

# Have Fun Storming the Castle: Working Together for a Healthy Estuary Today

Amy Hutzel, Deputy Executive Officer, State Coastal Conservancy

The Comprehensive Conservation and Management Plan for the San Francisco Estuary was released in 2016 and lays out an action-oriented blueprint of tasks and milestones for restoring the Estuary's chemical, physical, and biological processes to health. Over 80 organizations and agencies are responsible for implementing the 32 actions in this Estuary Blueprint. All of us have a role to play and there is an existential urgency to our collaborative efforts. Have fun storming the castle!

**Session Title:** Day One Plenary Session

**Speaker Biography:** Amy Hutzel is a Deputy Executive Officer at the State Coastal Conservancy, which works to protect open space, increase public access and recreation, and restore wildlife habitats along the California Coast and in the Bay Area. She worked in the San Francisco Bay Area Program of the State Coastal Conservancy for 15 years, on such projects as the Hamilton Restoration, Napa River Salt Marsh and the South Bay Salt Ponds. She is the current chair of the San Francisco Estuary Partnership and vice-chair of Resilient by Design. She has a bachelor degree in urban and environmental planning from the University of Virginia. She worked as an educator at the San Francisco Bay National Wildlife Refuge, Kilauea Point National Wildlife Refuge, and Save The Bay prior to joining the Coastal Conservancy.

## Ways of Seeing, Tales to Tell: John Steinbeck, Ed Ricketts, and “The Bay as It Is”

Mary Ellen Hannibal, Author, “Citizen Scientist: Searching for Heroes and Hope in an Age of Extinction” and “The Spine of the Continent”

With World War II cracking on the horizon, and amidst fame and fury swirling around the publication of *The Grapes of Wrath*, in 1940 John Steinbeck declared he was through with writing fiction. Science, he declared, is the “new thinking.” “I’m going back to these things which are relatively more lasting to find a new basic picture,” he said, and set out to write a book about San Francisco Bay. Steinbeck’s partner in this endeavor was his great friend Ed Ricketts, a marine biologist -- without a degree – a citizen scientist! With Jack Calvin, Ricketts had recently published *Between Pacific Tides*. This holistic guide to the intertidal was revolutionary, since it oriented the reader to species according to where they live – the customary practice was to organize species by phylogeny, or body type, an evolutionary framework with no reference to ecology. Ricketts emphasized biological “holism” and throughout his life sought to comprehend what he called “the toto picture.” Steinbeck and Ricketts did not write a book about the bay, but they did produce *Sea of Cortez*, a meditation and expedition journal that wrestles with comprehending human systems of thought and natural systems as one. On multiple expeditions throughout his life, Ricketts contributed specimens to museums that today help us to get a toto picture of nature “as it is.” Citizen scientists who make observations today are helping to pay Steinbeck and Ricketts forward, hugely expanding our comprehension of species occurrences over space and time. Today’s monitoring efforts make possible a scope Steinbeck anticipated and strove after. “We wanted to see everything our eyes would accommodate,” he wrote, “to think what we could, and, out of our seeing and thinking, to build some kind of structure in modeled imitation of the observed reality.” As we struggle today to create a vision for the bay that is integrative and inspiring, Steinbeck and Ricketts help set our course.

**Session Title:** Day One Plenary Session

**Speaker Biography:** Mary Ellen Hannibal is an author and avid citizen scientist from the Bay Area. Her work focuses on science, culture, and the important connections between people, species, and ecosystems. Her most recent book, *Citizen Scientist: Searching for Heroes and Hope in an Age of Extinction*, was named one of the best titles of 2016 by the *San Francisco Chronicle* and receive a *Nautilus Book Award* for ecology and the environment. Reporting deeply, Hannibal digs into the origins of today’s tech-savvy citizen science movement – tracing it back through centuries of amateur observations by writers and naturalists. Prompted by her novelist father’s sudden death, she connects the activity of bearing witness to nature today with a broad inquiry into time, place, and purpose. Hannibal’s previous books include *The Spine of the Continent*, about which *Publisher’s Weekly* said, “This is what science writing should be: fascinating and true.” Her work has appeared in *The New York Times*, *Esquire*, *Nautilus*, and many other publications.

# Restoration Lessons from the Past: 'It's Going to be Harder Than You Think'

Philip Williams, Past-President, Philip Williams Associates

The 1980's and 90's were formative years in the development of new ideas in the evolving practice of restoration and environmental management. Twenty years on, after several large restoration projects have been implemented within the estuary, the validity of these ideas has been tested. Two key lessons are now embedded in the new CCMP and Goals update report. These are: We need to be managing for the landscape of the future instead of recreating the past; and that we understand the estuary is a single dynamic evolving hydro-geomorphic entity whose future structure and processes will be driven by accelerating sea level rise, changing fresh water flows, and reduced sediment availability. This means the conditions in which we designed and implemented restoration projects in the past will only rarely apply in the future, requiring that resilience and flexibility in design assume a much greater importance. Specifically: 1. In planning for sea level rise [SLR] we need to consider the implications of uncertainty in the rate of rise as well as uncertainty in the extent of rise in 2100. This means shifting our perspective from that of the pure scientist to that of applied scientist and manager who takes responsibility for decisions based on the asymmetric consequences of underestimation of SLR rates. 2. We need to take into account the system wide impacts of SLR rates of rise on the morphology and hydrodynamics of the whole estuary instead of examining it piecemeal or assuming the shape and flows of the estuary will be unchanged. One important impact of bathymetric change is on sediment dynamics within the estuary. We will need to anticipate how suspended sediment concentration [SSC] in tidal water will be reduced due to changes in sediment dynamics, likely a more important factor than reductions in SSC due to changes in sediment budget. 3. The implications for future restoration design in the future will likely include: a shift from 'evolutionary' to 'creationist' conceptual models recognizing the future paucity of sediment; an imperative for restoration of tidal processes in subsided sites now rather than deferred in favor of managed wetlands; actions to enhance SSC by restoring erodible shorelines and mudflats; priority given to wetland restoration sites in sediment rich parts of the estuary, like the far South Bay; a shift in priority to restoration sites up-estuary in response to migration inland of the salinity field; and planning for rapid SLR scenarios that attempts to mitigate loss of ecologic functions of existing wetlands through restoration in more resilient locations and by providing inputs from restored floodplains.

**Session Title:** Day One Plenary Session

**Speaker Biography:** Before he retired 5 years ago Phil Williams was formerly president of Philip Williams and Associates, Consultants in Hydrology [PWA] which he founded in 1976 in San Francisco and merged with Environmental Science Associates [ESA] in 2010. PWA pioneered the integration of environmental planning into what was then traditional river and coastal engineering practice, and played a leading role in planning and design of major estuarine wetland and river restoration projects in California from Tijuana to Humboldt Bay. Within the SF Bay Estuary, during its 34 year history, PWA's clients have included BCDC, the State Coastal Conservancy, US Army Corps of Engineers, California Department of Fish and Wildlife, the Bay Institute and Save the Bay. Phil has directed projects such as the Warm Springs Marsh

restoration [1986], Napa Flood Protection Project 'Living River' plan [1994], Sonoma Baylands restoration [1996], Crissy Field wetlands design [1998], and the first stages of the South Bay Salt Pond Restoration planning in 2004. In 1985 Phil conducted the first San Francisco Bay sea level rise study for BCDC; in 1986 he was the first to present evidence for the use of the X2 salinity objective in the State Water Resources Control Board's D1485 hearing; in partnership with Phyllis Faber conducted the first long term monitoring of restoration projects in SF Bay that provided the basis of the WRMP Design Guidelines report [2003]; and played a significant role in interdisciplinary research of wetland restoration in the Delta, through the University of Washington's BREACH studies [2000].

Phil Williams has a Ph.D. in sediment hydraulics from University College London and is a registered engineer in California and the European Union. He was also founder and first president of the International Rivers Network headquartered in Berkeley.

# Investing in California's Conservation Future: Science, Balance, Action, and Results

Paul Souza, Pacific Southwest Regional Director, U.S. Fish and Wildlife Service

The mission of the U.S. Fish and Wildlife Service is to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people. We play an integral role in protecting a healthy environment for both people and the fish and wildlife that we are entrusted to protect, including migratory birds, endangered species, freshwater and anadromous fish, and certain marine mammals. Here in the Pacific Southwest Region, which encompasses California, Nevada, and Oregon's Klamath Basin, we manage 48 National Wildlife Refuges and 11 National Fish Hatcheries, including several here in the San Francisco Estuary that supports a number of threatened and endangered species and provide essential habitat for a majority of the Pacific Flyway's migratory waterfowl populations. But we can't accomplish our mission alone and must recognize the power of conservation partnerships. The most significant conservation challenges of our time— sea level rise, large scale habitat loss, drought, and invasive species, to name a few—are not solved by any one person or agency. They are instead solved by broad coalitions that choose to set their differences aside and focus on common ground. We are at our best when we're not constrained by our individual responsibilities and jurisdictions, but instead when we focus on working collectively on the greatest conservation priorities. This presentation will highlight several ways that the Fish and Wildlife Service is helping to facilitate and promote restoration and recovery projects in the San Francisco Estuary, including streamlined consultation, technical assistance, science support, broad partnerships, assurances, and follow through.

**Session Title:** Day One Plenary Session

**Speaker Biography:** Paul Souza is the Regional Director for U.S. Fish and Wildlife Service in the Pacific Southwest. The Pacific Southwest Region includes California, Nevada, and the Klamath Basin. The Region is responsible for managing 48 National Wildlife Refuges comprising more than 2.8 million acres. It also includes three Wildlife Management Areas in California, encompassing more than 104,000 acres; three National Fish Hatcheries and one Fish Health Center; and 11 Fish and Wildlife Offices. The Pacific Southwest has nearly 300 threatened and endangered species on the road to recovery.

Prior to his current role, Paul served as the Assistant Director for Science Applications. Paul provided leadership on science policy and scientific applications in resource management. This included leading agency efforts shape a science-driven landscape conservation business model; expanding Service capacities to acquire, apply and communicate scientific information; promoting active involvement of the Service and its employees in the larger scientific community; strengthening and expanding partnerships between the Service and other scientific organizations; and cultivating the next generation of Service scientists.

Paul also previously served as the Deputy Assistant Director for the Service's Ecological Services Program in headquarters. In this capacity, he provided national leadership for the Endangered Species Act, Marine Mammal Protection Act, Fish and Wildlife Coordination Act, Clean Water Act, and many other statutes. Paul worked closely with agencies and other partners

to leverage resources that benefit wildlife conservation and other important needs such as farming and ranching, military readiness, and energy and infrastructure development. Before coming to headquarters, Paul was the Field Supervisor for the South Florida Ecological Services Office in Vero Beach, Florida. In this capacity, Paul oversaw actions to conserve and recover 67 species listed under the Endangered Species Act and protect a host of important habitats for migratory birds, fish, and other wildlife. Paul also helped oversee the Service's efforts to restore America's Everglades with many partners, planning and implementing projects to improve the health of the environment and conditions for imperiled species such as the Florida panther, wood stork, and snail kite.

Paul joined the Fish and Wildlife Service in 1997 as a Presidential Management Fellow. He has a bachelor's degree in environmental studies with an emphasis in ecology from the University of California at Santa Barbara and a master's degree in urban and regional planning with an emphasis in environmental planning and natural resources management from Florida State University. Paul and his wife Dana have a 12 year old son named Garret and 10 year old daughter named Maddie.