

Conservation CONNECTION

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New Weather Stations Support Irrigation Scheduling in the Region

The weather is very important to people. For some it determines if they will go to the park, go to a ballgame, or just spend the day out on the lake. The weather is also important when it comes to irrigation because no one wants to purposely water their lawn on a rainy day. Likewise, farmers don't want to waste labor and water cost if an irrigation is not needed. Reliable weather information can be used to determine when and how much to irrigate. This is vital to effectively managing our limited water resources.

With this in mind, the US Bureau of Reclamation (*Reclamation*) Mid-Pacific Region (*Region*) has partnered with the California Department of Water Resources (*DWR*) and Reclamation's Pacific

Northwest Region to increase the coverage of weather stations in the Region. These weather stations provide information that is used by water districts, consultants, farmers, and landscape professionals, to schedule agricultural and landscape irrigations. Irrigation scheduling can result in more effective use of water resources by improving production as well as reducing water applications.

Over the last two years, Reclamation's area offices in the Region have partnered in the installation of several weather stations located in Northern and Central California, Southern Oregon, and Northern Nevada, as part of the Water Conservation Field Services Program (*WCFSP*). The *WCFSP* is intended to assist water districts in the development and implementation of their water management plans. Agricultural and landscape water scheduling best management practices are important elements of both Reclamation's and the State's water conservation planning processes.

There are two types of weather station networks used in the Region, California Irrigation Management Information System (*CIMIS*) and Agrimet. The main difference between the two is the *CIMIS* system is located mostly in California, and the *Agrimet* system is located mostly in the Northwest.

Recently, Reclamation's area offices have assisted in the installation of 6 *CIMIS* stations. New stations in Delano Earlimart, Pajero Valley (2), Monterey, Contra Costa, and San Juan have been added to the *CIMIS* weather station network. Experts from *DWR*

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The Spotlight is on: The Regional Offices Newest Water Conservation Specialist



Shana Kaplan

The Mid-Pacific Region Water Conservation Team is pleased to welcome Shana Kaplan as the newest Water Conservation Specialist. She

previously worked at the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service on fisheries and wetlands restoration planning. Prior to those positions, Shana worked on transportation planning in Colorado for the City of Glenwood Springs and on water resources for the County of Maui, Hawaii.

Shana has a Bachelor of Arts degree in Landscape Architecture from Cornell University and a Master of Arts in Community Planning from Prescott College. While in Graduate school, Shana studied abroad in the Global Ecology program. This program allowed her to embark upon her greatest travels, which included England, India, the Philippines, New Zealand, and Mexico. During the Global Ecology program Shana studied social and environmental issues and specialized in Sustainable Development.

Shana's new responsibilities include developing the refuge water management planning criteria, which is similar to the agricultural and urban standard criteria. She is also working on the National Environmental Policy Act (NEPA) compliance and drought planning issues. When Shana is not in the office she enjoys traveling, rock climbing, mountain biking, and photography.

You can reach Shana
at 916-978-5223 or skaplan@mp.usbr.gov

Hot Tips



Did you know . . .

Water trees at night, after 10 p.m. and before 8 a.m., when trees really drink water. With nighttime watering, you lose less water to evaporation. Scientists say two to three deep, soil-soaking waterings each week is best for trees.

Did you know . . .

CIT (Center for Irrigation Technology) has a new interactive web site that assists homeowners, turf managers and growers with irrigation scheduling! In WATERIGHT, you will find a detailed discussion on energy-use for pumping. It includes a calculator to allow you to estimate your annual energy use and costs and list options for decreasing both. This Advisory will be especially helpful during the energy crisis in California.

*Log on to WATERIGHT
at <http://www.wateright.org/>*

Did you know . . .

You can reduce foliar demand for water when a plant wilts? Severe wilting and foliar scorching are signs of drought stress. When a plant wilts to the point where you doubt its survival, cut the top back by one-third to one-half to eliminate the foliar demand for water on the root system. With fewer tops to support, the root system may be able to survive the dry conditions. If you can get the root system through the dry period, the top will prosper later.

New Weather Stations Support Irrigation Scheduling in the Region (cont'd)

determined weather station locations and equipment installation. Installation of a station was only recommended if the proposed site had a microclimate that was substantially different from existing weather stations in the area.

The CIMIS network information is located at: www.dplawater.ca.gov/cgi-bin/cimis/main.pl. This network uses the weather information to calculate the daily water use of grass, which is referred to as Eto. The Eto can then be combined with crop and landscape factors to estimate daily water use.

Agrimet is a conjunction of the words "agricultural" and "meteorology." It is a network of automated agricultural weather stations operated and maintained by Reclamation.

Four Agrimet stations have been installed with Reclamation funding in Southern Oregon and Nevada. The newest station was installed in the Truckee Carson Irrigation District in Fallon Nevada. The University of Nevada Cooperative Extension provided the site and will assist in the station's maintenance. An additional station is scheduled for installation later this summer in Eureka, Nevada. Agrimet weather stations collect and telemeter weather information to a central computer at Reclamation's Pacific Northwest Office in Boise, Idaho via satellite.

Agrimet stations are located in alfalfa fields. The Agrimet weather information is used to calculate the water used by alfalfa and combined daily with crop factors for each of its stations to estimate the crops and landscape water use for that area. The historic and forecasted information is located on the Agrimet Website at mac1.pn.usbr.gov/agrimet/.

The Center for Irrigation Technology at Fresno State has the Waterright website which uses both the CIMIS and Agrimet data to estimate crop water use. This website (www.waterright.org/) can guide the farmer, landscape professional, and homeowner, in determining when and how much water to apply for the next irrigation.

Many water districts use CIMIS and Agrimet data to calculate crop and landscape water use. This information is supplied to the districts' customers in numerous ways, including automated phone call-in, web page, fax, email, included in their bill, and newspaper.

Reclamation will continue to work in partnership with water districts and others to develop programs and tools to assist water users in the Region to gain the greatest benefit from their water resources.

If you would like more information on Reclamation's WCFSP please contact your local Area Office water conservation specialist, or the Region's water conservation program at 916-978-5212 or tslavin@mp.usbr.gov.



Newly installed agrimet station in Fallon Nevada

Are You ready for the Water Challenge?

Given a choice . . . would you know how to equally allocate California's precious water supply???

Could you be fair in allocating water among the farmers who grow our food, town and cities who need water to survive, and our dwindling environment full of rare and endangered species???

The American River Water Education Center (ARWEC), located at the Folsom Area Office, invites you to "Take the Water Challenge."

This interactive exhibit challenges you to make that decision. How would you divide the limited water supply in the Bay Delta between the three main water users: agriculture, urban, and fish and wildlife? See and hear what happens when you give the water to just one group. What will happen when you evenly divide the water between the three users groups? Will everyone be happy?

This exhibit is a duplicate version of one currently in progress at the San Francisco Bay Model Visitors Center.

The San Francisco Bay Model Visitors Center and the US Army Corps of Engineers have joined together to create the *Water Challenge 2010*. This is a dynamic game concept the teach about water allocation in the California Bay Delta. The creation of this exhibit was

possible with a grant CALFED, the US Army Corps of Engineers, and the Bureau of Reclamation.

The ARWEC receives over 16,000 visitors annually, and has an extensive and active water education program with the local area schools. The mission of the ARWEC is to promote water education directly related to the American River Watershed - a major watershed within the Central Valley. In addition, the ARWEC is adjacent to the American River Parkway.

The American River Water Education Center is located at 7794 Folsom Dam Road, Folsom CA 95630.

The Center is open Monday thru Saturday, 9 a.m. to 4:30 p.m.

Call 916-989-7100 for more information.



Oregon State University Offers A Waterwise Web Site

In the kitchen, the garden, and the field—every drop of water is precious this year. To help deal with this year's growing water shortage, Oregon State University's best advice on water conservation has been collected at one Web site. The site includes a list of Extension's drought and water conservation publications, many available on-line. Dozens of publications are available that include tips for:

- ◆ Conserving water in the kitchen and with washing clothes
- ◆ Maintaining a water-efficient lawn and garden
- ◆ Measuring well water levels and estimating flow rates
- ◆ Managing livestock during a drought
- ◆ Strategies to reduce irrigation use in crops and orchards

New publications are added regularly. Find them at OSU's Extension and Experiment Station Communications Web site: <http://eesc.orst.edu/waterwise>

Seepage from Canals Will be Detected with a New Instrument

A research study is being conducted by the Staff at the Center for Irrigation Technology (CIT) to help Reclamation reduce the amount of water lost through seepage.

California is the greatest food producing area in the world, thanks to the thousands of miles of canals that run throughout the state. Yet, the simplest use of the technology – the earthen – banked – waterway – permits seepage into the ground and can result in considerable loss of irrigation water.

In an effort to reduce excessive seepage, Reclamation has enlisted CIT's help in testing the application of electromagnetic inductance (EM) to identify seepage locations along canals and in reservoirs.

The study is done by placing an electronic instrument close to the ground surface or just above water. The instrument sends an electric current into the ground, which induces a magnetic field. The instrument then reads this induced field and the strength of the induced field is dependent on several factors, including soil moisture, soil texture, and soil salinity.

The EM method allows rapid field assessment, but the data generated is what is known as "relative" data. Detailed field investigations that use more traditional techniques that result in "calibrated" data are also required. These methods combined help engineers and water managers locate the potential seepage areas.

Common indicators of seepage along canals are soil saturation or excessive vegetation growth along canal banks. Other assessment methods include actual damming of canal sections and measuring water seepage in the ground.

CIT project engineer Pete Canessa expects the study to be completed in about one year. Results will be released through field day presentations and other methods.

For more information contact
Mr. Canessa at pcanessa@csufresno.edu



Districts - What They are Doing

Sacramento County Water Agency submitted a proposal for a grant through the U.S. Bureau of Reclamation's (Reclamation) Water Conservation Field Services Program. The proposal is for funding of a central irrigation controller system for the Elk Grove Unified School District (EGUSD). The EGUSD plans to utilize this system for two schools that are currently under construction. If successful, they plan to eventually convert all schools to this system.

The EGUSD has selected the Rainbird Maxicom2 system. This system has a central computer that can control and monitor irrigation at many sites. The integrated weather station collects data and transmits it to the central computer. The central computer uses the data to calculate the amount of water needed by the landscape, and helps minimize over-watering. The values calculated can also be accumulated to allow watering only on specific days. This system is capable of monitoring and controlling flow sensors that detect breaks, and shuts down that portion of the system near the break. Reclamation's contribution toward the purchase of this irrigation control system will help the EGUSD save water and save money.

Smart Water and Energy Use in the West

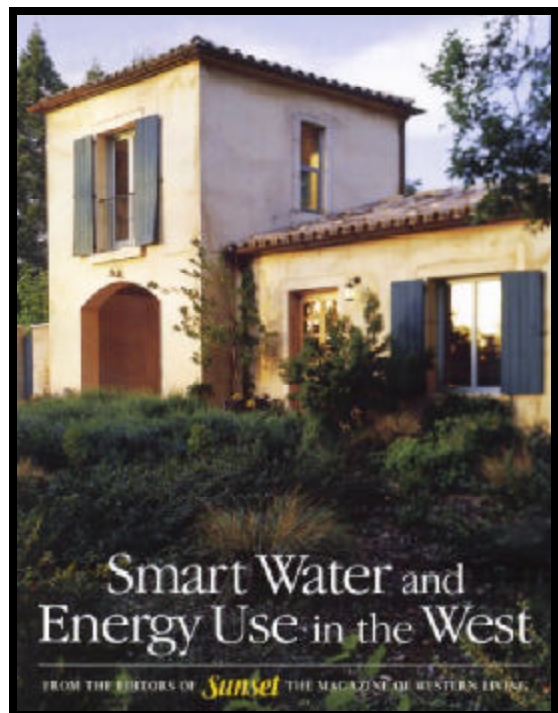
As the demand for energy soars, and the supply of energy dwindles... Californians are faced with the increasing need to use their resources more wisely. The Editors of *Sunset* magazine have unveiled their recent publication of, "Smart Water and Energy Use in the West."

This brochure focuses on the smart choices we can make to help keep supplies and cost of water and energy more manageable. Smartly laid out graphics show the energy consumption per capita in the west. Also included are tips on water and energy savings inside the home.

Along with energy conservation, there is water conservation. Do you know how to read your water meter? Did you know that your meter could help you check for leaks? You can also learn how to find leaks in your toilet and irrigation system. Also included in this brochure are tips for lowering water and energy use in your landscape.

Conserving both Water and Energy
can yield BIG SAVINGS!!!

For a copy of this brochure,
please contact Lucille Billingsley at (916) 978-5215,
or by e-mail at: lbillingsley@mp.usbr.gov



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Interagency Efforts: Developing Refuge Water Management Criteria

In 1995 as part of an Administrative review process the U.S. Department of the Interior sought comments from agricultural and urban stakeholders regarding Bureau of Reclamation (Reclamation) and the U.S. Fish and Wildlife Service (Service) water management under the Central Valley Project Improvement Act of 1992 (CVPIA). Water Management Plans for agricultural and urban contractors have been required under CVPIA since 1993. In general, water management planning sets goals and objectives aimed at water use efficiency. The administrative review public process identified the need for Refuge water management planning. This led to new Reclamation water contract requirements for Refuge water management plans. In this case refuges include all U.S. Fish and Wildlife Service National Wildlife Refuges, California Department of Fish and Game Wildlife Management Areas, and the Grasslands Resource Conservation District wetlands that receive Central Valley Project water. These plans would be similar to agricultural and urban water management plans, yet specific to refuges.

The Administrative review process resulted in the formation of the Interagency Coordinated Program (ICP) for optimum water use planning for wetlands of the Central Valley. The ICP developed a Task Force Report (Report) outlining wetland management issues that provides the foundation for current Refuge water management planning efforts. The Report identifies potential criteria for refuge water management plans such as delivery timing to avoid inefficient water storage procedures, monitoring the effectiveness of water-use decisions, and pump efficiency evaluations.

Recently, representatives from Reclamation, the Service, California Department of Fish and Game, and Grasslands Water District, formed the Interagency Refuge Water Management Team (IRWMT). The IRWMT is continuing the ICP efforts and has begun developing standard criteria for refuge water management plans.

The standard refuge water management plan criteria are due in March 2002 per Reclamation's water delivery contracts. The IRWMT will continue to meet while emphasizing stakeholder involvement. Public scoping meetings are tentatively scheduled for late Fall 2001. Once the refuge water management plan criteria are finalized, the refuges have one year to complete their water management plans. Reclamation water delivery contract compliance is contingent upon successful development and implementation of water management plans.

*For additional information please contact Shana Kaplan,
Reclamation Water Conservation Program, at (916) 978-5223.*

Calendar of Events . . .

WaterReuse's Symposium XVI
"Replenishing America:
Water Reuse for Tomorrow's Youth."

September 8-11, 2001
San Diego, CA USA

Sponsored by: WaterReuse Association
For more info call Loretta Wire
at (916) 442-2746

Splash Festival

September 21, 2001

American River Water Education Center
At Folsom Dam

For more info call Judy Knott
at the Water Education Foundation
(916) 444-6240

Southern California Groundwater Tour

September 12-14, 2001
Water Education Foundation

For more info call
(916) 444-6240

Northern California
Water Facilities and Fisheries Tour

October 3-5, 2001
Water Education Foundation

For more info call
(916) 444-6240

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