

How the MOOM Case Studies Relate to SPFC O&M Challenges

Summary of SPFC O&M Challenges	Do the MOOM Case Studies Provide Guidance on How to Address this Challenge?
<p>Societal expectations for healthy ecosystems, recreational access to waterways, clean water, sustainable surface and groundwater supplies, and strong agricultural and land development economies in the Central Valley have put pressure on the flood system and its governing agencies.</p>	<p>Yes. The MOOM Case Studies demonstrate how other flood districts in California have developed and funded multiple-objective flood maintenance programs in response to public and agency concerns that provide multiple public and ecosystem benefits, and that resolve similar types of land use and resource management conflicts that occur in the Central Valley.</p>
<p>Where activities required by O&M manuals potentially affect species or habitats that are protected by environmental laws, and where avoidance of impacts is not possible, conflicting mandates of 33 CFR 208.10 and ESA / CESA prevent maintenance activities from being completed. It can take many years to resolve the conflict and, during such time, maintenance activities cannot be performed and flood control facilities deteriorate.</p>	<p>Yes. The MOOM Case Studies provide examples of how managing to multiple objectives can avoid the standstill that is a result of conflicting mandates. Because habitat management is a primary objective of the programs and maintenance activities proactively improve habitat health, impacts that occur as a result of flood system maintenance are offset. Resource agencies were involved with the development of the programs and helped guide the specific objectives related to habitat and how the habitat management components would be implemented. Permits were issued for all program activities, allowing for flood system maintenance to be completed as needed and in a timely manner. With MOOM programs in place, updating permits or environmental documents did not halt all O&M activities, rather just those activities under discussion (Santa Barbara County, Santa Clara Valley).</p>
<p>Avoidance measures are the preferred type of mitigation measure, but narrow work windows pose logistical challenges.</p>	<p>Yes. The MOOM Case Studies have similar work windows; however, because the programs include an annual maintenance planning process, they are able to plan for and complete maintenance within the work windows. For example, Napa County annually defines O&M activity areas to address work window conflicts by geographic location; this includes identifying where to apply more intensive pre-construction biological surveys and any other applicable measures. Another factor that enables the completion of work within the work windows is that routine maintenance is occurring each year (versus accumulation of deferred maintenance), which makes the logistics of completing work within a restricted time frame less challenging.</p>
<p>The challenges associated with compensatory mitigation are compounded by the requirement to mitigate for the same impact repeatedly each time a routine maintenance activity is performed.</p>	<p>Yes. The MOOM Case Studies provide examples of mitigation strategies that allow routine O&M to occur with one-time, 1:1 mitigation replacement (Santa Barbara, Santa Clara Valley, City of Santa Cruz). In addition, the MOOM Case Studies demonstrate how to capture “credit” for mitigation for habitat improvements in other portions of the system to offset impacts associated with routine flood system O&M.</p>
<p>Jurisdictional boundaries for SPFC maintenance are not aligned with conservation planning areas or ecological boundaries for the affected species and habitats in the flood system. This contributes to the overall decline in ecological health because species and habitats are most effectively managed (and permitted) at the landscape level.</p>	<p>Yes. The MOOM Case Studies provide examples of effective ecosystem management at landscape scales (e.g., countywide, watershed scale, full-stream length). The MOOM Case Studies provide examples of how to incorporate specific landscape scale O&M objectives and actions that include ecosystem uplift based on continual monitoring of geomorphic and ecological processes, habitat management, and species conditions (Napa County, City of Santa Cruz).</p>
<p>There are many unauthorized, abandoned, and substandard encroachments in the system, and encroachment enforcement and removal is time-consuming.</p>	<p>Yes. The MOOM Case Studies have established monitoring, tracking, and reporting frameworks, which allow for efficient tracking of violations and remediation. Annual maintenance planning processes include prioritizing and taking action on encroachments. However, it is important to note the difference in scale. The SPFC has a far more extensive backlog of</p>

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	encroachments than the MOOM Case Study systems do, which has significant cost and staffing implications.
<p>When calculating channel capacities based on the “1955/1957 design profile” and comparing them to the “design channel capacities” for the same reach, at some locations they do not match as they should. The discrepancies are a concern from the maintenance perspective because they make the O&M Manual requirements somewhat ambiguous, not knowing USACE’s expectations.</p>	<p>Yes. The City of Santa Cruz Case Study provides an example of how historic hydraulic baselines were in place, but were no longer relevant because of geomorphic change. System performance during the 1982 flood event provided a new understanding of hydraulic and geomorphic conditions. In response, the City of Santa Cruz developed performance criteria based on this new understanding and then regularly evaluated how well the criteria were met over time.</p> <p>More generally, the MOOM Case Study programs establish performance-based objectives and baseline conditions related to each program objective, track progress toward the objectives over time, and identify and implement necessary annual maintenance actions based on regularly collected data. The data-driven and adaptive management nature of MOOM programs result in a well-documented and up-to-date understanding of system hydraulic and geomorphic conditions.</p>
<p>Funding shortages are a result of the lack of reliable revenue sources, Proposition 218 limitations, competition for limited grant funds across LMAs, difficulty qualifying for loans without adequate or reliable revenue sources, escalating transactional costs associated with performing necessary activities (e.g., regulatory compliance), and poor public understanding and awareness of the benefits provided by the SPFC and the actions needed to support proper maintenance. Funding shortages contribute to an ever-increasing backlog of deferred maintenance.</p>	<p>Yes. All of the MOOM Case studies provide examples of diverse and stable funding approaches for O&M such as local assessments, grant funding partnerships with resource agencies and NGOs, special districts, and public/private partnerships, as well as cost-saving permitting efficiencies.</p>
<p>SPFC governance is affected by a large number of public agencies, which can complicate flood system improvements and maintenance.</p>	<p>Yes. While the MOOM Case Studies involve one central flood management authority, the Santa Barbara County MOOM program includes the maintenance activities of 10 drainage assessment districts. O&M activities are covered under the MOOM program, including by program permits, but are completed by the drainage assessment districts rather than by the County. It is important to note the difference in scale when comparing the SPFC to the Santa Barbara County MOOM program; 10 is a small number of entities to coordinate with when compared to the 82 agencies other than DWR that maintain portions of the SPFC.</p>
<p>USACE inspections have tightened, and poor and inadequate maintenance now has severe consequences. An inadequate inspection rating will result in an “inactive” status under the RIP, making timely maintenance even more critical.</p>	<p>Yes. Insufficient funding and permitting challenges are the primary drivers for the inability to complete SPFC maintenance and difficulty in meeting USACE RIP requirements. The annual maintenance planning processes under the MOOM Case Study programs facilitate efficient environmental compliance as well as tracking of maintenance needs and prioritization, including in the context of funding limitations. The annual maintenance planning and tracking approach also allows for examination of many possible solutions, including modified practices, even within single-purpose projects in some instances, and examines whether long-term O&M is cost effective versus capital improvements or other actions. MOOM programs allow for timely maintenance, which facilitates compliance with RIP requirements.</p>
<p>The mechanism for updating O&M manuals to allow for multi-objective maintenance is a system modification and change of project</p>	<p>Yes and No. The MOOM Case Studies show that modification of federal projects and updating O&M manuals is complex, expensive, and time-consuming. For example, the San Lorenzo</p>

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<p>purpose, which requires authorization by Congress. The process is very complex, expensive, and time-consuming.</p>	<p>River Flood Control Project was modified to multi-purpose in 2000, and the process to update the O&M manual is still underway. However, the Santa Barbara County, Santa Clara Valley, and City of San Lorenzo MOOM Case Studies provide examples of multiple-objective O&M occurring within single-purpose federally authorized projects. These examples are modifications to maintenance actions based upon an improved understanding of geomorphic and ecological processes and application of site-specific performance objectives. Thus, these programs have been effective without undergoing the processes to update O&M manuals or modify the federal project purpose. Generally, USACE inspections have rated these projects as “minimally acceptable” under the RIP (PL 84-99); however, USACE has recognized that environmental regulatory constraints prevent local agencies from carrying out the O&M activities as described in the O&M manuals. Although a similar approach may not be viable within the SPFC, supplemental O&M manuals in the Sacramento River Basin allow for native vegetation plantings in bank protection structures. This has been carried out by USACE to allow for mitigation sites within bank protection structures. As the authority to do so lies with USACE, DWR and LMAs would need to complete system improvements such that a Section 408 permit would be required in order for there to be a federal action to allow for similar supplemental O&M manuals to be developed for other parts of the SPFC.</p>
<p>There are inconsistencies between ESA and CESA requirements for the same species.</p>	<p>Yes and No. The MOOM Case Studies were not examined specifically for such conflicts. However, the MOOM Case Study programs do have similar listed species to those in the SPFC and accommodate both ESA and CESA requirements for many species. The MOOM Case Studies show how programs were developed to address challenging issues through partnering with resource agencies to develop effective practices. For most species, this has been successful; however, the Santa Clara Valley program is still working to resolve issues related to California Tiger Salamander and California Red Legged Frog in rodent burrows in levees, which are analogous to Giant Garter Snake in the SPFC.</p>
<p>CDFW requires the creation of endowments for mitigation banks, but long-term funding commitments and the creation of endowments with the State budget is prohibited.</p>	<p>Yes and No. This is an institutional and legislative issue that is unique to the SPFC in this context because the MOOM Case Study agencies are not State agencies. However, the San Luis Obispo County MOOM Case Study does provide an example of mitigation partnerships with nonprofit land trusts. A similar type of partnership between the State and NGOs may provide an avenue for resolving this type of issue.</p>
<p>When land ownership in perpetuity is required as part of mitigation, identifying suitable areas for mitigation in the SPFC is challenging because the most environmentally suitable areas are typically within the channels and floodways where active planting/restoration is restricted. Mitigation development within the SPFC rights-of-way is considered an encroachment and subject to CVFPB and USACE permitting processes. Further, the CVFPB and USACE permits are revocable, but CDFW requires mitigation sites to be kept in perpetuity.</p>	<p>No. This is an institutional and legislative issue that is unique to CVFPB and DWR’s legal restrictions within the SPFC.</p>

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<p>CDFW requires establishment of conservation easements for mitigation banks, advance mitigation, and mitigation areas in general for the protection of the species, which prohibit maintenance for flood control.</p>	<p>No. These requirements apply to the MOOM Case Studies as well. However, they do not represent the same challenge for the MOOM Case Study agencies because the easement areas are managed as part of the overall MOOM program, which means that impacts are generally avoided, particularly related to vegetation removal. Any impacts that might occur are offset through habitat enhancement implemented as part of the programs.</p>

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