



## CALIFORNIA

# Losing a water source, but gaining reclamation momentum

**E**d Thornhill is the kind of guy who takes things in stride.

You can tell by the ease in his voice and the fact that, after 19 years with the Metropolitan Water District in Los Angeles, (most recently as principal administrative analyst), he hasn't blown his cool being in one of the hot seats in the California water situation.

Another fire, though, is brewing.

The MWD is a wholesale water supply agency, having no retail customers. "We supply water only after our customers use up their own local supplies," explains Thornhill.

The district currently serves six counties representing 13 million people.

"We have two major supplies of water: local water which accounts for about 1/3 and imported which accounts for about 2/3. Our imported water comes to us from the Los Angeles aqueduct and that water is for Los Angeles use only. The Colorado River aqueduct is owned and operated by the MWD."

It's vying for the bounty of the Colorado River that has come into hot contention.



Agapantha, shown at top, is a low water use plant which is used extensively in Irvine, CA, landscapes. Ice plants, lower photo, are also used for their low water use as well as providing vivid color.

## Sealing fate

Southern California will soon be feeling the effects of a 1964 U.S. Supreme Court decision that said California's allotment from the river was too much. It, therefore, by judicial decree, will lose 662,000 acre feet to Arizona; a little more than 1/2 of what California now gets. Completion of the Central Arizona Project, a major aqueduct system, will seal the fate of that portion of Southern California's water supply. Completion of the project will take another two to three years.

"Losing the Colorado River water isn't really the problem," says Thornhill. "We've contracted with California's water project for an additional 500,000 acre feet, bringing our total from that source up to 2 million acre feet. The problem is we're one of 30 contracting for the state's supply. The state's water plant is only half complete and will take another 10 to 20 years to finish. We lose our Colorado River water in two to three years. We need to complete the state's water project faster."

Thornhill says the department knows what has to be done. It is currently working on legislation that would speed up the work.

"If we get started quickly, we'll be in good shape," said Thornhill, "but if we have a severe drought, we could be in big trouble."

The memories of the '76-'77 drought that brought parts of California to its knees is an all-too-recent reminder.

"People have a tendency to take water for granted," Thornhill theorizes. "Water in California costs less than 25 cents a ton; that's a relatively inexpensive rate."

However, the rate of apathy has escalated.

"People waste because water is cheap," Thornhill continued. "It's too bad we need a crisis before we act."

## Legitimizing a dark horse

Irvine, California, hasn't waited for any crisis to act.

This city of 120,000 in Orange County is one of the fastest growing areas in the country. It is also a pioneer in using reclaimed water for irrigation purposes. Fifty percent of its irrigation water is reclaimed. For the past seven years, a trendy city in Southern California has shown water can be used over and over again.

Masterplanned in advance as part of the Irvine Ranch General Plan 20 years ago, its planners had in mind from the beginning that Irvine would not become another urban blight on the California landscape.

The city was carefully mapped out

for controlled, systematic growth. Because Irvine is in a desert area and gets an average of 14 inches of rain a year, the big incentive to conserve is lack of groundwater. What little groundwater that's available is brackish and saline. Its other water sources are the Colorado River flowing 350 miles away and water from Northern California aqueducts.

"Reclaimed water is no longer a second class citizen," says Joyce Wegner-Gwidt of the Irvine Ranch Water District. "It has been legitimized."

That legitimization now includes 410 clients for the District, (mainly developers) using 3,500 acre feet of reclaimed irrigation water. This massive irrigation system is overseen by Matt Lovein, irrigation supervisor, planning and development, of the IRWD.

"We really had to more or less rewrite the rules and regulations concerning use of reclaimed water," says Lovein. "In the past five years water rates have doubled. In the next five years they'll probably double again."

"The way we're using reclaimed water is an energy-intensive project, but the cost will even-out in the end," he explains. "Energy is the key to a finite water supply."

## Taking the lead

Dan Heiny seemed a little out of his element. Sitting on a wooden bench in the middle of an Irvine shopping mall talking about what he does was like Picasso trying to explain how to paint a masterpiece.

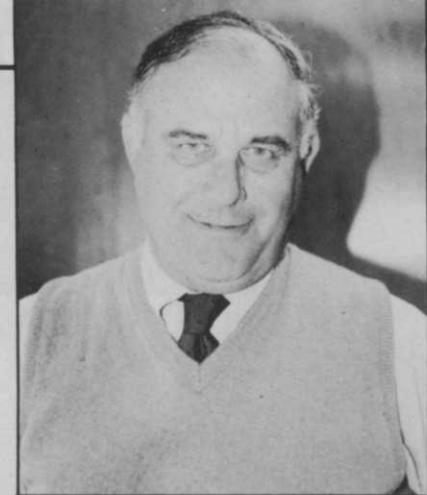
His calloused hands belie the fact he prefers to be working on-site or tinkering in his backyard "laboratory" testing new irrigation equipment.

Heiny is the landscape manager for the Irvine Co., a land planning development and management business, which is doing most of the developing of the 90,000-acre Irvine Ranch into the nation's largest master-planned urban community.

As landscape manager, Heiny is responsible for the company's commercial portfolio of 11 million square feet of commercial landscaping. Included in that are 15 apartment complexes, 34 office buildings and 11 shopping centers.

Executive Park was a different story. The 10-acre office complex was more a water managed project than a water conservation one.

"It had bad salt problems," said Heiny. "We had to apply water to flush out the root zone. We did daily tensiometer readings. We only watered when the plants told us to." He used compost to help absorb the salt.



**John Zoller**, executive director of the Northern California Golf Association

Because the complex is built on a duck pond, there was no drainage. The project had to be filled in with sand for drainage.

He installed his irrigation heads to offset runoff and also installed cement walls to support flower beds.

"This is one of our most intensive management sites," he says.

Heiny gets much of his plant material contract grown from the Tree of Life Nursery in San Juan Capistrano. The nursery specializes in low water use plant material.

"I came from Northern California and we really didn't have any water problems there," said Heiny. "When I came to Southern California, things changed. My awareness has been raised by being here." He says irrigation is his primary interest.

"I think low-volume sprays are the direction of the future. There is more direct application."

Heiny feels so strongly about it that he has thrown down the gauntlet to irrigation equipment manufacturers.

"I have a personal challenge to all irrigation equipment manufacturers. That is to develop a low-volume pop-type sprayhead. I've made my own adaptation, but it could use some refinement. There's a true need for it in the industry. We've typically gone to low volume ag systems instead of homeowner types. We need things that are more adaptable to commercial landscape. There's also a tremendous need to educate vendors to become more aware of low-volume irrigation equipment."

Heiny works extensively with landscape architects.

"Many landscape architects are not really aware of water conserving plants," he says. "Lots are in the mode of thinking they're grey-looking, when that's not the case."

Heiny's irrigation design philosophy calls for no runoff and therefore no overspray.

"That's what's forcing everything *continued on page 28*

Water conserving landscaping at Bellecourt.



Dan Heiny of the Irvine Company and Joyce Wegner-Gwidt of the Irvine Ranch Water District discuss a site.



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to change," he says. "We have to hit the pocketbook before people really sit up and take notice. Projects going in now are extremely well-designed irrigation-wise. We design for long-term management to reduce labor and maintenance costs."

An example of that is Heiny's use of spring-retractable pop heads, not solid set risers.

"They are inflexible. If one gets broken, the cost of repairing it is more expensive than installing the spring-retractable kind."

"The future is very exciting. Within the next two years, the Irvine Co. will be an absolute leader in water conservation. We have the awareness, knowledge and control aspect."

### Northern California

John Zoller's office overlooks the putting green at Spyglass Hill in Pebble Beach.

Looking out the window at the lush seaside bent and poa green, it's hard to imagine this mecca of golfdom has ever felt the searing fingers of a drought.

But it has.

And people remember.

Zoller, for the past five years, has been executive director of the Northern California Golf Association. Its membership includes 293 clubs and 141 associate clubs representing



80,000 individual members.

"During the drought of '76-'77, outside irrigation was banned," he recalls. "We begged and got enough to water the greens only."

"During that time, the weather was so good the droughty conditions didn't deter golfers. In fact, it increased play."

Superintendents had to contend with this increase in play while being able to do less maintenance.

"If we hadn't been able to keep the greens up, we would have been in real trouble," says Zoller.

Add to that the fact that the five courses which lie in the confines of the Del Monte Forest—Pebble Beach, Spyglass Hill, Cypress, Dunes and the Shore at Monterey Country Club—are more than just expensive playgrounds. They provide jobs for much of the population living in the Carmel/Monterey area. If golf courses aren't up to par, people don't golf and don't fill the hotels and eat the food and indulge in the other amenities of the area.

### Silver lining

In one sense, the drought was good, Zoller maintains, because it improved everyone's irrigation attitude and practices.

"Our problem here exists on a year-to-year basis," explains Zoller. "If we go through one winter that's bad, we're in trouble."

The Del Monte Forest area gets no natural rainfall from the end of March to the 1st of December and only 15 inches a year total. Many courses have stopped irrigating the area between the tee and where the fairway begins to save water, according to Zoller. With as much of an "inconvenience" as the dry weather was, Zoller said it wasn't quite as severe in the Pebble Beach area as it was in the Monterey Valley.

Water rates are also becoming a problem. They've tripled and quadrupled over the last five years. A course that used to cost \$12,000 to irrigate for a year, now costs \$60,000.

For Zoller, the bottom line, in most cases, is over-irrigation.

"Over irrigating courses is one of the primary ways we are misusing a limited resource. It also encourages weeds. What the question really boils down to is aesthetics vs. playability. I don't see anything wrong with having natural areas in a course. You don't need 160 park-like acres when you only play the game on 40."

In the Del Monte Forest area, there is no groundwater available. It is completely at the mercy of the local water company or using reclaimed water. And this area is where Zoller feels the future of the industry lies.

In fact, he thinks California is moving toward using only reclaimed water for any sport turf, rights-of-way, cemeteries and other landscape-related uses.

"We already have a moratorium on drilling wells and a well tax," he said.

In 1979, there were about 58 courses in the state that were using reclaimed water. Now, Zoller estimates that number to have climbed to 75. The real stumbling block is the federal government which hasn't come through with any funding for setting up reclamation plants.

The NCGA is putting its money—and effort—where its mouth is.

It has been funding the Turfgrass Adaptive Research Program at the University of California, Davis, for the past 17 years, this year to the tune of \$40,000. The program, under Bill Davis, is primarily aimed at finding low water use turfgrasses.

"Along with the USGA, we must support development of drought-resistant turfgrass varieties. Research and use of reclaimed water are two of the most important things we can be doing."

The TARP program is also doing research on putting greens, various types of sand to use on courses, and compaction tests on bentgrass. All five courses in Pebble Beach have seaside bent and poa greens and Highland bentgrass tees and fairways.