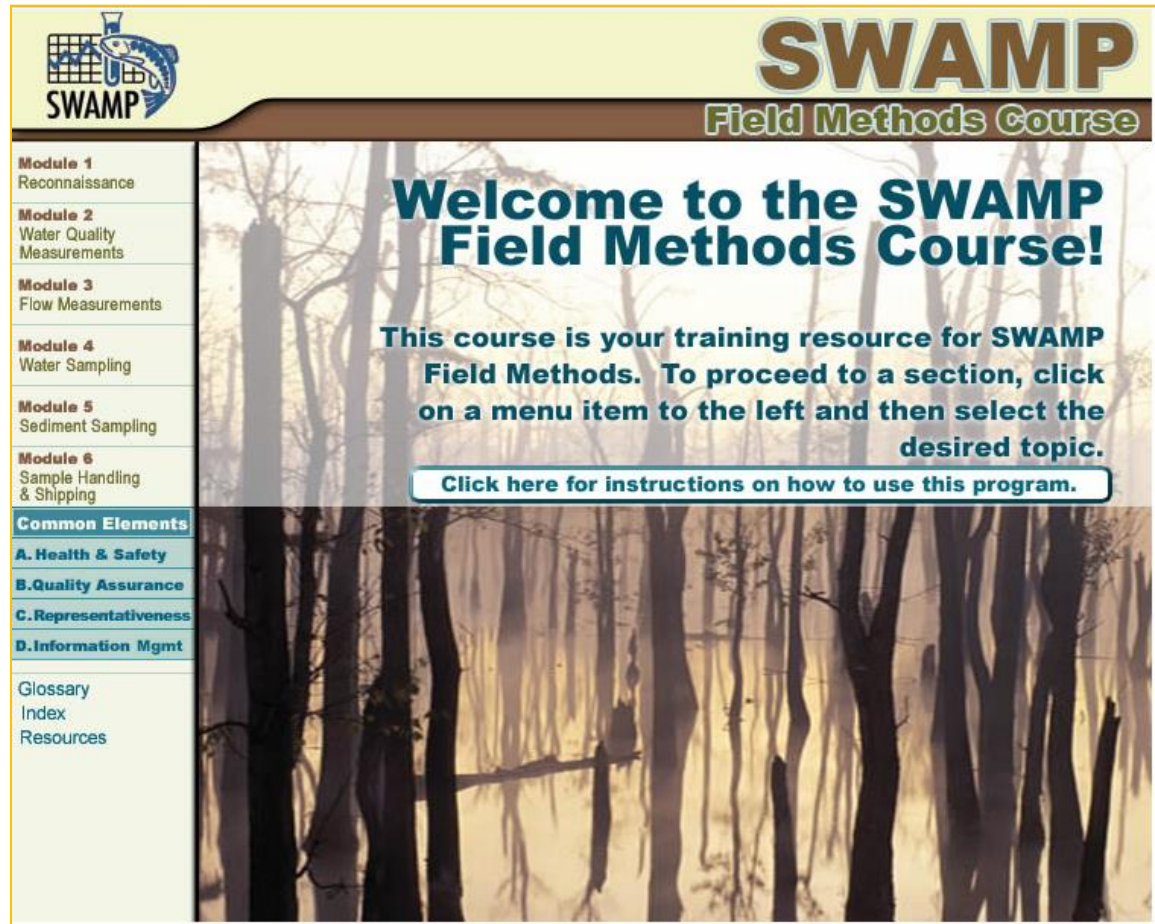
Tips:

- Use a tripod adapter and tabletop tripods as a camera grip.
- Use a shutter release cable (iPhone ear-buds can be used as a shutter release. Just squeeze the volume control. (You can also use the iPhone's volume control buttons to take a picture.)



Interactive Media ^{1/3}

Now complete with
the addition of
Module 7: Biological
& Physical
Assessments



http://water101.waterboards.ca.gov/swamp/qapp_advisor/FieldMethods/start.html/



SWAMP

Field Methods Course

Module 1
Reconnaissance

Module 2
Water Quality
Measurements

Module 3
Flow Measurements

Module 4
Water Sampling

Module 5
Sediment Sampling

Module 6
Sample Handling
& Shipping

Common Elements

A. Health & Safety

B. Quality Assurance

C. Representativeness

D. Information Mgmt

Glossary
Index
Resources

Module 2 - Water Quality Measurements



What's in this Module?

Topic 2.1 Introductions

Topic 2.2 Preparations for a Trip

Topic 2.3 Instrument Calibration and Accuracy Checks

Topic 2.4 Field Observations

Topic 2.5 Access and representativeness

Topic 2.6 WQ Measurements

Topic 2.7 Data Loggers





SWAMP

Field Methods Course

Module 1
Reconnaissance

Module 2
Water Quality
Measurements

Module 3
Flow Measurements

Module 4
Water Sampling

Module 5
Sediment Sampling

Module 6
Sample Handling
& Shipping

Common Elements

A. Health & Safety

B. Quality Assurance

C. Representativeness

D. Information Mgmt

Glossary
Index
Resources

Module 2 - Water Quality Measurements

Topic 2.1 Introductions

2.1.1 Measurement Quality Objectives (MQOs)

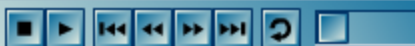


- MQOs are based on the extent of measurement error that we can tolerate
- Accuracy = how far is the result from the true value
- Precision = closeness of two measurements taken at same place and same time

Examples of MQOs for accuracy of field measurements

Dissolved Oxygen	+/- 0.5 mg/l
Specific Conductivity	+/- 5%
Temperature	+/- 0.5 C
pH	+/- 0.3 units

[Read about
Quality Assurance](#)



Page 3 of 23

[PREVIOUS](#)

[NEXT](#)

Expert Systems & Web Based Tools

Web-based tools provide information accessible to internet users.



Expert Systems are interactive software programs or on-line tools that compile user input into a content rich product.

At the same time, the user learns the rationale for the requested input and gains direct access to supporting information and resources.

Expert System – SWAMP Advisor

Currently in need of an update to sync with the new SWAMP QA Website.



http://swamp.waterboards.ca.gov/swamp/qapp_advisor/

This is an interactive on-line tool that compiles user input into a Quality Assurance Project Plan (QAPP).
(Similar to tax preparation software.)

Webinar Tutorial:

<https://waterboards.webex.com/waterboards/ldr.php?AT=pb&SP=MC&rID=40383757&rKey=d55073413666e505>

EMMA Environmental Monitoring & Measurement Advisor

EMMA combines decision criteria based on systematic planning (including all elements of EPA's Data Quality Objective (DQO) process), your specific project needs, and methods information from the new National Environmental Methods Index (NEMI). It also incorporates the latest information from EPA's new Triad Approach and EPA's new Performance and Acceptance Criteria (PAC) Process. www.emma-expertsystem.com



- The first module incorporates decisions based on what, where, when, why, and how you plan to monitor a site (including your QA/QC requirements and budget).
- The second module (Method Selection) is freely available on the NEMI web site so that it can be used with NEMI and people can become familiar with the expert system and how it works.
- The third module calculates how many samples you'll need for your project requirements and matches that to your available budget and desired confidence levels in the data



StreamStats

StreamStats is a map-based Web application that provides information that can be used by engineers, hydrologists, managers, planners, and others to make informed decisions on water-related activities

Primary products are basin delineations, basin characteristics, and estimates of streamflow statistics

Provides information for gaged and user-selected ungaged sites on streams

<http://water.usgs.gov/osw/streamstats/>

Integrated Ocean Observing System

SCCOOS

Available Products

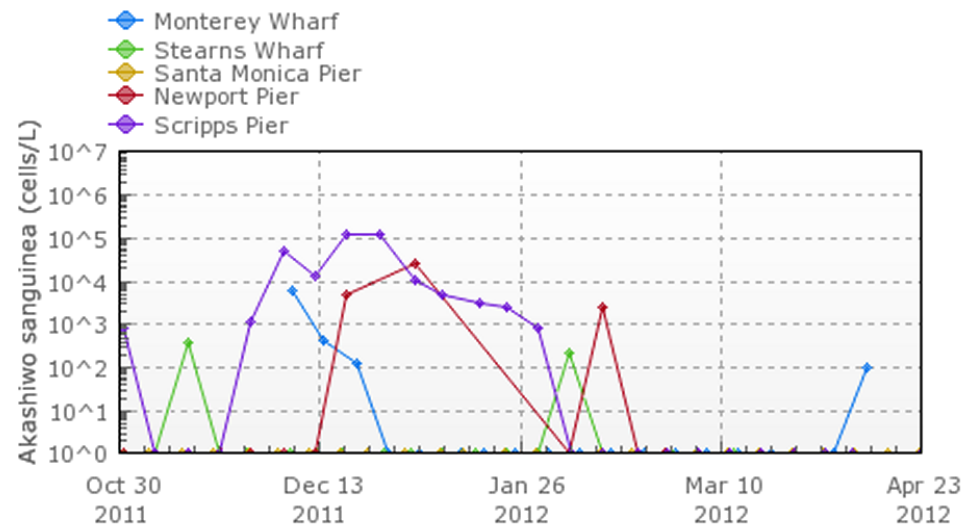
Automated Shore Stations
Bathymetry
CA ASBS System
Gliders
Harbors
Harmful Algae & Red Tides
Manual Shore Stations
Meteorological Observations
Moorings
Plume Tracking
ROMS Model Output
Satellite Imagery
Ship Tracking (AIS)
Ship Casts
Surface Current Mapping
Wave Conditions (CDIP)
Winds & Rainfall Forecasts



Available Services

Grab Raw Data
Advanced Mapping
Applications
KML Feeds

Harmful Algal Blooms *Akashiwo sanguinea* Data



National Environmental Methods Index

NEMI is an online clearinghouse of environmental monitoring methods. The NEMI database contains chemical, micro-biological and radiochemical method summaries of lab and field protocols for regulatory and non-regulatory water quality analyses.



Search for a method in NEMI:

Chemical Microbiological Biological Toxicity Physical Regulatory

Use the links below to search all chemical, microbiological, biological, toxicity, and physical methods in NEMI, or follow the tabs to the right to narrow your search

- ▶ Analyte Search
- ▶ General Search
- ▶ Multi-Analyte Search

- ▶ Find a Sample Collection, Preparation or Processing Method
- ▶ Browse all Methods in NEMI

<https://www.nemi.gov/apex/f?p=237:1:6969553414583588>

Methods for Environmental Measurements and Observations

MEMO is designed to bring together information from NOAA's Alliance for Coastal Technology (ACT) and the National Environmental Methods Index (NEMI).

The ACT Technology Database is a continuously updated catalogue of instrumentation used for coastal and ocean science and observations, designed to help you identify technologies available to meet your specific needs. Search by environmental parameters, sensor types or manufacturers

MEMO BETA

Methods for Environmental
Measurements and Observations

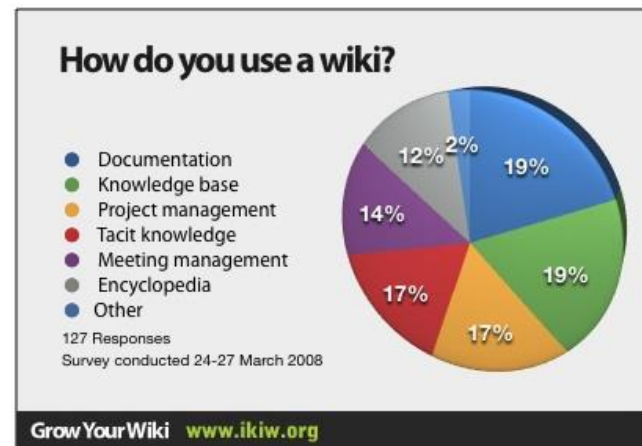


<http://infotrek.er.usgs.gov/apex/f?p=240:1:4268341843800101>

MEMO - Search for DO Sensors

Sensors (Source: Alliance for Coastal Technologies)					
Name	Model Name	Analyte	Accuracy [†]	Sample Rate	Manufacturer
Global Water CelloX 325 Dissolved Oxygen Electrodes	CelloX 325 Dissolved Oxygen Electrodes	Dissolved Oxygen	-	-	Global Water
Global Water DurOx 325 Dissolved Oxygen Electrode	DurOx 325 Dissolved Oxygen Electrode	Dissolved Oxygen	-	-	Global Water
YSI EcoSense (R) 200-BOD	EcoSense (R) 200-BOD	Dissolved Oxygen	Temperature: +/-0.3 degC +/- 1 digit DO: +/-2% of the reading or +/-2% air saturation, whichever is greater	-	YSI
JFE ALEC CO LTD Compact DOW	Compact DOW	Dissolved Oxygen	DO: +/- 1%, Temperature: +/- 0.05 degC	0.5,1,2,5,10,15,20,30(sec.)	JFE Advantech Co
Aanderaa Data Instruments Oxygen Optodes 3835/4130/4175	Oxygen Optodes 3835/4130/4175	Dissolved Oxygen	<5%	1s to 255 minutes	Aanderaa Instruments
Sea-Bird Electronics SBE 43 Dissolved Oxygen Sensor	SBE 43 Dissolved Oxygen Sensor	Dissolved Oxygen	2% of saturation	-	Sea-Bird Electronics
AMT Shallow Water DO Micro-sensor	Shallow Water DO Micro-sensor	Dissolved Oxygen	2% (measuring value)	200ms	AMT
YSI ProODO	ProODO	Dissolved Oxygen	1% or 15% of reading; +/-0.2 degC; +/- 1.5 mmHg from 0 to 50 degC	-	YSI
Global Water WQ-FDO Optical Dissolved Oxygen Transmitter	WQ-FDO Optical Dissolved Oxygen Transmitter	Dissolved Oxygen	1% of reading or 0.02 ppm, whichever is greater (DO); +/-0.1 degC (temp)	-	Global Water
Eureka Environmental Manta2 Optical Dissolved Oxygen Sensor	Manta2 Optical Dissolved Oxygen Sensor	Dissolved Oxygen	0.1 mg/L < 8 mg/L, 0.2 mg/L 8-25 mg/L	-	Eureka Environmental
Global Water DO600 Dissolved Oxygen Meter	DO600 Dissolved Oxygen Meter	Dissolved Oxygen	+2.0%FS	-	Global Water
YSI 550A Dissolved Oxygen Instrument	550A Dissolved Oxygen Instrument	Dissolved Oxygen	+/-2-6% of reading; +/-0.3 degC	-	YSI
Aquamatic Oxygen Sensor	Oxygen Sensor	Dissolved Oxygen	+/-2%	-	Aquamatic
Campbell Scientific CS511-L Dissolved Oxygen Probe	CS511-L Dissolved Oxygen Probe	Dissolved Oxygen	+/-2%	-	Campbell Scientific
In-Situ Clark Cell DO Sensor	Clark Cell DO Sensor	Dissolved Oxygen	+/-0.2 mg/L	-	In-Situ
HACH Environmental Dissolved Oxygen Sensor	Dissolved Oxygen Sensor	Dissolved Oxygen	+/- 0.2 mg/L for 20mg/L or less, +/- 0.6 mg/L for over 20 mg/L	-	HACH Environmental
HACH Environmental Hach LDO Sensor	Hach LDO Sensor	Dissolved Oxygen	+/- 0.1 mg/L at <8 mg/L; +/- 0.2 mg/L at >8 mg/L; +/- 10% reading >20 mg/L	-	HACH Environmental

Wikis



A wiki is a website whose users can add, modify, or delete its content via a web browser using a simplified markup language or a rich-text editor. Most are created collaboratively.

- Wikis may serve many different purposes, such as knowledge management and notetaking.
- Wikis can be community websites and intranets.

Some permit control over different functions (levels of access).

- For example, editing rights may permit changing, adding or removing material.
- Others may permit access without enforcing access control.
- Other rules may also be imposed for organizing content.

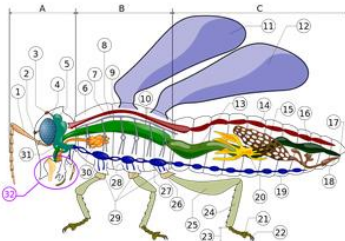
Wiki Examples



WaterWiki.net - The Wiki for Water Professionals worldwide. Find water & sanitation related materials, knowledge and experience from UN practitioners, agencies and their programs around the globe - and contribute your own!



Envirowiki is a wiki for the environment movement. It is a place for drawing together theoretical, scientific, and practical knowledge on environmental issues. And anyone can edit and contribute.



Insect morphology

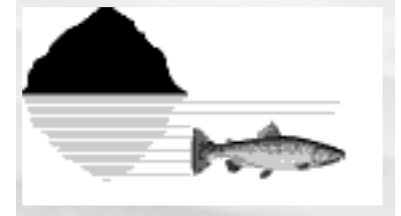
www.quickikiwiki.com/en/Insect_morphology

Example of a Wiki Use

Contents [hide]

- 1 Goals and Objectives
- 2 CCAMP Monitoring Design
- 3 Plans for Future Monitoring
- 4 Methods and Indicators
 - 4.1 Conventional Water Quality
 - 4.2 Bioassessment
 - 4.3 Sediment and water toxicity
 - 4.4 Sediment chemistry
- 5 Monitoring Sites
- 6 Integration with SWAMP
 - 6.1 Program Management
 - 6.2 Field Activities
 - 6.3 Data Management
 - 6.4 Quality Assurance
- 7 Quality Assurance
- 8 Data Management
 - 8.1 External Data
 - 8.2 Internal Data
- 9 Data Analysis and Assessment
 - 9.1 Typical Analytical Approaches
 - 9.2 Clean Water Act Assessments
 - 9.3 Web Assessment
 - 9.4 Vision Assessment
 - 9.5 SWAMP Assessment
- 10 Data Applications and Presentations
- 11 Reporting
 - 11.1 Link to J Hunt Report Notes
- 12 General Support and Infrastructure
- 13 Budget and Financial Resources
 - 13.1 SWAMP
 - 13.2 CCAMP Endowment Fund
- 14 Staffing
- 15 Related Monitoring Activities
- 16 Programmatic Evaluation

A Succession Plan for the Central Coast Ambient Monitoring Program



"Planning for the Future"

The CCAMP mission is to collect, assess and disseminate water quality information to aid decision makers and the public in maintaining, restoring and enhancing water quality and associated beneficial uses in the Central Coast Region.

There are several CCAMP programmatic objectives:

- Assess watershed condition on a five-year rotational basis, using multiple indicators of health.
- Assess long-term water quality trends at the lower ends of coastal creeks.
- Conduct periodic assessments of harbors, estuaries, lakes and near-shore waters using multiple indicators of health.
- Support investigations of other water quality problems, including emerging contaminants, sea otter health, pathogenic disease, toxic algal blooms and others.
- Provide water quality information to users in accessible forms to support decision-making (www.ccamp.org).
- Collaborate with other monitoring programs to promote effective and efficient monitoring.

www.ccamp.net/ccamp/index.php/Main_Page



AQUAPEDIA

Water Education Foundation's online water
encyclopedia. Vetted information from an objective
source.

[Click here for a list of topics.](#)

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[Top 10 Searches](#)

[About Aquapedia](#)

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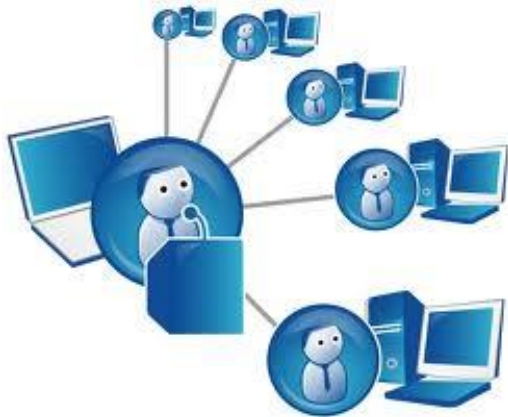
[Contact Us](#)

Webinars

Web conferencing services that allow conferencing events to be shared with remote locations.

What

- Web-cast seminars
- VOT-Voice over telephone (conference call)
- OVOI-Voice over internet
- Reservations or no reservations
- Recordable



Uses

- Timely presentations of emerging topics
- Real-time discussions
- Collaborations/ Networking
- Live access via internet and smartphones
- 24/7 access to webinar recordings
- Training
- Viewing rooms
- Enrichment
- Participate and review

Webinar Services

Web conferencing services vary from free to fee based use and subscriptions.

Options also vary: length, recording, VIO, VOP, number of attendees, showing video...



Examples:

Verizon Small Business Web Conferencing
Microsoft Office Live Meeting
Adobe Acrobat Connect Pro
Cisco WebEx (supports mobile devices)
Any Meeting
GatherPlace
Freebinar

CWQMCN CWT Facilitated Webinars

California Water Quality Monitoring Collaboration Network Webinar Series



WEBINARS: 6/2009-6/2012

- Water Quality Goals
- StreamStats: A Streamflow Web Application
- Finding the Right Funders
- Biological Condition Assessments of California's Perennial Wadable Streams: Highlights from the SWAMP's PSA
- An Introduction to the Concept of Reporting Limits
- Yurok Tribe Water Quality Monitoring Program: A Tribal Perspective on the Development of a Comprehensive Water Quality Monitoring Program
- The Stream Pollution Trends Program (SPoT)
- Integrated Watershed Management
- Monitoring Trash, TMDLs and Efforts Towards Compliance
- Health and Safety Responsibilities for Program Managers of Water Quality Monitoring Projects
- Introduction to the National Environmental Methods Index (NEMI)
- Selecting and Working With Laboratories
- Application of the USGS SPARROW model to Understand Nitrogen and Phosphorus Transport in California
- Water Quality Monitoring Sensors
- Monitoring Diagnostics-Demonstration of the Central Valley Monitoring Directory
- Introductory Mine Waste Characterization
- Collaborations for Healthier Streams: California Watersheds and AmeriCorps Programs
- Using the California Data Exchange Network (CEDEN)
- Developing a Comprehensive Watershed-wide Monitoring Program for Surface Water
- An Introduction to the California Rapid Assessment Method (CRAM) for California Wetlands
- Riparian Proper Functioning Condition Assessment (PFC) as a Tool to Inform Land Managers About Priorities for Addressing Water Quality
- Invasive Species Risk Assessment and Planning (ISRAP): A New Tool for Managing the Risk of Moving Aquatic Invasive Species in Natural Resource Monitoring and Management Activities
- Developing a California Whole System Report Card
- Site-Specific Profiles of Fish Fertilization in Surface Waters of California Indicate Multiple Causes of Bacteriologic Activities
- Orange County CoastKeeper: Redefining the Realm of Citizen Monitoring
- Microbial Source Tracking (MST)
- Genetic Testing of Cyanobacteria Blooms
- Friends of Deer Creek: Linking Science, Water and People
- Aquatic Invasive Species
- Citizen Monitoring in Watersheds Flowing to the Monterey Bay National Marine Sanctuary
- Clean Water Act (CWA) & SDG(S) Solicitation and Data Submission Process
- California Data Uploading and Checking System
- California Clean Water Team
- California Water Quality Monitoring Council

www.waterboards.ca.gov/mywaterquality/monitoring_council/collaboration_network/index.shtml

<http://www.webex.com/>

h2o monitoring

Subscribe

13



Bio-Monitoring of Freshwater Flora and Fauna

11 videos 10 months ago



QA/QC for Water Monitoring Projects

3 videos 10 months ago



Cyanobacteria (Blue-green Algae)

2 videos 5 months ago



Water Quality Monitoring Projects

6 videos 10 months ago



Aquatic Invasive Species

4 videos 6 months ago



Microbial Monitoring

3 videos 6 months ago



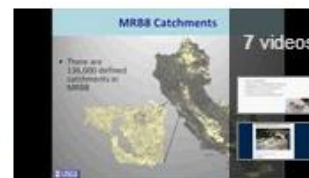
Regional Monitoring Programs

6 videos 10 months ago



Water Quality Standards & Communication

4 videos 10 months ago



Web-based Tools, Apps and Programs

7 videos 10 months ago



Organizational & Development Support

4 videos 10 months ago



Nutrients & Eutrophication

4 videos 10 months ago



Chemicals of Emerging Concern (CECs)

3 videos 10 months ago



Citizen Monitoring Programs

7 videos 10 months ago

www.youtube.com/CWQMCN

Maps



esri

Powered by

Google
Maps™



batchgeo
Mapping should be this easy

planiglobe®



ZeeMaps
We map your lists

Mobile Maps

We have native and cross platform apps for many GPS enabled mobile phones and tablets including:

- ◊ iPhone and iPad
- ◊ Android
- ◊ Blackberry
- ◊ Windows Phone 7



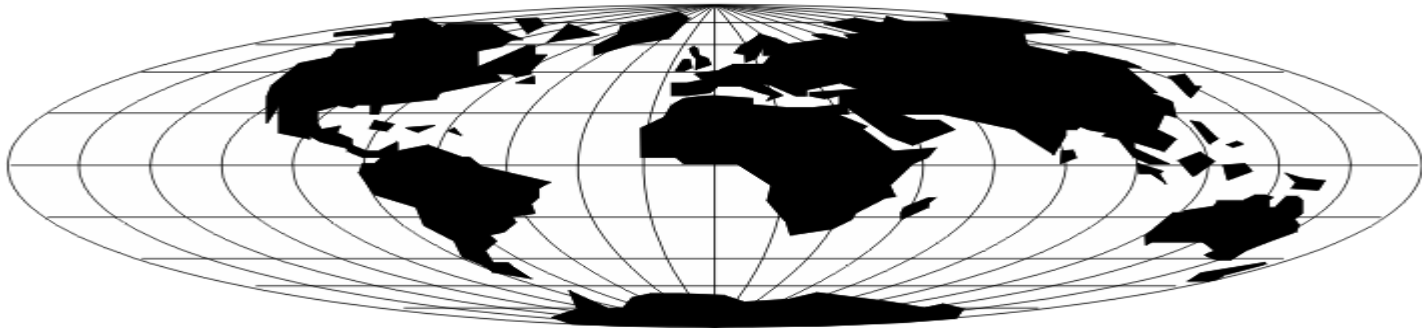
[Mobile app »](#)

CWT Use of Batchgeo

- Locate a citizen monitoring organization.
- App asks if you'd like to locate the closest mapped location (nearest citizen monitor).



Latitude - Longitude



- <http://itouchmap.com/latlong.html>
- <http://www.findlatitudeandlongitude.com/>
- <http://www.gorissen.info/Pierre/maps/google/MapLocationv3.php>

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DIY Mapping

The Sky is the Limit



For centuries, maps have been telling stories and documenting the world we live in. Do It Yourself (DIY) Mapping projects empower people to map what's important to them, collect data and document their geography and events like sewage or oil spills, restoration projects, or development growth that official mapmakers might overlook. New technologies and online media vastly expanded the potential of citizen scientists and watershed stewardship organizations to create maps that weave narratives. These aerial pictures and maps tell stories and motivate people in ways regular images can't.

If you are interested in obtaining geospatial information from other than ground based GPS surveys and tracking. Try aerial photography. There are three ways to get a camera in the air: a balloon, a kite or an Unmanned Aerial Vehicle (UAV). Currently, civilian drone use in the U.S. in the public sector, is allowed for research or as a hobby, though the latter dictates they don't fly above 400 feet, near populated areas or outside of the operator's line of vision.

Kites and balloons can be very low cost DIY projects. A variety of websites offer great kite and balloon aerial photography solutions to help get your camera airborne. Publiclab.org, kite.aerial.photography, and Grassrootsmapping.org are great places to start. Instruction guides and material can also be found at some of these websites and others. Images and maps created with the use of kites have been creatively used in many projects such as the [Automated Rapid Reef Assessment System](#) (ARRAS) which is designed to survey large reef areas in a short amount of time, [assessing change in wetland vegetation](#), and documenting biodiversity in the [Lake Merritt BioBlitz](#).

Mapping resources.

- Turn aerial images into maps with [Map Knitter](#). Map Knitter is a free and open source tool that can make maps from any image source and allows the user to combine and position images (often from MapMill.org) in geographic space into a composite image map. Its almost as easy as uploading an image and then rotate, distort and stretch it onto a reference map.
- [Open Street Map](#) is built by a community of mappers that contribute and maintain data about roads, trails, cafés, railway stations, and much more, all over the world. It powers map data on websites, mobile app and hardware devices. It is open data, if you alter or build upon the data in certain ways, you may distribute the result. Contributors use aerial imagery, GPS devices, and low-tech field maps to verify that OSM is accurate and up to date. Most importantly it emphasizes local knowledge. <http://publiclab.org/>
- [Story maps](#) are lightweight, open-source web applications. They combine web maps created using ArcGIS Online, Esri's cloud-based mapping system, with multimedia content - text, photos, video, and audio - to let you tell stories about the world. There are several applications that let you choose what type of story you want to tell (sequential place-based narratives, curated lists of points of interest, comparing two or more maps). You can see how they work by visiting [Conservation and Sustainability Storymaps](#) and find many examples.
- [Robo-copter elevates watershed mapping](#)



Viewing Watersheds Through Photo Spheres

Examples of Environmental Photo Spheres

[Santa Cruz Island, Channel Islands National Park](#)

[Hamilton Creek, Sequoia National Park](#)

[Bridalveil Fall, Yosemite National Park](#)

[Mono Lake](#)

About Street View

Street View Treks

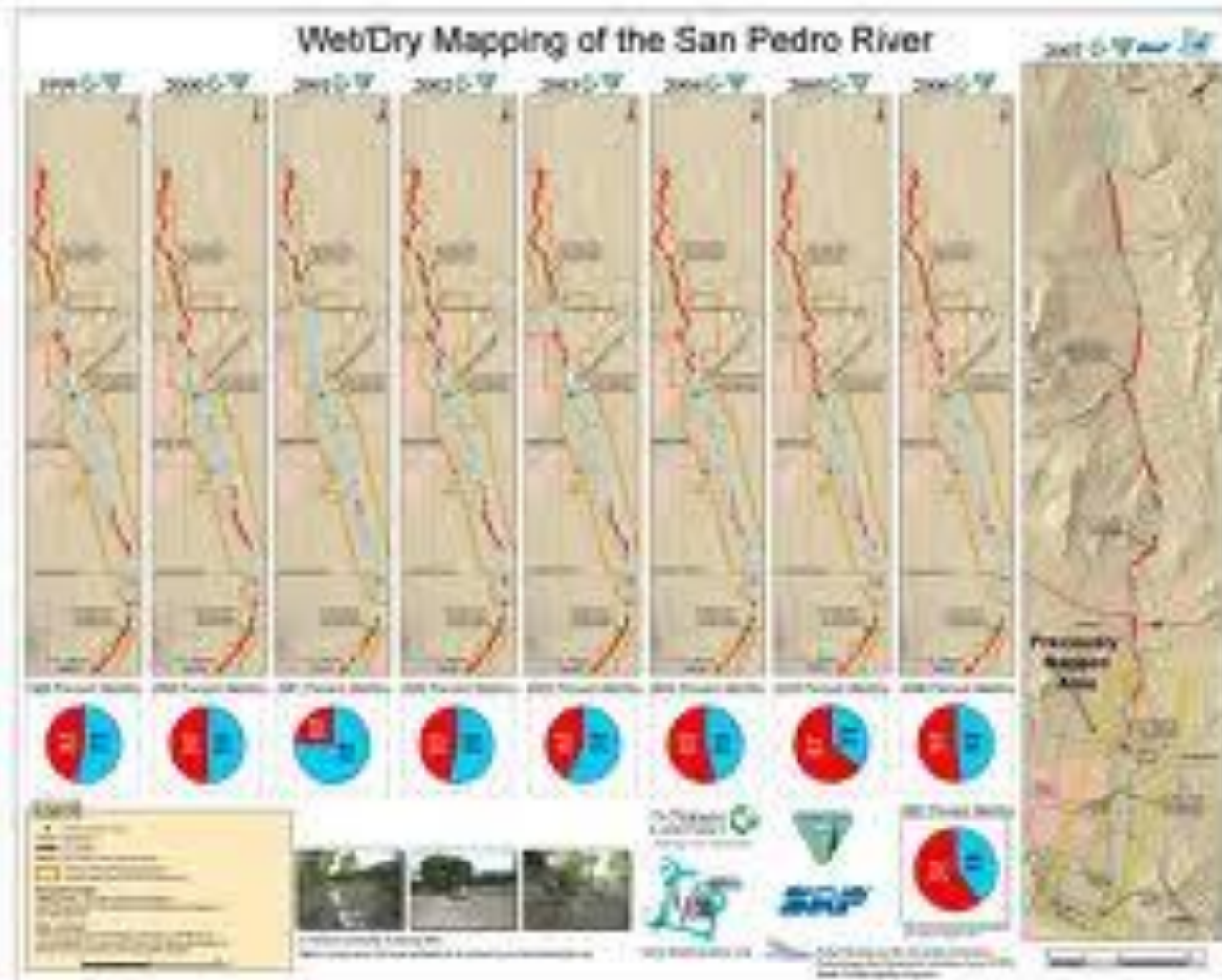


Colorado River

Navigate America's Most Endangered River

Wet/Dry Mapping

Collecting Valuable Watershed Data During Dry Times



Crowdsourcing & Apps



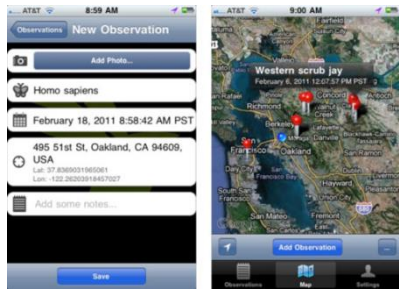
Crowdsourcing is a process that involves outsourcing tasks to a distributed group of people. This process can occur with the use of mobile devices, as well as both online and offline. The difference between crowdsourcing and ordinary outsourcing is that a task or problem is outsourced to an undefined public rather than a specific body, such as paid employees.

Mobile Applications

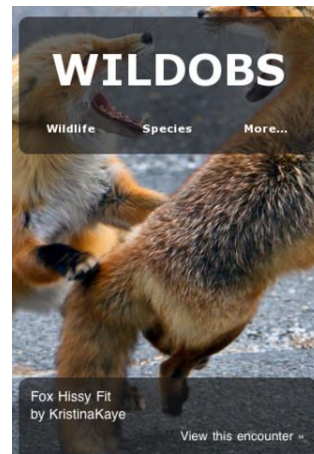
Application software developed for small low-power handheld devices.



Citizen Science and Naturalist Mobile Application Examples



iNaturalist



What's Invasive! App



The location of each weed that a citizen scientist documents in the park is automatically uploaded to the What's Invasive! website, allowing park staff and the public to see maps of invasive weed clusters and how they are spreading in the mountains.

The Shark Observation Network provides a means for divers, marine biologists and naturalists around the world to enter data about shark sightings, including date, time, location, water temperature and other environmental variables. Membership is free and all of the data is permanently accessible to all users. The app, called **Shark Spotter**, is free of charge and will soon be available on Google Play. (It is available now from App Geyser here). www.geerg.ca/sharksonline/autres/index.php



Shark Observation Network.

Secchi App is the mobile interface to Plymouth University's Secchi Disk project enabling any seafarer to take part in a global study of the phytoplankton in our oceans. The phytoplankton in the sea, although they are invisible to the naked eye, are the ocean's most important inhabitants since they begin the plankton food web that underpins the marine food chain. We need to know much more about these changes and you can help by using a simple piece of scientific equipment called a Secchi Disk, measuring tape and using the Secchi App.

<https://play.google.com/store/apps/details?id=uk.ac.plymouth.matmutt.secchi&hl=en>





Marine Debris Tracker

Southeast Atlantic Marine Debris Initiative - May 1, 2013
Tools



Environmental apps for Android

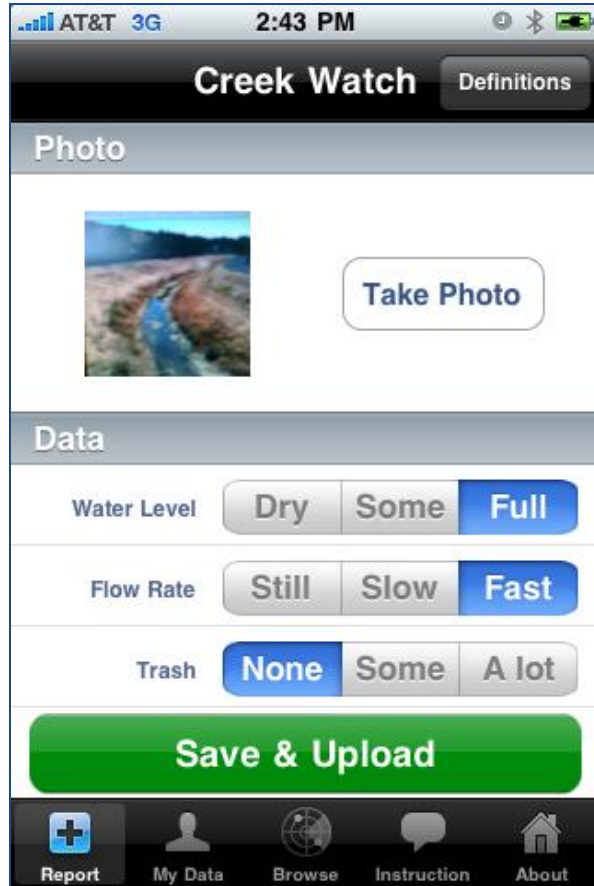
www.appszoom.com/android_applications/environmental

the bruna lab

SMARTPHONE APPS FOR
FIELD BIOLOGISTS

<http://brunalab.org/apps/>

Creek Watch App

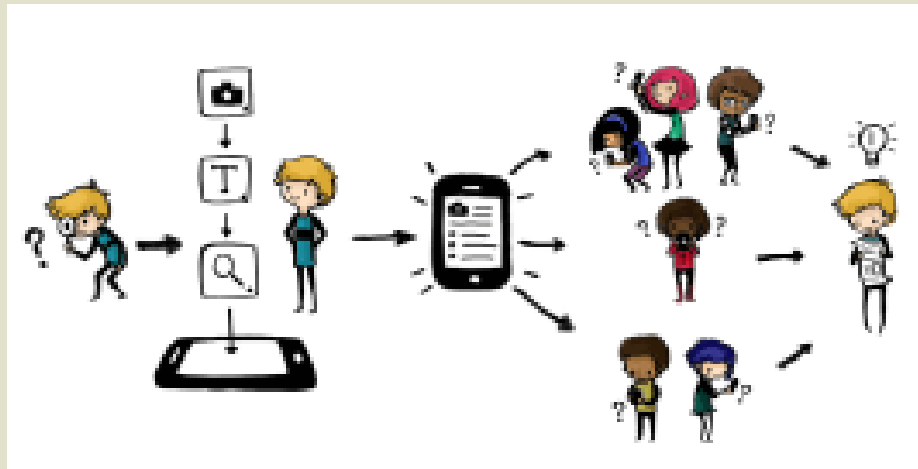


<http://creekwatch.researchlabs.ibm.com/>

Worldwide

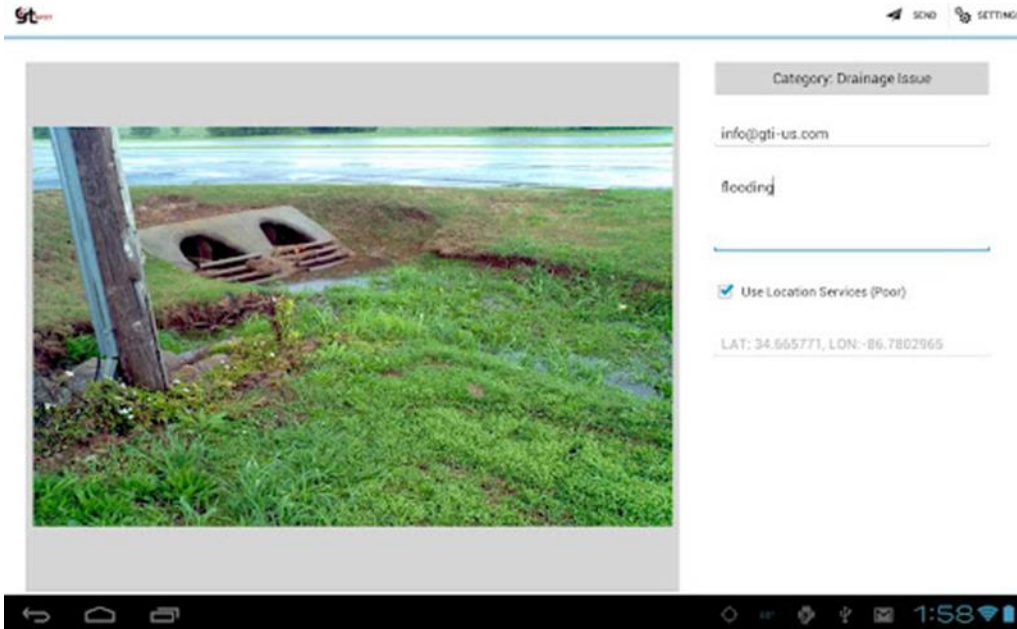
SENSR: An Easy Way To Harness The Power Of Citizen Science

The proliferation of mobile and computing devices in everyday life has enriched our surroundings in terms of sensing and sharing, providing diverse channels to scientists for data collection, and creating tremendous opportunities for everyday people to engage in scientific projects. However, the difficulty of creating an appropriate application for mobile devices often hinders grassroots efforts. **SENSR** allows people without programming skills to easily build a mobile data collection tool and manage data among users. The process is as follow:



1. On this website, you can create and maintain a project which will run on a mobile phone!
2. Create a project that requires contributions from citizen scientists
3. The project you created is deployed in the mobile SENSR application as well as in this website
4. Citizen scientists can now subscribe and contribute data to your project remotely though the SENSR mobile application.

Additional Crowdsourcing Apps



GTSpot facilitates crowdsourced, incident reporting. Users can quickly and easily report a Problem, Damage, Issue, or Observation with a photo, note, and geographic location. These reports are sent to a GTWeb Server and can be used in conjunction with GTWeb or independently.



Mobilize™ helps nonprofits, political campaigns, and other groups utilize the power of crowdsourcing by giving their supporters a tool for sharing info, collecting data, and facilitating donations.

- *Share text, images, and video.
- *Collect contact, and demographic
- *Conduct surveys.
- *Facilitate donations

Easy to Use Crowdsourcing Tools

Ushahidi platform is a tool to easily crowdsource information using multiple channels, including SMS, email, Twitter and the web.



SwiftRiver is an open source platform that aims to democratize access to tools for filtering & making sense of real-time information.

When you need to get the Ushahidi platform up in 2 minutes to crowdsource information, Crowdmapper will do it for you. It's a hosted version of the Ushahidi platform.



TEST THE WATER



MOBILE LABBOOK

Data Collection
& Digital Record



DATA MANAGEMENT

Data Compliance
& Quality Assurance



REPORT TOOL

Data Trending
& Analysis



FORUM

Promote Your Efforts
& Coordinate



Ocean Friendly Gardens Crowdsourced Map

An Ocean Friendly Garden (OFG) is a garden that applies CPR – Conservation, Permeability, and Retention – to revive the health of our watersheds and oceans. Be a Part of the Solution, Not the Pollution



How to Report

By using an app:

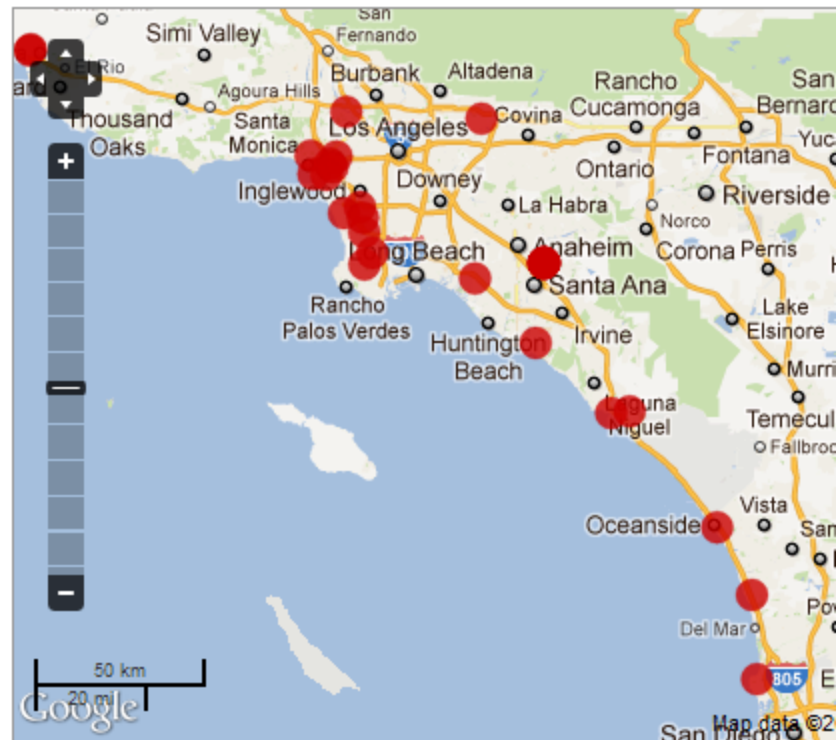
[iPhone](#)

[Android](#)

By sending an email:

pherzog@surfrider.org

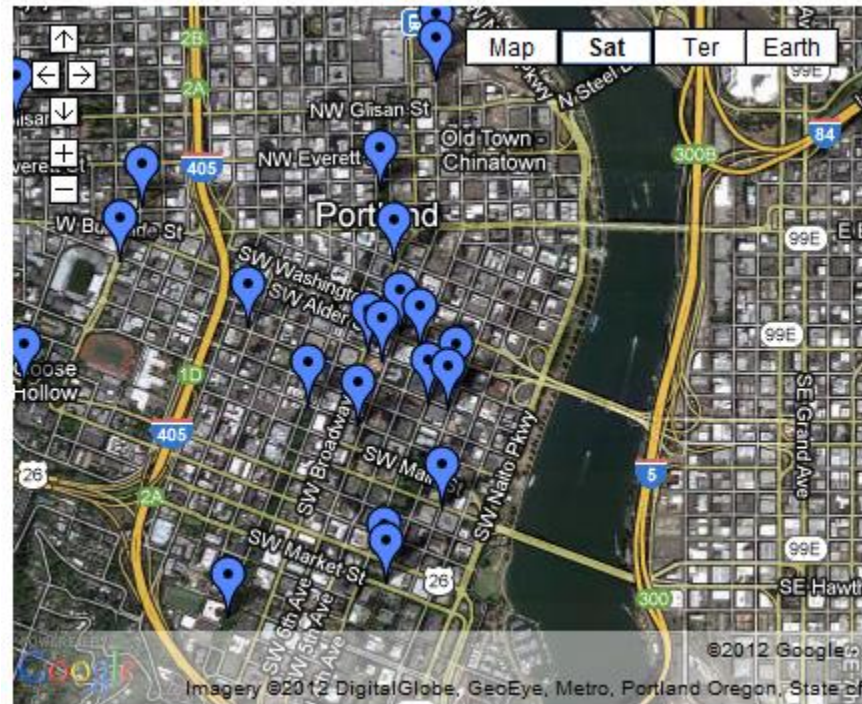
[By filling this form on our website.](#)



[//oceanfriendlygardens.crowdmap.com](http://oceanfriendlygardens.crowdmap.com)

We Tap App

WeTap works on mapping and improving drinking fountain infrastructure and re-educating the public on the accessibility of safe tap water.



<http://we-tap.appspot.com/>

Crowdsourced Photo Monitoring



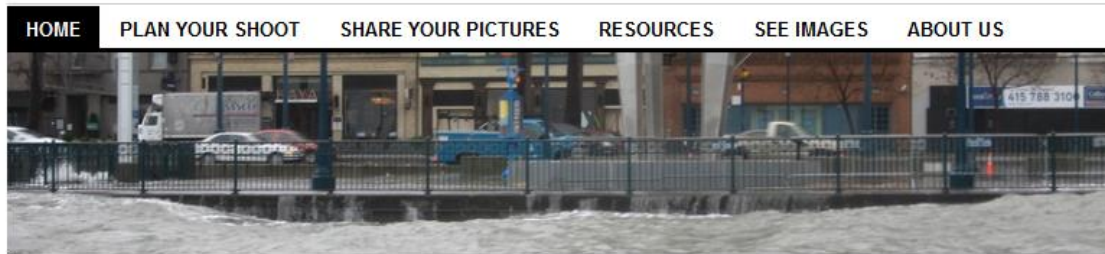
UNOSAT uses crowd
source app to involve
locals in monitoring
floods in Bangkok



Photo monitoring restoration projects using crowdsourced photos.

Photo Documentation: Crowdsourced with Online Gallery and Archive

California King Tides Initiative



California King Tides Photo Initiative

[Group Pool](#) | [Discussion](#) | [92 Members](#) | [Map](#) | [Join This Group](#)

Group Pool 437 items | Only members can add to the pool. [Join?](#)



California Coastal Records Project

The Project is an aerial photographic survey of the California Coastline.

Over 66,800 photographs (totaling over 377GB) of the California coast are now online, covering from the Oregon Border (42N latitude) to the Mexican Border (32.5N latitude), www.californiacoastline.org



Present



2008



2006



2002

1993



1972





PICASPOT

An app that attaches the following information to a photo and sends it to a user as an attachment:

- Latitude and longitude of a photo;
- Street location where available;
- Compass reading of the phone (Note, a phone held in portrait setting will record the direction of photo);
- Date and time the photo was taken.



MarkPhotoSpot

What this application do?

- * Save location (GPS) information with photo
 - * Add location description on it.
 - * And, find or locate them where they were.
 - * Features including, GPS info, address, map directions, and more.
 - * My location feature shows where you are now with GPS info.
- The application could be used for!
- * Mark where your car/motorcycle/bicycle is parked
 - * Mark your family locations
 - * Mark favorite places where you like to keep with photos
 - * Log your travel with photo location
 - * Save the places where you want to keep for later references
 - * And, application could be used as Simple Photo Album.



GPS Photo is a mobile phone client application for sharing positioning photos. This product combines multiple functions including mobile phone positioning, taking photos and map. You can share your photos with GPS data and mark them on the map in real time.

SpotMarker

This is the application to mark many favorite spots on the map.



PhotoLocator

Find and display pictures on the map, recall and get the direction to there. See the pictures, display them on the map, and recall where you visited. You can find direction to go there. You can take pictures of grocery, restaurant, or where you parked the car, and find them!!



Camera Remote

Main Functions:

1. Bluetooth Mode and WiFi Mode,
2. Remote Camera Control from another Android, Notebook, or Desktop PC.
3. Remote Viewfinder (realtime)
4. Record preview frames and play instantly.
5. Take remote photo, list, and download images.
6. Change remote camera settings.
7. Change preview frame rates.
8. Change UI (user interface) skin colors.
9. Sound on/off
10. File Explorer
11. Image/Text viewer
12. Record Player



Photo Editing Apps





ProWeatherAlert

This app runs in the background and monitors the official National Weather Service (NWS) alerts for your area. New alerts will appear on the status bar, and by selecting it, you can read the details. You can also choose how urgent of a notification to get, based on the NWS Severity. An Extreme alert coming through? Then you'd probably like vibrate, lights AND bell for that! But a simple Wind Warning? Probably not as much. You can choose the level of response in the preferences.

Weather App Examples

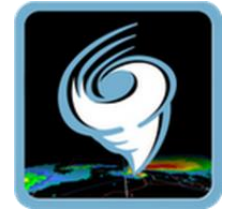


US Tides

Seven days tides tables and charts for more than 2,400 US locations as provided by NOAA (National Oceanic and Atmospheric Administration).

Displays sunrise, sunset, moonrise, moonset times and moon phase.

Uses geolocation to find closest locations.



Radar Alive

This app brings live US weather radar to your Android from all states and Puerto Rico. It features a powerful, flexible user interface. Watch tornadoes, hurricanes and other weather events live and in fine detail. It is suitable for storm chasers, professional meteorologists, emergency personnel, SKYWARN and weather enthusiasts. It has the widest selection of US radar products (image types) of any Android App. NWS severe weather warnings are displayed along with a customizable low clutter map with cities, roads, boundaries and cities. Unlike many radar apps, Radar Alive! generates precision images from NEXRAD Level III binary data. With its velocity images, you can even spot storms with tornadoes.

Health and Safety App Examples



ICE: In Case of Emergency

Medical data & contacts for first responders in case of emergency involving you
Stores important information for first responders and hospital staff to use in case of an emergency involving you:

- + A list of people to call -- can call directly from the app
- + Insurance information
- + Doctor names and numbers -- can call directly from the app
- + Allergies
- + Medical Conditions
- + Medications
- + Any special instructions or other information you wish to provide



First Aid

First Aid is designed to help you follow the right procedures in a stressful situation or support other people by giving them instructions. It is based on illustrations, videos and short texts that show you how to take the necessary action step by step and in the right order.



Pocket First Aid & CPR

First Aid & CPR from the American Heart Association

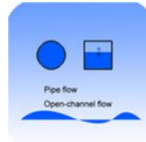
- Updated to reflect The American Heart Association Guidelines on CPR & Emergency Cardiovascular Care
- 34 videos and 46 high-resolution illustrations added
- Added Search functionality
- Reorganized content to make it easier to find help in an emergency
- Adult, Child, and Infant CPR
- Adult, Child, and Infant Choking
- New user interface for ease of use

Examples of Field Tool Apps



Water Tracker (beta)

Track river levels and set alerts. Never miss a day running the river again! Retrieve current data like water level, temperature, and stream flow from USGS servers for rivers, reservoirs, lakes and more. Features include ability to search by current location, user selected location, view graph of last 5 days activity, view data source on map, set alerts for any available condition. This application will work anywhere in the US. This application uses data from USGS servers. NOT ALL RIVERS LAKES or STREAMS will be listed. Only those that USGS monitors. To find out if the data you are interested in is available go to <http://wdr.water.usgs.gov/nwisgmap/> Note that not all data is available for all locations.



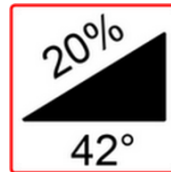
Civil Water Flow Calculator

This application is civil water flow calculator. It calculates pipe channel flow and open channel flow of various channel shapes.



Insta-LINK® HOME

Turn your Smartphone into a Test Strip Scanner
As a pool or spa owner you know that maintenance can be a lot of work. You need to test and balance the water, keep the filter and baskets clean, vacuum the leaves and debris, and that's just regular maintenance.



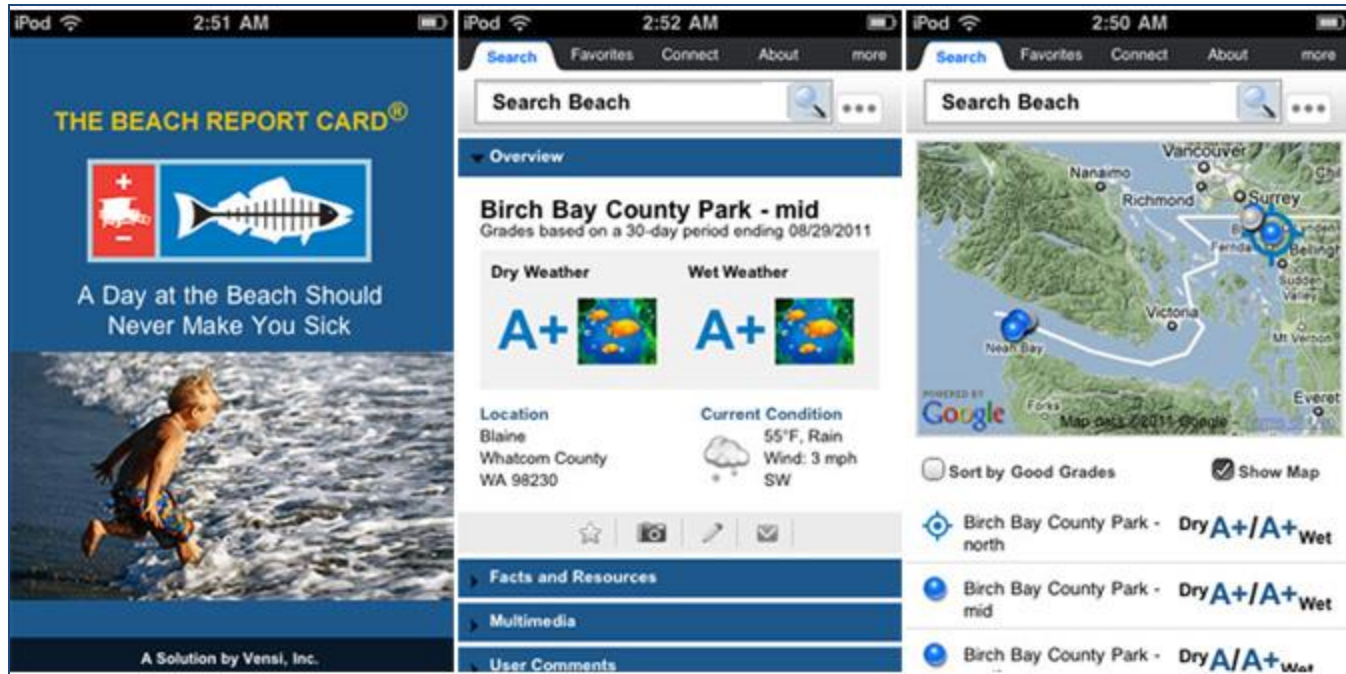
Calibrated Accurate Level

Measure angles more accurately with unique latitude calibration.

- * Unique Latitude Calibration with local gravity and GPS
- * Advanced Trigonometry
- * Sophisticated Sensor Analysis.



Beach Report Card App

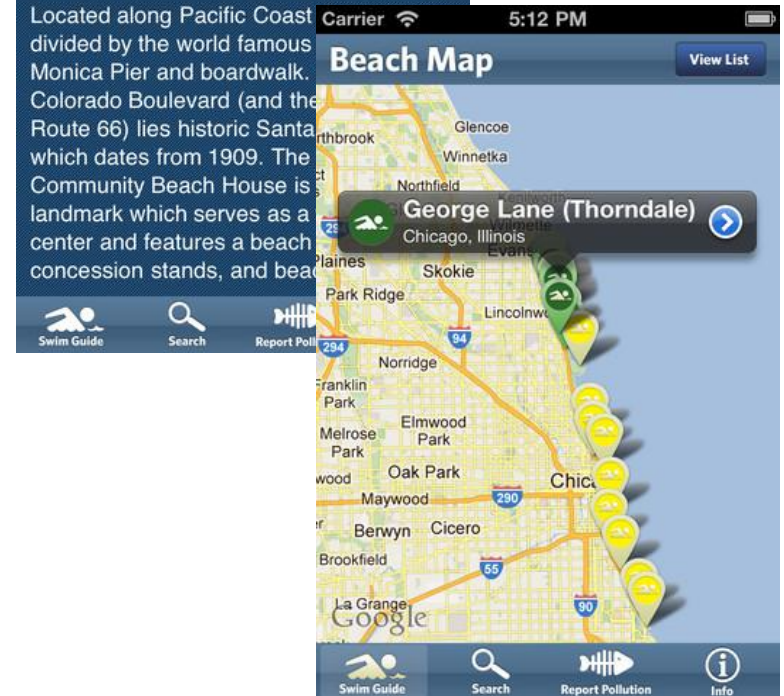


Beachgoers can now check the latest water quality grades at 650+ West Coast beaches via Heal the Bay's Beach Report Card mobile app.

Swim Guide



The Swim Guide makes it easy to explore and enjoy the best beaches in *** CALIFORNIA (NEW!) ***, FLORIDA, the GREAT LAKES, Western Canada. You can list the beaches closest to you, browse the map, or search for a beach by name. Every beach is marked with a Green, Yellow, or Red icon so you know when a beach is safe for swimming and when it is not safe.



US & Canada – Great Lakes +

Social Media & Blogs



Social Media included web-based and mobile technologies used to turn communication into **interactive dialogue between organizations, communities, and individuals.**

Blogs (Web logs) web published journal entries (posts).

Using Social Media Successfully

Keep It Social



- Ensure that your messages are social and not “selly”.
- Provide useful information/content.
- Keep on “message”.
- Be as “personal” as possible.
- Use images of people whenever you can. (Especially your avatar, don’t use logos.)



Types of Social Media

Six Basic Types of Web-based Social Media

- Collaborative projects (e.g., Wikipedia)
- Blogs and microblogs (e.g., Twitter)
- Content communities (e.g., YouTube)
- Social networking sites (e.g., Facebook)
- Virtual game worlds (e.g., World of Warcraft)
- Virtual social worlds (e.g. Second Life).

Why Involve Your Program with Social Media?

Because they work.

“Its now no longer a consideration of whether an organization uses Social Media, but how they will use Social Media.”

- Social networking now accounts for 22% of all time spent online in the US.
- A total of 234 million people age 13 and older in the U.S. used mobile devices in December 2009.
- Twitter processed more than one billion tweets in December 2009 and averages almost 40 million tweets per day.
- Over 25% of U.S. internet page views occurred at one of the top social networking sites in December 2009, up from 13.8% a year before.

3 Key Marketing Objective Questions

Set goals. What do you hope to achieve by advertising? Generally speaking, advertising objectives fall into two main categories: awareness and response.

Choose an ad format. When you start creating ads, outreach or fundraising for any social network, knowing what you're ultimately hoping to achieve will help you select the right options.

Determine your target market. Who are you trying to reach.

The Benefit of Quality Followers



Aim for those most
likely to stay engaged.

They Remain Engaged

They Share With Their Friends

They Walk the Walk

Which Social Media Site(s) Should I Use



Use the One(s) That:



- What Social Media Site(s) does **your target audience use?**
- Which Social Media Site(s) **offers the service(s) that you are in need of?**
- Which Social Media Site(s) can **your program support** (especially time wise: messaging, censoring...).
- Use a Social Media Site(s) that **provides the security that you feel comfortable with.**

Usage & Content Curation



Content curation is not about sharing links as you find them. It is finding great stuff amid the noise, annotating it, organizing it, and adding your wisdom or perspective and sharing a collection of curated links in a context or time that adds value

- Talk about the causes you support.
- Identify a causes that reflects your target audience and relates to your goals.
- **Photos are the predominant social share**
- Tell your story in less than 140 characters.



Who uses social networking sites

% of internet users within each group who use social networking sites

		% who use social networking sites
All internet users 18+ (n=5,112)		73%
a	Men (n=2,368)	69
b	Women (n=2,744)	78 ^a
Race/ethnicity		
a	White, Non-Hispanic (n=3,617)	72
b	Black, Non-Hispanic (n=532)	73
c	Hispanic (n=571)	79 ^{ab}
Age		
a	18-29 (n=929)	90 ^{bcd}
b	30-49 (n=1,507)	78 ^{cd}
c	50-64 (n=1,585)	65 ^d
d	65+ (n=1,000)	46
Education attainment		
a	No high school diploma (n=243)	74
b	High school grad (n=1,238)	69
c	Some College (n=1,461)	75 ^b
d	College + (n=2,144)	75 ^b
Household income		
a	Less than \$30,000/yr (n=1,212)	77
b	\$30,000-\$49,999 (n=886)	73
c	\$50,000-\$74,999 (n=746)	73
d	\$75,000+ (n=1,600)	75
Urbanity		
a	Urban (n=1,605)	76 ^{bc}
b	Suburban (n=2,585)	72
c	Rural (n=922)	70

By Age



65+



55-64



45-54



35-44



25-34



18-24



0-17



DIGG the latest news headlines, videos and images

STUMBLEUPON personalized recommendations to help you discover the best of the web

REDDIT what's new online!

FACEBOOK connect and share with the people in your life

LINKEDIN relationships matter

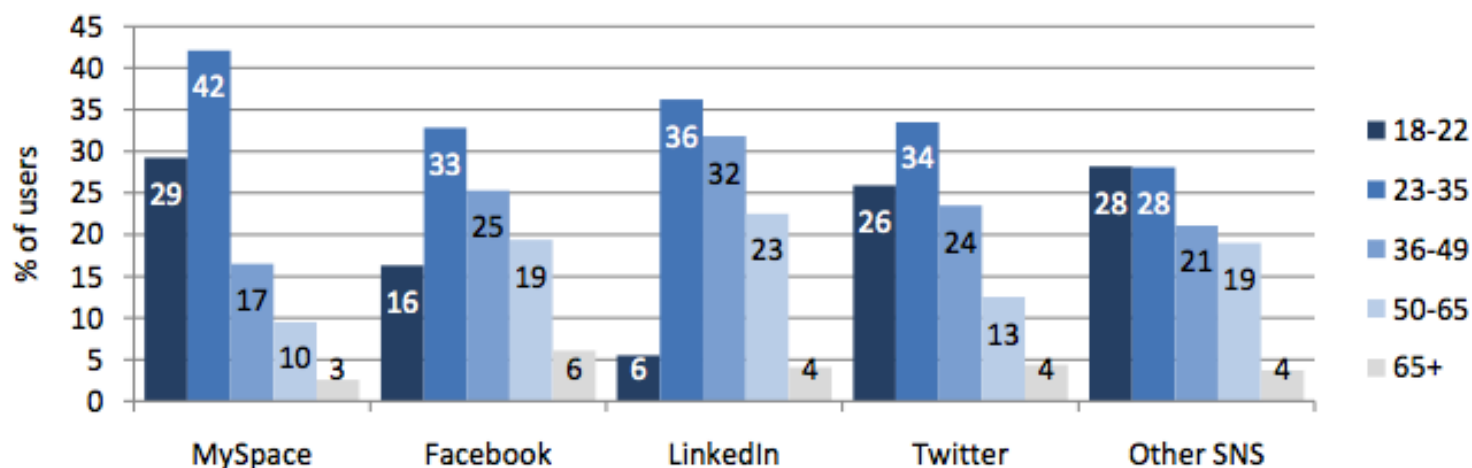
TWITTER share and discover what's happening right now, anywhere in the world

MYSPACE a place for friends

NING create and discover Ning social networks for your interests and passions

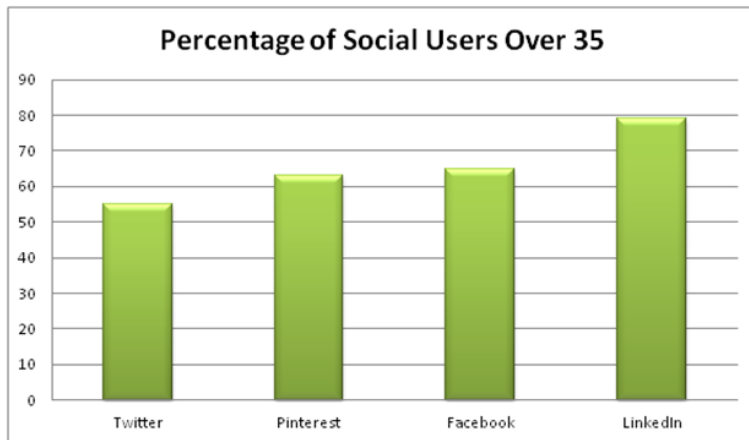
Age distribution by social networking site platform

% of social networking site users on each site who are in each age group. For instance, 29% of MySpace users are 18-22 years old.



Source: Pew Research Center's Internet & American Life Social Network Site survey conducted on landline and cell phone between October 20-November 28, 2010. N for full sample is 2,255 and margin of error is +/- 2.3 percentage points. N for social network site and Twitter users is 975 and margin of error is +/- 3.5 percentage points.

In 2013 there was movement of young people away from Facebook in favor of Instagram, SnapChat, and Tumblr.



<http://usscospeaks.com/social-media-101-series-understanding-user-demographics/>



- Facebook average age: 40.5
- 86% of online users age 18-29 use the site, compared with 73% of those age 30-49, 57% of those age 50-64, and 35% of those age 65+.
- 40% male, 60% female



- Twitter average age: 37.3
- Online adults under age 50, and particularly those age 18-29 (27%), are the most likely to use Twitter.
- Urban-dwellers (20%) are more likely than both suburban (14%) and rural residents (12%) to use Twitter.
- 40% male, 60% female



- Pinterest average age: 40.1
- Pinterest is equally popular among those age 18-29 (19%) and those age 30-49 (19%).
- Those with higher incomes are particularly likely to use the site.
- 21% male, 79% female



- Instagram
- Urban-dwellers (17%) are more likely than both suburban (11%) and rural residents (11%) to use Instagram.
- Women are more likely than men to use the site (16% vs. 10%), as are those under age 50.



- LinkedIn average age: 44.2
- 48% male, 52% female

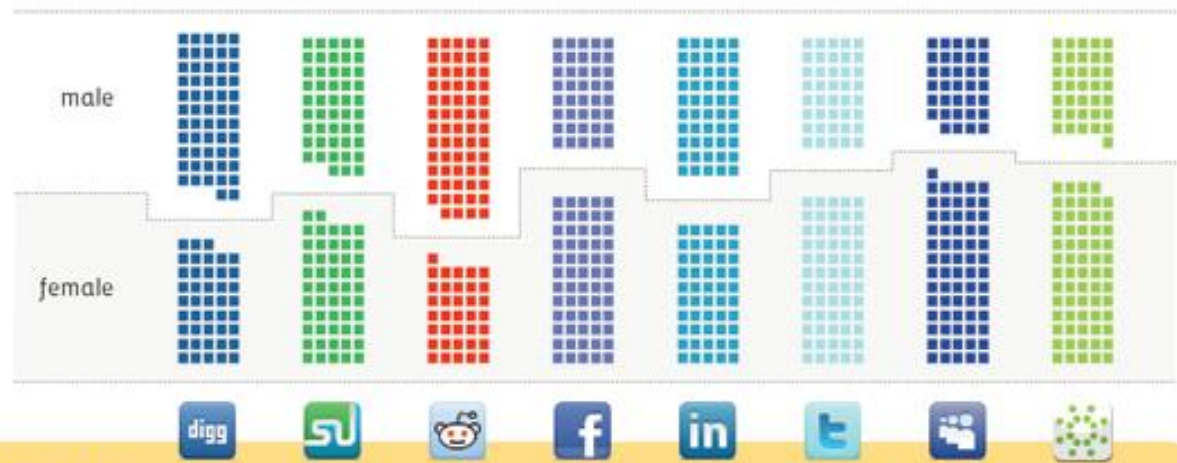
- DIGG** the latest news headlines, videos and images
- STUMBLEUPON** personalized recommendations to help you discover the best of the web
- REDDIT** what's new online!
- FACEBOOK** connect and share with the people in your life
- LINKEDIN** relationships matter
- TWITTER** share and discover what's happening right now, anywhere in the world
- MYSPACE** a place for friends
- NING** create and discover Ning social networks for your interests and passions

KEY

■ = 1%

*"Be civil to all;
sociable to many;
familiar with few;
friend to one;
enemy to none."*

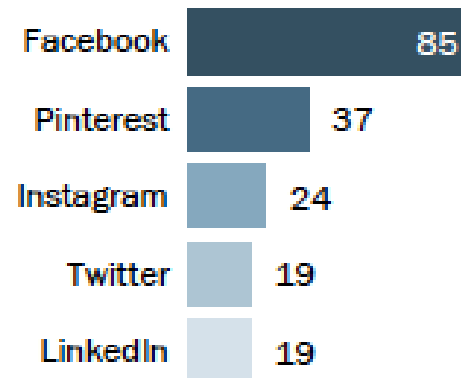
Benjamin Franklin



By Gender

Moms & social networks

% of online moms who use each social network



Note: Moms are defined as women with children under 18 living in their household.

Source: Pew Research Center's Internet Project August Tracking Survey, August 07 -September 16, 2013. N=1,445 internet users ages 18+.

PEW RESEARCH CENTER

Social Networking on Mobile Phones

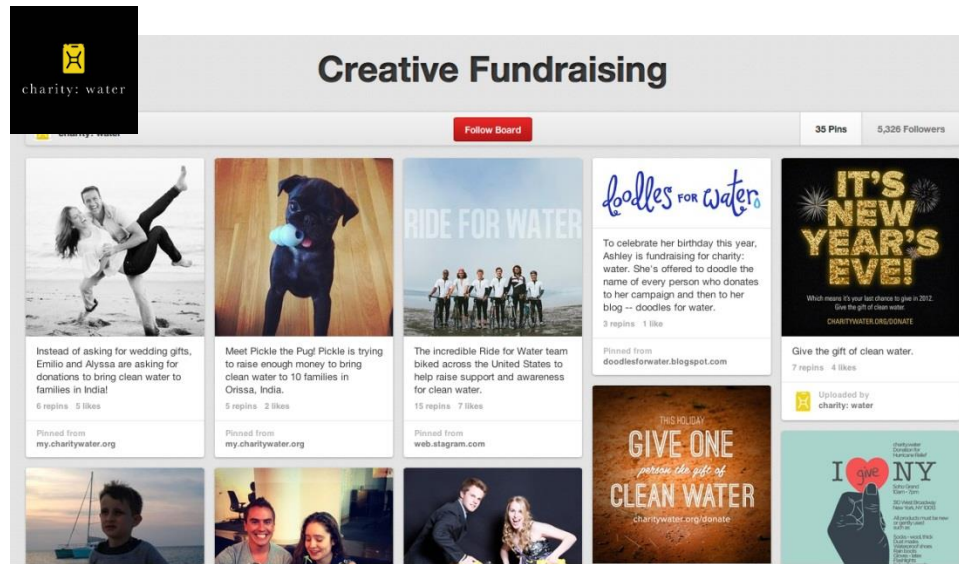
% of cell phone owners who use a social networking site on their phone

	All cell phone owners (n=1,954)	40%
a	Men (n=895)	39
b	Women (n=1,059)	41
Age		
a	18-29 (n=340)	67 ^{bcd}
b	30-49 (n=562)	50 ^{cd}
c	50-64 (n=587)	18 ^d
d	65+ (n=429)	5
Race/ethnicity		
a	White, Non-Hispanic (n=1,404)	36
b	Black, Non-Hispanic (n=234)	48 ^a
c	Hispanic (n=180)	49 ^a
Annual household income		
a	Less than \$30,000/yr (n=447)	38
b	\$30,000-\$49,999 (n=316)	40
c	\$50,000-\$74,999 (n=272)	48 ^a
d	\$75,000+ (n=538)	45 ^a
Education level		
a	No high school diploma (n=156)	33
b	High school grad (n=542)	37
c	Some College (n=490)	42 ^a
d	College + (n=752)	43 ^{ab}

Source: Pew Internet Spring Tracking Survey, March 15 – April 3, 2012.

Nonprofits & Pinterest Marketing

Pinterest is a tool for collecting and organizing things that you love.

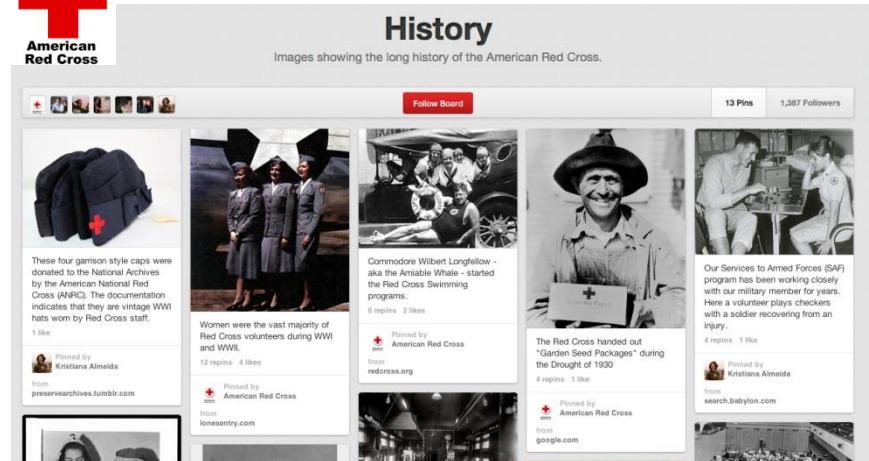
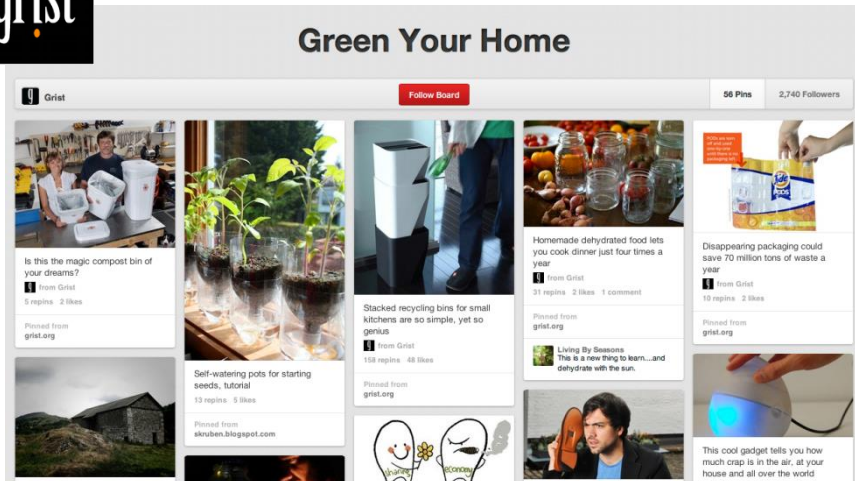


Images evoke emotional responses

Dives traffic like nobody's business

Gets folks engaged, a step along the path towards investment

People give/spend money on Pinterest



COMMUNICATION

Alan Alda Center
for Communicating Science

 AT STONY BROOK UNIVERSITY

The Alan Alda Center for Communicating Science works to enhance understanding of science by helping train the next generation of scientists and health professionals to communicate more effectively with the public, public officials, the media, and others outside their own discipline.



Actionbioscience.org is a non-commercial, educational web site created to promote bioscience literacy by examining issues that will:

- motivate the public to play an active role in bioscience education
- show how developments in bioscience research can affect everyone
- promote an understanding of biogeography and the biodiversity of life
- engage the public to reflect on the relationship between human activity and the natural course of evolution
- promote global ecological awareness
- advance formal and informal bioscience education
- encourage students to pursue studies in the biosciences

10 Tips on How to Write Less Badly

By Michael C. Munger

<http://m.chronicle.com/article/10-Tips-on-How-to-Write-Less/124268>

CWT & CWQMCN Use of Social Media



Citizens Clean Water Improvement Network
Building Citizen Monitoring Capacity through Cooperation

<http://ccwin.groupy.com/>

**California Water Quality Monitoring
Professional Network**

www.linkedin.com/groups/



CWT Fan Page Coming Soon

#VolMon
#worldwaterday
#creekwatch

#CWT

CWT Hashtag for Twitter & other sites

Hash Tags

Hashtags were developed as a means to create "groupings" on Twitter, without having to change the basic service.

Hashtags are words or phrases prefixed with the symbol #, a form of metadata tag. They are used within IRC networks to identify groups and topics. Also, short messages on microblogging social networking services such as Twitter, identi.ca or Google+ .

#VolMon

See what's happening **right now**

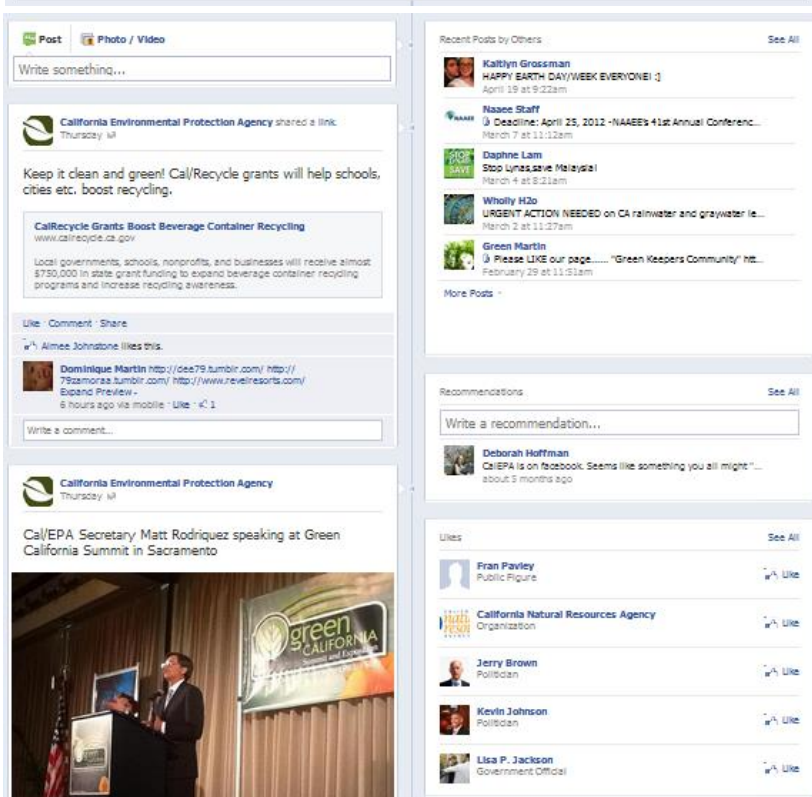
Tip: use **operators** for advanced search.

<http://twitter.com/#!/search-home>

Twitter Hashtag Stats

<http://archivist.visitmix.com/> hashtags.org/statistics

Get instant updates on
#creekwatch
Join Twitter today



<http://www.facebook.com/pages/California-Environmental-Protection-Agency/66521237678>

Government Agency Uses of Social Media

- State of Utah Social Media Guidelines 9/29/09
- CA Statewide Information Management Manual
- Resources for Government www.facebook.com/government/app_4949752878
- Government on Facebook
- www.facebook.com/government



<http://www.facebook.com/EPAWaterIsWorthIt>

MEMES



Watch Out Guys-
That's Aqualogically
Outrageous.

GREEN THROUGH THE AGES



Triassic Period:
The color green is discovered



2000 BC:
The first cup of green tea is sipped



400 BC:
First recorded recycling efforts



1391:
The Green Mosque is built

1546:
John Heywood suggests the moon is made of green cheese



1884:
The first green bean is bred

1888:
Charles Brush builds the first wind turbine to generate electricity

1900:
Ferdinand Porsche develops the first gas-electric hybrid car



1941:
Russel Ohl invents the first silicon solar cell



1928:
The Green Giant is born

1960:
Green Eggs and Ham is introduced by Dr. Seuss

1970:
Earth Day is founded

1979:
Alan Freeman constructs the first solar powered car

1988:
Farmers form organic co-ops

1990:
Gallup poll finds 76% of Americans call themselves "environmentalists"

SDSU Grows Green:

- 2007: Green Building Construction Certificate Online
- 2008: Green Energy Management Online
- 2009: Residential and Commercial Sustainable Practices Program
- 2010: Green Home Performance Contractor Program

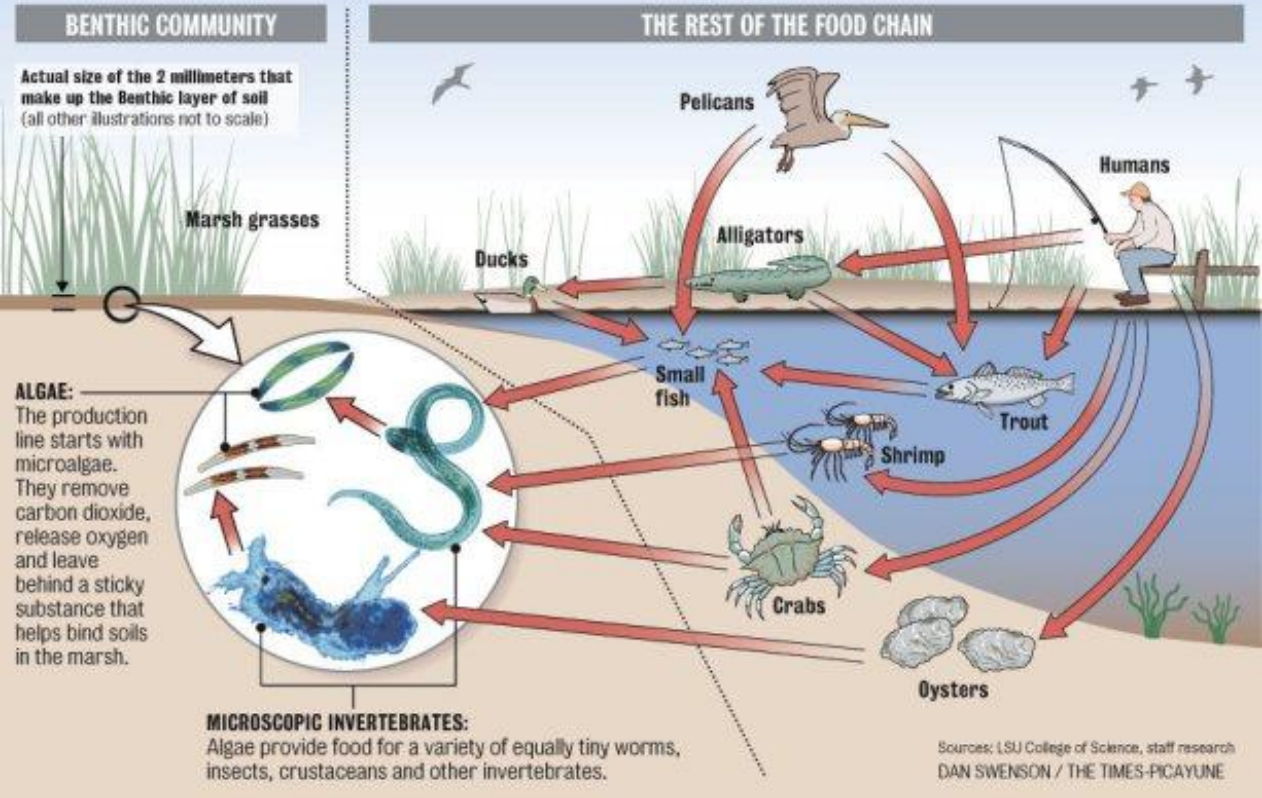
August 27, 2010:
SDSU Third Annual Green Event
Blue is the New Green: Water in the Built Environment



Infographics

THE BENTHIC COMMUNITY'S IMPORTANCE TO COASTAL ESTUARIES

The **top 2 millimeters of marsh mud** is host to a teeming community of micro-organisms that make up the food base that drives the entire coastal estuary. While many are concerned with oil-covered birds, scientists are just as concerned about the less photogenic algae and invertebrates living in that top layer that account for half of all life within Louisiana's coastal marshes. If the oil spill seeps its way into the estuaries and smothers the micro-organisms and nutrients, all other animals and plants, assuming they escape the oil themselves, could starve and die.



"No natural resource has greater significance for the future of Texas than water."

Dr. Andrew Sansom, Executive Director of The Meadows Center for Water and the Environment

23 YEARS OF CITIZEN SCIENCE AT TEXAS STREAM TEAM

Water Quality Monitoring — Education — Community Engagement

7,692

citizen scientists
trained
since 1991

45,000

volunteer hours
valued at

\$1,000,000

429

sites actively
monitored for
water quality

35 new citizen scientists
trained each month

all 35,000

data-points have
been validated by
a QA officer

82,973 miles of waterways
actively monitored

125,000

Spring Lake visitors
learn about water,
nonpoint source
pollution, and more
each year

31

partner organizations
use our data to manage
water resources,
inform policy,
and more

for every
dollar granted,
\$1.00 → \$1.72
we leverage
an additional
72 cents

WHAT CAN YOU DO FOR THE FUTURE OF TEXAS WATER?

Explore Spring Lake

SCUBA dive the springs.
And, take a tour by glass-bottom
boat, kayak, or by foot.

Join Us

As a trained citizen scientist
you will make a difference
for our Texas waters.

Partner Up

Our public and private partners
trust us — and each other —
to share information, resources,
expertise, and opportunities.

Sponsor A Project

Your tax-deductible contribution
will make things happen
for water, from clean ups to
research, and more.

Put Us To Work

Are you a community
representative, researcher, or
individual interested in protecting
your water? We can help!



THE MEADOWS CENTER
FOR WATER AND THE ENVIRONMENT
TEXAS STATE UNIVERSITY

www.MeadowsCenter.txstate.edu | San Marcos, Texas | (512) 245-9200

In cooperation with the Texas Commission on Environmental Quality and U.S. Environmental Protection Agency
Design and Illustration by Eye Byrte Solutions

Water Monitoring



Better Wading



Sharks





Page 1 of 52,797 results for **citizen science**

— Filter results

Search ☒ Content ☐ Users

☐ Downloadable

Uploaded anytime



All file types



All languages



Citizen Science overview for ASU HSD598 graduate course, "Citizen...

This is a **citizen science** overview particularly aimed at graduate students enrolled in a new course at Arizona State University, aptly titled "**Citizen** by Scicheer, 11 months ago in News & Politics

39 slides | [Save](#)



Citizen Science

Citizen Science

by miriamman, 1 week ago in Education

21 slides | [Save](#)



Taking **Citizen Science** to Extremes: from the Arctic to the... **Citizen**

Science is hardly a new concept, but during the last decade it has seen a ri by michalis_vitos, 1 month ago in Education

36 slides

Video Hosting/Sharing



Podcast Yourself

Video Search Engine:



Images



SmugMug 

Kodak Gallery
Celebrate your KODAK MOMENTS


shutterstock®

flickr™

 **FOTOLOG**



ImageShack
Online Media Hosting

Image Sharing Websites

Photo sharing is the publishing or transfer of a user's digital photos online, thus enabling the user to share them with others (publicly or privately). This function is provided through both websites and applications that facilitate the upload and display of images.

These sites offer a mix of services:

- Sharing Opportunities
- Photo Classification - Galleries
- Photo Finishing & Product Creation
- Hosting
- Photo Management
- Albums
- Archives
- Collaboration
- Social Network Sharing
- Sourcing



Sounds & Podcasts

Online Resources to create, share, and store audio.

- Use to create Podcasts, audio blogs
- Archive sounds
- Audio sourcing for videos, websites and applications



Soundation



Podcasting



Four Basic Steps:

- Plan - What will you talk about, interview or discuss?
- Produce – Record , edit and save your audio recording in an appropriate format (mp3, wav...)
- Publish – Place online for audio sharing, downloading and feeds.
- Promote – Create RSS feed, highlight in social media, prepare press releases...

Sound Recorders & Editing



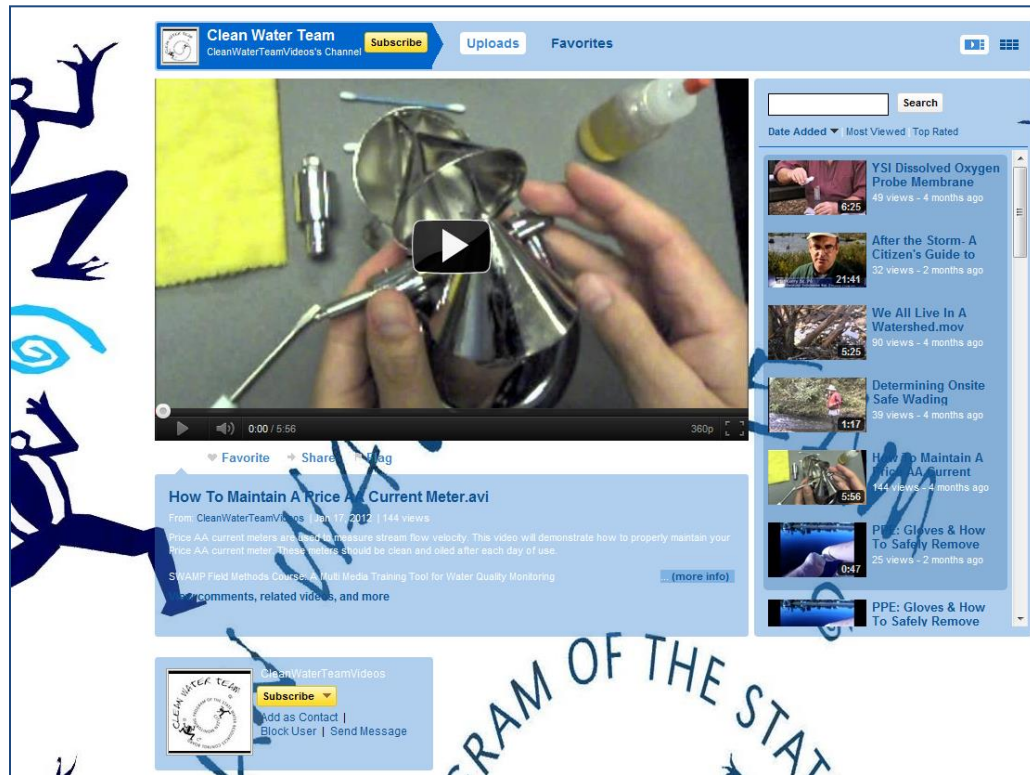
Many superb sound editing programs exist including these two free software programs.

Audacity®



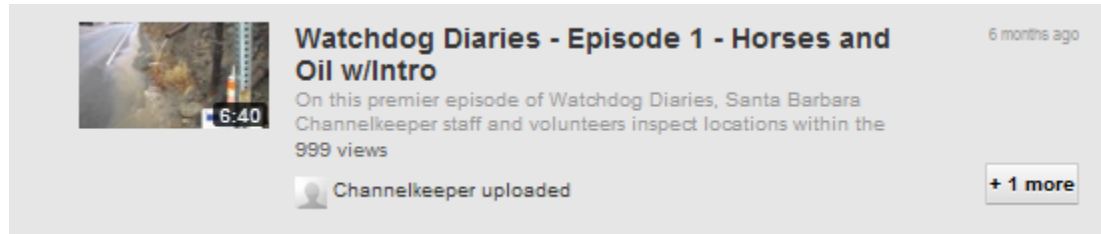
CleanWaterTeamVideos

A collection of CWT produced Educational and Training Videos and “Favorite” videos for citizen monitoring, watershed stewardship and environmental education.



www.youtube.com/cleanwaterteamvideos

Video Logs - Vlogs






www.youtube.com/user/Channelkeeper



Photo & Video Log

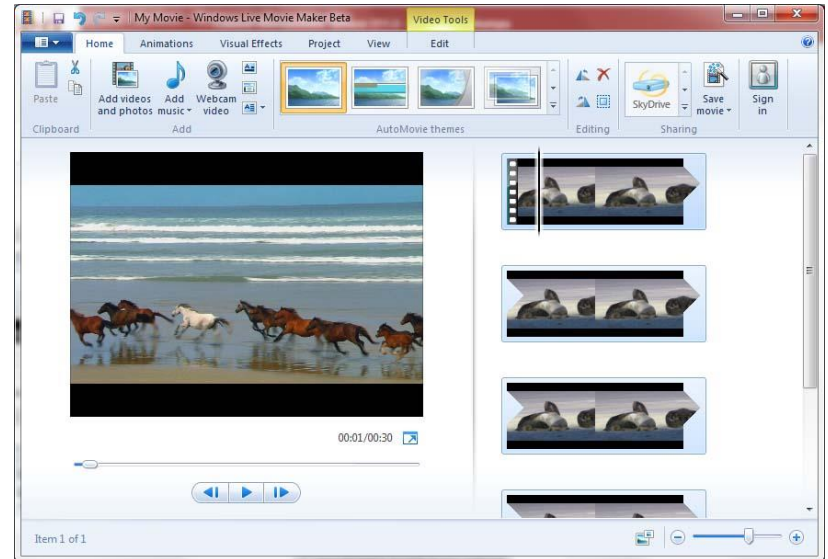
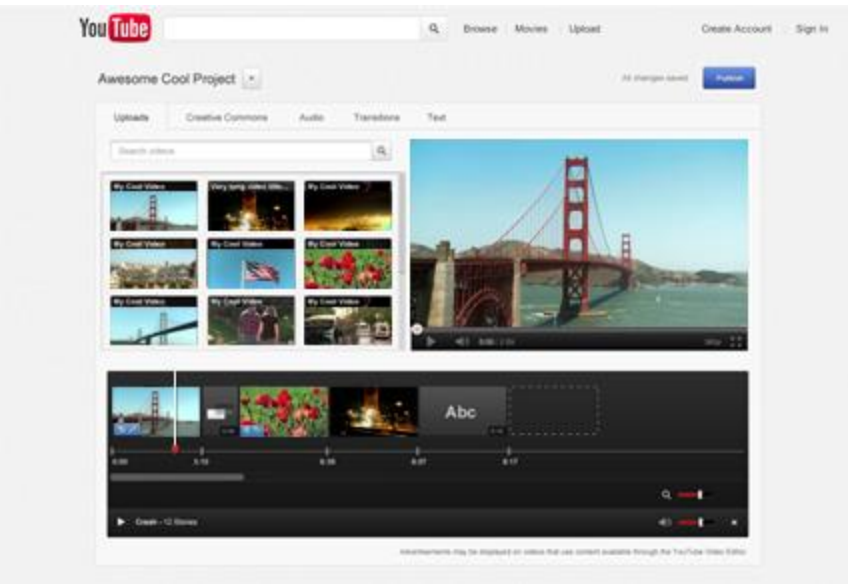
Welcome to our Vlog (Video Log)! We have taped so many amazing interviews and stories while shooting Green Green Water. These are stories of courageous folks standing up for what they believe in, stories of corporations trying to do what's right for their ratepayers by investing in renewable energy, stories of Cree leaders wanting to use their natural resources in order to live in the 21st century, stories of Cree leaders who want to invest in their people and their environment, stories of families divided by the proposed dams, stories of a family tradition stopping with their ten-year-old son....stories that we believe should be available to the general public. As we are editing the film, we will upload new clips every few days so check back often! These clips may or may not be a part of the completed film, but will give you a variety of viewpoints on such a complicated issue. Please forward this link on to your friends!



This page contains photos and videos taken during the Bermuda Deep Water Caves 2011 exploration. Click on any image to view a larger version and for additional information. If a movie camera icon  is present, a video can be viewed by clicking on the image. Multiple video formats are available on the linked pages. If a Podcast icon  is present, a video or audio file is available for download or you can subscribe to the RSS Podcast Feed. 

<http://oceanexplorer.noaa.gov/explorations/11bermuda/logs/photolog/photolog.html>

Video Tools



- YouTube (free online)
- Windows Live Movie Maker (free download)
- Other free and paid software are available

Checkout www.youtube.com/nonprofits

Video Collaborations

Cloud video collaboration, in its broadest sense, refers to any of the communication around video assets that occurs during the production process. While cloud video collaboration platforms may well be useful during all phases of a video production project, they are particularly well suited to the production and post-production phases. To the extent that communication in these phases can be made more efficient there are savings to be had.



Electronic Publishing & E-Books



As shown earlier, the internet has provided many with the ability to distribute electronically published material that can be viewed on a computer screen or printed.

With the proliferation of e-books has come a wide diversity of formats and formatting issues.

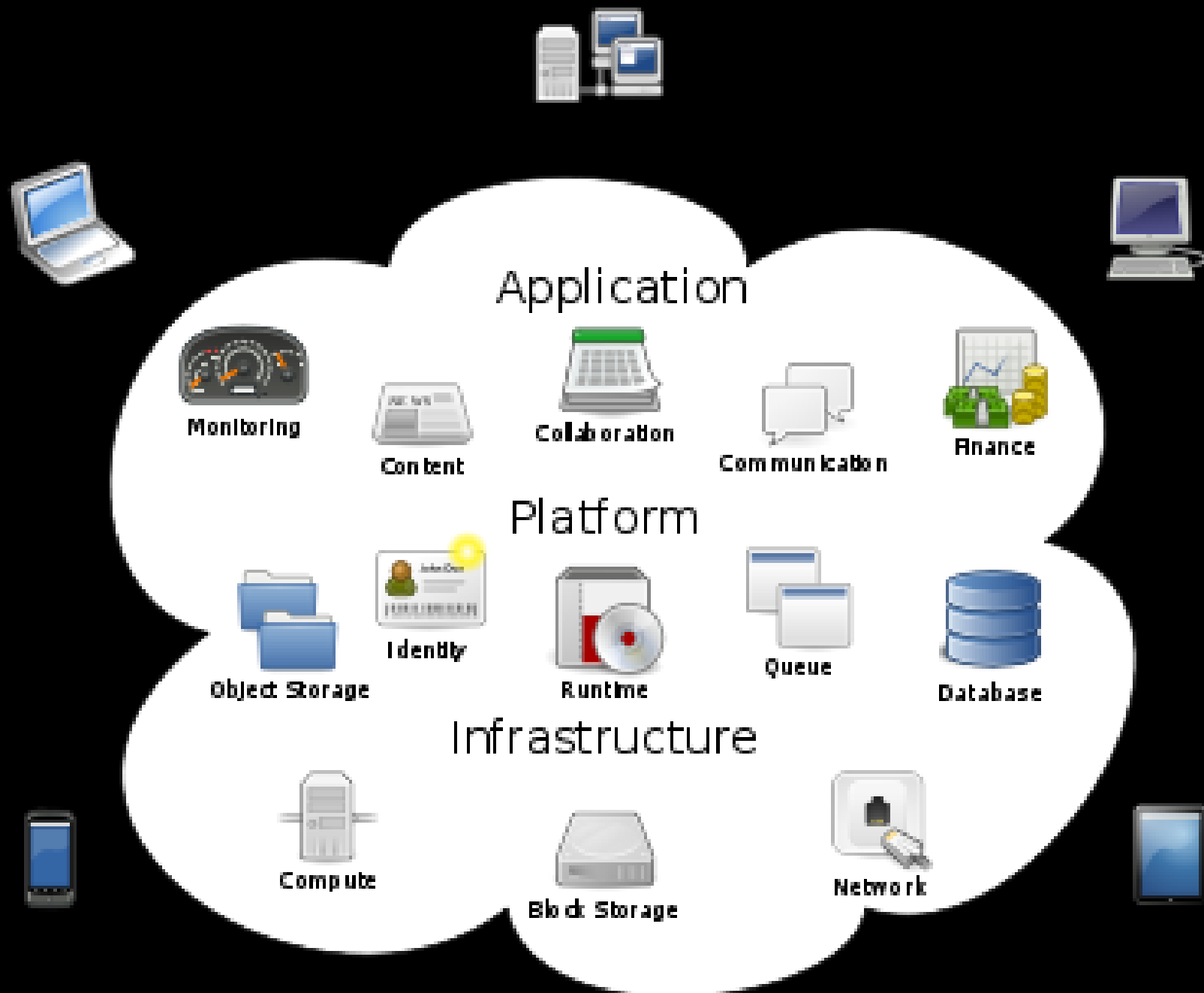
Reader	E-Book Formats
Amazon Kindle , Kindle Fire (color), Kindle Touch, Kindle Touch 3G ^[48]	AZW, PDF, TXT, non- DRM MOBI, PRC
Nook Simple Touch , ^[49] Nook Tablet	EPUB, PDF
Apple iPad ^[50]	EPUB, PDF
Sony Reader PRS- 350, PRS-650, PRS- 950 ^[48]	EPUB, PDF, TXT, RTF, DOC, BBeB
Kobo eReader , Kobo Touch , Kobo Vox ^{[51][52]}	EPUB, PDF, TXT, RTF, HTML



Cloud Computing



- **Cloud/Online Storage**
 - Large capacity, continual backups, enhanced security, multiple storage sites
 - Examples: Google Drive, iCloud, Drop Box, Amazon C3...
- **Shared accessibility**
 - Share access to files
 - Collaboratively produce and edit files.
 - Examples: Google Docs...
- **Virtual Desktops**
 - Access your software & applications from anywhere on (nearly) any computer.
 - Hosted services accounted for more than 500,000 desktop units as of March 2009, but will grow to 49 million desktop units by 2013, and may make up as much as 40% of the worldwide "professional PC market" by revenue.



Displaying Data

Water Monitoring Project



View Los Angeles Harbor water conditions at two sites: the Pilot Dock and the Reclamation Dock. Data is captured every 15 minutes and uploaded to the website every hour, 24 hours a day, 365 days a year.

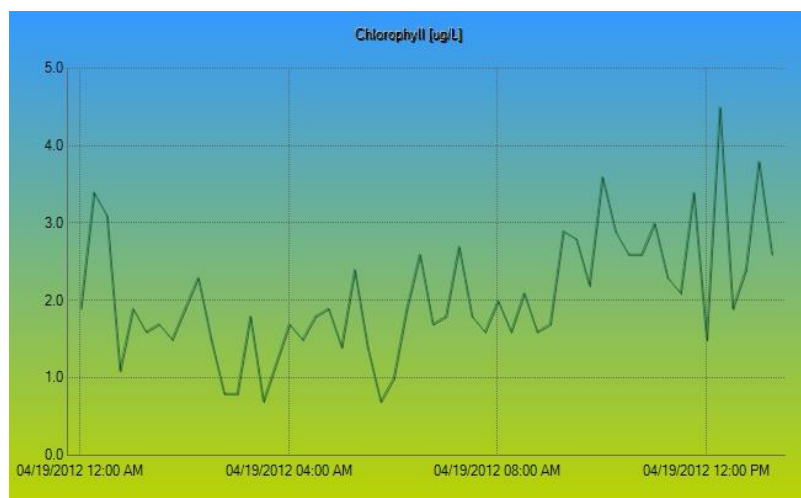
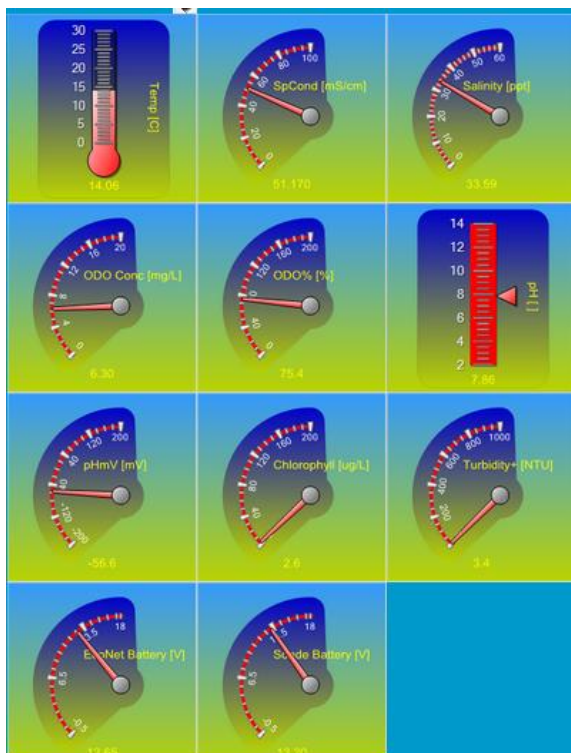
Click on the POLA – WQ link on the left to view a map of Los Angeles Harbor. Click on the green dots to view data from the sites.

Real Time Data Collection and Display



www.ysieconet.com/public/WebUI/Default.aspx?hidCustomerID=208

www.ysieconet.com/



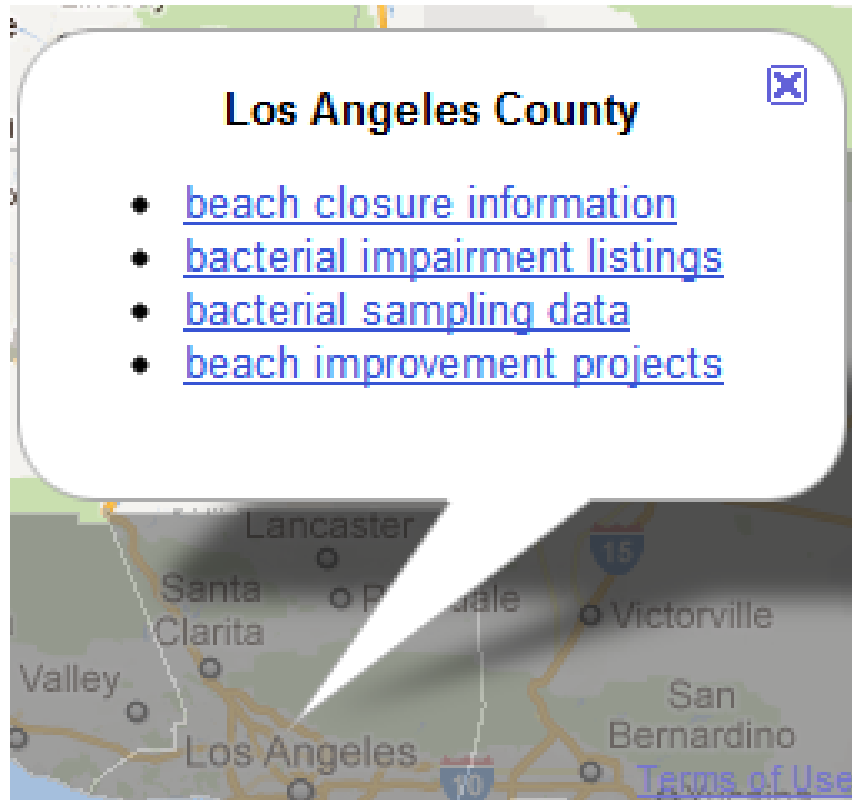
Local Time	Value
04/19/2012 01:15 PM	2.6
04/19/2012 01:00 PM	3.8
04/19/2012 12:45 PM	2.4
04/19/2012 12:30 PM	1.9
04/19/2012 12:15 PM	4.5
04/19/2012 12:00 PM	1.5
04/19/2012 11:45 AM	3.4
04/19/2012 11:30 AM	2.1
04/19/2012 11:15 AM	2.3
04/19/2012 11:00 AM	3.0
04/19/2012 10:45 AM	2.6
04/19/2012 10:30 AM	2.6
04/19/2012 10:15 AM	2.9
04/19/2012 10:00 AM	3.6
04/19/2012 09:45 AM	2.2
04/19/2012 09:30 AM	2.8
04/19/2012 09:15 AM	2.9
04/19/2012 09:00 AM	1.7
04/19/2012 08:45 AM	1.6
04/19/2012 08:30 AM	2.1

[Previous](#)

[Next](#)



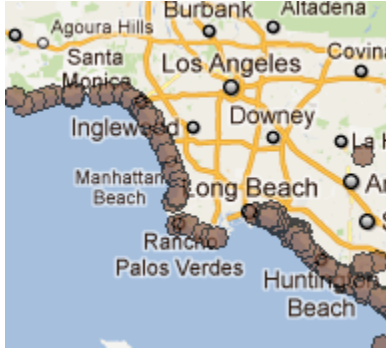
CA Water Quality Portal



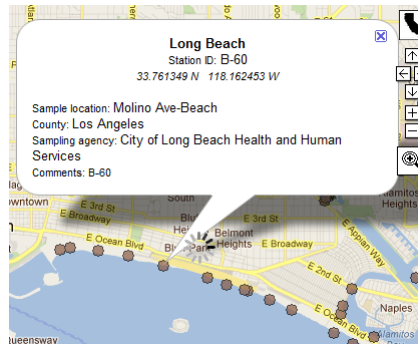
QUESTIONS ANSWERED

- ...» [Can I swim at my beach, lake, or stream?](#)
- ...» [How clean was my beach, lake, or stream during the past week or month?](#)
- ...» [What are the long-term trends at my beach, lake, or stream?](#)
- ...» [Which beaches, lakes, and streams are currently closed by county health agencies?](#)
- ...» [Which beaches, lakes, and streams are listed by the State as impaired?](#)
- ...» [Are the problems getting better?](#)

Safe to Swim Data

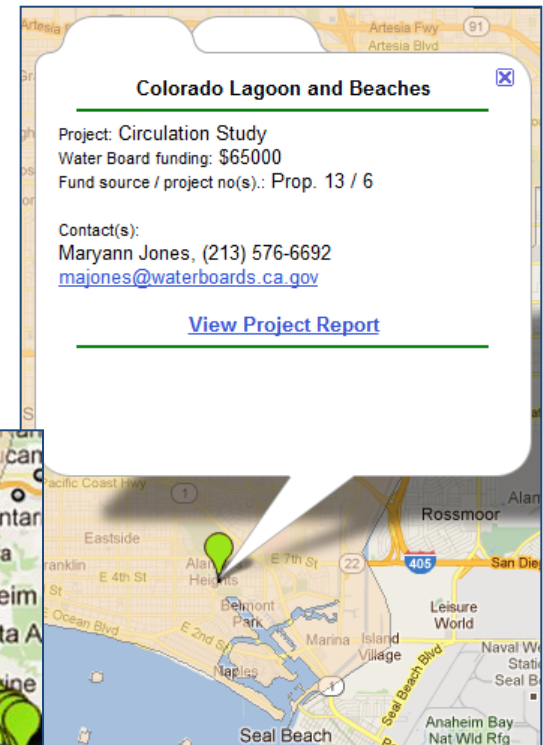
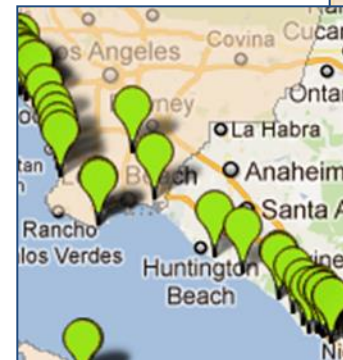


Beach Monitoring Stations



303(d) listed waterbodies – FIB's

Clean
Beaches
Initiative
Grant
Funded
Projects



Data Sharing



Data can be made useable beyond our own program 's use, through integrated data sharing efforts.

EPA's WQX



The Water Quality Exchange (WQX) is a new framework that makes it easier for States, Tribes, and others to submit and share water quality monitoring data over the Internet. States, Tribes and other organizations can now submit data directly to the publicly-accessible STORET Data Warehouse using the WQX framework. The STORET Data Warehouse will continue to be the repository for all modern STORET data and will now also be the new home for data submitted through WQX. WQX will eventually replace the distributed STORET Database (including the STORET Data Entry Module, Reports Module, and STORET Import Module or SIM) as the primary means of submitting water quality monitoring data to EPA.

www.epa.gov/storet/wqx/index.html

California Environmental Data Exchange Network



California Environmental Data Exchange Network

CEDEN is a system designed to facilitate integration and sharing of data collected by many different participants. It is a growing statewide cooperative effort of various groups involved in the water and environmental resources of the State of California. This network is open to federal, state, county and private organizations interested in sharing data throughout the state. The purpose of the CEDEN network is to allow the exchange and integration of water and environmental data between groups and to make it accessible to the public.

<http://ceden.org/>

Simple Data Sharing- AIS/Wildlife



CitiSci- CitSci.org supports the data management needs of citizen science projects from small-scale local efforts to national campaigns. Their tools allow any individual or organization to conduct their own research online.

Sharing & Transforming Data

Transforming Data to Information –
Making data into actionable
information.

Examples-

- EcoLayers – SDRP & SDRWQCB
- Yuba Shed
- Miocean Beach Information Monitors
- San Luis Obispo Beach Status



San Diego Regional Water Quality Portal ^{1/2}

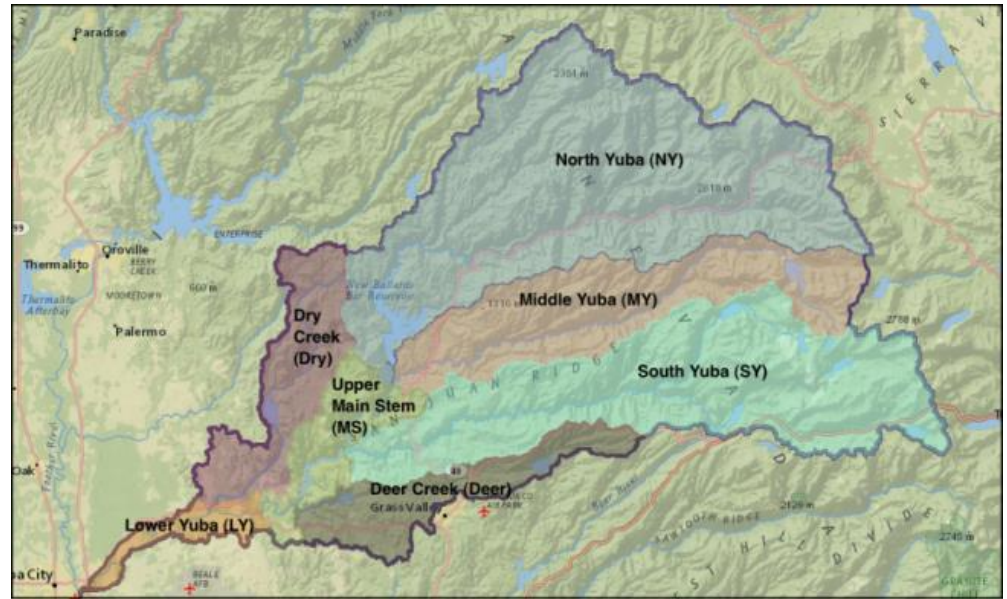
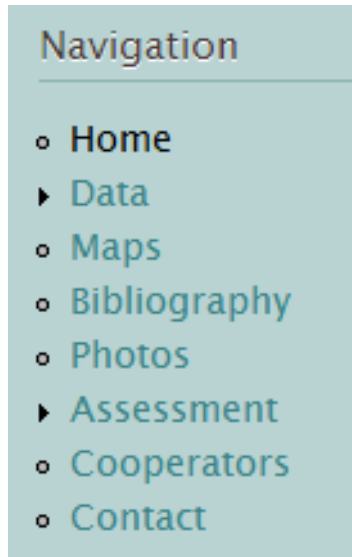
Select a watershed and a data set, then click the "Load Map" link below to proceed.

Select Watershed First	Select Water Quality Program
<input type="checkbox"/> 901.00=SAN JUAN HYDROLOGIC UNIT	<input type="checkbox"/> SWAMP
<input type="checkbox"/> 902.00=SANTA MARGARITA HYDROLOGIC UNIT	<input type="checkbox"/> SWAMP Sites
<input type="checkbox"/> 903.00=SAN LUIS REY HYDROLOGIC UNIT	<input type="checkbox"/> Municipal Stormwater-Urban Runoff
<input type="checkbox"/> 904.00=CARLSBAD HYDROLOGIC UNIT	<input type="checkbox"/> Dry Weather
<input type="checkbox"/> 905.00=SAN DIEGUITO HYDROLOGIC UNIT	<input type="checkbox"/> Municipal Stormwater-Receiving Waters
<input type="checkbox"/> 906.00=PENASQUITOS HYDROLOGIC UNIT	<input type="checkbox"/> Chemical
<input type="checkbox"/> 907.00=SAN DIEGO HYDROLOGIC UNIT	<input type="checkbox"/> Biological (IBI)
<input type="checkbox"/> 908.00=PUEBLO SAN DIEGO HYDROLOGIC UNIT	<input type="checkbox"/> Benthic
<input type="checkbox"/> 909.00=SWEETWATER HYDROLOGIC UNIT	<input type="checkbox"/> Bacteria
<input type="checkbox"/> 910.00=OTAY HYDROLOGIC UNIT	<input type="checkbox"/> Toxicity
<input type="checkbox"/> 911.00=TIJUANA HYDROLOGIC UNIT	<input type="checkbox"/> Municipal Stormwater - Outfall Monitoring
	<input type="checkbox"/> Dry Weather (Outfall)
	<input type="checkbox"/> Wet Weather (Outfall)
	<input type="checkbox"/> Coastal Storm Drain
	<input type="checkbox"/> San Diego River Park Foundation (HU 907 only)
	<input type="checkbox"/> RiverWatch Sites
	<input type="checkbox"/> Bioassessment (Stream Team)
	<input type="checkbox"/> Bioassessment (Stream Team)
	<input type="checkbox"/> 401 Projects and Mitigation Sites
	<input type="checkbox"/> 401 Projects
	<input type="checkbox"/> USGS National Water Information Survey
	<input type="checkbox"/> Stream
	<input type="checkbox"/> Lake
	<input type="checkbox"/> Ground Water
	<input type="checkbox"/> 303(d) List
	<input type="checkbox"/> 303(d) Streams
	<input type="checkbox"/> 303(d) Water Bodies

Search Regional Water Quality Data

Layers		<< >> Home Page	
<ul style="list-style-type: none"> Base Layers <ul style="list-style-type: none"> <input type="checkbox"/> San Diego County <input checked="" type="checkbox"/> Watersheds <input checked="" type="checkbox"/> 911=TIJUANA <input type="checkbox"/> San Diego Jurisdiction SWAMP <ul style="list-style-type: none"> <input checked="" type="checkbox"/> SWAMP Sites 	<p>Result: <input type="text"/> to <input type="text"/> Get Range</p> <p>■ SWAMP Toxicity</p> <p>Sample Date: <input type="text"/> to <input type="text"/> Get Range</p> <p>e.g., mm-dd-yyyy</p> <p>Analyte: <input type="text"/> ?</p> <p>e.g., pH, Dissolved Oxygen</p> <p>Result: <input type="text"/> to <input type="text"/> Get Range</p> <p>■ SWAMP Habitat</p> <p>Sample Date: <input type="text"/> to <input type="text"/> Get Range</p> <p>e.g., mm-dd-yyyy</p> <p>Analyte: <input type="text"/> ?</p> <p>e.g., pH, Dissolved Oxygen</p> <p>Result: <input type="text"/> to <input type="text"/> Get Range</p> <p>POWERED BY Google</p> <p>Download data for all sites</p>		<p>Thank you for using the San Diego Regional Water Quality Data Portal. Please review a few helpful tips below. To view the User's Manual, click here: Instructions</p> <ul style="list-style-type: none"> • Reports, charts and other information may appear on a new page. Use the Portal's "Back" button on this page to return to map view. Do not use the browser's back button. • Remember to toggle the layer folder in the left pane, or the active layer in the Preview drop-down below the map to open its Query Box by clicking the first tool bar button. • Your session will terminate if there is no activity for about 15 minutes. Click the browser refresh button to start a fresh session. This is by design. <p>Send feedback and comments to info@EcoLayers.com.</p>

Yuba Shed ^{1/2}



This information system provides data, documents, photos, maps and tools for people interested in the condition of the Yuba River and its many tributaries. Yuba Shed has been designed to facilitate collaborative work among organizations, and to promote a science-based understanding of the Yuba River and the entire Yuba River watershed. <http://yubashed.org/>

Data

Category

Algae
Benthic Macroinvertebrates
Thermograph
WQ Field
WQ Lab

Organization

SSI
SYRCL

Region

Deer Creek
Dry Creek
Lower Yuba
Middle Yuba
North Yuba
South Yuba
Upper Main Stem
Yuba Watershed

Parameter

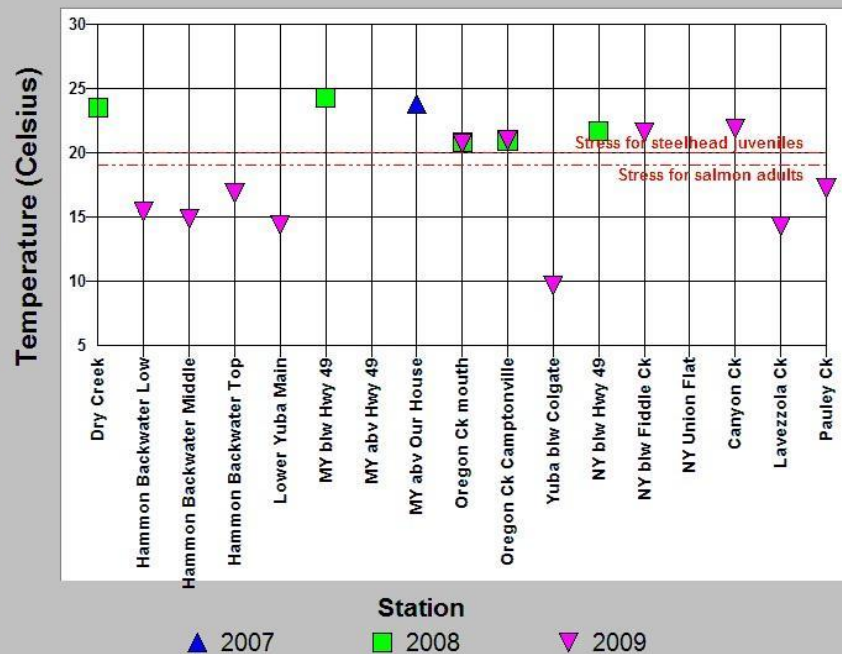
Air Temp
Arsenic
Chromium
Coliform
Conductivity
Copper
Diesel
Dissolved Oxygen

Items per page

30

Reset

Weekly Average Temperature 2007-2009



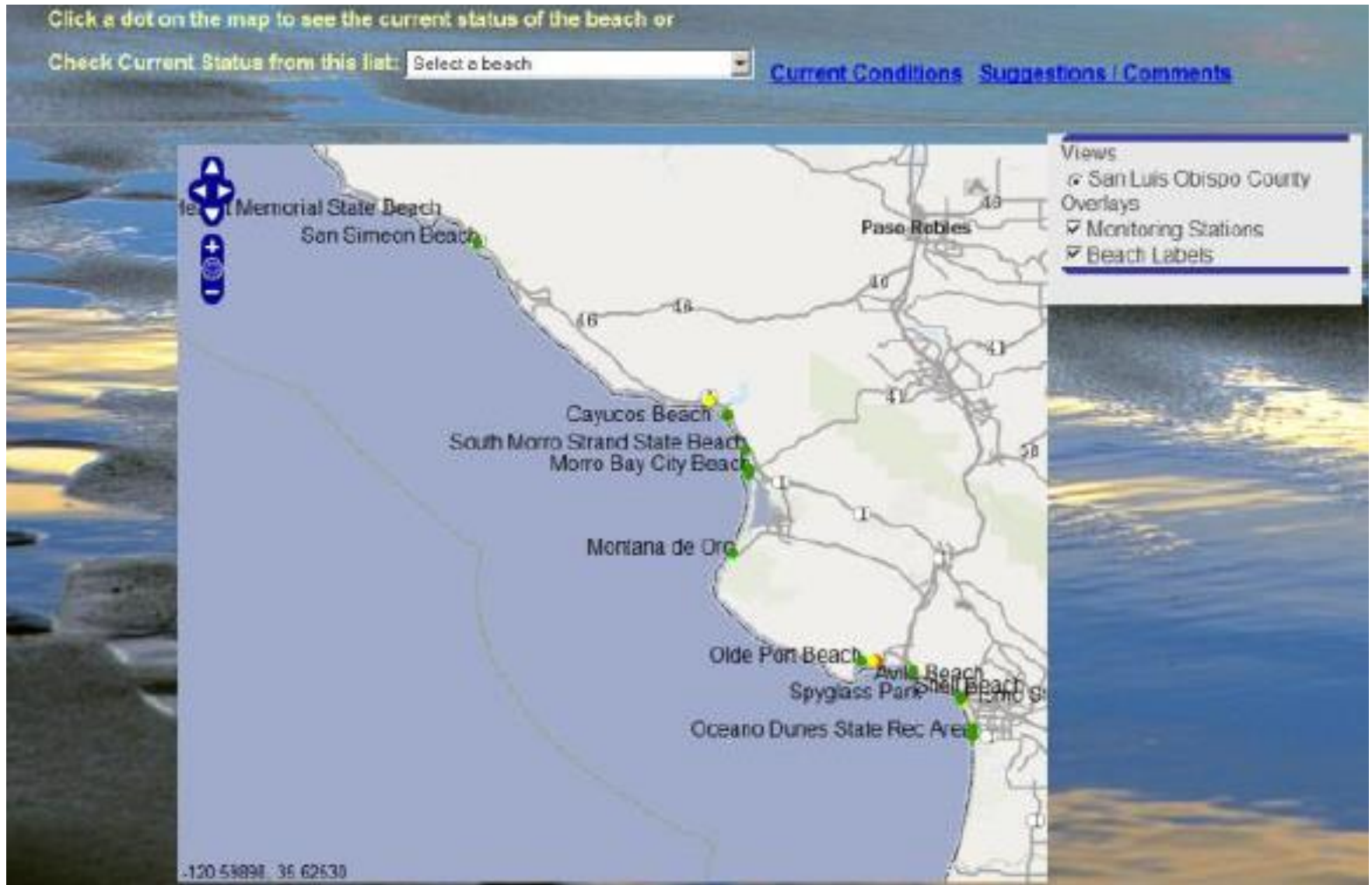
Miocean Beach Information Monitors

Miocean Beach Information Monitors

In 2010, Miocean launched the nation's first Beach Information Monitors in Orange county, featuring real-time beach and surf conditions, water quality data, and consumer tips for reducing urban runoff pollution to local beachgoers.



San Luis Obispo Beach Status ^{1/3}



Data for Each Beach is Displayed

Avila Beach (AB8)

249 yds east of pier by last steps on rock wall-San Luis St
AB8(Lat= 35.178 , Lon= -120.733)



Currently Closed

Last 30 days of data

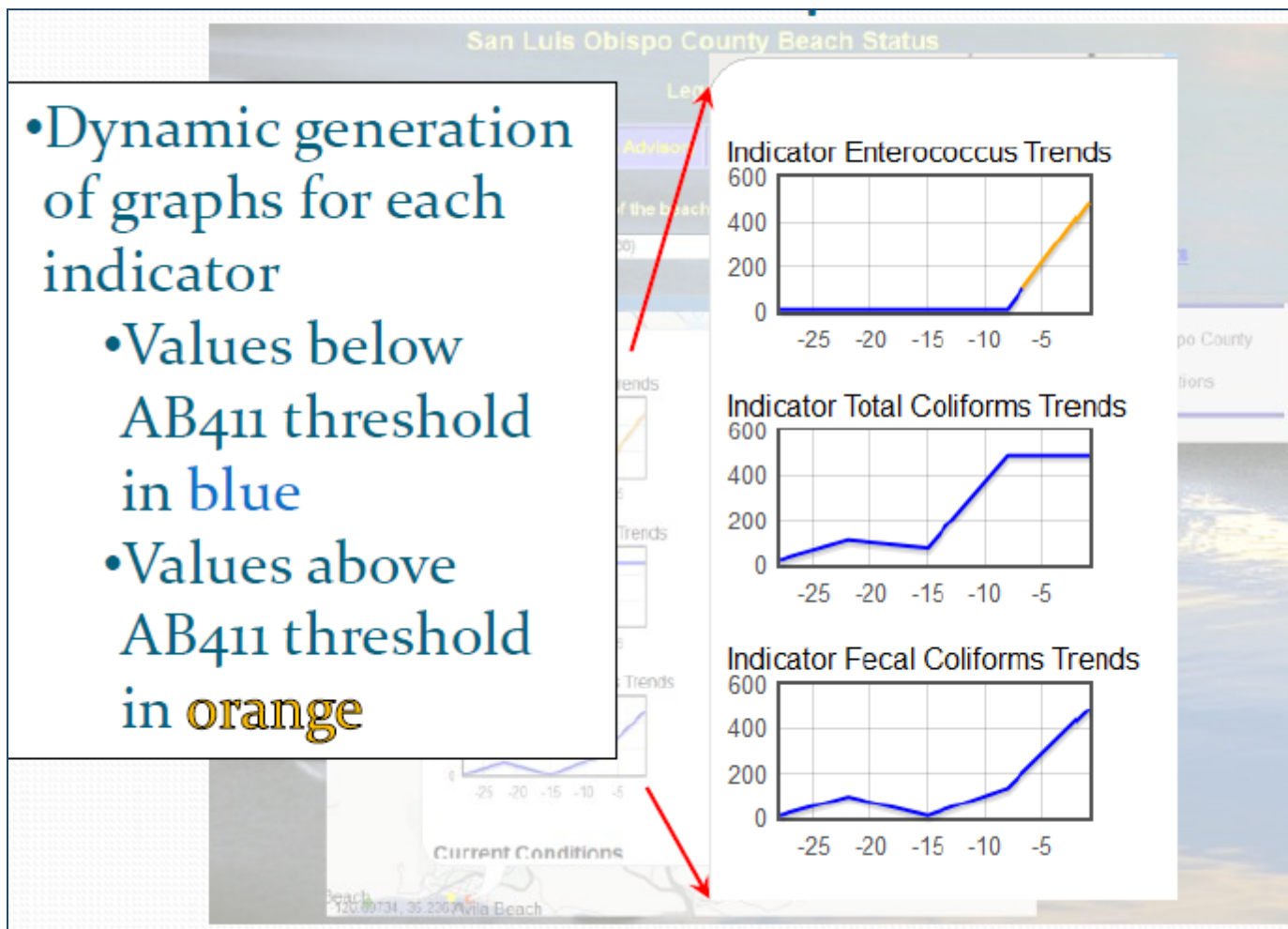
Sample Date	Enterococcus	Fecal Coliforms	Total Coliforms
8/2/2011	10	10	20
8/8/2011	10	97	109
8/15/2011	10	10	73
8/22/2011	10	135	487
8/29/2011	487	487	487

Indicator Trend Graphics

- Dynamic generation of graphs for each indicator

- Values below AB411 threshold in blue

- Values above AB411 threshold in orange



Dynamic Data from Near Shore Buoy

Current Conditions

 **NDBC/PSLC1**

35.177N 120.780W

Weather Conditions

11:54 am PST
1954 GMT 01/04/12
Wind: NNE (20°), 1.9 kt
Gust: 2.9 kt
Pres: 30.27
Air Temp: 57.9 °F
Water Temp: 54.5 °F

[Main Page](#)
Feedback: webmaster.ndbc@noaa.gov

Online Statistics Resources

Sections of the *StatPages.net* web site

Interactive Stats	Free Software	Books & Manuals	Demo's & Tutorials	Other Links	About this Website	What's New	My Home Page
-----------------------------------	-------------------------------	-------------------------------------	--	-----------------------------	------------------------------------	----------------------------	------------------------------

Web Pages that Perform Statistical Calculations!
(*StatPages.org*)

= Practical Stats
... Make sense of your data!

<http://practicalstats.com/>



www.r-project.org/

R is a language and environment for statistical computing and graphics. It is a GNU project which is similar to the S language and environment which was developed at Bell Laboratories (formerly AT&T, now Lucent Technologies) by John Chambers and colleagues. R can be considered as a different implementation of S. There are some important differences, but much code written for S runs unaltered under R.

Online Graph Resources



www.onlinecharttool.com/



www.diychart.com/



www.chartgo.com/



<http://webgraphing.com/>



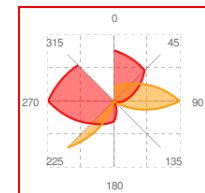
<http://nces.ed.gov/nceskids/createagraph/>



<http://piecolor.com/>



www.mathcracker.com/pie_chart.php



<http://charts.hohli.com>

RICH CHART LIVE

www.richchartlive.com/RichChartLive/

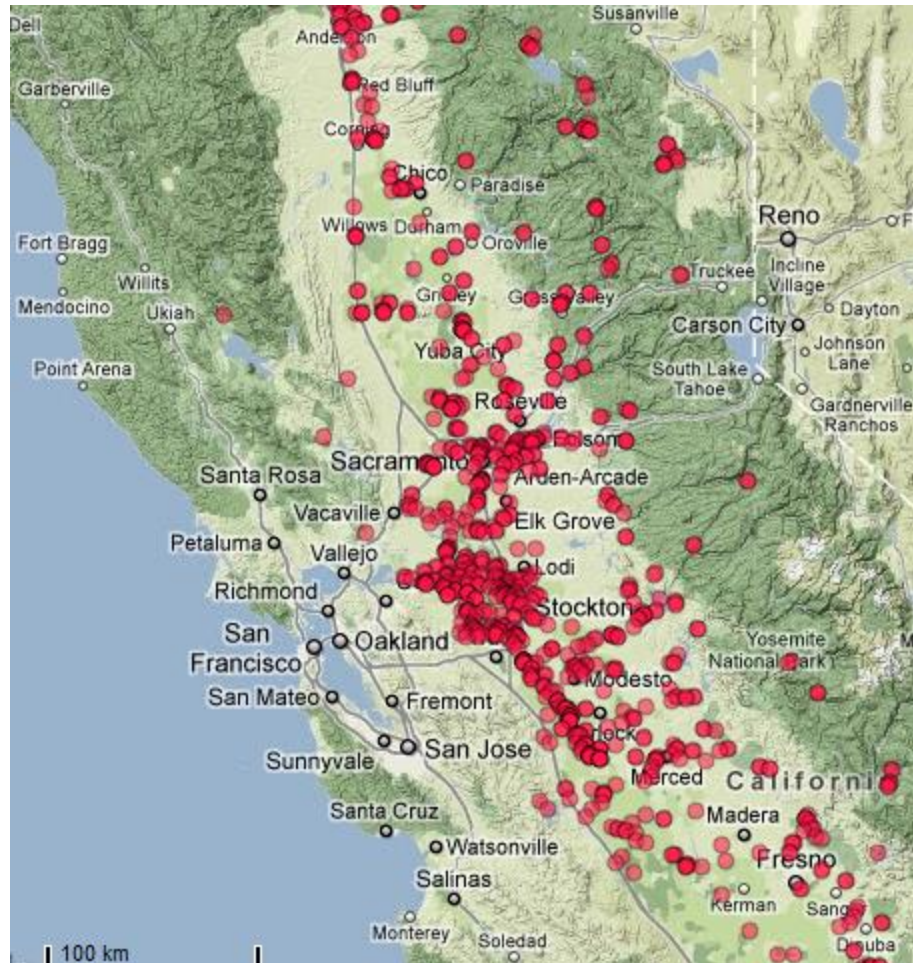
Monitoring Directories

Directories of programs and projects can promote water quality monitoring, reduce redundancy, increase collaborations and reduce costs.





C.V.M. Main Directory



Programs Organizations Analytes Sites Help

Programs	Organizations	Analytes	Sites	Help
Program				
<input checked="" type="checkbox"/> DWR San Joaquin District - Surface Water Monitoring	DWR	39	San Joaquin River, Delta, Tulare Lake	
<input checked="" type="checkbox"/> Surface Water Ambient Monitoring Program (SWAMP) - Central Valley	CVRWQCB Show Partners	79	Delta, San Joaquin River, Sacramento River, Tulare Lake	
<input checked="" type="checkbox"/> Grasslands Bypass Project	USBR Show Partners	11	San Joaquin River	
<input checked="" type="checkbox"/> Sacramento Regional Wastewater Treatment	Sacramento RCSD	3	Delta	

Programs	Organizations	Analytes	Sites	Help
Program				
DFG	DFG	DFG Water Quality Sampling	<input checked="" type="checkbox"/> 16	San Joaquin River, Tulare Lake
DWR	DWR	DWR Operations & Maintenance - State Water Project Water Quality Monitoring	<input checked="" type="checkbox"/> 8	Delta, San Joaquin River, Tulare Lake
DWR		DWR San Joaquin District - Surface Water Monitoring	<input checked="" type="checkbox"/> 39	Delta, San Joaquin River, Tulare Lake
DWR		Municipal Water Quality Investigations	<input checked="" type="checkbox"/> 10	Delta, Sacramento River, San

Programs Organizations Analytes Sites Help

Contra Costa Canal at Pumping Plant 1 (PP1)

Basin Delta Sub Basin South Delta Watershed San Joaquin Delta Latitude 37.995445 Longitude -121.701897

[Show on Map](#)

[View Program](#)

[View Monitoring Plan](#)

[Show monitored parameters](#)

Contra Costa Canal, near Rock Slough at the Trash Rack (RS)

Basin Delta Sub Basin South Delta Watershed San Joaquin Delta Latitude 37.976995 Longitude -121.64217

[Show on Map](#)

[View Program](#)

[View Monitoring Plan](#)

[Show monitored parameters](#)

Freeport upstream of SRWTP (SRFPT)

Basin Delta Sub Basin North Delta Watershed Sacramento Delta Latitude 38.45820 Longitude -121.50260

[Show on Map](#)

[View Program](#)

[View Monitoring Plan](#)

[Show monitored parameters](#)

River Mile 44 downstream of SRWTP (SRRMF)

Basin Delta Sub Basin North Delta Watershed Sacramento Delta Latitude 38.43470 Longitude -121.51920

[Show on Map](#)

[View Program](#)

[View Monitoring Plan](#)

[Show monitored parameters](#)

Mud Slough nr Stevinson (80-0400.00)

Basin San Joaquin River Sub Basin Grasslands Watershed Delta-Mendota Canal Latitude 37.1728 Longitude -120.564

[Show on Map](#)

[View Program](#)

[View Monitoring Plan](#)

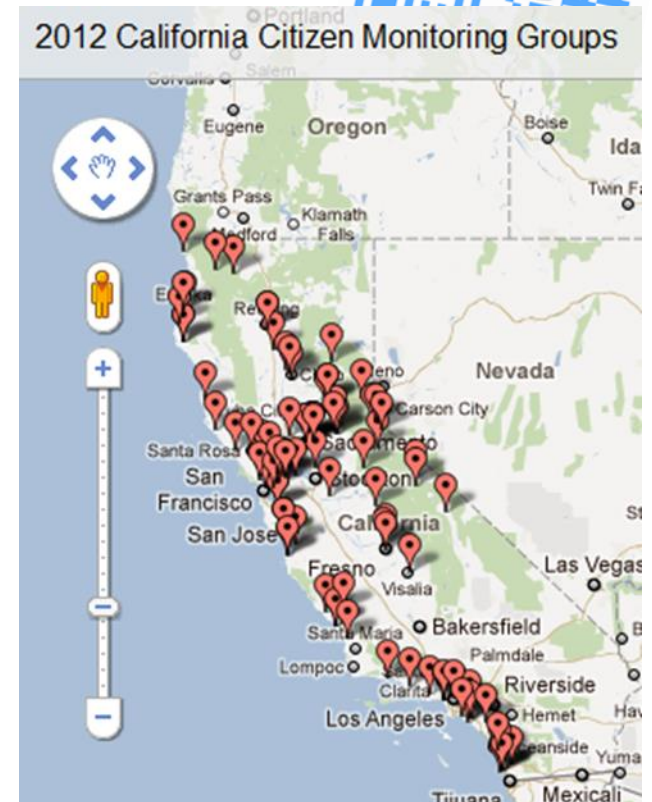
CA Citizen Monitoring Directory & Map



California's Surface Water Ambient Monitoring Program
**FIND A CITIZEN MONITORING
GROUP IN YOUR REGION**
JAN. 2010



Erick Burres
Citizen Monitoring Coordinator
SWRCB-Clean Water Team
eburres@waterboards.ca.gov
(213) 576-6788

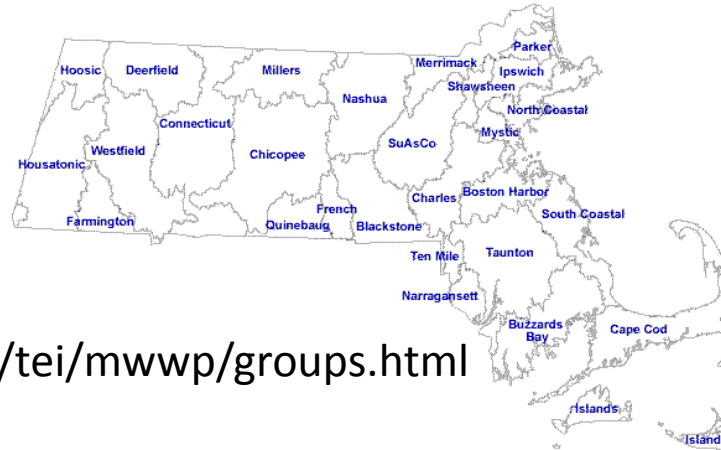




Massachusetts Water Watch Partnership

DIRECTORY OF MASSACHUSETTS VOLUNTEER MONITORING GROUPS

Click on the name of the watershed you are interested in to see who is monitoring there.
If your group isn't listed or there is an error in the listing, please contact [MassWWP](#).



www.umass.edu/tei/mwwp/groups.html

Housatonic River Watershed

Housatonic Valley Association

Water Bodies Monitored: Housatonic River
Program Coordinator: [Dennis Regan](#) (413) 394-9796

Lake Onota Preservation Association

Water Bodies Monitored: Lake Onota
Program Coordinator: [Bob Race](#) (413) 443-1681

Laurel Lake Preservation Association, Inc.

Water Bodies Monitored: Laurel Lake
Program Coordinator: [Mark Alimansky](#) (781) 861-8420

Three Mile Pond Association

Water Bodies Monitored: Three Mile Pond
Program Coordinator: [Elaine B. Panitz](#) (413) 229-3390

Indiana Water Monitoring Council

*Maximizing resources through improved communication,
coordination, data sharing, and collaboration*



www.inwmc.org/



Online Polls & Surveys

Online polling has enabled groups to schedule monitoring and restoration events, survey communities about water quality , water uses & BMPs.

- Doodle Poll (Scheduling meetings, events...)
- Constant Contact (Citizen Monitoring Survey- see NWMC Presentation on CA Citizen Monitoring Contributions, AIS SWAMP Survey...).
- Survey Monkey
- Google Forms

No one observes the ocean more carefully than surfers.

science4surfing hopes to share in surfers' deep appreciation of the ocean and careful observation of nature in order to improve our understanding and management of the waves, the beaches, and the coastal communities we rely on.

By clicking the link below and taking our brief survey, you will join thousands of other surfers who have contributed their wave knowledge to help Science! We will use this data to learn how are coasts are changing and what we can do to protect the ocean we all share and love.

Please click here to

Take Our Survey!

Volunteer Recruitment – With Other Websites



Volunteer Management

National Value of Volunteer Time

The estimated value of volunteer time for 2011 is \$21.79 per hour.

Tracking volunteer hours- Free and Fee based services

- www.volgistics.com/
- www.ourvolts.com
- www.presidentialserviceawards.gov/index.cfm

Economic Impact of Volunteers Calculator

www.handsonnetwork.org/tools/volunteercalculator

Economic Impact of Volunteers Calculator

Engineers, all other

Entertainers and performers, sports and related workers, all other

Entertainment attendants and related workers, all other

Environmental engineering technicians

Environmental engineers


Environmental science and protection technicians, including health

Environmental scientists and specialists, including health

Epidemiologists

Public and community health workers

Job Title	Hourly Rate	Hourly Benefit	Number of Hours	Subtotal
Environmental scientists and specialists, including health	\$29.29	\$3.51	<input type="text" value="50"/>	\$1640.24
Grand Total:				\$1640.24



Online Fund Raising Tools

Widgets



Donate to this organization

\$10.00

Donate

Google Checkout

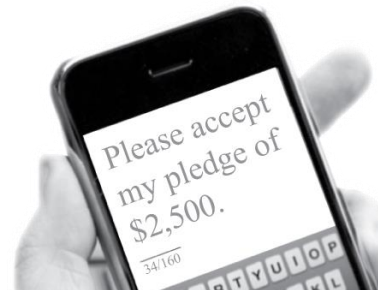
About YouTube Nonprofits

Add a **Donation Button** to your Website and Social Media.

QR Codes



Be sure to have an online Wish List .



Text to Pledge/Give

Online Fund Raising

Online Fund Raising Campaigns-

Many service providers exist.

Use your website and social media to promote campaigns.



Collect Money Now!

I am collecting for (required)

I want to raise \$ Leave blank if you have no set amount

I need it by (required) MM/DD or "May 2" (default 30 days)

Send my funds to
PayPal email (required)

By providing us with your PayPal account email address, all contributions will go directly to you. PayPal may charge you a [processing fee](#). [Click here](#) to create a PayPal account.

Start Your Event!



Add A Donation Button to Your Website(s)



for a job well done







Maximize fundraising efforts with Facebook.



- Equipment Needed
- Projects
- Donor Pictures/Thanks

Crowdfunding

1		946	536	5%	Over \$270M raised for personal fundraisers. Processing fee of 2.9% + \$0.30 applies.
2	KICKSTARTER	1,217	391	5%	Personal fundraising <u>not allowed</u> . Creative only. Processing fees of between 3-5% apply.
3	 indiegogo	2,631	852	9%	Fee is 9%. Only if goal is reached 5% is refunded. 3% processing fee. \$25 fee for international wire.
4	YouCaring.com	3,681	2,696	5%	5% fee is suggested to campaign donors. Processing fee of 2.9% + \$0.30 applies.
5	causes	4,308	5,679	4.75%	Allows non-profit and charity fundraising. Only the processing fee of 4.75% applies.



People have been polluting the environment out of ignorance and for personal gain for hundreds of years. However, Creeklife is now up and running and in business to put a stop to this and repair, protect and restore our environment across the entire country.

Creeklife offers an extra value in that we connect people who need money and pay them to clean our watersheds.

Creeklife can solve numerous big issues and small issues alike through people participation and crowdfunding on our platform.

We've added every watershed in the country (including yours) and all the watersheds down to your local creek.

We are using local groups to make as many residents, nonprofits, companies and government agencies aware of what we are doing.



Clean Water Future | *You Bring Nature's Benefits to Life*

[WHAT IS THE PLANET FUND?](#)

[DISCOVER](#)

The Planet Fund

[CREATE CAMPAIGN](#)

[LOGIN/ REGISTER](#)

Crowdfunding the restoration of our environment and communities

eDonation Forms

Donation Form

By [donating](#) to Sierra Streams Institute, you provide important support for our efforts to advance watershed science, restore the watersheds of the Sierra Nevada, and educate citizens about the connections between watershed health, community health, and personal health.

Donor Information

First Name	<input type="text"/>
Last Name	<input type="text"/>
Title	<input type="text"/>
Organization	<input type="text"/>
Mailing Address	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Zip	<input type="text"/>
Home Phone	<input type="text"/>
Work Phone	<input type="text"/>
Cell Phone	<input type="text"/>
Email Address	<input type="text"/>
How did you hear about us?	<input type="text"/>
I am a Deer Creek property owner	<input type="checkbox"/>
Please subscribe me to the email newsletter	<input type="checkbox"/>
I'd like my donation to remain anonymous	<input type="checkbox"/>

Amount of Donation

☐ \$25

☐ \$50

☐ \$100

☐ \$250

☐ \$500

☐ \$1000

☐ \$

Please **double check** your entries before proceeding



DONATION OPPORTUNITIES

Join the effort to create the river park and care for our river!

3 Ways to Donate

1. Online through Secure PayPal
2. Call us at 619-297-7380 to make a credit card donation by phone.
3. Donate by mail. [Click Here for Form](#)

SDRPF
PO Box 80126
San Diego, CA 92138

Our EIN is 01-0565671; SDRPF is a 501c3 nonprofit.

Donation Opportunities

- General Support

Donate



- River Conservation Opportunities Fund - reserve fund for land acquisitions

Donate



- Discover Center at Grant Park
[Click Here for Details](#)

Donate



Giving Via eBay & Using Wish Lists

WISH LIST

Needs identified by other volunteers

Gardens

Gloves (50) (\$5 each)

<http://sandiegoriver.org/wishes.php>

Kid-sized Gloves (20) (\$4 each)

Round Point Shovels (10) (\$15 each)

Used garden hoses: we cut them in 3 foot lengths and use them for tree supports

Used rakes, shovels, wheelbarrows and other garden equipment

Eagle Peak Preserve and Other Preserves

20 foot metal, weather tight storage container delivered (this is identified by staff!) (\$1800)

Peterson Animal Tracks Field Guide (1) (\$13.57)

Sibley Birds of Western North America Field Guide (1) (\$13.57)

Healthy River, Healthy Communities

Small Digital Camera (2) to use in the field (water-proof or resistant preferred) (\$100 each)

Garmin E-Trex GPS (3) (\$120 each)

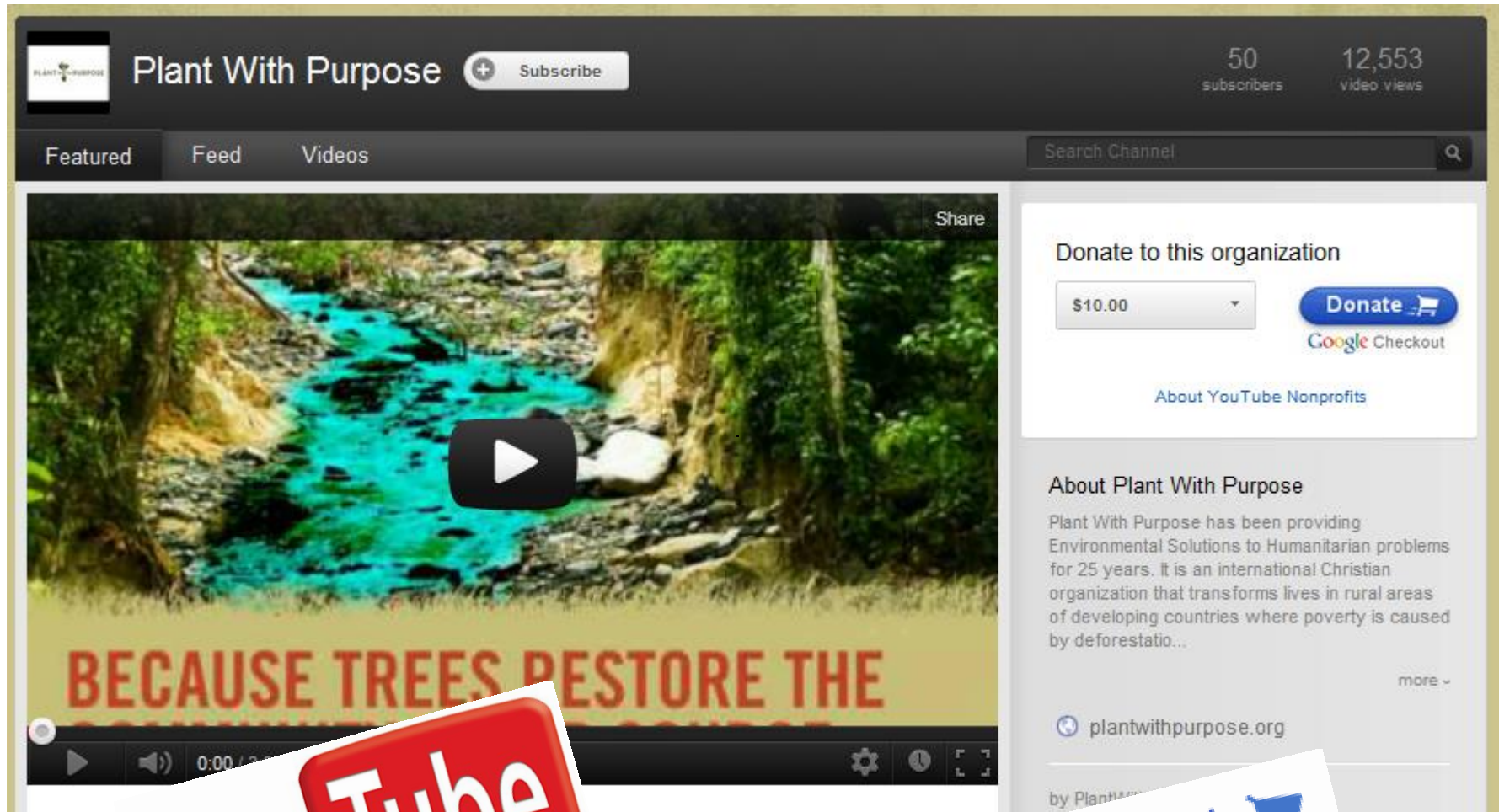
Hip Waders (various sizes) (\$70 each)

Staff Wishes

Conference Room Phone (Bogen-VHUB) \$350.00

<http://sandiegoriver.org/donate.php>

Giving Via YouTube Channels



The screenshot displays the YouTube channel page for "Plant With Purpose". At the top, the channel name "Plant With Purpose" is shown next to a "Subscribe" button. To the right, it indicates "50 subscribers" and "12,553 video views". Below the header, there are tabs for "Featured", "Feed", and "Videos", along with a "Search Channel" bar. The main video player shows a lush green forest scene with a stream. A large play button is centered over the video. Below the video, the text "BECAUSE TREES RESTORE THE" is visible. To the right of the video player, there is a "Donate to this organization" section. It includes a dropdown menu set to "\$10.00", a "Donate" button with a shopping cart icon, and a "Google Checkout" link. Below this, there is a link to "About YouTube Nonprofits". Further down, the "About Plant With Purpose" section provides a description: "Plant With Purpose has been providing Environmental Solutions to Humanitarian problems for 25 years. It is an international Christian organization that transforms lives in rural areas of developing countries where poverty is caused by deforestation...". At the bottom of the "About" section, the website "plantwithpurpose.org" is listed. The video player controls at the bottom show a progress bar at 0:00.

Plant With Purpose Subscribe

50 subscribers 12,553 video views

Featured Feed Videos

Share

Donate to this organization

\$10.00 Donate Google Checkout

[About YouTube Nonprofits](#)

About Plant With Purpose

Plant With Purpose has been providing Environmental Solutions to Humanitarian problems for 25 years. It is an international Christian organization that transforms lives in rural areas of developing countries where poverty is caused by deforestation...

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by Plant With Purpose

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Thanks for Participating