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RESOURCE
CONSERVATION
DISTRICT OF
GREATER SAN DIEGO

WATERSHED LEARNING IN THE CLASSROOM

WHAT IS A WATERSHED?

Take a look at these video definitions before or after your Watershed Education presentation .

<https://www.youtube.com/watch?v=QOrVotzBNto>

Presented by 'Battle River Watershed.' A quick video describing a Watershed. (1 minute-17 seconds) Also connects to:

<http://caringforourwatersheds.com/>

<https://www.youtube.com/watch?v=LJ63xGJY4pM>

Presented by 'Water matters TV.' A more detailed look at watersheds. (10 mins)

<https://www.youtube.com/watch?v=aZS0qGmbeg>

Presented by 'sdwatersheds.' A look at the SD Bay watershed! (4 minutes.)



View of the San Diego Bay, Ca.

Map of the San Diego Bay Watershed

<http://www.sdbay.sdsu.edu/education/watersheds.php>



View of Owens River, Ca.

THE BIGGER PICTURE

Explore with students how water quality effects climate and the globe!!

The Great Pacific Garbage Patch

<http://garbagepatch.net/> -Information on the North Pacific Gyre .

Ocean Acidification

<http://thankyouocean.org/> - Ocean acidification information and additional ocean based learning resources.

The Story of Stuff

<http://storyofstuff.org/> - How do we generate so much 'non-source' pollution in the first place? Where does all the 'stuff' come from? A look into general consumption of consumer goods and the ripple effects it has on the environment and natural resources. Reduce, Reuse, and Recycle!

Quick ideas for follow-up activities in the classroom

- **Create a storm drain watch patrol!** Have a group of students monitor a storm drain on or near campus. Pick up trash and clear debris from around the area each week. Notice what you find and create questions and strategies around the information you gather. What do we see a lot of? Where is it coming from? What would we need to change to prevent trash ending up near the storm drains? What challenges would we face in implementing these changes? Compare and contrast the storm drain location with other areas around the school?
- **Practice writing to legislature** and lobby for improved storm water and waste management.
- **Be an engineer for a day!** Invent tools and technologies to help solve the problem. Build models, do the math—what would you need and what would it cost to create this invention in real life? (Ideas we've heard in the classroom include: storm drain filters, vacuums that could clean up plastic in the ocean...or follow in the path of Japan and breed plastic eating fungi!)
- **Use local data in the classroom!** Tap into some of the local and national online databases that gather numbers on pollution, ocean temperature, marine life, etc. Use 'real-time' numbers to compare and contrast, graph, chart, and explore in the classroom.
- **Create a real - life Garbage patch!** Gather trash and debris from the school yard and place it in a clear glass jar. Fill the jar with water and observe. What happens to the water in a few days, in one week, in several weeks. What is going on inside the jar?
- **Marine Debris Art -** (or school yard trash Art) Attend a beach clean up, or take a moment to collect trash from around the school campus and use these materials to build a class art piece. For inspiration and examples check out: <http://washedashore.org/>



View of the San Diego Bay from Pointe Loma, Ca.

* Facts published by the City of San Diego. Learn more at <https://www.sandiego.gov/water/conservation/kids/funfacts>

SAN DIEGO WATER FACTS!

- “The average San Diegian uses 88 gallons of water each day at home for both indoor and outdoor uses.”
- “If placed into gallon bottles, the 168 million gallons of water San Diego imports daily would encircle the earth more than one and a quarter times.”
- “San Diego imports 80% -90% of it's water.”

GET INVOLVED IN SAN DIEGO

Inspire students to get involved and make a difference!!! Host a school yard clean up, join a citizen science project, collect water quality data in the classroom, connect with a scientist, design a class project, or invite students and families to participate in community events. Here are a few local organizations leading the way to healthy waterways .

San Diego Coast Keeper

<http://www.sdcoastkeeper.org/>

Participate in a beach clean-up! Learn more about current clean-up events and what you can do to protect our waterways in San Diego!

I love a Clean San Diego (ILACSD)

<http://www.ilacsd.org/> Join in community clean up days, learn about waste management, and continue to explore San Diego watersheds.

Surfrider Foundation, San Diego Chapter

<https://sandiego.surfrider.org/> Learn more about what sort of pollution affects San Diego and join on-going, regular clean up days.

Earth Echo

<http://earthecho.org/> Tools and interactive resources to equip youth to identify and solve environmental challenges starting in their own communities.

Algalita- Marine Research and Education (Long Beach, Ca.)

<http://www.algalita.org/the-problem/> Leading research organization focused on plastic pollution and its impacts on marine life and ecosystems, located right here in Southern California.

Wild Coast

<http://www.wildcoast.net/> A cross border conservation organization working to protect the coastline of the Baja-California region.

Ocean Connectors

<http://oceanconnectors.org/>

Ocean Connectors educates, inspires underserved youth from Pacific coastal communities. Students are introduced to the study of migratory marine life.

Why Water?

Water connects us all! The pollution we experience on land and the trash we find on city streets directly affects the quality of San Diego rivers and beaches.

“97% of the world's water is salty or otherwise undrinkable. Another 2% is locked in ice caps and glaciers. That leaves just 1% for consumption by all living creatures, including plants and animals.” *

* Fun fact published by the city of San Diego.

“Water is the driving force of all nature.”

-Leonardo Da Vinci



View of Sunset Cliffs San Diego, Ca.



Student participant during a watershed presentation.

Curriculum Support and Resources

Project Wet

<http://www.projectwet.org/>

Providing water education materials and educator training.

Clean Network

http://cleanet.org/clean/educational_resources/index.html

Resources for climate change curriculum.

Lawrence Hall of Science

<http://mare.lawrencehallofscience.org/curriculum/ocean-science-sequence#OSS>

Resources for ocean science curriculum.

Teaching Boxes

<http://teachingboxes.org/>

Climate change curriculum for grades 6-12.

National Oceanic and Atmospheric Association (NOAA)

<http://oceanservice.noaa.gov/>

Research based organization providing information on ocean life, environment, and climate.

Educational Resources from NOAA

<http://www.education.noaa.gov/Climate/>

<http://www.oesd.noaa.gov/>

DATA IN THE CLASSROOM

Bring the world into the classroom! Utilize these *free* databases to design classroom activities based on current scientific research.

Project Clean Water

<http://www.projectcleanwater.org/index.html> Project Clean Water is a Web-based portal that provides a centralized point of access to water quality information and resources in San Diego County.

Ocean Data Education Project

<http://dataintheclassroom.noaa.gov/> A systems approach to learning about the Earth using real scientific data. Easy-to-use curriculum activities, and intuitive computer interfaces for accessing online data. It's all part of a NOAA-supported effort called the **NODE Project**.

Citizen Science Database for water related projects.

<http://splash.org/>

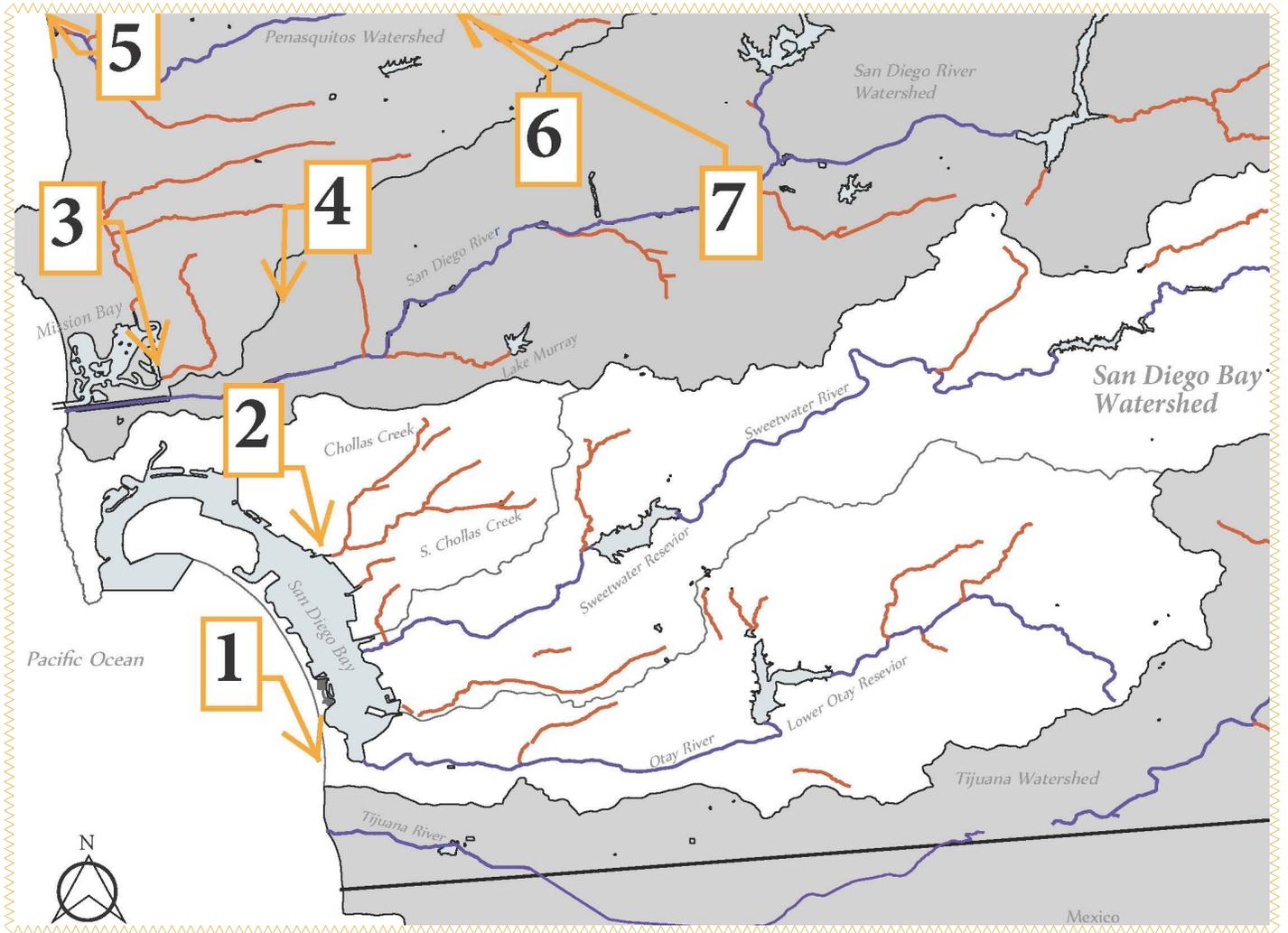
Citizen Science projects enlist every day citizens and communities to collect and or analyze data for on going research studies.

North American Association of Environmental Education

<https://naaee.org/eepro/resources/wikiwatershed>

Wikiwatershed offers an online watershed model app which allows users to learn how land use and soil determine the path of rainfall.

INTEGRATED LEARNING AND FIELD TRIP LOCATIONS



1	TIJUANA RIVER NATIONAL ESTUARINE RESEARCH CENTER
2	LIVING COAST DISCOVERY CENTER
3	SAN DIEGO RIVER PARK FOUNDATION
4	FRIENDS OF ROSE CANYON
5	SAN ELIJO LAGOON CONSERVANCY
6	BUENA VISTA AUDUBON NATURE CENTER, OCEANSIDE
7	AQUA HEDIONDA LAGOON, CARLSBAD

Integrated Learning and Field Trip Locations

Follow up your watershed presentation by connecting with one of these local resources!

1.. [Tijuana River National Estuarine Research Reserve \(Calif. State Parks\)](#) offers the 'Tijuana Estuary Explorers' program. An in-class and field trip program, targeted at 3rd - 6th grade students, that meets state standards and incorporates reading, writing and science into four comprehensive activities about the Tijuana Estuary and watershed.

2. [Living Coast Discovery Center](#) is an interactive learning environment displaying San Diego Bay's native wildlife. The center offers programs for K-12 including classroom outreach programs, field trips, camps, and community events.

3. [San Diego River Park Foundation](#) offers the 'Cool River Program' geared towards students grade K-8. In the program students use scientific tools to look at real "River Bugs," follow Gil the fish in a simulated journey down the watershed and explore the San Diego River with a guide.

4. [Friends of Rose Canyon](#) offer in-class **virtual fieldtrip** opportunities. Currently they host three, 5 minute videos that explore the Rose Creek Watershed.

5. [San Elijo Lagoon Conservancy](#) is a community supported non-profit land trust offering field trip programming, and teaching resources online. In addition, check out their events calendar for community information, including dates and times of guided walks.

6. [Buena Vista Audubon Nature Center](#) in Oceanside offers field trip programming, financial support, and online educator resources.

7. [Aqua Hedionda Lagoon](#) A community based non-profit offering a hands-on field trip program: 'The Academy for Environmental Stewardship. Public use of the lagoon involves access to hiking trails on surrounding land and responsible fishing with a permit, as well as access to the nature centers native garden.

... And Check Out [PORTS](#) A free distance learning program that uses the power of interactive videoconferencing to help K-12 schools teach common core state standards in the context of California State Parks.

<http://ports.parks.ca.gov/>



Image of Pacific Beach pier at sunset San Diego, CA.

*"Storm Water Pollution Prevention ~
Keeping San Diego Bay Clean"*

Watershed Education Program supported by,

