

“Irrigation of the land with seawater desalinated by fusion power is ancient. It’s called ‘rain.’”

—Michael McClary

**Debra Shore, Commissioner
Metropolitan Water Reclamation District**



2012 ANNUAL REPORT

After I was elected to the Board of Commissioners seven years ago, many people asked me if it was what I expected. No, I said. The issues are more substantive, the work is meatier, and getting things done is harder and takes longer than I expected. Yet it is totally worthwhile.

As I reflect on what we’ve achieved and what remains to be done, I feel restless, dissatisfied, humbled, and yet also proud. We have gotten some things done. The winds of change are blowing—in a good direction—and I’ve helped to waft them along.

In these pages you will find a reprise of my first term, a report on 2012, and a look to the future. Onward!

First Term Accomplishments

During my first term, I had a hand in a number of significant issues, including the following:

Appointment of a New Executive Director

The Executive Director (for many years called the General Superintendent) serves at the pleasure of the Board. When Dick Lanyon retired at the end of 2011, we conducted a national search for his successor, selecting David St. Pierre, then Deputy Commissioner of Atlanta's Department of Watershed Management. This was the first time in 50 years that the Board had selected a leader from outside the ranks of District employees—a strong signal in itself. Dave has brought fresh ideas and energy to the top post and is moving the Metropolitan Water Reclamation District (MWRD) full throttle in the direction of resource recovery.

Disinfection

The use of ultraviolet light or chlorination to kill more of the bacteria, viruses, and other pathogens in treated wastewater is an important step in improving water quality that had not been required of the District at its largest plants. In June 2011, the Board voted 8–1 to install disinfection technology at the North Side (now O'Brien) and Calumet Wastewater Treatment Plants. This marked a significant shift in opinion. (Had I sought such a vote when I first joined the Board, I believe I would only have had two votes in favor.) The vote will result in portions of the Chicago waterways having much less bacteria on dry weather days during the recreational season.

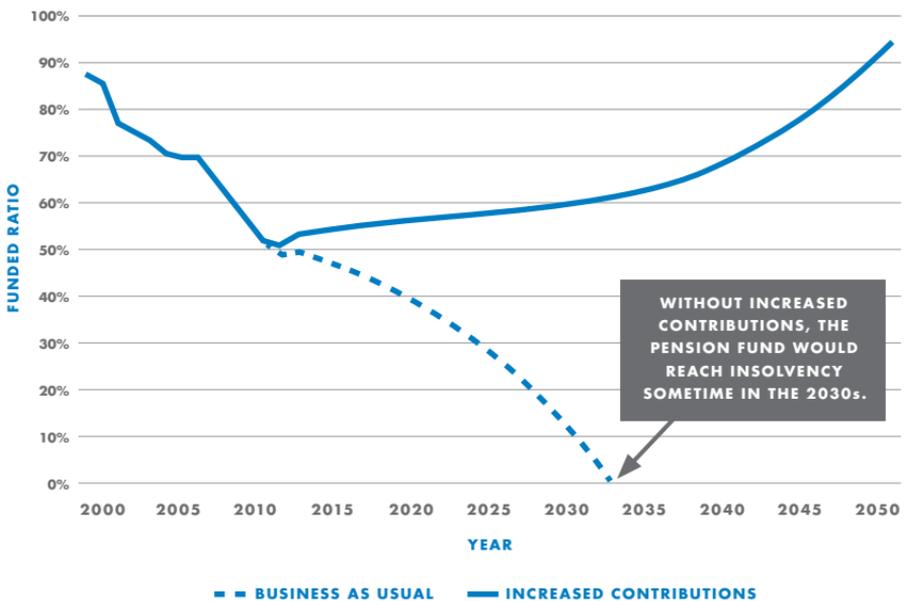


ULTRAVIOLET LIGHT DISINFECTION FACILITIES
COURTESY OF GREELEY AND HANSEN, LLC

Pension Reform: Solutions and Leadership

The Metropolitan Water Reclamation District, like many government agencies, saw its pension-funded ratio drop from 87.6 percent (2000) to 51.3 percent (2012 estimate). Unlike other agencies, the District proposed a solution and saw its legislation passed by the General Assembly and signed by the Governor. District employees will gradually increase their contributions over the next three years from nine percent to 12 percent of their salaries, the District will nearly double its contribution from a multiplier of 2.19 to that of 4.19, and retirees retain a defined benefit plan.

MWRD PENSION FUND CHANGES (BASED ON 2010 ACTUARIAL ESTIMATES)



This will bring the pension fund to 90 percent funded by 2050. In addition, District retirees will increase their contribution to their health care from 13 to 22 percent. This solution received wide support from unions in large part because the District had never missed a payment into its pension fund.

First Term Accomplishments

Stormwater Management

Since receiving authority for stormwater management throughout Cook County from the Illinois General Assembly in late 2004, the District has commissioned detailed watershed plans for each of the six major watersheds in Cook County, removed many tons of debris that caused localized flooding from small streams, adopted a Stormwater Plan and drafted a Watershed Management Ordinance (WMO), broke ground on flood reduction and streambank stabilization projects, and waded through dozens of public meetings in the aftermath of severe storms in September 2008, July 2010, and July 2011.



The WMO—designed to set minimum standards for detention and retention of stormwater when parcels of a certain size threshold are developed or redeveloped to prevent future flooding problems—was presented at a series of public meetings throughout Cook County in 2009. Its adoption was deferred so that an economic cost analysis might be conducted, which was completed in 2012. We expect the WMO to be reintroduced for adoption by the Board in 2013. In the meantime, the District is considering a number of green infrastructure and other projects to minimize the effect of storms and keep rain out of the sewers. Since 2007, the District has initiated more than 30 stormwater projects that, when completed, will provide hundreds of millions of dollars in benefits by protecting more than 2,000 homes and businesses. More projects, including expansion of Heritage Park Reservoir in Wheeling and Buffalo Creek Reservoir, are underway.

► To learn more about the MWRD's stormwater management plan, visit debrashore.org/stormwater

Green Infrastructure

Capturing rain where it falls using techniques that mimic nature—green roofs, rain barrels and rain gardens, bioswales and permeable pavement—allows water to infiltrate into the ground or evaporate, keeping it in the natural hydrologic cycle. The District has been selling rain barrels for several years—delivered free to your home!—and has installed three test plots of permeable surfaces in a parking lot. This is just the beginning, though.

Rain barrels provide multiple benefits: rain captured off roofs and used to irrigate gardens stays in the natural hydrologic cycle and out of the sewers. Plus, watering lawns with rain reduces the amount of potable water used for that purpose (saving money too). The District plans to distribute 15,000 55-gallon rain barrels in the next few years. They'll capture 825,000 gallons in each quarter-inch rain event. They're a great stocking stuffer (if you have a 55-gallon stocking)!

- ▶ To learn more about the MWRD's rain barrel program, visit debrashore.org/rainbarrel
- ▶ To learn more about green infrastructure, visit debrashore.org/green-infrastructure



First Term Accomplishments

Health Benefits for Domestic Partners

Shortly after I was elected to the Board in November 2006, I asked the District's Executive Director if we might consider extending health benefits to the domestic partners of District employees, as many other government agencies already had.

Yes, he said. The measure passed unanimously, extending benefits to opposite-sex as well as same-sex partners. When I asked why the Board hadn't done so sooner, I was told, "No one asked."

Opening Up Contracts to Competition

At each meeting, the Board approves numerous contracts, sometimes totaling tens of millions of dollars. Most are for construction, repair, and supplies at the treatment plants, design of flood prevention and stream protection projects, work on the Tunnel and Reservoir Plan, and so forth. Shortly after I arrived, a contract for lobbying at the federal level came up for approval: \$546,000 for the equivalent of six months' work.

Wow, I thought, that's a lot of money. Subsequent research showed that the District had engaged the same firm for more than 25 years, renewing the contract annually with increases of 9–10 percent. By 2009, as the severity of the financial recession became more clear, the contract amount had increased to \$657,000. Shouldn't all professional services contracts be open to competition through an RFP or RFQ process? Yet my motion to open up the District's lobbying contracts only received one other vote.

By 2011, however, we had several new members of the board who were similarly dismayed by the contract sum and provided the necessary votes to open up the process. The result? A reduced contract amount and a two-year savings, compared to 2009 and 2010, of \$480,000! Competition is good practice—and good for Cook County taxpayers!

Firing Range

The Chicago Police Department sought to lease 33 acres of MWRD land on a remote site bordered by landfill and the Calumet River to build an outdoor firing range for officer training. (Police had been using a range in Harvey, IL that was shut down due to numerous problems.) While the District's site seemed well suited to some, it also lay across the river from Hegewisch Marsh, where Chicago plans to build the Ford Calumet Environmental Center, and next to Whitford Pond, an important bird habitat.



A YOUNG BIRDER OBSERVING
PHOTO: SONNY COHEN

Noise studies determined that the sound of gunfire would be audible in nearby natural areas. Birders, conservation advocates, and some residents from neighboring communities flocked to MWRD meetings to register their objections to the proposal, which I also opposed. Nevertheless, the Board voted 5–4 to allow the Police Department to lease the property. Then nature, in the form of two Bald Eagles, intervened. In spring 2012, the eagles established a nest near the planned firing range site, the first time since the 1880s that Bald Eagles had been found nesting within Chicago city limits. The Police Department subsequently withdrew its request to lease the parcel, and now the Chicago Park District is collaborating in its management.

First Term Accomplishments

Pharmaceutical Disposal

Have you ever heard someone say “Hey, is it okay for me to flush my expired medicine down the toilet?” Not everyone in Cook County understands the issues surrounding pharmaceutical disposal.

The MWRD supported a study related to this topic, conducted by the UIC Survey Research Lab in 2009, partly to gather baseline information about what people in Cook County know and believe about pharmaceutical disposal.

▶ To read the final report, visit debrashore.org/med-disposal

Only 19.1 percent of respondents ever reported having received any information about proper methods of drug disposal. And here’s an interesting tidbit: a higher percentage (42.1 percent) of people whose households primarily used bottled water for drinking reported flushing meds down the sink or toilet more than those who relied primarily on tap water for drinking. Many people—70 percent—said they’d be willing to drop off meds at a convenient location for safe disposal.



SEND USED MEDS BY MAIL IN A SAFE DISPOSAL ENVELOPE

Since the study was conducted, the MWRD has participated in a number of Drug Take-Back Days sponsored by the Drug Enforcement Agency, encouraging people to drop off unused or expired meds at the Calumet, Stickney, and North Side treatment plants.

But much more can be done.

Small Moves for Big Results

Excess investment income into pension fund MWRD statutes permitted the District to transfer excess investment income into several accounts, but not into the pension fund.

In 2008, we were able to change legislation allowing for such transfers. Since then, the District has put \$60 million from excess investment income into the pension fund, helping to reduce the unfunded liability.

Classification and Benefits Study

While the District rightly focuses on maintaining its facilities—treatment plants, pumping stations, reservoirs, aeration stations—it has paid less attention to the necessary and periodic maintenance of its administrative practices and structures. As a result, the District had not commissioned a classification and benefits study in a decade.

In 2011, Hay Group conducted such a study, leading to a significant reduction in the number of position classifications and other changes.

Back to School

Marty Linsky, of Harvard's Kennedy School, has said, "Leadership is disappointing people at a rate they can absorb."

In July 2008, I was fortunate to attend a three-week program for Senior Executives in State & Local Government at Harvard's Kennedy School of Government. I was one of 22 women and 17 elected officials in a class of 77 people from 33 states and two foreign countries.

The experience was powerful, provocative, challenging, affirming, and disturbing all at once. Dan Fenn, who worked in the White House with President John F. Kennedy and who became the first director of the Kennedy Library in Boston, asked us whether we were "delegates" or "trustees." (The woman seated next to me the first week was a state senator from Arizona, Kyrsten Sinema. Last November she was elected to the US Congress.)

▶ To learn more about the program,
visit debrashore.org/Harvard

▶ To learn more about Congresswoman Kyrsten Sinema,
visit debrashore.org/Sinema

First Term Accomplishments

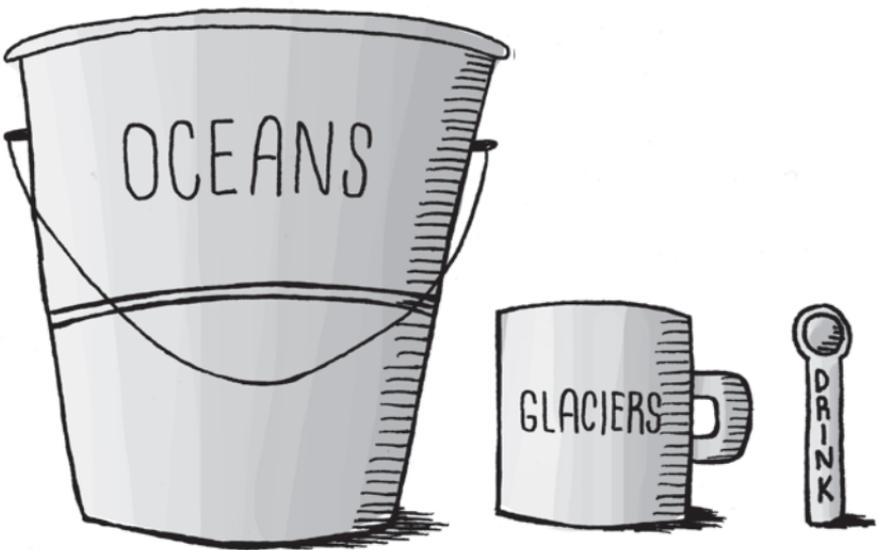
Bucket Talk

I talk a lot—to church groups, senior groups, colleges, and high schools. Often I bring props: a large bucket, a coffee cup, and a teaspoon.

I read two paragraphs from an article that appeared in *The New Yorker* several years ago called “The Last Drop” by Michael Specter, and when I reach the sentences mentioning the props, I hold them up. I can tell you, props work. People remember the bucket. Here’s the money quote:

“Water that dinosaurs drank is still consumed by humans, and the amount of freshwater on earth has not changed significantly for millions of years. But that doesn’t mean it’s available when or where it is needed. Nearly all of the earth’s water is in the ocean. Only three percent is even theoretically available for humans to drink. Most of that is locked in polar ice caps and glaciers, or deeply embedded in layers of rock. If a large bucket were to represent all the seawater on the planet, and a coffee cup the amount of freshwater frozen in glaciers, only a teaspoon would remain for us to drink.”

And of that teaspoon, nearly 20 percent is in the Great Lakes!



Progress in 2012

An Exciting Year

I'll admit it: getting re-elected with more than a million votes was the highlight of my year. That, and serving as a delegate from Illinois for President Obama at the Democratic National Convention; helping my running mates—Kari Steele and Patrick Thompson—win seats on the Board of Commissioners at the MWRD; celebrating my 60th birthday with my partner, Kath, and son, Ben, in Seattle; seeing Bald Eagles and starfish while kayaking in a cove off Lopez Island; impersonating Frank Wenter in an historic re-enactment of the reversal of the Chicago River; cutting the ribbon at the formal opening of the Cermak Road Sustainable Streetscape Project; and starring in a video on fire hydrants and water use for the Chicago Architecture Foundation's Loop Values project.



2012 HIGHLIGHTS: MWRD INSTALLATION, DEMOCRATIC NATIONAL CONVENTION, AND RE-ENACTMENT OF THE REVERSAL OF THE CHICAGO RIVER

But enough about me! The real story in 2012 is one of reinvention and renewal—the fact that the MWRD is on a path from waste treatment to resource recovery, seeking to capture and monetize the value in all those things we used to consider waste: phosphorus in wastewater, methane generated by sewage treatment, biosolids, nitrogen, residual heat, even the treated water itself.

- ▶ To learn more about the historical re-enactment, visit debrashore.org/re-enactment
- ▶ To learn more about the Cermak Road Sustainable Streetscape Project, visit debrashore.org/Streetscape
- ▶ To watch the Chicago Architecture Foundation's video, visit debrashore.org/Loop-Values

Progress in 2012

Rising Challenges

For most of its history, the Metropolitan Water Reclamation District has rightly focused on its core mission: protecting the drinking water supply for Chicago and Cook County by keeping sewage out of Lake Michigan. And for most of its history, that focus was necessary and sufficient. But no longer.

Now, because of changes on the ground, in the environment, and in our culture, the MWRD has rising challenges—and fresh opportunities. Some of these challenges include: flooding and basement backups from more intense rain events and inadequate local sewer infrastructure; combined sewer overflows contaminating waterways, depleting oxygen supplies for fish, and degrading conditions for humans seeking to play and work on the waterways; Asian carp threatening to make their way into Lake Michigan through the Sanitary & Ship Canal; energy bills rising while the pension fund sinks; retirements of seven department heads and the executive director; storms of unprecedented magnitude in 2010 and 2011 and drought in 2012—you get the picture. Yet I see progress and lots of smart people at the District rising to the challenge.

Biogas

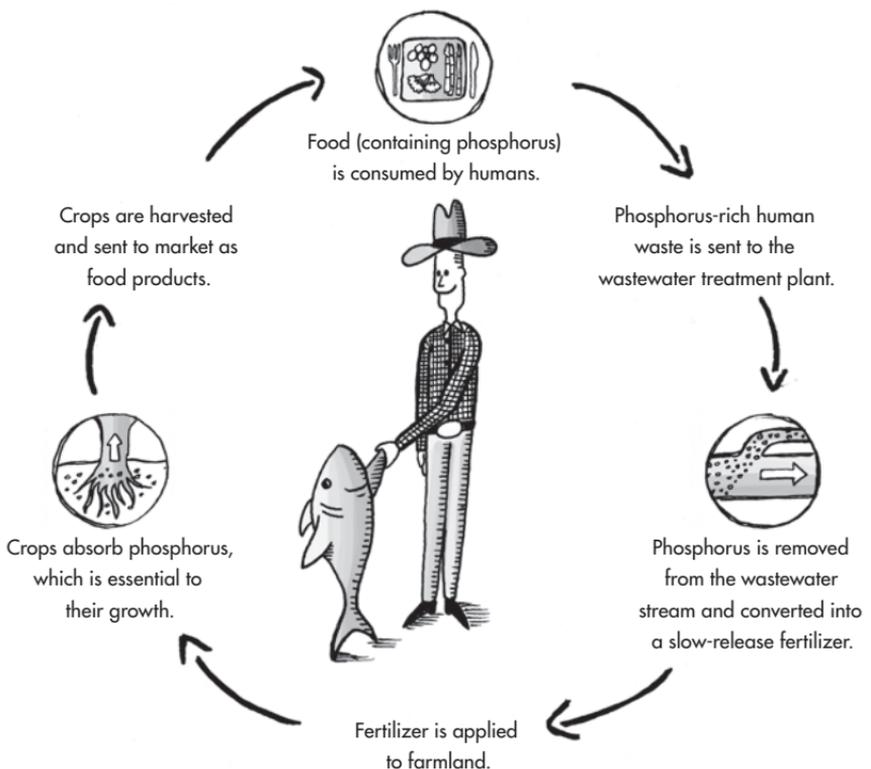
By the time you read this, an RFP will be out inviting proposals for generation, capture, and reuse of biogas (primarily composed of methane) at the Calumet Treatment Plant. Methane is a byproduct of the sewage treatment process. (The decomposition of organic matter in landfills produces methane as well, and the bubbles in Bubbly Creek are methane gas rising from the decay of organic matter on the bottom, deposited decades ago from the Union Stockyards.) The District uses some of this methane to heat the digesters and facilities, but the plants don't have the capacity to use all of it, so excess gas is flared off. Plus, if the plants increase the amount of organic matter (such as food waste) going in, they can generate even more biogas, which can be used to make electricity (by generating steam to drive a turbine) or converted into biofuel (for use in vehicle fleets). Cities such as San Francisco have already found ways to divert food waste from landfills, feed it into the wastewater treatment plants, and generate renewable energy. Cool! We anticipate that a second round of proposals for biogas capture at Stickney will follow the Calumet phase.

▶ To learn more about San Francisco's success, visit debrashore.org/SF-biogas

Nutrient Removal

Removing phosphorus from treated wastewater is another example of finding and capturing value in what used to be thrown away. Phosphorus is found in human waste and also runs off lawns, parks, golf courses, etc., from fertilizer application. (My colleague Frank Avila advocates swearing off soda because Coca-Cola, for example, contains phosphates.) In rivers and streams, phosphorus and nitrogen cause algae blooms that suck up oxygen resources needed by fish. These nutrients, discharged from wastewater plants and runoff from farms throughout the Mississippi watershed, created the Dead Zone in the Gulf of Mexico, a huge area virtually devoid of aquatic life. Yet at the same time, demand for agricultural fertilizer is causing depletion of the world's remaining phosphate reserves. Faced with looming new restrictions on the phosphorus levels allowed in wastewater effluent, the MWRD is trying a novel approach: a biological removal process to capture phosphorus from effluent before it is discharged into the waterways and convert it into a slow-release fertilizer that can be sold. Because the fertilizer produced is a slow-release product, the nutrients are absorbed, eliminating runoff. Nifty!

▶ To learn more about the Dead Zone in the Gulf of Mexico, visit debrashore.org/deadzone



Progress in 2012

Asian Carp

In 2005, Asian carp had not yet leapt out of the rivers and into the headlines. Then, in 2009, a new test showed evidence of carp DNA in the Chicago waterways near Lake Michigan. Efforts sped up to stop these aggressive fish from reaching the Great Lakes, where they may decimate commercial and sport fisheries if they can establish sustaining populations.

Several states sued in federal court—so far, unsuccessfully—to compel the Army Corps of Engineers to close the locks where the Chicago River and Calumet Rivers join Lake Michigan. The Corps has raced to improve a series of electric barriers in the Sanitary & Ship Canal near Romeoville to prevent carp from moving upstream. And several studies are underway to examine whether the Lake Michigan watershed might once again be separated from the Mississippi with the construction of some kind of hydrologic barrier. The Great Lakes Commission and Great Lakes St. Lawrence Cities Initiative released their study, *Restoring the Natural Divide*, in early 2012, which identified three locations in the Chicago Waterways System where a separation might occur and attempted to quantify the costs and benefits of separation at each site. (The MWRD's position is that any measures to address Asian carp must not increase flooding in Chicago and Cook County and must protect water quality.)

▶ To learn more about this study, visit debrashore.org/Natural-Divide

Members of Congress have been pushing the Army Corps to speed up its study of potential separation, not due until December 2013. Research is underway for alternative solutions, such as acoustic or chemical barriers, or biological fixes for the fish. While everyone waits for the studies, Illinois has been ramping up commercial harvest of carp from the Illinois River and exporting them to southeast Asia, Israel, and Romania.

Oberlin Professor David Orr suggests that we humans, as a biological species, are well adapted to respond to imminent threats. When a predator appears on our doorstep, our adrenaline kicks in. But we are less well suited, he believes, to respond to the slow-growing threat, what he calls “the long emergency.” Climate change, for example, is a long emergency—and so are Asian carp. We’ve known they’re coming, we’ve charted their advance up the Mississippi, but can we respond in time to stop them?

▶ To learn more about “the long emergency,” visit debrashore.org/long-emergency

The View Ahead

Looking to the Future

I start my second term with renewed energy, a sense of accomplishment, dedicated colleagues, and an ambitious agenda. I've been thinking about effluent reuse, that is, ways to put treated wastewater to industrial or agricultural use before sending it to the Gulf of Mexico. As we continue to experience drought, as water supply pressures increase in other parts of this country and the world, can the ready availability of treated water become a driver for economic development, attracting the water-intensive industries of the future to locations near the treatment plants? (If you're interested in working on this, contact me.)

I will be working with my colleagues to adopt a sound Watershed Management Ordinance in 2013. We need to get standards in place so that future development in Cook County won't add to flooding problems.

The Chicago River and waterway system are no longer "friendless" and neglected. The Chicago Symphony Orchestra and Chicago Architecture Foundation have both made the river a focus of cultural attention, and Mayor Emanuel continues to push for more river access through new bathhouses and an expanded riverwalk.



In his definitive environmental history of Chicago, *Nature's Metropolis*, William Cronon held that Chicago became the great American city because of what he called "the intersecting geographies of nature and capital." What Cronon meant was *human capital* as well as financial resources—the creativity, vision, and energy of city planners and leaders, including sanitary and civil engineers, who made no little plans, who dreamt big, and who helped make our region so vibrant and robust.

I believe that the Chicago region is poised to become Nature's Metropolis for the 21st century, and if it does, it will be because of ecology and economy combined, those intersecting geographies of nature and capital. The MWRD has a vital role to play. I am so privileged to be a part of it.

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2012 Annual Report

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