Prepping for a Hotter San Joaquin Valley

Derelict San Francisco Shipyard Goes Soft

Committee Approves 32-Action Plan for Estuary

Nervy Merger

EBMUD Experiments with Pipe Replacement

Mixed News from Eggs

Local Ocean Response to Climate Change

John Hart Reviews the Estuary’s Divided Heart
Getting Ahead of Change in the Valley

On a hot day in a dry year in the San Joaquin Valley, water is already so scarce that there isn’t enough to meet all needs. And it will only get worse as climate change makes summers even hotter and drier. This vast arid valley, stretching from Stockton to Bakersfield and bounded by mountains to the east, west and south, is drained by the San Joaquin River, which flows hundreds of miles from high in the Sierra Nevada to the lowlands of the Delta. Along the way, people dam and divert water for communities and agriculture, sometimes taking so much that hardly any is left for salmon and other wildlife.

“One of the biggest threats of climate change is that we will have even less water,” says Michelle Selmon, a state Department of Water Resources climate change specialist based in Fresno. “San Joaquin ecosystems are already stressed. There are only pockets of native habitat left.”

After the Friant Dam went in on the San Joaquin River near Fresno in the 1940s, navigable stream flow dried up, cutting off the hundreds of thousands of Chinook salmon that then spawned upstream. Now, more than half a century later, the San Joaquin River Restoration Project is finally rebuilding the historic salmon runs and giving them back a bit of water.

This restoration will also benefit wildlife and people in the valley—the river traverses, as well as in the Sacramento-San Joaquin Delta it flows into. And it’s just one of the things we can do today to prepare for tomorrow’s climate change. “It’s all connected, it’s quite a complicated puzzle,” says Tom Harmon, a climate researcher at UC Merced.

Even so, this puzzle can be solved. “We need to integrate planning for climate change with planning for water and other resources, and we all need to work together,” Selmon says. “Most people have no idea how challenging this is.”

Warming will bring more intense rainstorms and more severe floods to California. But just as the San Joaquin Valley can feel like a different world from the Bay Area, other effects of climate change will be intrinsically different in the two regions. Here on the edges of the Bay, a big worry is that rising seas will swamp the marshes that protect against floods, and push salt water so far inland into the Delta that water near the pumps will be undrinkable.

For Valley ecosystems, the worst nightmares is rising temperatures. Warming does a double whammy on the Sierra Nevada snowpack that supports water through the long dry season: the mountains get more rain and less snow, shrinking the snowpack and the snow that does fall melts earlier, diminishing the water supply in the summer when the need is greatest.

Selmon points out that this is already happening: California has warmed almost 1.5°F over the last century and the snowpack has declined 10%. “We’ve already lost 1.5 million acre-feet of water.” That’s enough for 3 million households for a year.

And temperatures continue to go up. The US Bureau of Reclamation projects that by the end of this century, the Central Valley will be nearly 5°F hotter. That may not seem like a big deal, but it’s enough to tip the balance from snow to rain at Sierra Nevada elevations where the snowpack begins. The snow-rain transition zone is gradually hiking its way upslope, “UC Merced’s Harmon explains. “California depends on snowpack and it’s not a very cold snowpack — that’s why the state is so sensitive to climate change.”

Today, runoff from the snowpack can last until July. But with the smaller snowpack and earlier snowmelt caused by warming, this welcome replenishment of icy streamflow during the Valley’s scorching summer may dwindle to just a trickle.

There’s already so much extra carbon dioxide in the air that it’s too late to halt climate change. “There are unavoidable impacts already in the pipeline so we need to adapt,” Selmon says. “There isn’t much that can be done about the temperature rise, at least in California alone; warming is worldwide so curbing it is an international undertaking.

But plenty can be done about the consequences of warming.

High in the Sierras, researchers are testing a snowpack-boosting method that dates back to the people who lived there first. “Native Americans were constantly burning and thinning forests,” Selmon says. “But, thinking it was a better way to manage them, we did nothing except put fires out.” According to a recent study led by Christopher Dolanc of UC Davis, fire suppression has crammed the Sierra Nevada with small trees, more than doubling their density in some places. Dense forests catch snow in their branches, where it melts and pushes into liquid water. Instead, it evaporates into water vapor and floats away.

Thinning a crowded forest lets more snow fall to the ground, building up the snowpack and swelling runoff into the headwaters of San Joaquin River. This team led by Roger Bales of UC Merced estimates that thinning overgrown forests could yield up to 16% more water and extend snowmelt by precious weeks, calling thinning one of the few ways that California can address the negative impacts of climate change on water yield and storage in the Sierra Nevada.

Another way is restoring meadows, which can keep snowmelt from rushing down to the Valley too early. Meadows are like sponges, soaking up water fast and releasing it slowly, even during droughts. “There have been so degraded forests,” Selmon says. “But, thinking back to the way things were constantly burning and thinning before the Friant Dam went in, or about 300,000 acre feet. So far, about 40% of the water that has been restored to the river has gone into the ground, where it is banked for dry times to come in the San Joaquin Valley. Even 10,000 acre feet at the right time can make a world of difference,” Schmitt says.

Restoring the San Joaquin River will benefit the Bay Area as well. “Now, virtually no water from this part of the river gets to the Delta,” Schmitt says. “Returning some of the river’s water means more will ultimately make its way downstream to the Delta, where lack of freshwater imperils smelt and other at-risk fish. As Schmitt points out, every drop is welcome.”

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A softer shoreline for San Francisco?

A derelict shipyard, an underused park, and a remnant wetland are the raw ingredients in a new conceptual design for a climate-adaptive park on San Francisco’s southeast shoreline. The design — by Gustafson Guthrie Nichol (GGN) — won a design ideas contest sponsored by the SF Recreation & Parks Department, SF Parks Alliance, Trust for Public Land, and Build Inc.. The charge was to “re-imagine” India Basin as part of a 1.5-mile network of shoreline parks known as the Blue Greenway — green for the parks and blue for the water trail that follows alongside. GGN’s proposal would transform the site with a “big soft edge,” restoring tidal wetlands and uplands and possibly including a horizontal levee, all designed to create new habitat and add resilience. The plan also gives the adjacent community good access to the Bay for the first time.

“The big soft edge idea is coupled with the idea of bringing people down to experience the water,” says Nichol. “It’s an unusual design to create new habitat and the birds and wildlife there, and the community’s love for the shoreline, the birds and wildlife there, and protecting that.”

Jackie Omotalade, with the SF Parks Alliance, concurs. She says the project also has an environmental justice aspect since residents have had to live next to polluting industries for many years, something that is now changing. Many of the old manufacturing sites along the shoreline are transformed into housing and parks. “[This project] will finally give people the opportunity to connect to the waterfront—that’s important in any neighborhood but particularly in neighborhoods with such a strong legacy of contamination.” She says residents are also very interested in how climate change will affect their community. “They understand the importance of passive open space — the wellness aspect — as an adaptation measure for climate change.”

Could the softer shoreline approach be used elsewhere along this urbanized shoreline? The Port of San Francisco’s David Beaupre says it might be possible at Warm Water Cove and Crane Cove Park. At Heron’s Head Park, he says, a living shoreline/horizontal levee approach could be used to deal with an erosion problem. “The challenge for us is that, if you look at sea level rise, in 20 to 30 years, a significant amount of Heron’s Head could be under water. What’s the cost/benefit?”

Despite those concerns, says Beaupre, the city, led by the Planning Department, plans to hold a Bay Area Resiliency By Design challenge for sections of the Bay shoreline next year. LOV

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Section of Blue Greenway plan around India Basin. Map: SF Parks Alliance

Photo: GGN Continued on back page

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Hope and Anxiety in Merger's Wake

Will the upcoming transfer of the Association of Bay Area Government’s staff to the Metropolitan Transportation Commission be the first step toward a single body that can boost the integration of estuary-related issues into regional planning? Or will these priorities be sidelined? These are among the many questions raised by the move, which will reshape Bay Area planning in the years ahead.

Many of the objectives identified in the SF Estuary Partnership’s new Comprehensive Conservation and Management Plan for the Delta and Bay call for regional integration, and MTC’s assimilation of ABAG staff could, in theory at least, facilitate them. “This is an opportunity to integrate land use, water resources and transportation planning into one place,” says the Coastal Conservancy’s Amy Hutzel, adding that water quality, urban greening, wetlands restoration and coastal protection objectives in particular stand to benefit from such integration.

The staff transfer, which will occur in early 2017, is the result of months of negotiations between ABAG, MTC and Bay Area Planning Group. The move is part of ABAG’s 2015 decision to withdraw $4 million in annual funding it has historically provided to ABAG for land use planning support. MTC intended to take on those planning functions to itself, arguing that the agencies’ joint work developing the Plan was hampered by “disfunction.” However, following protests from local governments, labor unions, non-profit organizations and others, MTC postponed the action and, together with ABAG, retained consultant Management Partners to study the policy, financial, management and legal issues associated with the integration of ABAG and MTC.

The consultant analyzed seven options, including ABAG’s preferred option, a full merger of the two agencies. However, MTC declined to support that option, and the agreement was compromised on Option 7, which calls for them to enter into a contract to consolidate staff functions under MTC’s executive director and simultaneously enter into an MOU to explore the creation of a new regional governance body at a future unspecified date.

Among the first steps in the transition will be the development of an action plan and a new collaboration agreement, including the SFEP, the Bay Trail and the Water Trail, continue to be supported, says ABAG President Julie Pierce, “I have every intention that they will be.”

The devil is in the details however, and some observers worry that the institutional support for SFEP and the CCMP may falter under the new arrangement. “I’m a little concerned because I don’t think that the future of the SFEP and the CCMP is as strong and center for the staff and elected officials negotiating the merger,” says Hutzel. “We needed to make sure that the SFEP and the CCMP aren’t afterthoughts, that they aren’t pushed to the side during the discussions.”

We’re waiting now for the short plan

As the “downstream” issues do not.

Two Hearts Beating Not Quite as One

Two Strand — the estuary concept and the need to control a wider range of pollutants — came together in the 1987 amendments to the Clean Water Act. Besides adding a section on non-point source pollution, Congress created a National Estuary Program singling out certain areas for special attention. San Francisco Bay, in its extended sense, was one of these.
The 1987 law is the source of that mouthful, “Comprehensive Conservation and Management Plan.” Each region’s CCMP was to “restore and maintain the chemical, physical, and biological integrity of [its] estuary, including restoration and maintenance of water quality, a balanced indigenous population of shellfish, fish and wildlife, and recreational activities.” In short, it could cover just about everything — by no means limited, for the Bay, to waters west of the Carquinez Strait.

The preparation of this plan was the charge of a “management conference,” which promptly named itself the San Francisco Estuary Project (later Partnership). Federal funding was routed through EPA and the Association of Bay Area Governments. Offices were first at EPA, then at ABAG, and finally at the Regional Water Quality Control Board.

Upstream

In the Delta, meanwhile, biologists were belatedly examining the effects of a huge decision made a decade earlier: the launch of the State Water Project. In the late 1960s, the SWP joined the federal Central Valley Project in shipping water southwards from the Delta. Might the combined withdrawals of fresh water harm fish? Might they suck salt water in from the west? In 1970, four water and wildlife agencies formed an Interagency Ecological Program to weigh these effects. Its field of vision was at first limited to two resources: striped bass, a favorite game fish; and the brackish duck marshes north of Suisun Bay, perhaps to be threatened by saltwater intrusion. In an ever-shifting landscape of agencies and studies, the IEP has been a harpy perennial, though of course its focus has broadened.

The State Water Resources Control Board, which unifies pollution control responsibilities with oversight of the state’s crazy-quilt water rights system, was also trying to catch up to events. In 1978, the board issued the first of a series of momentous and hard-fought decisions governing the operation of the two water projects. Decision 1485 required that the operators maintain certain salinity levels at various points along the Bay-Delta gradient, releasing water from upstream reservoirs, or curtailing exports from the project pumps near Byron, to do so. Everyone, more or less, sued, and it took a few years even to establish the principle that the federal Central Valley Project was in fact subject to state rules.

The First Estuary Mind Meld

How did these efforts interface with the emerging Estuary Project? Not very much or very well. The state was slow to adopt the new language of estuarine connectedness, and its agencies participated in the Estuary Project only on condition that their authority over the rivers not be called into question—as, under the Clean Water Act, it might have been.

The first Comprehensive Conservation and Management Plan nevertheless proceeded. When the CCMP appeared in 1993, it held an aspirational list of 144 action items, mostly clustered around the lower bays but also reaching far up the inland rivers. A lasting contribution was to introduce to the world the indicator called X2: the point, measured in kilometers inland from the Golden Gate, at which salinity at depth has dropped to two parts per thousand. For various reasons, it was already clear, the estuary is healthiest when X2 lies well west, that is, when fresh water flows through and out of the Delta are strong. Though the plan only called for further study, the mere mention of the topic drew indignant dissenters from water agencies and a demurrer from Governor Pete Wilson. The Governor nonetheless signed off on the CCMP, and within a few years X2 was recognized as the best single measure of adequate seaward flows.

Next Steps on Pollution

If the Estuary Project had little support in Sacramento, it was downright chummy with the San Francisco Bay Regional Water Quality Control Board (which has hosted its offices since 1993). Having almost won the war against gross pollution and twice revised its Water Quality Control Plan, San Francisco Bay Basin, the board was ready to make its move on heavy metals and synthetic chemicals: the invisible toxins that, piling up in the food chain, keep us from eating too much bay-caught fish. But action was frustrated, as the CCMP noted, by skimpy information about the sources and travels of these pollutants.

In 1992, the board set out to fill the gap with a Regional Monitoring Program, collecting more data, on more substances, at more points, than had hitherto been possible. Dischargers would pay the bills; the sampling would be done by a new entity, the San Francisco Estuary Institute. In the decades since, the RMP has provided the basis for regulations on well-known toxic substances, like mercury, selenium, and PCBs, and on new or newly understood ones, like the chemicals in flame retardants and stain repellents. SFEI, meanwhile, has outgrown its initial task to become one of the major sources of information about the state and evolution of the Estuary.
Endangered Ridgeway's rail, with chicks, in tidal marsh habitat. Photo: Rick Lewis

Marshland Mission

The CCMP’s most striking and implementable proposal was the wholesale restoration of the Bay’s historic ring of marshes. Many of these had not been actively managed but only diked off, for salt ponds, agriculture, or hunting clubs, and were recoverable. For the next fifteen years, much of the Project’s energy would flow down this channel.

In aid of the great project, the San Francisco Estuary Institute set out to build a detailed picture of what the bay’s margins had once been like. This “historical ecology” work was reflected in the blueprint titled Baylands Ecosystem Habitat Goals (1999). This called for some 100 square miles of former marshes, about one third of the total that once existed west of the Delta, to be reconnected to the tides. Another 45 to 60 marsh miles were to be restored as non-tidal wetlands.

The claim was staked. At the center of the effort to carry it out is another made-to-order umbrella body, the San Francisco Bay Joint Venture. Organized in 1995 under the authority of the U.S. Fish and Wildlife Service, this partnership links nearly all the public agencies and private organizations with an interest in restoration projects around the Bay. The agencies could report that in-bay sediment dumping material in the Bay, at sites where tidal currents were supposed to take it out to sea. They didn’t. In 1982 it was discovered that a great underwater mound had accumulated at thefavorite dumpsite near Alcatraz. The Corps joined with BCDC and the state and federal regulators’ part. What once might have been decried as “bay fill” is now welcomed as “shallowing.” And in-bay disposal of muck is looking like a not-so-bad idea, if just the right locations can be found.

The restorers of historic marshes also find themselves in a race against sea level rise. Marshes established in the future will be the task of “new” Arroyo. Sediment in the Bay, at sites where tidal currents and also shifting inland where undeveloped land adjoins. But wetlands began about 2030, scientists fear, may not be able to keep pace with sea level, and will be overwhelmed.

A compounding problem is the overall lack of sediment from the much-dammed feeder rivers. Bay waters are growing clearer, which is now understood to be a bad thing. The shortage means that every gooey bucketful of dredged sediments is not so easy. The first round of big restorations is about over; only the Montezuma Wetland Restoration project in Solano County is still taking mud. And ocean dumping, the Army Corps complains, is almost mandated by federal rules requiring disposal in “the least cost and environmentally acceptable manner.”

The New CCMP

The CCMP underwent a tuneup in 2007, but, with the clear onset of climate change, a major revamp was in order. In the last several years, several building blocks have been put in place. The Subtidal Habitat Goals Report of 2010 looked at the scientifically neglected world of underwater habitats, especially eelgrass beds and native oyster reefs. In 2013, along with a Habitat Goals revision entitled The Baylands and Climate Change: What We Can Do, the Partnership produced the latest of three State of the Estuary Reports, reflecting decades of work on how to fuse system and physical-temperature. Now comes the Comprehensive Conservation and Management Plan 2016.

The CCMP is not well represented by its legally mandated title. It is not actually a plan, if that word implies any element of coercion. It is rather an ambitious work program to do the job that differs partners as “task” owners and dozens of other “collaborators.” As far as the new version actually narrows the focus geographically, as compared to the 1992 plan, and it focuses on a very short list of perhaps more achievable ambitions. Compared to prior versions, “there are fewer ornamental on the trees,” says Sam Ziegler of EPA Region 9.

On some pages the draft CCMP reads like a prologue to something more substantial. Many of the 32 “specified” Actions consist largely of setups for concrete steps to come. They are calls for further study, conferences, the formulation of best practices. There are research projects to be completed, reports to be commissioned, tools to be refined, grants to be targeted.

Yet the plan has a hidden power in the form of its authorship. Thirty-odd members of the Management Committee, including agencies with very real authorities, have signed on off this program. As the record of the last decades shows, this kind of consortium can function surprisingly well. ABAG, the Water Quality Control Board, the Bay Commission, the Army Corps of Engineers, the state and federal Environmental Protection Agency, the Coastal Conservancy — these have worked matters out, in thousands of hours of negotiations, with little publicly visible jostling. “It’s easy to take the helm,” says Caitlin Sweeney, the new director of the Estuary Partnership, “when there is so much trust built up over the years.”

In one respect this CCMP opens new territory. Several of its proposals apply to near-shore urban zones outside the jurisdiction of BCDC. It also focuses attention on the creeks and small rivers that drain to the lower Estuary. The very first action is to develop a “watershed approach” to Bay issues. True, the most cast in terms of process, framework, criteria, pilot projects. But in even broaching this subject, the plan is a genuine interest as potential, as the California water establishment: the territoriality of the region’s one and only local governments. As Marc Holmes of The Bay Institute puts it, “This is the last taboo.”

The Water Board’s Tom Munkley chairs a meeting with SEEP staff Marcia Brockbank and Joan Patton, as well as EPA’s Luisa Valiela and others on the 2007 revision of the CCMP.
Regional Land-Use Rules in Action

Regional, rather than strictly local, land-use controls are always controversial. But it’s interesting to note that the entire San Francisco Estuary is now envelope in zones of limited or real regional control.

BCDC, of course, came first. Its jurisdiction extended to tidal waters west of the Delta and to a shoreline strip one hundred feet wide. Later, Suisun Marsh was added to its purview. This is an odd side-effect both of sea-level rise and of marsh restoration that the agency’s jurisdiction creeps landward. Some voices have proposed that BCDC be given responsibility for the whole zone threatened with inundation — an idea that from which the agency itself recoils.

In the 1980s, as cities on the edge of the Delta expanded into it, concern about development on flood-prone and agriculturally valuable landscape was mounting. In 1992, the Legislature created a Delta Protection Commission with the authority to overturn development approvals in a large region mapped as the Primary Zone. Unlike BCDC, the Commission does not review all projects in its area, but acts following the appeal. The lines set in the Commission’s first Land Use and Resource Management Plan, published in 1996, have held. In a region that powerful agencies seem to regard as an object to be fought over, the Commission has also functioned as a voice for the Delta in itself.

In 2013, similar controls were extended to the rest of the Delta, the peripheral Secondary Zone, where the pressure to build has been highest. Under the Delta Plan, the Delta Stewardship Council can block development approvals on land not already firmly committed to urbanization.

At two points, the CCMP hitches cars to this controversial engine. In response to the ‘rising tides’ problem, Action 15 urges that shoreline protection be accomplished with marsh buffers or in other ways that are good for wildlife. To this end, the Plan Bay Area update should have a section on shoreline resiliency, and lay the groundwork for a more comprehensive resiliency effort. Action 23 calls for improved water management — construction, recycling, stormwater management — and suggests covering these matters, too, in Plan Bay Area.

Plan Bay Area draws fire not least because it is the work of the business that, while appointed largely from the ranks of county supervisors and city council members, are not directly chosen by the public. Even as these two agencies flirt with a merger, a bolder thought is once again being heard: that regional powers should be vested in a multi-purpose regional government with a popular elected board (see Merger Anxiety, p. 6).

At the May 6 Spring Summit of the business-oriented Bay Planning Coalition, speaker after speaker complained that existing governmental setups are not going to do the job in the era of sea level rise. “In the Bay Area our challenge is of governance and funding,” said SFEI’s Warren Chabot. “We’re going to have to have a real plan.” Said Allison Brooks of the Bay Area Regional Collaborative. “Somebody’s going to have to take the lead.” The only solution is to create a vision for the whole bay,” said landscape architect Kevin Conger. Just who would do those things remains unclear. For all its strengths, the CCMP is not such a plan or vision.

The question is: Can the great megapolises wrapped around the lower Estuary respond to the challenges it faces in the era of climate change with the balkanized governance system it now has?

One of the virtues of the June 2016 Measure AA parcel tax to fund a regional metropolitan government is that it did not afford us in larger-scale thinking. As Save the Bay’s David Lewis remarks, “Why not have had a chance to plan a region-wide vote on a regional matters.

Delta Deadlock

If the Lower Estuary community is scrambling, perpetually but with some success, to adjust to a changed world, their upper Estuary counterparts often seem stuck in an endless loop of old controversies, revisited but not resolved, as physical challenges grow.

As the water projects increased their draws and the biotic health of the Delta began an obvious decline, the State Water Resources Control Board continued its struggle to set rules for river diversions, a process again begun and again derailed.

In 1993, on petition by environmental groups, the Delta smelt was listed as Threatened under the federal Endangered Species Act. This brought the federal authorities to bear on the Delta plan. In 1994, the two big water agencies, the Department of Water Resources and the Bureau of Reclamation, and the two big wildlife agencies, the Department of Fish and Game and the U. S. Fish and Wildlife Service, joined assorted others in a consortium known as CALFED. It promised a fresh start, and an infusion of federal money, to accomplish two things at once: the steadying of California water supply and the ecological restoration of the Delta and, indeed, the entire estuarine system. “Getting Better Together” was the slogan of the day.

For quite a while, all bets were on CALFED, which was institutionalized as the Bay Delta Authority in 2002 and blessed by Congress in 2004. A swarm of pilot habitat improvements, mostly in the Delta but also some downstream, were carried out. A science branch became the locus of much important research. In this era the Water Board succeeded in promulgating a new water rights decision, D-1441, in 1999, and new salinity rules, in 1995 and 2006.

The Delta, however, continued to founder, undergoin what scientists call an aquatic regime change. CALFED itself was not far behind. It had no real power over its strong-willed constituent agencies, and its initially generous funding waned. The Little Hoover Commission complained of “a governance system that cannot . . . withstand the hurricane-force pressures of water policy in California.” A reboot in 2005 was unsuccessful. The program limped on for a time, a sort of Holy Roman Empire of the water map, before it quietly dissolved.

In 2006, on the ruins of CALFED, the familiar roster of water supply and wildlife agencies launched the Bay Delta Conservation Program. One of its two thrusts was to improve water export planning by constructing an “isolated conveyance facility”; this became Jerry Brown’s “twin tunnels.” At the same time, it promised to do wonders for the ecosystem, both by eliminating the distorted flows that have helped to decimate the fish and by embarking on vast wetland restorations and other ecosystem repairs, a sort of Habitat Goals East. These solutions were to form one grand package, meeting the requirements of both state and federal Endangered Species Acts for a long time to come.

In 2014, however, the Fish and Wildlife Service declared that it lacked enough information to issue the requested 50-year permit under the Endangered Species Act. As a result, the program was split into two parts. The tunnels plan went on to review as California WaterFix; a more modest habitat improvement plan, emphasizing actions doable in the short term, became California Eureka.

The WaterFix planning process is grinding forward, with the initial decision expected this fall. If adopted by the Department of Water Resources, the lead agency, the plan will have to run a gauntlet of approvals including the State Water Resources Control Board and now also the Delta Stewardship Council.

In 2009, the Legislature directed the State Water Board to get moving on another review of flow standards, essentially unchanged since 1995, as the Delta had seemed much healthier. As a preliminary, the board was asked to determine what flows the ecosystem actually needed. Completed on schedule in 2010, this report gave the board’s weighty blessing to a familiar conclusion: that fish need much more water, especially in the spring and summer, than they are getting now.

That was a benchmark. Now the process moves on to the weighing of interests that will result in enforceable rules. As ever, this has proved a slow business. A new Bay-Delta Water Quality Control Plan was scheduled for 2011, then 2014; it has now been delayed to 2018, a target date the new CCMP endorses.

This delay has an odd effect. Long before adopting the new flow standards, the Water Board will be called upon to decide the fate of WaterFix, applying the older rules. “Completion of the Board’s work is essential for fully informed decisions on the BDCP,” the federal EPA opined in 2012. Yet there is no legal requirement to do this “before planning.” And Steve Moore, a member of what is generally considered the “greenest” water board in history, insists that his colleagues will not hesitate to tighten the rules after a construction start.
Do the Pieces Fit?

Let’s give (and accept) some credit: A great deal is being done, by a great many people, to improve the outlook for the San Francisco Estuary. Many problems would be far worse today than they actually are, had not actions been taken or not taken in decades past.

Yet decades future are looking perilous indeed, and we have to step up our game.

For the lower Estuary, there is some agreement about what needs doing. What is slowing things down is the fragmentation of responsibility and the need to force practically any significant action through the maze of local interest and, often enough, local inertia. When power is dispersed and money scarce, it is hard to get people to pay attention. Hence the endless calls for coordination, the task forces and ‘partnerships’, the multiplicity of sparsely attended meetings.

We have a lot of pipe. About half of it is old. And it’s leaking,” says district spokeswoman Margo Schueler.

Serving 1.4 million people in Alameda and Contra Costa counties, EBMUD is far from alone in contending with aging, sometimes neglected infrastructure. Water and sewer agencies of all sizes nationwide find themselves in similar straits. Just consider Flint, Michigan, and all the attention it has drawn to the potentially dangerous lead pipes still coursing through many of our cities and towns — or the recent gas leak in Southern California. And that’s to say nothing of our nation’s crumbling roads and unsafe bridges.

We’re very good at engineering and construction. It’s just that we sort of forget as engineers that things, once they’re in the built environment, require maintenance and somebody even replacement. That’s something that I think we as a country are going to learn in the next ten years,” says Margo Schueler, construction and maintenance superintendent at EBMUD.

Do the Pieces Fit? Sometimes. In some cases, they even replace it.

Do the pieces fit? Often. And it’s disruptive. EBMUD is trying to find a better approach, in part by learning from what other agencies have done well — and perhaps not so well. We want to do it differently, be more efficient, more environmentally friendly, and more collaborative with the public,” says Schueler.

Discovering what that means is the goal of its new Pipeline Rebuild program. Officially launched this past January, the effort includes a series of short-term pilot projects designed to test alternatives and construction technologies. EBMUD may allow the agency to catch up on its backlog of deferred maintenance, and eventually prescribes a more manageable path forward.
It’s essentially an interior liner that crews use to construct a new pipe within an old, failing one. Because excavation isn’t necessary, Pipe can be installed at a rate of up to 2,000 feet per day.

Later this fall, EBMUD will launch a separate pilot to evaluate another trenchless technique known as pipe-bursting, in which cast-iron pipes are broken from within by pulling a conical metal “head” through the pipe and chasing it with a new pipe. This technique is widely used for sewers, but more challenging for water lines.

A third pilot in Richmond will involve using restrained-join joint connections between pipe sections, as opposed to the more common bell-and-spigot push-together fittings, which can offer additional stability during minor seismic disturbances and the opportunity to employ narrower trenches, saving time, money, and materials needed,” says engineering manager Marty Grimes, an integrated planning manager for the Zone 7 Water Agency in Livermore, says EBMUD could also partner with cities to make street-level improvements and add green infrastructure like plantings and swales in some cases where pipeline repairs require tearing up the roadway. This piggybacking of benefits could bring additional funding opportunities, too.

Other initiatives of the Pipeline Rebuild program, which will run four years and should lay the foundation for the utility’s maintenance regime for decades to come, include GPS mapping of underground pipes, streamlining collaboration between design and construction teams, and staffing work crews more flexibly to improve efficiency. Together, these technological and procedural improvements should help the district dig itself out of the hole in which it finds itself, once and for all. “Our point is that we need to do it now,” Pook says. “If we don’t, it will be worse later.” NS

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Top: Pocket in Aqua-Pipe sleeve made up of two layers of fire hose-like material, the inner impermeable and the outer permeable. A water-safe seal is injected between the two layers, allowing the sleeve to be fused against the inner walls of an existing pipe.

Middle: Sleeve liner being pulled by winch through middle of three short trenches dug for the Glenn Avenue installation (a technique similar to using a safety gin to retrieve a drawstring). It took over an hour to pull the sleeve through 25 feet and ensure even distribution of the resin.

Bottom: Finished lined pipe.

Photos: EBMUD

Because whether that’s 20 years away or now, getting a better idea, as the pipelines age, it’s time to start doing things right inside — nearly 90 percent of the county’s rehabilitation program in the early 2000s.” What we really want to work toward is a more comprehensive inspection and rehabilitation program in the early 2000s.

In stark contrast to EBMUD’s predicament, Santa Clara’s oldest pipeline dates to roughly the Summer of Love — not the invention of the light bulb. They have an average age of about 40 years.

“Since our pipelines are relatively new, in the ‘90s and prior to 2000 the maintenance program was preventative maintenance: exercising valves, going in vaults and making sure everything looks good, and replacing things as needed,” says engineering manager Carol Mahoney, an integrated planning manager for the Zone 7 Water Agency in Livermore, says EBMUD could also partner with cities to make street-level improvements and add green infrastructure like plantings and swales in some cases where pipeline repairs require tearing up the roadway. This piggybacking of benefits could bring additional funding opportunities, too.

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EBMUD, cont’d from page 15

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An Eggfull of Estuary

Birds’ eggs don’t lie. Just as thinking eggshells once revealed how DDT was affecting peregrines and pelicans, the eggs themselves are now telling scientists how long-lived some contaminants are in the Estuary and where they are the most problematic.

A report just published by the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) summarizes contaminant concentrations in eggs collected between 2002 and 2012 from two fish-eating species high in the Estuary food chain, double-crested cormorants and Foster’s terns. Double-crested cormorants are considered a sentinel species for open water; Foster’s terns for shallow-water habitats on the Estuary’s margins, including wetlands and managed ponds.

Many of the contaminants we studied can affect the birds’ rates of survival,” says SFEI’s Jay Davis. “Many are toxic to embryos if concentrations are high enough — just like in humans, the early developmental stages in birds are very sensitive.”


The good news, says Davis, is that concentrations of PBDEs, a flame retardant, in cormorant eggs collected from multiple locations around the Estuary have decreased over time, as have DDT and dioxins.

The news about PCBs is not as good. PCBs are lingering at a level where they could be affecting the survival of embryos,” says Davis. “The Richmond Bridge cormorant eggs had high concentrations.” Yet the highest concentrations, a legacy of past industry, were found in the South Bay. PCBs were used in transformers and other electrical equipment from the 1930s through the 1970s, as well as in building materials.

The stain repellent chemical PFOS was also higher in cormorant eggs from the South Bay than from the North Bay. While PFOS concentrations in the most recent sampling were lower than in previous years, suggesting a possible decline, the levels found are still worrisome, says Davis. “Cormorant eggs sampled in one year were above the no-effect level, reaching a level where we start to be concerned.”

Mercury, a legacy pollutant from the mining industry, has decreased in cormorant eggs from the South Bay (Don Edwards National Wildlife Refuge) over time. On the other hand, it has increased in eggs from the Richmond Bridge.

“Foster’s tern eggs tell a different story about mercury. These terns forage primarily in wetlands along the fringes of the Estuary, where methyl-mercury, the toxic form that biomagnifies, is produced. High mercury concentrations were found in eggs from both North and South Bay sites. This is huge concern to researchers. “Foster’s terns are by far the most contaminated species of bird breeding locally,” says Ackerman with USGS, who has studied mercury in Estuary birds for over a decade and published and presented on his findings. “Seventy-nine percent of tern eggs sampled in the Estuary have mercury concentrations over toxicity benchmarks. That puts the terns at high risk for reproductive impairment.”

When mercury levels in birds reach a toxic level, explains Ackerman, the birds begin to “de-methylate” or de-toxify some of the mercury in their livers, using valuable metabolic energy in the process. Ackerman has found a strong correlation between tern eggs collected from around the Estuary and embryos “malted” in the egg, meaning that it is harder for the chick to break out of the egg. “We have some evidence that mercury may be influencing parental behavior, including nest attendance. We’ve also found that tern eggs that fail to hatch have higher mercury levels than randomly sampled eggs that are still viable.” LOVE

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Bay cormorant eggs are less contaminated as a result of the PBDE phase out. Source: RMP

Forster’s tern nest. Photo: Josh Ackerman
Prioritization, cont’d from page 6
Next, they considered how resources should be allocated in both the near term (2015-2027) and long term (2030-2050). Each subregion developed two allocation options for each time frame: one for a “rosy,” or more optimistic, future scenario, and one for a more pessimistic situation.

For the more optimistic scenario in the short term, in general each subregion team gave the most resources to tidal marshes, followed by managed wetlands, upland transition, and migration space (with some subregional nuances and caveats). In the pessimistic short term scenario, tidal marsh and managed wetlands were prioritized again for most subregions.

Of the actions, protecting acres of habitat and managing sediment were given the most resources.

For the longer term, optimistic scenario, managed wetlands were the most popular in Suison and the North Bay, with the Central Bay team allocating more resources to subtidal habitat, tidal marsh, and upland transition, and the South Bay team fairly evenly dividing resources among all habitats, with just a bit to watersheds. Under more dire conditions, the Suison team allocated most resources to tidal marsh and upland combined, followed by managed wetlands; the North Bay team gave the most to upland transition, followed by migration space and managed wetlands; the Central Bay team allocated the most resources to migration space, followed by upland transition and tidal marsh; and the South Bay team fairly evenly to tidal marsh and upland transition, followed by managed wetlands.

Perhaps the most surprising result was that all with even of the uncertainty about climate change and resources, participants still recommended that scientists and managers plan as if there will be an increase in resources and that the worse-case climate change scenario won’t happen. The second phase of CADS will show how recommendations from the subregions can inform local-scale adaptation strategies.

LOV
http://climate.calcopmons.org/cads

Deliquescence Summit on Ocean Climate

Walking in the door of the first Ocean Climate Summit this May and finding Amy Hutzel, long-time chair of the committee in charge of implementing a conservation plan for the San Francisco Estuary, I asked her why she was doing out of her watershed. “Dipping my toe in the Pacific,” she said. “For a while now, we’ve been working to build partnerships inland and offshore. It’s all one estuary.”

The water may be hotter in the Delta and colder in the Pacific, but scientists continue to reveal strong relationships and exchanges between the water shed, the estuary, and the ocean, and now, more than ever, with the atmosphere above them. Lots of things flow downriver and out the Golden Gate, or slosh back and forth between the Gulf of the Farallones and San Francisco Bay: nutrients, fish, food, sediment, parcels of deoxygenated water, plastics, contaminants, juvenile crabs and flatfish, to name a few hitchhikers. Now all these things are larger for water and resource managers, as rising sea levels promise to thrust the ocean deeper than ever into the heart of California.

What we’re doing here is bringing the different communities of practice together, said Maria Brown of the Greater Farallones National Marine Sanctuary, primary sponsor of the summit, in remarks at the all day May 17 event.

The summit was attended by 141 resource managers, scientists, and activists concerned about the impacts of climate change on the ocean outside the Golden Gate. The enthusiasm for learning and sharing continued until the 300 people could not handle our collective必将 over our sessions, with even as attendees enjoyed brief lapses of attention staring out on a San Francisco waterfront view of swimmers, kayakers, ferries, and tankers traversing the chop stirred up by the breeze off the Pacific.

“The energy in this room, the collaborative spirit, the solution oriented approaches, are just awesome,” said the self-described “suit” from Washington DC brought in to open the event. Speaking about how the Bay Area’s work has been recognized nationally, even internationally, as a collaborative model, John Armor, acting director of NOAA’s marine sanctuaries program, said, “We need to use these marine sanctuaries, as places in the public spotlight that people care about, to communicate the need for solutions to our climate crisis.”

Over the course of the day, four major panels presented topics ranging from steps to climate-smart plans, policies, and funding to why 100,000 Cassin’s auklets died of starvation in 2014 and how the Army Corps of Engineers is trying to engineer more with nature than against it. Breaks between sessions included opportunities for attendees to provide input on various climate adaptation strategies posted on the walls with blue tape. Highlights and take homes of all presentations over the course of the day can be found in the extended version of this story.

At the close of the day, Maria Brown reiterated how much the community of climate-concerned people had grown, evolved, and become more climate-savvy than climate-smart.

“In the eight years since our first ocean climate summit, there’s been an amazing shift in knowledge and perspective,” said Brown. “After hearing that in the last 50 years our climate has warmed more than in the last two millennia, any of us could have thrown up our hands and walked away. But this summit tells me that if a small group becomes engaged and wants to think hard about something, they can change our future. We’re not victims, we’re allies.”

Extended story online: www.sfestuary.org/estuary-news

Ocean Climate Summit Presentations: http://climate.calcopmons.org/aus/2016oceanClimateSummit/products.htm

Cosco Busan during high heat events. The project is supported by the Ceramic nest boxes from Año Nuevo near Santa Barbara that may provide a model for new nest boxes being tested for the warming Farallon Islands. On the Farallon, wooden next boxes have been used since the 1970s but get hot during high heat events. The project is supported by the Cosco Busan oil spill restoration funds and Point Blue donors.

Buckler Brouhaha

While Bay Area voters showed their support for wetlands by passing Measure AA, an ironically different story has been playing out at the edge of the Suison Marsh, what longtime observers call the largest intentional loss of tidal wetland in decades.

Beginning in 2014, John Sweeney, the new owner of a former duck-hunting club site called Point Buckler Island, rebuilt the levee around the 51-acre island, drained the interior, and dumped excavated soil on the marsh to create what he bills as a kitesailing resort for high-end customers. In the process, habitat for endangered wildlife and fish species was destroyed or impaired. Although the owner also calls it a duck club, there’s no visible evidence that he’s managing it for waterfowl.

Fighting a phalanx of federal, state, and regional agencies, Sweeney claims Point Buckler’s history as managed wetland allowed extensive unpermitted work. The agencies argue that the site had converted from managed to tidal wetland through the negligence of previous owners and was therefore protected, and that Sweeney’s actions undermined years of effort to build trust among stakeholders in the marsh.

His failure to go through the established permitting process could result in a $4.6 million penalty from the Regional Water Board and an additional $952,000 fine by the Bay Conservation and Development Commission.

Read the in-depth, extended version of this story online at www.sfestuary.org/estuary-news
San Francisco Bay and the Sacramento-San Joaquin River Delta comprise one of 28 “estuaries of national significance” recognized in the federal Clean Water Act. The San Francisco Estuary Partnership, a National Estuary Program, is partially funded by annual appropriations from Congress. The Partnership’s mandate is to protect, restore, and enhance water quality and habitat in the Estuary. To accomplish this, the Partnership brings together resource agencies, non-profits, citizens, and scientists committed to the long-term health and preservation of this invaluable public resource. Our staff manages or oversees more than 50 projects ranging from supporting research into key water quality concerns to managing initiatives that prevent pollution, restore wetlands, or protect against the changes anticipated from climate change in our region.

We have published Estuary News since 1993.