

Rush Hour or Clear Sailing? Traffic Patterns of Commercial Vessels Arriving to San Francisco Bay-Delta from 2010-2012

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It is estimated that up to 81% of California's 257 established nonindigenous species (NIS) were introduced via commercial shipping, both through ballast water discharge and release of associated biofouling. The Marine Invasive Species Program (MISP) at the California State Lands Commission (CSLC) has diligently pursued the prevention of NIS release from commercial vessels into California waters. Gaining an understanding of the types of vessels entering the state and their behavior once here, is a critical first step in understanding the potential risks posed by this vector.

CSLC has jurisdiction over vessels entering California waters that are 300 gross registered tons or greater and are capable of carrying ballast. Data collected from ballast water management reports from these vessels arriving to ports within the San Francisco Bay-Delta, including the freshwater ports of Stockton and Sacramento, from 2010 through 2012 will be presented. These data, combined with information on the last port of call and hull husbandry practices, are useful in assessing potential NIS transfers to San Francisco Bay-Delta.

Keywords: shipping, invasive species, ballast

Poster Topic: Human Consequences

Delta Working Landscapes

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The Delta Protection Commission's Delta Working Landscapes program encourages farmland to be utilized as valuable habitat by providing opportunities for private landowners to incorporate wildlife friendly farming with current agricultural practices. Currently, attention and effort is being focused on restoring the natural habitats of the Sacramento-San Joaquin Delta to support aquatic and terrestrial wildlife that may have negative impacts to the Delta's economy and culture. Working Landscapes projects provide benefits over traditional ecological restoration projects as the land remains in agricultural production, thus continuing to contribute to the overall economic sustainability of the Delta while encouraging local citizens to serve as environmental stewards of the landscape.

Approach: Delta Working Landscapes approaches these problems through a variety of methods. Planting vegetative buffers along irrigation ditch banks and hedgerow plantings improve water quality by reducing runoff of pesticides and sediment. Farm cultural practices which can benefit for wildlife friendly agriculture, such as rice, corn and wheat fields have been identified and have implemented seasonal flooding and restoration to increase winter wildlife habitats. These projects have additionally supported water quality improvement, salinity control, subsidence reversal, and weed control.

Results: The Delta Working Landscapes projects improve the environmental quality of existing landscapes in the Delta; coordinate programs with local farmers to understand the social, economical, environmental and governmental policy hurdles and incentives to perform conservation practices; and communicate to farmers the advantages of implementing wildlife friendly agricultural practices.

Conclusions / Relevance

- Partnerships between public and private efforts are possible
- Delta farmers have a strong interest in agricultural and wildlife conservation
- Delta farmers understand the importance of improving the existing quality for future generations
- Working Landscape Projects can be the key for a sustainable Delta

Keywords: Delta, Protection, Commission, Delta, Working, Landscape

Poster Topic: Human Consequences

California State Parks' Gateway>Base Camp>Adventure Strategy

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The Sacramento-San Joaquin Delta and Suisun Marsh's landscape and the economic base of its communities may change significantly over the coming decades because of natural and human pressures. Island farms drive much of the region's economy but limit public access to the shoreline. Waterways, parks, wildlife refuges, marinas, historic communities and pleasant country roads seem to be hidden from, but are well within reach of, millions of Californians and other visitors. These wonderful places to relax outdoors, go boating, learn about and enjoy nature, or appreciate the food, culture and history of the region could be expanded and enhanced to provide many more recreation opportunities for residents and visitors.

The Recreation Proposal for Sacramento-San Joaquin Delta and Suisun Marsh summarizes existing recreation opportunities in the region and presents California State Parks' recommendations for protecting, enhancing and expanding them in ways that support the economic sustainability of the region's communities. Investing in recreational facilities and programs will benefit the region's economy by improving the quality-of-life for residents and attracting more visitors to experience the Delta and Suisun Marsh's recreation assets and authentic character.

We found that many state and local agencies, environmental organizations and businesses contribute to the rich diversity of existing recreation amenities, yet hold the key to many untapped opportunities. Enhancing and expanding recreation opportunities in the region will require collaboration and partnerships between governments at all levels, not-for-profit organizations and the business community.

When recreation providers implement the **Gateway>Base Camp>Adventure Strategy**, described in this poster, it will help more people discover and enjoy the region's recreation opportunities while reducing costs that are increasingly difficult to support. Working together will contribute to the area's economic vitality, supporting jobs, growing businesses and improving the quality of life that makes the region an attractive place to live, visit and do business.

Keywords: Recreation, Culture, Tourism

Poster Topic: Human Consequences

The 3 C's: Communication, Collaboration, and Coordination

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There is no greater source of conflict in California than water management and policy. This is compounded by imperfect communication. The Department of Fish and Game (DFG) Water Branch (WB) tackles these issues by facilitating coordination, collaboration, and communication with the goal of minimizing the amount of conflict in government agencies (state, local and federal) surrounding the management of our State's water and the diverse flora and fauna that depend on that liquid gold.

DFG WB works with local, state and federal partners to better facilitate communication, collaboration and coordination amongst government agencies involved with the management and policy decisions for California's water. Programs or plans that DFG WB collaborates and coordinates with, in either their development or implementation (or both) are the: Central Valley Project Improvement Act – Anadromous Fish Restoration Program and others, Department of Water Resources FloodSAFE California Initiative, California Water Plan, Bay Delta Conservation Plan, Delta Plan, and more.

Through these efforts, we have been able to better integrate DFG's mission and goals into the plans, programs, and projects of other government agencies. Likewise, DFG has sought feedback from others to better facilitate the development of DFG programs, plans or projects that reflect the goals and objectives of other governing agencies. Thus, we can eliminate the need to "reinvent the wheel" and to integrate and synthesize policies, plans and projects so that we are all working together in a more effective manner.

Lessons can be learned from successes and failures, and applied to future and on-going efforts. In order to reach a sustainable ecosystem, government agencies and the general public will have to find a way to get past conflicts – this cannot be done without understanding where and why the conflicts occur and finding a better and more collaborative way to resolve them.

Keywords: Communication, Collaboration, Facilitation, ERP, FloodSAFE, CVPIA, AFRP

Poster Topic: Human Consequences

Private Landowners, a Utility District, and the Feds: A Working Partnership to Benefit Rare Species on the Mokelumne River

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The loss of suitable habitat is one of the major factors in most threatened and endangered species decline. The US Fish and Wildlife Service (USFWS) and East Bay Municipal Utility District (EBMUD) worked with landowners within the Mokelumne watershed to draft a Safe Harbor Agreement (SHA) that was feasible. Within the Mokelumne River watershed, 4 land owners have entered into the USFWS SHA, totaling 28,042 acres. Species and associated habitat included are: California red-legged frog (*Rana aurora draytonii*) (CRLF); California tiger salamander (*Ambystoma californiense*) (CTS); and Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB). During the course of the SHA, over 3000 elderberry plants were planted along with associated native species. Efforts have been made to connect isolated stands of existing elderberry bushes. A total of 2.11 acres of breeding ponds and 129 acres of moist refuge habitat have been created or enhanced for CRLF and CTS. One of the new ponds was colonized by CTS within three years. We have found that land owners tend to be willing to work with the USFWS when the SHA program is explained and demonstrated, and technical expertise is offered. The drafting of the SHA to include protection for their neighbors was one of the critical components of the agreement.

Keywords: Safe Harbor Agreement, Utility Company, Restoration

Poster Topic: Human Consequences

The California King Tides Initiative –Raising Awareness about the Impacts of Sea Level Rise through Photography, Public Participation, and Social Media

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Scientists widely agree that sea-level rise is occurring, and will lead to an increase in flooding and permanent inundation. For Bay-Delta communities, sea-level rise could have serious adverse consequences to human health, the economy, and natural resources. In the short-term, the impacts of sea-level rise will be eclipsed by extreme high tides and storm events. These events provide a preview of how higher water levels could affect the Bay-Delta on a regular basis as sea-level rise occurs.

Bay-Delta managers and scientists are often tasked with the difficult job of effectively communicating compelling messages about sea-level rise, extreme storm events and emergency preparedness to diverse audiences. The King Tides Photo Initiative is an ongoing public engagement project aimed at raising awareness on sea level rise and extreme storm. Spearheaded by a coalition of non-profit and government entities, including the California Coastal Commission, San Francisco Bay National Estuarine Research Reserve (NERR), Gulf of the Farallones National Marine Sanctuary, the California Coastkeeper Alliance, the Tijuana River NERR and the Thank You Ocean Campaign, the Initiative encourages citizens to photograph the high water and coastal hazards associated with King Tides (or the highest winter tides) and to share these images through social media. These pictures preview how our shorelines are changing and what daily tides may look like in the future. In addition, the images create a powerful argument for proactive planning to create resilient coastal ecosystems and communities, today and in the future. Images from the Initiative have been used as an effective and powerful communication tool for managers and scientists. This poster will present images and findings from the Initiative, and will encourage Bay-Delta managers and scientists to participate in the Initiative by engaging others, taking photos or using the images in communication materials.

Keywords: King Tides, Sea Level Rise, Public Participation

Poster Topic: Human Consequences